

ISSN:2528-9705

Örgütsel Davranış Araştırmaları Dergisi

Journal of Organizational Behavior Research

<http://odad.org>

Cilt / Vol. :3

Sayı / Issue :1

Yıl / Year :2018

Kapak Fotoğrafi / Cover Photo by Andian Lutfi





ÖRGÜTSEL DAVRANIŞ ARAŞTIRMALARI DERGİSİ
THE JOURNAL OF ORGANIZATIONAL BEHAVIOR RESEARCH

Cilt / Volume: 3 Sayı / Issue: 1 Yıl / Year: 2018

Kurucu ve İmtiyaz Sahibi / Founder & Owner

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ISSN: 2528-9705

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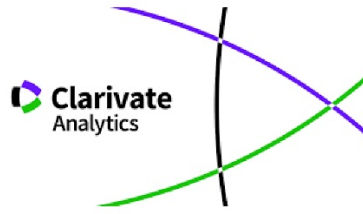
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EFFECT OF INNOVATION IN RELATIONSHIP BETWEEN INTER-ORGANIZATIONAL LEARNING AND PERFORMANCE OF CONSTRUCTION INDUSTRY

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ABSTRACT

Purpose – The purpose of this study is to propose a research framework to understand the role of innovation in business performance with a focus on inter-organizational learning influence. Thus, it is important to determine the methodology that will be applied to achieve the research objectives, explain the way in which the variables will be measured, and present the research design including data analysis technique. Furthermore, the suitable choices of procedures and methods are essential to improve the reliability and validity of the study results. Materials and Methods - The industry wide survey had a sample size of 403 (76 public clients, 49 engineering and design consultants, 68 construction management consultants and 210 contractors). Data analysis was done by SPSS 20 and SPSS AMOS 20, through structural equation modelling of 58 construction organizations of Islamabad, Lahore and Karachi. Findings - The results were significant and all the hypotheses were accepted. Moreover, they showed that inter-organizational learning drives innovation that ultimately increases the performance of the organization. Research Limitations – The study was limited to three cities of Pakistan including Lahore, Karachi and Islamabad. Practical Implications – A significant implication for business practitioners and researchers is the knowledge regarding the significance of inter-organizational learning for the improvement of construction industry of Pakistan. It was also specific to construction industry.

Keywords: Inter-Organizational Learning, Construction Industry, Innovation, Performance

INTRODUCTION

The construction industry is a project-based industry. This is the prerequisite of the employees of construction industry to synchronize with various workers of the completely different companies (Argyris C. et al., 1997; Calantone R. et al., 2002; Schein E. H., 1990; Smircich L., 1983; Tsang E. W., 1997). In fact, the Pakistani construction industry faces conflicts and troubles such as adverse relationships, a complex and fragmented social system and low productivity among project members of the squads. These can be a result of misapprehensions, lack of coordination and cooperation (Marks M. L. et al., 2010).

Construction sector contributes to economic development through job creation and infrastructure of the country (McAllister D. J., 1995). To expand the organizational knowledge assets, many organizations are implementing inter-organizational learning activities among the stakeholder companies (Bagley C. E. et al., 2015). Most of the

organizations assert that inter-organizational learning is a key to achieve performance (Aldrich H., 1999).

Due to the disruptively changing world, organizations are forced to produce greater value with the unique combinations of performance, quality, innovation and customization for the capacity of organizations to learn, acquire, apply, and spread new approaches (Lyytinen K. et al., 2010). Organizations of the developed countries are using inter-organizational learning as a strategic tool for the performance (Granovetter M. S., 1973).

Inter-organizational learning got importance in the nineteen fifties when there was an on-going discussion between behaviourists and economists (Aldrich H., 1999). Economic models of the organizations had become dominant during and after the World War II, nevertheless many researchers, mainly those with a behaviourist orientation, were not satisfied with those models (Hardt H., 2001; Stella A., 2012a). The focus on the organizational learning was sharpened in the Behavioural Theory (Cyert R. M. et al., 1963). Organizations were then visualized as adaptive, complex systems. Inter-organizational learning was incarcerated in a learning cycle in which organizations have taken action against external shocks by adjusting the probability of reusing detailed operating procedures (Schlossberg N. K., 1981).

(Chen S. et al., 2006; De Martino M. et al., 2013; Feller J. et al., 2013) suggested that there is a need to develop inter-organizational learning framework in their future studies. There are a few studies on inter-organizational learning. To know the grey area, we conducted preliminary interviews, and during interviews, we investigated that inter-organizational learning has not been considered as an important variable for the performance in the construction industry of Pakistan.

