

The Relationship between Intellectual Capital and Organizational Agility through the Mediating of Organizational Learning

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Abstract

The main goal of this research is to identify a relationship between intellectual capital and organizational agility through the mediating of organizational learning. The presented study is an applied and correlational research method based on structural equation modeling. 218 teachers of Zahedan high schools were studied by the stratified random sampling method. To collect information, three questionnaires were used: intellectual capital (adapted from Bontis, 1998), organizational agility (Soleimani, 2013) and organizational learning (Chiva, 2007). For data analysis, the Pearson correlation coefficient and structural equation modeling were used by SPSS and Lisrel. Based on results, the amount of the correlation coefficient of intellectual capital with organizational agility ($r=0.566$, $p<0.01$), intellectual capital with organizational learning ($r=0.378$, $p<0.01$), organizational learning with organizational agility ($r=0.424$, $p<0.01$) was significant. The direct effect of intellectual capital on organizational agility ($\beta=0.56$, $t=6.56$), the direct effect of intellectual capital on organizational learning ($\beta=0.39$, $t=5.12$) and the direct effect of organizational learning on organizational agility ($\beta=0.2$, $t=2.89$) were significant. The indirect effect of intellectual capital on organizational agility was also significant with the mediator role of organizational learning ($\beta=0.078$). Therefore, intellectual capital can lead to organizational learning and organizational agility.

Keywords: *intellectual capital, organizational agility, organizational learning.*

Introduction

Nowadays, a large number of organizations and companies are facing a growing stable and unreliable competition, which has intensified through technological innovations, changing market environments and changing customer needs. Thus, agility is regarded as one of the ways of responding to the factors related to organizational change. According to Arteta and Giachetti (2004), agility refers to the ability of an organization to adapt to change and to exploit opportunities which emerge after transforming. Agility is the result of being conscious of changes comprehensively as identifying opportunities and challenges both in the internal and external environment, and takes an effective form despite the ability to use resources to respond to these changes timely, flexibly and relevantly, which the organization can execute as well (Braunscheidel and Suresh, 2002). Sharifi and Zhang (2001) introduced flexibility, merit, speed, and accountability as the features of an agile organization.

Focusing on the intellectual capital of organization employees is another appropriate strategy which organizations can adopt to achieve and maintain competitive advantage (Liu and Kuo, 2007). Intellectual capital is an intangible asset of organizations and the result of individual or group knowledge of organizations members. Intellectual capital is not a physical or monetary asset. In addition, it is devoid of physical and objective nature and is valued at zero in traditional balance sheets. Intellectual capital helps organizations do their activities and perform better, increase their competitive advantage, and results in producing wealth, profit, and value added (Ahmadi, Hatamizadeh, and Hosseini, 2016). Intellectual capital includes human, structural, and communicative capital. According to Poohaka (2017), there is a relationship between intellectual capital and improving the performance of knowledge-based companies. Kalkan et al. (2104) found that there is a positive and significant relationship between intellectual capital, innovation, organizational strategy, and the performance of active companies in Antalya, Turkey. In addition, intellectual capital has the strongest relationship with the performance of companies. Lu (2012) reported that intellectual capital is an effective intellectual approach to improving strategy, which helps the managers of educational centers improve performance.

In the existing turbulent world, organizations try to survive in order to stay in the environment, continuously eliminating non-dynamic formats and moving towards developing learning and creating learning organizations (Leal-Rodriguez et al., 2015). According to Lopez et al, (2006), organizational learning is a dynamic process of creating, achieving and integrating knowledge with the aim

of developing resources and abilities which help to improve effectiveness. Pham and Swierczek (2006) described organizational learning as a process of achieving, sharing, and applying the knowledge. Salisbury (2008) defined the knowledge formation cycle in organization as creating, maintaining, and distributing and applying knowledge. Islam et al. (2012) found that organizational learning has a significant impact on organizational citizenship behavior and knowledge sharing. The study of Haque (2008) showed that a learning organization is a key factor for change and reducing resistance against change.

