

A STUDY ON THE IMPACT OF INTELLECTUAL CAPITAL ON
EMPLOYEES EFFECTIVENESS
(A CASE STUDY OF AGHAJARI OIL AND GAS
EXPLOITATION COMPANY)

Mohammad Reza Asgari¹,

Mohsen Moradi Laraki²

Abstract

The current study aimed at investigating the effects of intellectual capital on the effectiveness in 2014. The statistical population of the study included 780 employees in Aghajari Oil and Gas Exploitation Company. The sampling was done using stratified random sampling and Cochran methods and 257 employees were chosen as samples. The data were collected using a standard questionnaire. SPSS was used for data analysis and for structural equation modeling, the AMOS software was used in two parts of measurement model and structure. For the first part, the technical features of the questionnaire were evaluated and for the second part, the t coefficients were used for testing the research hypotheses. The results of the study indicative of the significant and positive impact of intellectual capital on the employees' effectiveness, the positive and significant effect of human capital, Structural Capital and relational capital on the employees' effectiveness.

Keywords: Intellectual Capital, Human Capital, Structural Capital, Relational Capital, Employees' Effectiveness.

¹ Department of Business Management, Yadegar-E-Imam Khomeini (RAH), Shahre-Rey Branch, Islamic Azad University, Tehran, Iran

² Department of Business Management, Islamic Azad University, Naragh, Iran

Introduction

Organizations, in the dynamic environment of global competition, need proper strategies for survival and achieving the competitive successes that enjoy stable competitive advantage and ultimately lead in innovation and better performance for the organization, compared to rivals (Talebi et al., 2015). The survival and continuance of the organizations and institutes' affairs in today's dynamic context of competition, depends on the employees' performance. In every organization, the role of work force is very important in all the scopes of activity, therefore, human is the most important component of work and activities, which makes the decisions, implement them, and based on them, predict the continuance of future activities.

Meanwhile, the effective and efficient work force is among the most important matters brought up in the organization which leads to higher levels of performance (Crook et al., 2011). The employees' effectiveness is simply defined as doing the right things by the employees (Mbuvi et al., 2012). Robbins (1998) also defines effectiveness as the rate of achieving the short-term and long-term goals with regards to expectations and beneficiaries, evaluators, and the organizational life. The organization managers seek to by providing the conditions for higher effectiveness of the employees. In the meantime, employees with sufficient knowledge and skill play a very important role in higher effectiveness. In several studies, various factors have been identified which can impact the efficiency, effectiveness, and as the result performance and productivity among which, a key factor which effectively impact its development is intellectual capitals (Zeghal & Maaloul, 2010).

The intellectual capital provides a new resource base by which the organization can compete. This capital increase efforts for effective use of knowledge versus information (Bontis & Serenko, 2009). Edvinsson and Malone (1997) consider intellectual capital as having knowledge, using experience, organizational technology, communication with the customer and supplier, besides professional abilities and generally a set of abstract intellectual capitals which provides the company with a competitive advantage in the market and ultimately leads to creating value, efficiency, and effectiveness (Ileanu & Tanasoiu, 2008).

Therefore, the different aspects of intellectual capital such as human capital, structural capital, and relational capital make possible the well investigation and reviewing the future opportunities

and procedures in the organization, so the managers can use these opportunities for higher effectiveness of the employees. Accordingly, the intellectual capital is a vital and important subject for the organizations for achieving higher performance. In the current study, it will be investigated whether the intellectual capital impact the effectiveness of employees of Aghajari Oil and Gas Exploitation Company?

Theoretical basis of research and hypotheses development

The intellectual capital is the intellectual part of 21st century organizations. It is a resource-based theory which is considered as a strategic resource (Zeghal & Maaloul, 2010). Intellectual capital is a set of knowledge-based assets which belongs to an organization. In other words, intellectual capital is defined as having knowledge, using experience, organizational technology, communication with the customer and supplier, besides professional abilities provide the company with a competitive advantage in the market (Ileanu & Tanasoiu, 2008). Intellectual capital provides many organizational value varieties such as benefit creation, determining a strategy (market share, leadership, and brand), innovation, customer loyalty, cost reduction, improvement in effectiveness and other things (Sullivan, 2000).