In Pakistan, organizational learning and innovation are getting popularity in many organizations, but inter-organizational learning has not been given much importance. It is essential to study how the inter-organizational learning and innovation can take part in the performance especially in the construction industry. The extraordinary productivity performance of the international construction industry took place in the 21st century, which was because of swift diffusion of innovative technology, for example the project management software and computer operated machines (Morris-Suzuki T., 1994; Mowery D. S. et al., 1991; Sagasti F. R., 2005; Stankiewicz R., 1995). These developments increased the interest in the examination of monetary progress and the reason behind transformations across countries (Calantone R. J. et al., 2002).

LITERATURE REVIEW

The majority of the research has focused on learning within organizations, a few investigations have addressed the 'outside learning'. This is a path to the advanced level learning in addition to entities, clusters and organizational benefits. This break in research was also recognized by (Albors J. et al., 2008). The community specific vision of organizations towards a formation of knowledge is at an ordinary level within actual economical settings, and has not been given much importance (Hall D. D., 1997).

Inter-organizational Learning

It is the actual economical setting occurrence where combined explanation is not available. (Sanders N. R., 2008). (Beeby M. et al., 2000; Clarke S. et al., 1999; Doz Y. L., 1996; Ebers M.



et al., 1997; Halme M., 2001; Huber G. P., 1991; Trist E., 1983) found inter-organizational learning as a way of members' participation and mutual accomplishment to create combined learning. A network-level Learning urbanized the resides within the network, the storage space, growth and attainment which are useful in a definite system situation.

(Hagedoorn J. et al., 2006) explained the absorptive capacity as an organizational capability to judge the importance of external knowledge, incorporate it, as well as relate it to profitable activities. The absorptive capacity has also been mentioned in literature by (Martín-de Castro, G., 2015; Mingzhi Li, P. J. W. et al., 2015; Tzokas N. et al., 2015) as an imperative base to endorse inter-organizational learning. In this admiration, it has been claimed that absorptive capacity permit organizations to convert their cognitive coldness, and get connected to the combined learning processes (Pattinson, S. et al., 2014).

Inter-organizational Learning and Performance

In the organizational studies, performance is debatably the essential concept. A vast kind of descriptions of organizational performance has been projected in the research (Neely, A. et al., 1995) with an average reference to how successfully and easily an organization makes use of its resources for producing financial results. Performance can be defined by plenty of methods; it might stand for financial performance, market efficiency, buyer performance, or total performance.

(Cohen, W. M. et al., 1990) tested the relationship between Organizational Learning and Performance. Organizational Performance is the aptitude of the firm to attain its pursuits and goals (Andreadis, N., 2009; Bontis, N., 2001; Cohen, W. M. et al., 1990; Crossan, Lane, M. M. et al., 1995; Egan, T. M. et al., 2004; Lane, P. J. et al., 1998; Love, P. E. et al., 2002; Sveiby, K. E., 1997; Tippins, M. J. et al., 2003), it can be attained by integrating the information resources (Spanos, Y. E. et al., 2015; Tzokas, N. et al., 2015).

Inter-organizational Learning and Innovation

Gradually, it has been recognized that businesses need outside relationships for innovation, within the recent development of merchandise, construction techniques, markets, or varieties of the institution, and for learning, within the progress of new expertise (Bouncken, R. B. et al., 2015; De Martino, M. et al., 2013; Hollen, R. et al., 2013; Majchrzak, A. et al., 2014; Manuj, I. et al., 2014; Steensma, H. K., 1996).

In learning, it's usual to distinguish between "learning by communication", i.e. the acquisition from others' potential that is already on hand, and 'experiential learning' that may generate new knowledge by the way of discovery or invention. The literature on learning yields the differences between organizational and inter-organizational learning (Della Peruta, M. R. et al., 2016; Lundvall, B. R., 2016). The former preserves an intellectual frame, normal design, good judgment or architecture at the same time, and the latter breaks via to novel common ideas. A principal key question is how the latter could emerge from the former, or how exploitation may result in exploration (Nooteboom, B., 2000).

Mediating role of Innovation

A Plethora of research indicates that innovation has a mediating effect on the performance of an organization. According to (Jiménez-Jiménez, D. et al., 2011) innovation has a partial effect on Organizational performance. Innovation allows the organizations to keep their comparatively trained workers in order that they provide high performance at the work place. Innovation has a mediating impact on Organizational performance.(Damanpour, F.,



1991) investigated the mediating position of innovation in connection with inter-organizational learning and performance. A different research explored that there are three large warning signs of innovation creating an Inter-organizational learning (Steensma, H. K., 1996; Tsai, A., 2015; Zurlo, F. et al., 2016).

