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Designing the human capital model in Iranian industrial organizations based on the grounded theory

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Abstract

The purposes of this study is to Design a model on constituent factors and variables shaping the human capital in the industrial organizations. In this study the research model was developed based on the interaction between the theoretical studies and analysis of the qualitative data from several interviews. for selecting the samples to be interviewed, the theoretical sampling has been employed. To analyze the information obtained from the interviews, the grounded theory method has been used. Findings- the pivotal factors of human capital in industrial organizations can be divided into three groups of "competency and capability", "knowledge", and "attitude". In this research demonestrated that in order to succeed in human resource plans, relying on these factors, aptitudes, and internal resources, exploiting the skills and expertise of the elites, coordinating plans, and leading them perfectly, all play significant roles. This study covers the gap in the field of human capital management in the industrial sector. By using provided model in this research, many of the questions with respect to the success factors in the plans and policies implemented for the human capital in various industries of the developed countries can be answered.

Keywords: Human capital, industrial organizations, Grounded theory, theoretical sampling.

Introduction

The 20th century can be considered as the era of "human capital" since before the 19th century, investing in the human capital and spending money on in-service costs were not of much importance. In the 20th century, training, skills, and knowledge turned into the factors that determine the efficiency of the nations and individuals. Human capital indicates the individuals' knowledge inventory in an organization (Bontis, 2002). Human capital is defined as the capabilities, skills, and expertise of the human members of an organization (Mehraliyan, 2013c). Human capital encompasses thinking and its primary purpose is to innovate in goods and services and to improve the commercial processes (Namvar, 2010). Moreover, based on Roos and his colleagues (1997), staffs create the intellectual capital through their competence, attitude, and intellectual agility.

Simon Kuznets considered the concept of capital as consisted of the human and physical capitals. He believed that the human capital of a country could not be measured based on its advanced industries or its industrial tools and devices. Nevertheless, a country's human capital refers to its stored knowledge

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resulting from the various accomplished experiments and also from the extent of the citizens' skilfulness in making use of this knowledge (Sobhani, 1992:76).

Human capital

Nowadays, in the successful companies, in order to enhance and improve the insights, abilities, and experiences and to compete in the changing global circumstances, some investments have been made on the staffs (Bozbura, 2004). It is worth to stress that possession of this kind of capital is not in the hand of firms and in fact, as soon as the employees leave the organization, their organizational memory will be lost, which is accounted as a threat for organizations (Bontis et al., 2000). Experiences have shown that enhancing the abilities and capabilities of the staffs is of a direct effect on the financial outcomes of companies. Additionally, the human capital has a direct relationship with the company's performance (Subramony, Segers, Chadwick, & Shyamsunder, 2018; Kim, Atwater, Patel, & Smither, 2016). Human capital represents the knowledge storage of an organization, which reflects the staff knowledge reservoirs. Moreover, the human capital has been defined as the collective ability of an organization in extracting the best solutions out of its staff's knowledge (Bontis, 1998).

The conducted studies on human capital

The employees of an organization produce the intellectual capital through their competences, attitudes, and intellectual agility. These competences of the organization include the skills and education as well as the staffs' attitudes, which cover the behavioural components of the staffs. The intellectual agility enables an employee to change the operations and consider the innovative solutions for the organizational problems (Roos et al., 1997). Hudson (1997) defines the human capital as a combination of genetic heritage, education, experience, and mentality of the staffs towards the life and business (Bontis et al., 2000). Human capital has been also defined as the fundamental potentialities of an organization (46. Seetharaman et al., 2002). Human capital refers to the staff's capabilities and competences (Wiig, 1997). In addition, some scholars have related it to the knowledge, skills, capabilities, commitment, implicit knowledge, ideas, and health of the staffs (Snell and Bohlander, 2007). The nature of human capital is intangible, because it adds value to the organization and is relied on problem solving and decision making in the complex and innovative situations. Therefore, it should be prudently considered that human capital is relocated along with the staffs' transfers, and the organization's physical location is not a place that such a capital is assumed to be settled. Thus, it is an important fact that staffs can choose to invest on the human capital or to disregard it (Roos et al., 1997). In such situations, an employee acts in accordance with the theory of human capital, in which s/he evaluates between the required investment for developing the knowledge and skills and the acquired benefits in return, such as the future increases in his/her salary, authority, or job promotion in general (Becker, 1995). Although high abilities of the staffs can highly likely absorb the investments in the human capital, the development of this area incurs some costs to the organization (Snell and Bohlander, 2007).