Nowadays, organizations including educational organizations are facing a growing stable and uncertain competition and many changes, which have been intensified due to increased customer expectations, globalization, cultural and social issues, skilled human resource constraints, changes in information technology, innovation, and initiative, leading to an emphasis on the importance and abilities of organizations for accommodating with unexpected changes. Thus, in order to accommodate with future changes and maintain performance, organizations should abandon old assumptions and approaches and improve and maintain their performance at high levels through establishing the principles emphasizing flexibility, using information technology, knowledge management, and continuous accommodation with new environmental changes (Ottolli and Benis, 2009). Further, schools are facing different expectations and needs of patrons (students), pressure, and continuous environmental changes due to the nature of their work. Thus, they should adopt new approaches if they want to face and accommodate with these quick changes and have necessary agility. Focusing on intellectual capital and organizational learning is among the necessary approaches for schools to accommodate with environmental changing conditions and achieving agility. The presented study aims to investigate what kind of relationship exists between intellectual capital and organizational agility of schools and the mediating role of organizational learning.

Materials and Method

The present study is an applied and correlational study based on structural equation modelling. The population included 502 secondary school teachers of district one in Zahedan over the period 2018–2019 (male = 206, female = 296). In randomized stratified sampling based on number and the Cochran sampling formula, 218 teachers were studied (male = 89, female = 129). To collect data, three questionnaires were used:

- a) *Organizational Agility Questionnaire*: This questionnaire, which was designed by Soleimani (2013), has 24 items and 3 components of readiness to deal with changes (12 items), the value of human skills and knowledge (5 items), and virtual partnership (7 items). The questionnaire was set up in a 5-point Likert scale, ranging from totally agree (1) to totally disagree (5).
- b) *Organizational Learning Questionnaire*: This questionnaire, which was designed by Chiva (2007), has 14 items and 5 test components (2 items), risk taking (2 items), interaction with environment (3 items), conversation (4 items), and cooperative decision (3 items). The questionnaire was set up in a 5-point Likert scale, ranging from totally agree (1) to totally disagree (5).
- c) *Intellectual Capital Questionnaire*: This questionnaire, which was adopted from Bontis study (1998), has 20 items and 3 human capital components (7 items), structural capital (6 items), and communicative capital (7 items). The questionnaire was set up in a 5-point Likert scale, ranging from totally agree (1) to totally disagree (5).

To determine the reliability of the questionnaires, Cronbach's alpha coefficient was used, which was 0.816 for organizational learning, 0.896 for intellectual capital, and 0.918 for organizational agility. The Pearson correlation coefficient and structural equation modelling were used to analyze data using SPSS16 and LISREL software.

Results

Structural equation modelling was used to investigate the hypotheses of the study. Table 1 presents descriptive indexes of variables including mean, standard deviation, and skewness and kurtosis.

Table 1. Descriptive statistics for the study variables

Variable	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
Organizational learning	1.75	5	3.88	0.645	-0.638	-1.131
Intellectual capital	2.88	5	3.61	0.861	0.127	-0.853
Organizational agility	2.88	5	4.189	0.488	-1.379	1.325

In causal modeling, the distribution of variables should be normal. Thus, the absolute value of the skewness and kurtosis of the variables should not be greater than 2. As shown in Table 2, the absolute value of the skewness and kurtosis of all the variables is in line with the desired standard. Thus, the assumption of the causal modelling means the normality of variable. In addition, before designing structural equation modelling, the relationship between the variables of the study was investigated by a Pearson correlation coefficient test. Further, a significant relationship was observed between intellectual capital with organizational learning and organizational agility ($r=0.378$ and 0.566 , respectively), while organizational learning was positively related to organizational agility ($r=0/424$). A structural equation model was used to evaluate the relationship between the variables of the study. Model fit was assessed before investigating the assumptions of the study. The size of model fit was utilized in determining the relationship between overt and covert variables. According to researchers, fit indexes include Goodness-of-Fit Index (GFI), comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Root Mean Residual (RMR). Regarding the latter three indexes, the appropriate amounts of fit are less than 0/8, 0/08, and 0/05 respectively. As shown in Table 3, the fit results are appropriate.