Underpinning Theories of the Current Study

Learning is a multifaceted event, whether one adopts an individual or organizational approach. There are many theories explaining the organizational learning, these theories are Interpersonal sensitivity (Hall, J. A. et al., 2001), Emotional contagion, Human relation theory (Fiske, A. P., 1992), social cognitive theory (Turnerm, J. C., 1985). Absorptive capacity theory (Cohen, W. M. et al., 1990) is unique in its elaboration, and widely covering the relationship between organizations for innovation and inter-organizational learning. It is the ability of a firm to understand and utilize the information resources of other organizations for increasing its performance. Absorptive capacity relates to both intra and inter-organizational learning. In the previous decades, social capital in its various sorts and contexts has emerged as frequent, essential, and the most important standard in the social sciences. These debates and clarifications involved in the recommendation that social capital, as an implication, rooted in the social networks. Consequently, social capital can also be regarded as assets surrounded by a social constitution (Coad, A. et al., 2016; Hui, H. et al., 2013; Zhou, L. et al., 2014).

MATERIALS AND METHODS

Research design

The strategy for identifying the procedures and systems for gathering information and analyzing the desired data is known to be a research design (Zikmund, W. J. et al., 2011). It states the type of the studies, approaches of sampling, sources of information, and methods for collection of data, dimensional problems, and knowledge evaluation plans (Kothari, C. R., 2004). Research begins with the assessment of relevant available information about an observable fact (Herbst, F. et al., 2004). A study design is valuable if an eminent research report is formed (Sekaran, U., 2006; Zikmund, W. J. et al., 2011). This study includes interviews with managers, employees and stakeholders, interviews and focus groups with learners, the direct observation of inter-organizational activities and field notes.

Theoretical Framework

The Major purpose of this section is to develop several hypotheses and a theoretical framework to answer the research questions. The research model is developed in this study to investigate the association between (a) Inter-organizational learning and performance (b) inter-organizational learning and innovation), (c) innovation and performance and, (d) mediating effect of innovation between inter-organizational learning and performance. Figure 1 presents the model of the study.



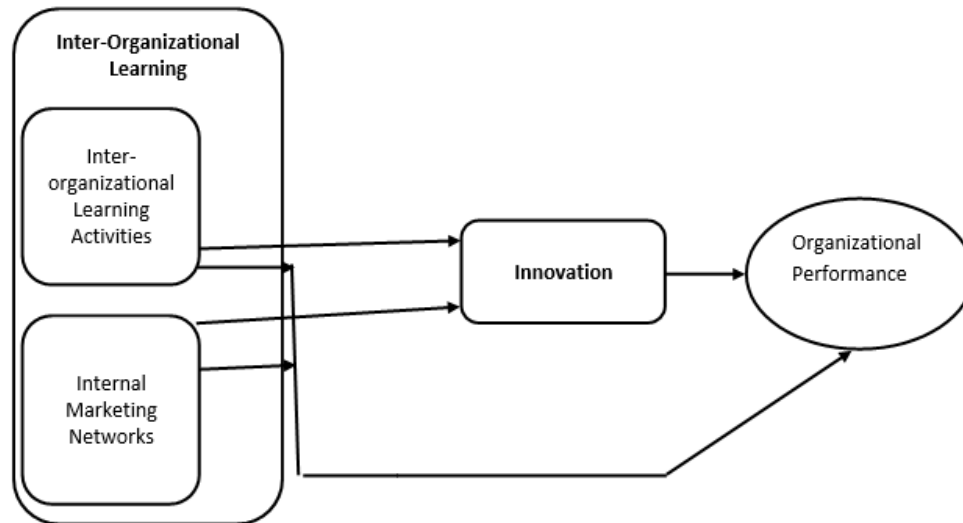


Figure 1: Model of Study

H_{1a}: Inter-organizational Learning activities have significant impact on Innovation.

H_{1b}: Inter-organizational Learning activities and Organizational Performance have a significant positive relationship.

H_{2a}: Internal Marketing Networks have positive relationship with Innovation.

H_{2b}: Internal Marketing Networks have positive relationship with Performance.

H₃: Innovation has positive relationship with Organizational Performance.

H₄: Innovation significantly mediates the relationship between Inter-organizational learning and Organizational Performance.