Moon and Kym (2006) have divided intellectual capital to three types (human capital, structural capital, and relational capital). Human capital or employees' merits imply skill, training, experience, and value features of work force (Ling, 2013). Penning et al defines the human capital of an organization as its experts' knowledge and skills for providing professional services (Swart, 2006). Ling (2013) consider structural capital as a part of organization's internal structure denoting the included knowledge in organizational procedures and structures, created by the employees and mostly belonging to the organization. According to Gadau (2012), the structural capital is indicative of human capital substructure and includes the organization's ability for compatibility with markets' occasions, managerial philosophy, organization culture, trademarks, moral property, managerial processes, and other assets owned by the company. The relational capital includes the current value and future potential value of organizations' connections with the customers. It also includes cases such as: trademarks, market share, customers' information, communication with the customers, the accessible centers for the customers, and commercial contracts (Bontis et al., 2000).

Regarding what's been mentioned so far, the importance of intellectual capital can be well perceived. A challenge most of the companies worldwide face is development and maintaining productive and effective work force, especially when the competition in the market is tough. In such a condition, the risk and failure level of some companies are increased and these companies have no way but maximizing the powerful and effective work force. In fact, the companies should manage their human resources to meet the required conditions for competing with the rivals. As a result, these companies will be able to enroll more powerful and expert employees who can by increasing their efficiency and effectiveness, stabilize the company's competitive position (Patel & Cardon, 2010).

Simply defining, the employees' effectiveness is doing the right things by them (Mbuvi et al., 2012). In another definition, it is the effective efforts of the employees for promoting their own experience and attitude about their connection with the organization and accepting the responsibility for their duty, which leads to organizational development (Karodia et al., 2014). Dobre (2013) quoting Mary et al (1996) states that effectiveness is a rate to which an organization achieve its goals by using specific resources, without having to empty its own resource stock or putting unnecessary pressure on its employees. Arnold and Feldman (1986) have introduced the employees' effectiveness in four dimensions of innovation (interest for new and innovative ideas), organizational commitment (a kind of emotional attachment), the employees' satisfaction (an state of satisfaction with working environment), and improving the services quality (meeting the customers' expectations).

Generally, it can be said the effective performance of the employees of an organization depends on its knowledge, skill, ability, or overall intellectual capital. Training the employees leads to increase in their knowledge, skill, and ability for fulfilling the tasks. In fact, training is a tool for filling the organization's gaps and it should be used for employees' productivity and effectiveness (Devi & Shaik, 2012).

Several studies have investigated the relationship between intellectual capital and efficiency, effectiveness, productivity, and the employees' performance. Meihami et al (2014) in a study concluded that intellectual capital affects performance. In another studies, such as those of Chen

et al (2014) and Phusavat et al (2013), it is indicated that for achieving the stable growth in productivity, the companies should invest on intellectual capital such as managers and employees' skills. Costa (2012), in a separate study, has indicated that companies that somehow included their intellectual capitals in their financial balances, are more efficient and productive than those which did not. And finally, Zhegal and Maaloul (2010) also after investigating the relationship between intellectual capital and organizational performance, also indicated that organization's intellectual capital has a positive relationship with efficiency, effectiveness, and performance.

Investigating the related literature it is revealed the intellectual capital and its aspects affect the employees' effectiveness. Assessing the perspectives of each main variables, the following hypotheses are suggested:

H₁: There is a positive impact of intellectual capital on employees' effectiveness.

H₂: There is a positive impact of human capital on employees' effectiveness.

H₃: There is a positive impact of structural capital on employees' effectiveness.

H₄: There is a positive impact of relational capital on employees' effectiveness.