Table 2. Fit indexes of the theoretical model of the study

Index	Amount obtained in the model
Goodness of Fit (GFI)	0.81
Root Mean Residual (RMR)	0.052
Comparative Fit Index (CFI)	0.85
Root Mean Square Error of Approximation (RMSEA)	0.085

To analyze the data, the theoretical model for each assumption should be processed to determine the extent to which the collected data can support the theoretical model. To answer this question, the quantitative indexes of model fit (CFI, GFI, SRMR...) were used. If the general indexes are acceptable or, in other words, the theoretical model is approved, then in-model relationships are assessed. These mutual relationships are regression coefficients related to the assumption and factor loads of each item. Figure 1 shows all relationships of covert variables and factor loadings of each item.

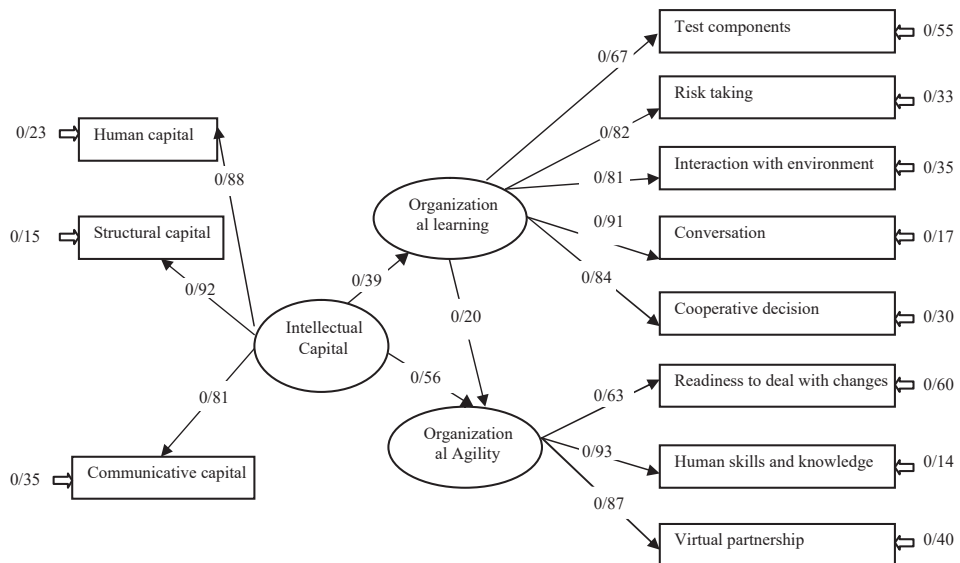


Figure 1. Fitted model of the study (standard coefficients)

Discussion and conclusion

Based on the results, intellectual capital has a positive and significant impact on organizational agility. This finding is consistent with the findings of Chen, Cheng and Hwang (2005), Lopez (2008). Ku (2011) and Lin and Kuo (2007) reported that focusing on the intellectual capital of organizations employees is considered among the most appropriate strategies which organizations can adopt to achieve and maintain their competitive advantage and organizational agility. In addition, intellectual capital was positively correlated with organizational learning. The intangible aspect of economy is based on intellectual capital and its main component is knowledge and information. Organizations need information and knowledge to participate in modern markets in any form and type and improve their performance. Thus, the intellectual capital of employees is an essential factor for improving organizational learning and, subsequently, the long term stability and success of an organization (Melo and Sarrico, 2015). Rashidi et al. (2013) found a positive relationship between three aspects of intellectual capital and learning ability and believed that the efforts of an organization undertaken to stabilize the

management system of intellectual capital can help use intellectual property rights and privileges better, which results in improving organizational learning. Furthermore, organizational learning has a positive and significant impact on organizational agility. Dow (1999) found that organizational agility is achieved when there is a balance in knowledge management and responding ability in organizational efforts. Becker (2001) reported that, regarding the relationship between organizational agility and knowledge base, current methods and models are not sufficient and adopting adaptability strategies for applying knowledge management tools is needed to overcome unreliability in agility organization. Cai et al. (2012) indicated that the capability of knowledge management and information technology has a positive impact on agility. Landaran et al. (2014) concluded that organizational learning can have a positive impact on organizational agility.