The framework comprises three elements: Inter-organizational learning, innovation and organizational performance. Within the element of inter-organizational learning, the framework proposes two key constructs: inter-organizational learning activities and inter-organizational Networks, A direct relationship of the two dimensions of inter-organizational learning with innovation and organizational performance is proposed

Justification for the Research Design

A quantitative method was used in this study, data was collected and statistically evaluated (Bryman, A., 2015; Kothari, C. R., 2004). Quantitative method was used because the research was planned to review research results using descriptive statistics, and discover the likely relationships between variables (Bryman, A. et al., 2015). The effect of one construct with another was studied using SEM.

Sampling Design

It is the procedure of utilizing a slight item of a bigger population to appeal assumptions regarding the entire population (Zikmund, W. J. et al., 2011). For this study, simple random sampling technique is used to get maximum data in short time.

Target Population

The study was conducted in the construction organizations in Pakistan situated in Rawalpindi and Islamabad and Karachi. The population for the study was consisted of employees of 50 construction related organizations of Pakistan, the sample was consisted of the top and middle level employees of the construction industry that were approximately 2000. The sample size



was determined according to the method proposed by (Cheng, C. C. et al., 2012; Krejcie, R. V. et al., 1970).

Tools of the Research

To measure the effect of inter-organizational learning on performance and mediating effect of innovation, 28 and 19 item questionnaires respectively which were adopted from Škerlavaj (Škerlavaj, M. et al., 2007) which were tested and validated by (Škerlavaj, M. et al. (2007), Škerlavaj, M. et al., 2010; Stella, A., 2012b). Inter-organizational learning of the construction industry was measured through 15 item questionnaire of organizational learning adopted from (Chen, S. et al., 2006). The reliability and validity of questionnaire was tested by (Lin, B.-W. et al., 2006). The questionnaire was anchored on a five point Likert scale ranging from 1-5 where (1) was used for strongly disagree, and (5) was used for strongly agree. The questionnaire was distributed to the randomly selected employees and stakeholders of the construction industry (Bowling, A., 2005; Hardre, P. L. et al., 2010). Cronbach's Alpha value for Inter Organizational Learning Activities was 0.965, Internal Marketing Network was 0.950, Innovations was 0.983 and performance was 0.975, which showed a good reliability.

DATA ANALYSIS

The data was prepared by coding and editing using SPSS20 before conducting the statistical analysis. Errors were checked for possible problems that might influence the outcome of the statistical analysis.

Descriptive Statistics

The value of Inter-Organizational Learning as a whole shows the mean value of 3.4840 and Std. Deviation of .716. Internal Marketing Networks showed the mean value of 3.4502 and Std. Deviation of .778. The value of mean against Innovation was 3.4538 and the Std. Deviation was .720. Finally, Performance showed the mean value of 3.5527 and the Std. Deviation of .730.

Confirmatory Factor Analysis CFA

The number of distinct sample moments were 703. The estimation of the number of distinct parameters was 88, and the degree of freedom was 615. The value of Chi-Square was also explained as 1766.216, and the sig value was .000 that were again in acceptance region. Various researchers have explained that the value of Chi-Square/DF is ideal when it is less than three. Hence, in the current study, the value of Chi-Square/DF was 2.872. On the other hand, some of the researchers have explained the extended value of Chi-Square/DF to be < 5 and considered that the values 2-5 as good for model fit. Along with the Chi-Square and the degree of freedom, some other values also explain the model fitness, which are explained in the following paragraph

One of the significant parts is analyzing data with Structural Equation Model (SEM). Especially in management science, this is one of the famous tests for analyzing models. This is a model fit technique in which the value of NPAR is 88, CMIN is 1766.216, the degree of freedom is 1479, the value is .000, and the CMIN/DF is 2.731, the value of Root Mean Residual is .036, the CFI is .943, the TLI is 939, the GFI is .803, the AGFI is .775, and the PFGI is .703. Thus, these values are showing that the model is fit.

Measurement model



- **Inter-Organizational Learning Activities**

This variable was measured by 10 questions. The items were adapted from (Chen, S. et al., 2006) Internal reliability Cronbach's Alpha value for Inter Organizational Learning Activities was .965. IOL-7 and IOLA-8 were dropped because the initial model was not fit due to the high correlation of these variables with other indicators. Whereas e6 and e7 correlated to achieve the model fit.

- **Internal Marketing Networks**

This variable was measured by 10 questions. The items were adopted from (Chen, S. et al., 2006). The value of Cronbach's Alpha for Internal Marketing Networks was .950. The initial model was fit, so no alteration was made.