Considering the main objective of the study and also the research hypothesis, the conceptual model of the study (figure 1) is prepared which is shown as below:

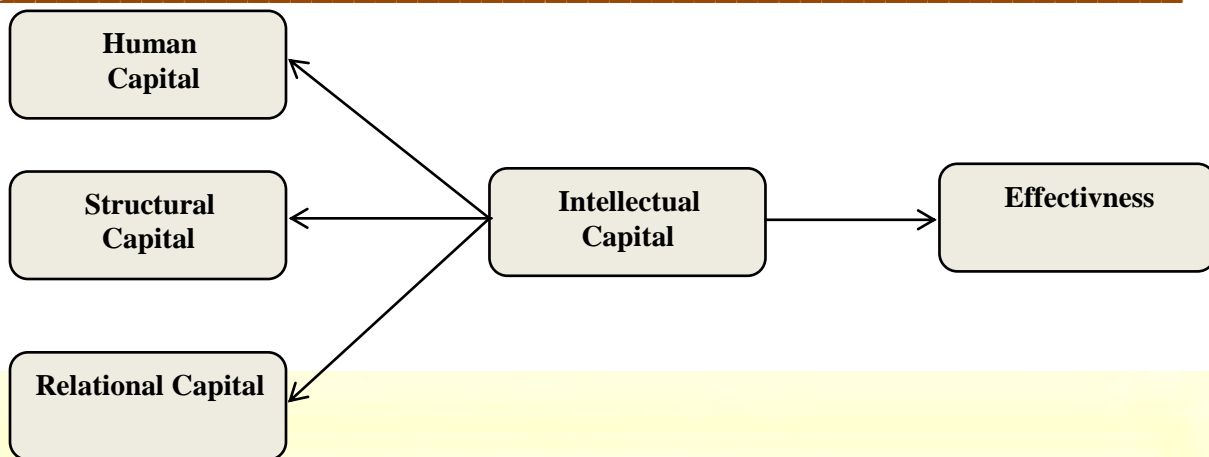


Figure (1): Research Model

Research Methodology

In terms of objective, the current study is an applied study and considering the data collection, it is descriptive-survey. Moreover, quantitative data were collected for hypothesis testing for which some questionnaires were distributed among all the managers, assistant managers, and experts working Aghajari Oil and Gas Exploitation Company, and the results were recorded. The statistical population of the study included all the managers, assistant managers, and experts in Aghajari Oil and Gas Exploitation Company who were 780 persons. Thus, six sections of staff offices, operations management, technical management, financial management, service management and human resource were selected as the classes and random sampling was conducted for each. Sample size was calculated using Cochran method and 257 employees were chosen as samples, and the questionnaire was distributed among them. Two standard questionnaires were used for data collection: Moon & Kym intellectual capital standard questionnaire (2006) and Arnold & Feldman employees' effectiveness standard questionnaire (1986). The intellectual capital questionnaire included 41 questions among which 11 questions allocated to human capital, 19 questions allocated to structural capital, and 11 questions allocated relational capital. The employees' effectiveness questionnaire also included 8 questions in which two questions were allocated to each of its aspects such as innovation, employees' commitment, employees' satisfaction, and promotion of service providing.