Some scholars have introduced the human capital as the pivotal competences that are cantered on the staffs' values, which represent the extent the staffs' capabilities can help to create the competitive advantage (Barney, 1991). Having combined these features and the staffs' knowledge, Perez and Pablos (2003) presented a framework, which shows the high value and uniqueness of the human capital as the source of competitive advantage. Organizations can develop their human capital by expanding and improving the extensible features of their intangible resources such as skills and knowledge (Lepak and Snell, 2002). Moreover, in a study conducted in 2000 in the high-tech industrial companies, Petti et al. (2000) concluded that the staffs' competences are an important factor of the human capital in the progression and survival of the industrial organizations, which include the technical knowledge, education, work-related knowledge, work-related competences, entrepreneurial spirit, innovation-related abilities, effectiveness, changeability or flexibility, and professional competences. Bontis believed that

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human capital indicates the knowledge storage of an organization's staffs (Ghelichli and Moshabbaki, 2006). Chen and his co-workers stated that human capital as a basis for intellectual capital refers to some factors including the knowledge, skills, capabilities, and attitudes of the staffs, which lead to the performance improvement, customer attraction, and organizational profit increase. This knowledge and skills are positioned in the minds of the staff, which in other words, means that their minds are affected and shaped by their knowledge and skills. If thoughtful staffs are not aptly employed by an organization, the knowledge and skills existed in their minds cannot be activated or become a market value (Chen et al., 2004). Quoted from Bartech, Rashidi et al. (2010) have defined the human capital as follows; "human capital is the level of individual knowledge that the staffs of an organization possess and control. This knowledge is characteristically implicit". They continued that Seetha Raman and Saravanan have also considered the human capital equivalent to competence. The staffs' competences are defined as their capacity in accomplishing their duties in different conditions to obtain the tangible and intangible assets.
According to Bontis, amongst the intellectual capital components, human capital is of higher impact and importance since it is the source of innovation and strategic reconstruction of the organizations and is obtainable through improving the staffs' skills (Bontis and Richardson, 2000). Stewart suggests that in learning organizations, staffs are considered as the most important assets. Human capital has led the organizations to broadly rely on their staffs' knowledge and skills to stimulate the profit and growth and to enhance the efficiency and productivity (Hemmati et al., 2010).
The following items have been recognized as the managerial indicators of human capital in the engineering consultancy firms, employee motivation (Davenport et al., 1998; Liebowitz, 1999; Yahya and Goh, 2002; Hauschild et al., 2001; Wong and Aspinwall, 2005; Rehman and Mehmood, 2010; Valmohammadi, 2010), job satisfaction for the key employees (Yahya and Goh, 2002; Hauschild et al., 2001; Wong and Aspinwall, 2005), competence and employee progression (McDuffie, 1995;Ichniowsky et al., 1997; Currie and Kerrin, 2003), employees participation in the organizational decisions (Tannenbaum and Dupuree Bruno, 1994; Currie and Kerrin, 2003; Ranjbari, 2009), and training the employees (Hurak, 2010; Yahya and Goh, 2002; McAdam, 2001; Wong and Aspinwall, 2005; Valmohammadi, 2010; Syed-Ikhsan and Ronald, 2004; Monavvarian and Kasaei, 2007;Tannenbaum and Dupuree Bruno, 1994; Ichniowsky et al., 1997; Boroumand and Ranjbari, 2009).

Nowadays, new structures for organizations have been emerged in which rather than the physical power, the mind power is dominant. In such organizations, the most valuable asset is the intellectual capital and therefore, the physical assets are of lesser importance. Hence, in these organizations, the knowledge and intellectual capital have converted into a competitive advantage and have directed the organization to excel against its rivals (Nerdrum and Erikson, 2001). In justifying the concept of human capital, it can be said that organizations have three types of capital including the financial, physical, and intellectual capital. Financial capital is considered as the net assets or equities of the shareholders. On the other hand, while physical capital reflects the production or the service capacity of the organization, the intellectual capital is principally originated from the science and knowledge (Hosnavi and Ramezan, 2012). As a very broad definition, Stewart considers the intellectual capital as a collection of the knowledge, information, intellectual assets, and experiences of an individual in an organization, which are exploited for generating the wealth and creating the competitive advantage (Stewart, 1997).