- **Innovation**

This variable was measured by 18 questions. The items were adopted from (Škerlavaj, M. et al., 2010). The internal reliability Cronbach's Alpha value for Innovation was .983. The initial model was amended because of the high correlation of INNO-26, INNO-28 and INNO-29 with other indicators. Therefore, these questions were dropped, and 15 indicators were left in the construct.

- **Performance**

This variable was measured with 10 questions. The items were adopted from (Škerlavaj, M. et al., 2010). The internal reliability Cronbach's Alpha value for Performance was .975. The initial model was not fit because of high correlation between PER-38 and PER-39 with other indicators. Therefore, those were dropped. Finally, the construct was left with eight indicators.

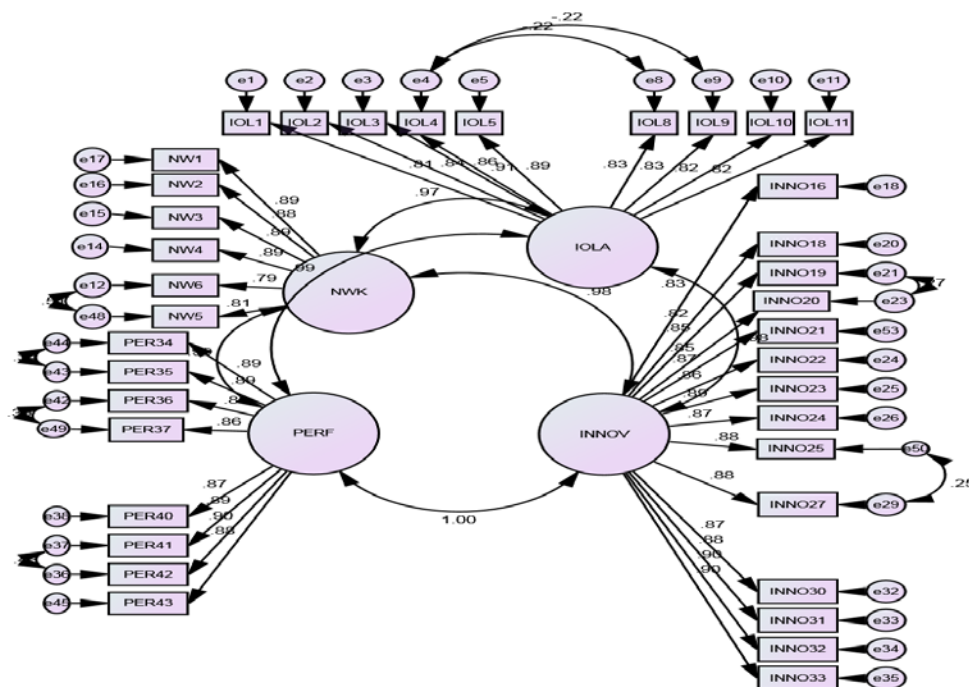


Figure 2: Measurement Model



Structural model was estimated after Analysis of the measurement model for the individual constructs. The values of Confirmatory factor analysis indicated the acceptance of the model because the goodness-of-fit indices are within the acceptable level. Different values for these indices are: chi-square is 1570.857 with 615 degrees of freedom was significant at $p=0.000$; GFI = 0.821; Standardized RMR = 0.035; CFI = 0.952; RMSEA = 0.062; and CMIN/DF = 2.554.