The main finding of the present study showed that intellectual capital can have a positive and significant impact on organizational agility through organizational learning. In knowledge-based economy, effective employees are considered as the most important factor of an organization. Managers train their employees to be knowledgeable employees, improve their general working quality, and enhance their ability of organizational learning. In information-based economy, the method for maintaining and educating human resources is regarded as the most important competitive strategy. A higher quality of employees' work results in creating more knowledge for improving the ability of organizational learning. In addition, trained employee's successful use of learning in an organization results in improving organizational learning (Seyed Naghavi et al., 2012). Lepak and Snell (2002) stated that new employees should be selected based on their potential for learning, namely their capabilities, talents, and motivations not based on their current knowledge, skill, and experiences. By applying these kinds of regulations, the organization is more willing to integrate the people who have the ability to acquire unique and valuable knowledge, which is essential for being competitive (Subramaiaam and Youndt, 2005). Methods used to improve employees' learning, accountability, involving them in decision making, and managing the employees should be taken into consideration because these methods motivate the employees to try to achieve the desired level of knowledge of the organization (Matusik and Hill, 1998). Thus, when employees understand that the organization has special programs for improving their individual merits, the value and uniqueness of the human capital of the organization increase and the employees show more tendency to coordinate their knowledge and skills by considering the needs of the organization (Shipton et al., 2002). Further, when employees know that their organization evaluates and rewards them for their learning during their employ-

ment, they strive more for organizational learning (Lepak and Snell, 2002). Kang et al. (2007) found that assessment based on merit motivates employees to acquire new knowledge and skills. In turn, organizational learning provides the basis for organizational agility through making the organization accountable for external environmental changes, modeling the skills of others, speed of improving employees' skills, speed of employees' adaptability to a new workplace, speed of evaluating information, speed of change in technology, application of mobile technologies, independent workplace, access to mobile information, cooperative technologies, and sharing information (Brow et al., 2002). Hap and Vanya Un (2004) declared that the employees who have participated in training courses and increased their learning capacity can guarantee the agility of workforce because these employees are more flexible, act more effectively when facing more tasks, have a lower percentage of work errors, and respond to the needs of the organization and clients quickly and accurately.

Based on the findings and emphasizing the role of intellectual capital in organizational agility, organization managers should guarantee organizational agility by holding scientific workshops, doing teamwork, delegating authority and enhancing their employees' motivation (enhancing human capital dimension), identifying clients' demands, communicating continuously and solving clients' problems, strengthening service culture and respecting clients (enhancing communicative dimension), eliminating redundant bureaucracy, using effective information systems, and supporting transformation culture (enhancing structural dimension). In addition, according to the role of organizational learning in organizational agility, trying to improve employees' knowledge and work information is considered among the most important prerequisites of improving agility in employees. Thus, it is worth noting that authorities and decision makers should pay more attention to training and educating employees and introducing new and innovative methods of modifying the structure and performance of organizations. Organization managers should focus on creating capabilities of organizational learning to increase flexibility and agility. Finally, the presented study faces some limitations. First, a paper-pencil questionnaire was used for collecting data despite assuring subjects of the confidentiality of information, which increases the potential of bias when answering because this tool is self-reporting. Further, the presented study was limited to a special part of Iran. Obviously, the viewpoints of the school managers in Zahedan failed to reflect all employees' viewpoints in Iran and this limits the spatial generalization of the study. Increasing the power of generalizing the results requires conducting similar studies in other cities among other employees.