To categorize the intellectual capital, White (2007) divided the intellectual capital of an organization into three groups of customer, human, and structural capitals. Restage believes that an accurate categorization of the intellectual capital is impracticable; however, he assumes the intellectual capital is resulted from the interactions between the knowledge management, social capital, and human capital of the organization. Overall, it should be expressed that there is less consensus about the best way to measure the intellectual capital, but most authors have used a tripartite model, which includes human,

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structural, and social capital (Hosnavi and Ramezan, 2012). Chen and his co-workers viewed the human capital as a basis for gaining the intellectual capital and considered it as consisted of the knowledge, skills, and abilities of the staffs as well as their attitudes towards the business. From their perspective, human capital can change the knowledge into a market value by transforming the knowledge into three other components of the capital, i.e. the structural capital, customer, and innovation. They also claimed that human capital determines the operational forms of the other three capitals. Moreover, their conducted studies exhibited that human capital indicates the implicit knowledge placed in the staffs' minds and thoughts, is an important source of innovation and recreation of a company, and can be defined as a combination of the competences, attitudes, and creativity of the employees. Their study also demonstrated that the staffs' competences are actually the firm and hardware part of the intellectual capital, which include the knowledge, skills, and aptitudes of the staffs. Knowledge is defined as the technical and academic knowledge. Furthermore, the staffs' skills are in fact their ability to accomplish practical duties, which can be acquired through practices and in some cases, through education. Attitudes are the software part of the intellectual capital, including the job motivation and job satisfaction. In fact, attitudes are the grounds required for presentation of the staffs' competences. The staffs' creativity enables them exercise their knowledge and constantly innovate. Therefore, it is an important factor in developing and expanding the intellectual capital of a company (Chen et al., 2004; Teo, Reed, & Ly, 2014).

One of the most important aspects of the intellectual capital is human capital. Based on Kaufmann and Schneider (2004), the main source of the intangible assets of an organization is situated in its staffs. According to this matter and based on the subject of this study, in order to clarify the concept of human capital, it can be stated that human capital is a mixture of the implicit and explicit knowledge of the employee sand is regarded as a benefit for the entire entity (Arbabi et al., 2009). In other words, human capital is a combination of the knowledge, skills, initiative, and abilities of the staffs, which enables them accomplish their tasks (Bontis, 2001). It is important to correctly understand that a company cannot possess the human capital. In fact, although in a learning organization, staffs are considered as the most important assets, it should be remarked that they do not belong to the organization (Stewart, 1997). In a research by Talebi and Salimi (2011), the employment indices are recognized with a number of factors such as the sharing culture, the job development opportunities, employees' retention, the knowledge leader's position, and the assigned authority for the knowledge management project, which are elaborated in the form of the factors of human resource development management.

Having analyzed the results of his study conducted in the expert community of Japan's automobile industry, Fukuyama stated that human capital should be considered as the abilities and skills acquired by individuals, which is intensively required in voluntary groups. These abilities and skills include the abilities in education advancement, verbal and communication capability, self-confidence, leadership power, etc. They can be used as a tool and medium for growth and development of the social capitals. A community, which has an ideal storage of the social capital, may be expected to be successful in producing the human capitals and reinforcing them. However, considering the differences between these two aspects of capital, it should be notice that social capital belongs to groups and not individuals (Fukuyama, 2000:13). In a study performed in the pharmaceutical industry in 2012, Mehralian et al. stated that the most important components of the human capital are as follow: 1.The staffs' competences, which include management strategic leadership, staffs' traits, staffs' learning ability, staffs' training efficiency, staffs' ability in contributing to the decision-making and the management, and training the technical and managerial staffs. 2.The staffs' attitudes, which include identity acquisition from the organizational values, the satisfaction level, employees' turnover rate, average useful life of the staffs, and the staffs' creativity that includes the staffs' creative abilities, and the income resulted from the

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staffs' creative ideas (Mehralian et al., b & c, 2012). Table1 presents the studies conducted on human capital.