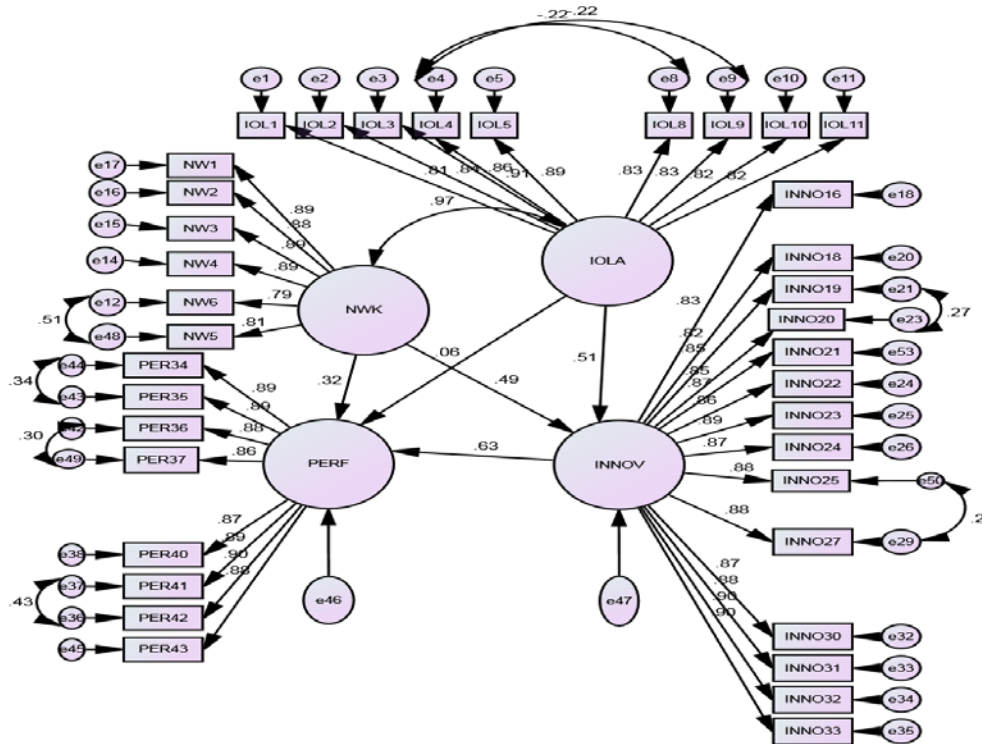


Figure 3: Structural Model

Table 1: Correlation Matrix of the study

	IOLA	Innovation	Internal Marketing Networks	Performance
IOLA	1			
Innovation	.961**	1		
Internal Marketing Networks	.934**	.941**	1	
Performance	.953**	.967**	.940**	1

Table 2: Path Coefficients among the Constructs

Variables		Coefficients
IOLA	Innovation	.51

IOLA	Performance	.06
Internal Marketing Networks	Performance	.32
Internal Marketing Networks	Innovation	.49

Hypotheses Testing

A plethora of research supports the positive relationship between Inter-organizational learning activities and Innovation (Nooteboom, B., 2008; Westerlund, M. et al., 2010). In current model, the correlation between these variables is 0.961, whereas path coefficient between both the variables is .51, which shows the positive relationship between variables.

Inter-organizational learning activities ultimately increased the performance of the organizations (Inkpen, A. C. et al., 1995; Moen, Ø. Et al., 2018; Westerlund, M. et al., 2010; Zollo, M. et al., 2002). The correlation between these two variables was .953, which showed that the variables were highly correlated. The path coefficient between both variables was .06, which was weak but positive.

Internal Marketing Networks had a positive relationship with innovation (Beeby, M. et al., 2000; Mintrom, M. et al., 1998; Zeng, S. X. et al., 2010) wherein organizations formulate, apply and monitor internal marketing networks to provide a learning environment. The correlation between Internal Marketing Networks and innovation was .941, which was very high.

Many researchers have explored the relationship between inter-organizational learning and innovation. Results of the study showed the correlation between both variables as .961 which was strong enough to prove the relationship. Innovation drives the performance of the organizations. Innovation has been found main antecedent of the performance. The correlation of innovation with IOLA, Networks and performance was .961, .941 and .967 respectively, which showed a strong link of innovation with all the variables of the study.

H1a: Inter-organizational Activities has a positive relationship with Innovation.

The Researcher investigated the relationship between inter-organizational learning activities and Organizational Performance. The standardized path coefficient of 0.073, the standard error of .120 and the composite reliability of .605 were significant at $p = .545$. These values indicated that the above hypothesis was weakly supported by the empirical data.

H1b: Inter-organizational Learning activities and Innovation have a significant positive relationship.

The Researcher investigated the relationship between inter-organizational learning activities and Innovation. The standardized path coefficient of 0.535, the standard error of .108 and the composite reliability of 4.96 were significant at $p = 000$. These values indicated that the above hypothesis was supported by the empirical data.

H2a: Inter-organizational networks have positive relationship with Performance.

The Researcher investigated the relationship between inter-organizational Networks and Organizational Performance. The standardized path coefficient of 0.379, the standard error of .130 and the composite reliability of 2.917 were significant at $p = 004$. These values indicated that the above hypothesis was supported by the empirical data.

H2b: Inter-organizational networks have positive relationship with Innovation.



The Researcher investigated the relationship between inter-organizational Networks and Innovation. The standardized path coefficient of 0.507, the standard error of .107 and the composite reliability of 4.750 were significant at $p = 000$. These values indicated that the above hypothesis was strongly supported by the empirical data.

H3: Innovation has positive relationship with Organizational Performance.