References

- Ahmadi, M, Hatamizadeh N., & Hosseini MA. (2016). Identify and classify concepts and components of intellectual capital in the organizations. *Journal of Health Promotion Management*, 5(3), 15–27.
- Artteta, BM., & Giachetti, RE. (2004). A measure of agility as the Complexity of the enterprise system. *Journal of robotics and Computer integrated manufacturing*, 20(2004), 495–503.
- Azmi, FT. (2008). Mapping the Learn – Unlearn – Relearn Model Imperatives for Strategic Management. *Indian journal of training & development*, 20(3), 240–259.
- Becker, F. (2001). Organizational agility and the knowledge infrastructure. *Journal of corporate real estate*, 3(1), 28–37.
- Braunscheidel, M., & Suresh, N. (2009). The organizational antecedents of a firm's supply chain agility for risk mitigation and response. *Journal of Operational Management*, 27(2), 119–140.
- Breu, K., Hemingway, SJ., Strathern, M., & Bridger, D. (2002). Workforce agility: the new employee strategy for the knowledge economy. *Journal of Information Technology*, 17(1), 21–31.
- Caemmerer, B., & Wilson, A. (2010). Customer feedback mechanisms and organizational learning in service operations. *International Journal of Operations & Production Management*, 30(3), 288–311.
- Cai, Z., Huang, Q., Liu H., Davison, RM., & Liang, L. (2012). *Developing organizational agility through it capability*. The National Natural Science Foundation China.
- Cegarra-Navarro, JG., Soto-Acosta, P., & Wesley, AK. (2015). Structured knowledge processes and firm performance: The role of organizational agility. *Journal of Business Research*, 69(5), 1544–1549.
- Chen, M., Cheng, S., & Hwang, Y. (2005). An Empirical Investigation of the Relationship between Intellectual Capital and Firms Market Value and Financial Performance. *Journal of Intellectual Capital*, 6(2), 159–176.
- Chonko, LB., Jones, E., Roberts, JA., & Dubinsky, AJ. (2002). The role of environmental turbulence, readiness for change, and salesperson learning in the success of sales force change. *Journal of Personal Selling & Sales Management*, 22 (4), 227–224.
- Crossan, MM., Lane, HW., White, RE. (1999). An organizational learning framework: from intuition to institution. *Academy of management review*, 24(3), 522–537.
- Dove, R. (1999). Knowledge Management, Response Ability, and the Agile Enterprise. *Journal Of Knowledge Management*, 3(1), 18–35.
- Doz, Y., & Konsonen, M. (2010). Embedding strategic Agility A leadership Agenda for Accelerating Business Model Renewal. *Long Range planning*, 43(), 370–382.
- Georgios, NT., & Chatzoglou, PD. (2008). Enhancing performance through best HRM practices, organizational learning and knowledge management: A conceptual framework. *European Business Review*, 20(3), 185–207.
- Ghafuri, P., Farhadi, A., & Mansouri, A. (2014). Relationship between Intellectual Capital and Organizational Agility with Mediatory Role of Employee Empowering in Service