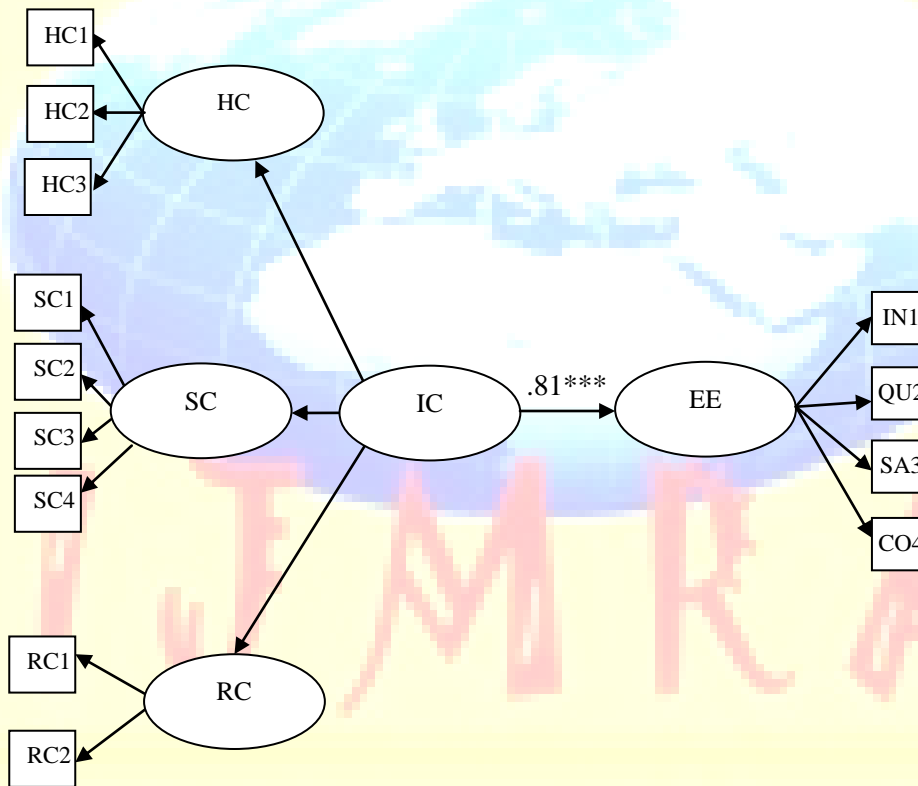
The AMOS software was used for assessment of the reliability of the questionnaire. In this software, by calculation of the values of a structure's indices correlation with that construct, the reliability is assessed and if it is equal to or higher than 0.4 (Hulland, 1999), it means the measurement model is acceptable. For the current study, the results for reliability indicated that all the questions had a factor loading of higher than 0.4, so the research instrument was valid.

The questionnaire's validity was also assessed by both convergent and divergent validity criteria which are specific to structural equation modeling. AVE (Average Variance Extracted) was used for convergent validity assessment in AMOS software whose results for the research variables are presented in table 1. The acceptance criterion for AVE was 0.5 (Hulland, 1999). As indicated in table 1. All the AVE values for constructs are higher than 0.5 which approves the questionnaire's convergent reliability. In addition, for divergent validity, the differences between one construct's indices with those of another construct are compared. This is done through comparison between each construct's square AVE and correlation coefficients values of constructs. The obtained results from AMOS indicated that each construct's square AVE was higher the correlation coefficients of that construct compared to other constructs, which approves the divergent validity of the constructs.

Table (1): Convergent and Divergent validity criteria

constructs	HC	SC	RC	Innovation	Commitment	Satisfaction	Quality
AVE	0.708	0.689	0.652	0.722	0.510	0.522	0.513
HC	0.743						
SC	0.472	0.639					
RC	0.209	0.358	0.643				
Innovation	0.212	0.335	0.253	0.750			
Commitment	0.196	0.311	0.264	0.454	0.841		
Satisfaction	0.268	0.189	0.242	0.541	0.315	0.738	
Quality	0.342	0.233	0.239	0.430	0.331	0.551	0.781

For the next stage, the AMOS software was used for confirmatory factor analysis of measurement models assessment and also evaluation of causal paths coefficients for assessing the structural section of the used model. If the following conditions are met, the model's fitness is good: - the significance level obtained from χ^2 (p-value) is higher than 0.05. – The ratio of χ^2 degree of freedom is lower than 3. – The value of root mean square error of approximation (RMSEA) statistic is lower than 0.05. – The values of Goodness of Fit Indices (GFI), the Adjusted Goodness of Fit Indices (AGFI), Non-Formed Fit Indices (NNFI) are higher than 0.9 (Joreskog & Sorbom, 1996).