The Researcher investigated the relationship between Innovation and Organizational Performance. The standardized path coefficient of 0.714, the standard error of .140 and the composite reliability of 5.118 were significant at $p = 000$. These values indicated that the above hypothesis was supported by the empirical data

H4: Innovation significantly mediates the relationship between Inter-organizational learning and Organizational Performance.

The relationship between inter-organizational learning activities and Organizational Performance was examined. There was the standardized path coefficient of 0.073, between inter-organizational learning activities and performance. The path coefficient between inter-organizational Networks and Organizational Performance was 0.535. The path coefficient between inter-organizational Networks and Performance was 0.379. The path coefficient between inter-organizational learning activities and Organizational Performance was 0.507. The standardized path coefficient was 0.073. Whereas the relationship between Innovation and Organizational Performance was very strong i.e. 0.714 which shows that Innovation positively mediated the relationship between Inter-Organizational Learning and Performance.

Table 3: Hypotheses testing results

Path Coefficients among the Constructs Variable	Coefficients	Standard Error	Composite Reliability
Innovation and Inter-organizational Activities	.535	.108	4.964
Innovation and inter-organizational networks	.507	.107	4.750
Innovation and Performance	.714	.140	5.118
Networks and Performance	.379	.130	2.917
Inter-organizational Activities and Performance	.073	.120	.605

H5: Innovation mediates the relationship between inter-organizational learning and Performance.

For this purpose, the direct effect of independent variable on dependent variable was tested, then the direct effect of independent variable on dependent variable with mediation was evaluated, and finally the indirect effect of independent variable on dependent variable was evaluated.

Table 4: The direct/indirect effect of the independent variable on the dependent variable with/without the mediator

Relationship	Direct effect without mediator	Direct effect with mediator	Indirect effect
Iola with Performance	-.037 (.839)	.060 (.545)	Significant
Networks with Performance	379 (.004)	491. (.055)	Significant

These results showed that Innovation positively mediated the relationship between Inter-Organizational Learning and Performance.

CONCLUSION

This paper focused on the subject of Inter-Organizational Learning through Innovation and its effect on Performance. The construction industry employees were surveyed to find out whether Inter-Organizational learning and Innovation increases the performance of the organization. The results revealed that Inter-Organizational Learning and Innovation has a positive effect on the performance of the construction industry of Pakistan. The entire hypothesis was accepted and both the independent and mediating variables showed a strong effect on Performance.

IMPLICATIONS

Overall, the research augmented the understanding of inter-organizational learning and innovation to increase the organizational performance. The analysis showed that construction industry organizations can perform better with these two variables i.e. inter-organizational learning and innovation. This imitated their forthcoming plans; such organizations may change their upcoming projects by focusing on inter-organizational learning and innovation for the improvement of the organizational resources. The results were compatible with existing body of knowledge that new knowledge involves changes in networks of communication and relations with intra and inter-organization level. Our findings illustrated that organizations are capable of increasing their efficacy through network collaboration. This study may have some significant applied implications. A major implication for business experts is the understanding of how inter-organizational learning and innovation drive the organization's performance. The growth of innovative product novelties calls for learning with partners in inter-organizational networks. This research paper showed that innovation mediates the link between the inter-organizational learning and performance; eventually, this affects the form and degree of relationship. Thus, inter-organizational learning strives to ensure the future business and its reproduction through the strength of the innovation that may become a key antecedent in enhancing inter-organizational network relationships. Consequently, the emphasis on innovations may have more performance attributes. They may involve different managerial expertise and skills. The framework of the study and the results of the empirical evidences discussed in this study will not only develop the understanding of inter-organizational learning amongst the different organizations of the construction industry, but also provide an interactive environment for the employees of these organizations.

FUTURE WORK

The data collected in the study was limited to only construction industry and a specific to a single country. Thus, the results presented in this study cannot be generalized to other industry or other countries. To strengthen the results, new data is required to revalidate the model. There is also a broader range for replication of this study in different settings.