- Sector (Case Study: Karafarin Insurance Company). *International journal economic management and social science*, 3(12), 11–15.
- Goldman, S.L., Negel, R.N., & Preiss, K. (1995). *Agile competitors and virtual organization: Strategy for enriching the customer*. Van Nostrand, Reinhold, USA.
- Gorelick, C. (2005). Viewpoint Organizational learning vs the learning organization: a conversation with a practitioner. Pace University, Lubin School of Business, New York, USA. *The learning organization*, 12(4), 383–388.
- Haque, M.M. (2008). *A study of the relationship between the learning organization and organizational readiness for change*. Dissertation of Doctorate, Pepperdine University.
- Hopp, W.J., & Van Oyen, M.P. (2004). Agile workforce evaluation: a framework for cross-training and coordination. *IIE Transactions*, 36(10), 919–940.
- Huber, G.P. (1991). Organizational learning: The contributing process & the literatures. *Organization Science*, 2(1), 88–115.
- Islam, T., Anwar, F., Khan, S.U.R., Rasli A., Ahmad, U.N.B.U., & Ahmed, I. (2012). Investigating the mediating role of organizational citizenship behavior between organizational learning culture and knowledge sharing. *World Applied Sciences Journal*, 19(6), 795–799.
- Kalkan, K., Çetinkaya Bozkurt, O., & Arman, M. (2014). The impacts of intellectual capital, innovation and organizational strategy on firm performance. *Procedia – Social and Behavioral Sciences*, 150(2014), 700–707.
- Kang, S., Morris, S., & Snell, S. (2007). Relational archetypes, organizational learning and value creation: extending the human resource architecture. *Academy of Management Review*, 32(1), 236–56.
- Ku, T.H. (2011). How to improve organizational performance through learning and knowledge?. *International Journal of Manpower*, 32(5), 581–560.
- Lepak, D.P., & Snell, S.A. (2002). Examining the human resource architecture: the relationships among human Capital, employment, and human resource configurations. *Journal of Management*, 28(4), 517–43.
- Liao, Sh., & Wu, Ch. (2009). System perspective of knowledge management, Organizational learning and organizational innovation. *Expert systems with application*, 10(37), 1096–1103.
- Lin, C.Y., Kuo, T.H. (2007). The mediate effect of learning and knowledge on organizational performance. *Industrial Management & Data Systems*, 107(7), 1066–1083.
- Lopez, D.C. (2008). Intellectual capital in high-tech firms the case of Spain. *Journal of intellectual capital*, 9(1), 25–36.
- López, S.P., Peón, J.M.M., & Ordás, C.J.V. (2006). Human resource management as a determining factor in organizational learning. *Management Learning*, 37(2), 215–239.
- Lu, W.M. (2012). Intellectual capital and university performance in Taiwan. *Economic Modelling*, 29(4), 1081–1089.
- Marquardt, M.J. (2002). *Building the learning organization: Mastering the five elements for corporate learning*. Palo Alto, CA: Davies-Black Publishing.
- Maskell, B. (2001). The age of agile manufacturing. *Supply Chain Management: An International Journal*, 6(1), 5–11.

- Matusik, S.F., & Hill, C.W.L. (1998). The utilization of contingent work, knowledge creation, and competitive advantage. *Academy of Management Review*, 23(4), 680–97.
- Pham, N.T., Swierczek, F.W. (2006). Facilitators of organizational learning in design. *The Learning Organization*, 13(2), 186–201.
- Puhakka, V. (2010). Versatile and flexible use of intellectual capital in entrepreneurial opportunity discovery. *Journal of Management Research*, 2(1), 1–26.
- Reilly, M., & Scot, P.S. (2010). Dynamic capabilities, absorptive capacity and knowledge sharing: a research agenda into explicating the antecedent factors conducive to subsidiary bargaining power. International Business Conference Trinity College Dublin, Ireland, 1–26.
- Rosentiel, L., & Koch, S. (2001). Change in socioeconomic values as a trigger of organisational learning. in M Dierkes, AB. Antal, J Child, & I Nonaka (Eds.), *Organisational Learning & Knowledge* (pp. 198–220). Oxford: Oxford University Press.
- Salisbury, M. (2008). *iLearning: How to create an innovative learning organization*. San Francisco: Pfeiffer.
- Sharifi, H., & Zhang, Z. (2001). Agile Manufacturing in Practice, Application of a Methodology. *International Journal of Operations & Production Management*, 21(5), 772–794.
- Shipton, H., Dawson, J., West, M., & Patterson, M. (2002). Learning in manufacturing organizations: what Factors Predict Effectiveness?, *Human Resource Development International*, 5(1), 55–72.
- Subramaniam, M., & Youndt, M. (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal*, 48(3), 450–64.
- Tucker, M.L., Meyer, G.D., & Westeran, J.W. (1996). Organizational communication: development of internal strategic competitive advantage. *Journal of business communication*, 33(1), 51–69.
- Zack, M. (1999). Developing a knowledge strategy. *California Management Review*; 41(3), 125–145.
- Zanjirchi, S.M., Sayyadi Tooranlo, H., & Zeidabadi Nejad L. (2010). *Measuring organizational leanness using fuzzy approach*. International Conference on Industrial Engineering and Operations Management. Dhaka, Bangladesh: 9–10 January 2010.