*** Significance level of .001 (one-tailed)
* Significance level of .05 (one-tailed)

Chi-Square = 101.02, DF=37, P-value=0.01300, RMSEA=0.086

Figure (2): paths coefficients in AMOS

IC=Intellectual Capital, HC=Human Capital, SC=Structural Capital, RC=Relational Capital, EE=Employee Effectiveness

As presented in figure 2, p-value is 0.013, RMSA statistic is 0.086 and the ratio χ^2 (101.02) to degree of freedom (37) is 2.73 which is lower than 3. Also, other results obtained from AMOS indicated that calculated Z value is higher than 1.96, and the values of GFI and AGFI are 0.933 and 0.910. Therefore, the measurement models for the two main variables of the study are well fit.

According to figure 2 in the AMOS output, the relationship between intellectual capital and employees' effectiveness is direct and significant, i.e. the intellectual capital has a direct and significant effect on the employees' effectiveness, and according to resulted standard coefficients from AMOS software, 81% of the changes in employees' effectiveness by intellectual capital can be predicted. The table 2 shows the model's paths coefficients. When the t-values are higher than +1.96 or lower than -1.96, the parameter is significant. Therefore, using the obtained results, it can be said that the relationships between the hypotheses are significant and consequently, they are approved.

Table (2): Model's Paths Coefficients

Hypothesis	Path Coefficients	t-values	Conclusion
IC → EE	0.81	9.67	+
$\chi^2 = 101.02$	df=37	RMSEA= 0.086	GFI= 0.93
			AGFI= 0.91
HC → EE	0.48	13.45	+
SC → EE	0.44	21.17	+
RC → EE	0.65	19.96	+
$\chi^2 = 101.02$	df=37	RMSEA= 0.086	GFI= 0.93
			AGFI= 0.91

Conclusion

As it was mentioned, the intellectual capital is indicative of a set of knowledge-based assets owned by an organization and they are among the most important features of that organization and through adding values to the key beneficiaries of the organization, significantly help with the competitive situation of the organization. These capitals are among the important and effective factors on efficiency, effectiveness, and productivity of the employees, noted in many studies (Phusavat et al., 2013).

The main hypothesis testing results indicated that intellectual capitals have a direct and significant effect on the effectiveness of Aghajari Oil and Gas Exploitation Company employees. It means that considering the covert capitals of the organization and developing these assets derive the company's staff to activities with higher effectiveness and ultimately better performance of the company. The results testing this hypothesis are in lines with those of the studies in Meihami et al., 2014; Costa, 2012 and Zeghal & Maaloul, 2010. Those studies indicated that availability of intellectual capital is potential source for competitive advantage which cause growth and development of the organization and ultimately the efficiency, improvement, and effectiveness of the organization's employees.

The results of testing the secondary hypotheses of the study are also indicative of the effectiveness of human, structural, and relational capitals on effectiveness of Aghajari oil and Gas Exploitation Company employees. Therefore, by these hypotheses approved, it can be mentioned the availability of human capitals as inputs existing in the company's employees, the availability of structural capitals which are indicative of existing structures and processes in an organization used by the employees for utilizing their knowledge and skills, and availability of relational capitals which are indicative of potential assets an organization own as covert assets outside it, lead to outputs such as survival, effectiveness, and performance of the company. The results of testing the secondary hypothesis are in lines with the results of Chen et al., 2014; Phusavat et al., 2013 and Nnoaham et al., 2011 studies which indicate that human, structural, and relational capitals have a positive effect on efficiency, effectiveness, and organizational performance. Therefore, regarding the this result, it can be said that considering such matters as: individuals' knowledge and skills, the organization members' satisfaction level both with job assessment methods and working environments, and payments, and also considering the employees from attitude to their position viewpoint, and even matters such as consideration for organizational culture, organizational processes, the company's customers, and ... can significantly affect the employees' effectiveness in the organizations.

Hence, with regards to the results of the study, it is suggested the authorities improve the employees' retention in the organization by employees' promotion programs and through necessary trainings, seek to empower them. Also, the organization by using precise and up-to-date information systems should facilitate the employees' access to information, so they can use

the provided information more effectively. Finally, it is suggested to by implementing the offers system for collecting the employees' ideas inside the organization, and for the customers' ideas outside it, take vital steps for employees' effectiveness and improving the organizational success.

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