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Appendix

Table 5.1: The alpha value and factor loading values of all items for Inter-Organizational learning

S No	Items (Inter-Organizational Learning)	Factor Loading	Cronbach's Alpha
1	"My organization Send employees to relevant exhibitiond/congresses".	.595	.920
2	My organization Use information from customers, suppliers, or other organizations to improve your business Performance.	.677	
3	My organization Establish strategy to obtain information from customers, suppliers, competitors and other organizations.	.744	
4	My organization Hire know-how from advisors or consultants	.734	
5	My organization Use information from competitors to improve your business Performance	.781	
6	My organization Learning Policy through customer-supplier partnership	.706	
7	My organization Send employees to universities or research institutes for further study.	.699	
8	My organization Learning Policy through joint ventures	.734	
9	My organization has a Learning Policy through joint development agreement	.667	
10	My organization has a Learning Policy through joint development agreement	.616	
11	My organization Purchase license.	.691	

Table 5.2. The alpha value and factor loading values of all items for Inter-Organizational Networks

S No	Items (Inter-Organizational Networks)	Factor Loading	Cronbach's Alpha
1	My organization have its own extranet	.661	.853
2	My organization access other companies" extranets.	.744	
3	Social networks are important for my organization to obtain the needed knowledge.	.777	
4	My most important social network have its own electronic network	.809	
5	My most important social network effectively supported by its own electronic network	.799	

6	electronic networks are important for my organization to obtain the needed knowledge	.762	
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Table 5.2 shows the alpha value and factor loading values of all items for Inter-Organizational Networks Learning construct. This construct has six items and their combined alpha value is .853 showing the high reliable scale for measuring Inter-Organizational Learning and also all the factor loading is above the required cut off value.

Table 5.3 The alpha value and factor loading values of all items for Innovation construct

S No	Items Innovation	Factor Loading	Cronbach's Alpha
1	In new product and service introduction, our organization is often first-to-market	.626	.938
2	Customers often perceive our new products and services as very novel.	.666	
3	New products and services in our organization often take us up against new competitors.	.638	
4	In comparison with competitors, our organization has introduced more innovative products and services during past 5 years	.689	
5	We constantly emphasize development of particular and patent products	.711	
6	We manage to cope with market demands and develop new products quickly	.671	
7	We continuously modify design of our products and rapidly enter new emerging markets	.645	
8	Our firm manages to deliver special products flexibly according to customers' orders	.710	
9	We continuously improve old products and raise quality of new products	.746	
10	Development of new channels for products and services offered by our organization is an on-going process	.741	
11	We deal with customers' suggestions or complaints urgently and with utmost care	.751	
12	In marketing innovations (entering new markets, new pricing methods, new distribution methods, etc.) our organization is better than competitors are	.707	



13	We constantly emphasize and introduce managerial innovations (e.g. computer-based administrative innovations, new employee reward/training schemes, new departments or project teams, etc.)	.741	
14	Innovation proposals are welcome in the organization	.741	
15	Management actively seeks innovative ideas	.683	
16	Innovation is perceived as too risky and is resisted	.713	
17	People are not penalized for new ideas that do not work	.680	
18	Program/Project managers promote and support innovative ideas, experimentation and creative processes	.691	

Table 5.3 shows the alpha value and factor loading values of all items for Innovation construct. This construct has six items and their combined alpha value is .938 showing the high reliable scale for measuring Inter-Organizational Learning and also all the factor loading is above the required cut off value.



Table 5.4 The alpha value and factor loading values of all items for Performance construct

S No	Items Performance	Factor Loading	Cronbach's Alpha
1	Return on assets (ROA, %) in our organization is well above the industry average.	.694	.922
2	Value added per employee in our organization is well above the industry average.	.723	
3	We consider our relations with suppliers to be excellent because we maintain genuine partnerships with them.	.718	
4	We have long-term partner relationships with our suppliers.	.716	
5	We strongly involve our suppliers in our research and development processes.	.393	
6	There are no cases in our organization of people leaving for internal reasons.	.735	
7	Productivity of employees is much higher than industry average.	.700	
8	Employees' trust into leadership is high.	.790	

9	Trust among employees is strong.	.710	
10	Work organization is efficient.	.645	
11	Employees feel very committed to the organization.	.707	
12	Employees are prepared to go an extra mile for the organization.	.709	
13	Work costs per employee are well below the industry average.	.657	
14	Absenteeism is in our organization (relative to competition) very low.	.702	
15	Employees are very satisfied with the situation within the organization.	.676	
16	Learning ability and adaptability of employees is high (in comparison to competition).	.653	
17	Risk-taking within the organization is better than it is by our competitors.	.722	
18	The number of customer complaints within the last period has decreased strongly.	.652	
19	We deal with customer complaints faster than our competition.	.672	
20	We retain existing clients and manage to attract new-ones.	.704	
21	Reputation of our organization in eyes of the customers has improved.	.637	

Table 5.4 shows the alpha value and factor loading values of all items for Performance construct. This construct has six items and their combined alpha value is .922 showing the high reliable scale for measuring Inter-Organizational Learning and also all the factor loading is above the required cut off value.