Table1 – The conducted studies on human capital

Dimension	Component	Indicator	Researchers
Human Capital	***Competence and capability***	***Training and learning***	*(Mc Lagan and Soha Dolic, 1989) (Swanson and Holton, 2001) (Schultz, 1992) (Frank and Bemank, 2007) (Hurak, 2010) (Yahya and Goh, 2002) (McAdam, 2001) (Wong and Aspinwall, 2005) (Valmohammadi, 2010) (Syed-Ikhsan and Ronald, 2004) (Monavvarian and Ranjbari, 2007) (Maori, 1993) (Bernina et al., 2000) (Snell and Bohlander, 2007) (Mehralian et al., 2012),(Gilly and Mickonik, 2000) (Garvan et al., 2000) (Holton, 2000)*
		Skill	*(Snell and Bohlander, 2007) (Becker, 1975) (Perez and Pablos, 2003) (Lepakand Snell, 2002) (Bontis and Richardson, 2000) (Hemmati et al., 2010) (Swanson and Holton, 2001) (Lini, 2001) (Holden, 2000) (Brooking, 1996) (Becker, 2002) (Peter Hotz, 1998) (Romer, 1990) (Frank and Bemank, 2007) (Shafi, 2003) (Allen, 2008) (Ghorbani-Zadeh et al., 2010) (Coleman, 1988) (Petti et al., 2000) (Chen et al., 2004) (Wiig, 1997) (Barney, 1991) (Rashidi et al., 2010) (Currie and Kerrin, 2003)*
	Knowledge	***Awareness***	*(Snell and Bohlander, 2007) (Becker and Morton, 1995) (Perez and Pablos, 2003) (Lepak and Snell, 2002) (Chen et al., 2004) (Rashidi et al., 2010) (Hemmati et al., 2010) (Ghelichli and Moshabbaki, 2006) (Lini, 2001) (Drucker, 1999) (Watson and Papamarcos, 2002) (Maori, 1993) (Paulo Ferreira, 1998) (Lin, 2001) (Holden, 2000) (Bentis et al., 2000) (Bentis, 2002) (Romer, 1990) (Shafi, 2003) (Allen, 2008) (Swanson and Holton, 2001) (Gilly and Mickonik, 2000) (Petti et al., 2000) (Chen et al., 2004),(Swanson and Holton, 2001) (Ketz Velez Sarsfield, 1995) (McLin, 2001) (Gilly and Mickonik, 2000)*
		Creativity and innovation	*(Bontis and Richardson, 2000) (Gilly and Mickonik, 2000) (Bentis, 2002) (Kaufmann andSchneider, 2004) (Hosnavi et al., 2010) (Mehralian et al., 2012) (Mehralian, 2013) (Namvar et al., 2010) (Becker, 2002) (Leslie and Serlie, 2003) (Frank and Bemank, 2007) (Drucker, 1999) (Sternberg, 1988) (Petti et al., 2000) (Chen et al., 2004)*
	Attitude	***Motivation***	*(Davenport et al., 1998) (Liebowitz et al., 1999) (Yahya and*

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			Goh, 2002) (Hauschild et al., 2001) (Wong and Aspinwall, 2005) (Rehmanand Mehmood, 2010) (Valmohammadi, 2010) (Bernina et al., 2000) (Chen et al., 2004) (Mehralian et al., 2012) (Namvar et al., 2010)
		Job satisfaction	*(Yahya and Goh, 2002) (Hauschild et al., 2001) (Wong and Aspinwall, 2005) (Mehralian et al., 2012)*
		Commitment	*(Snell and Bohlander, 2007) (Mehralian et al., 2012)*

The research methodology

In this study, because of using the qualitative methodology according to the sequential exploratory design, the research model was developed based on the interaction between the theoretical studies and analysis of the qualitative data. The key research question is as follows:

- *"What are the local indices and components of the human capital in the industrial organizations?"*

Based on the research question, the theoretical studies and several interviews with the elites of industrial organizations were carried out and a set of human capital models, dimensions, and components related to each question was identified, which the major parts of these models and their respective variables were stated in the literature review of this paper. Next, in order to extract the factors and variables that played a role in answering the research question about the studied population, this fact was firstly considered that some aspects and components of the human capital in industrial organizations are not available in the literature. Thus, while reviewing the current literature, it seemed necessary to apply a qualitative approach to domesticate and recognize the human capital dimensions. Therefore, the semi-structured and structured interviews were used and it was attempted to obtain the local dimensions and components of the human capital in the industrial organizations through analyzing the content of these interviews. In the qualitative stage, the text of the interviews were initially written down and their key points were extracted. Then, from the three methods of open coding, axial coding, and selective coding, according to Strauss and Corbin (1998), the open coding was used to identify the perceptions from the key points, the axial coding to interconnect the categories to sub-categories and link the categories to each other, and the selective coding to integrate and improve the category. After codifying the sub-categories from the key points, identifying the main categories from the combination of sub-categories, and developing the model based on the main categories, the qualitative stage was completed.

The interview procedure

In the beginning of each interview, the interviewee was informed that the research subject regards about the design of a local model to measure the human capital in Iranian industrial organizations. Afterwards, the importance and necessity of performing such a study in industrial organizations was fully explained. About 5 to 10 minutes were initially allocated to this preliminary part of the interviews, but, since almost all the interviewees were familiar with the human capital concepts, these preliminary stages of the interviews were totally omitted or reduced to a couple of minutes. In addition, a prepared instruction assured the researcher that the uniform data are being collected from the interviewees (Green and Holloway, 1997). In this survey, the interview form was comprised of two types of questions: the main questions and the follow-up questions. The main research question is as below:

- What are the main characteristics of the human capital in industrial organizations?

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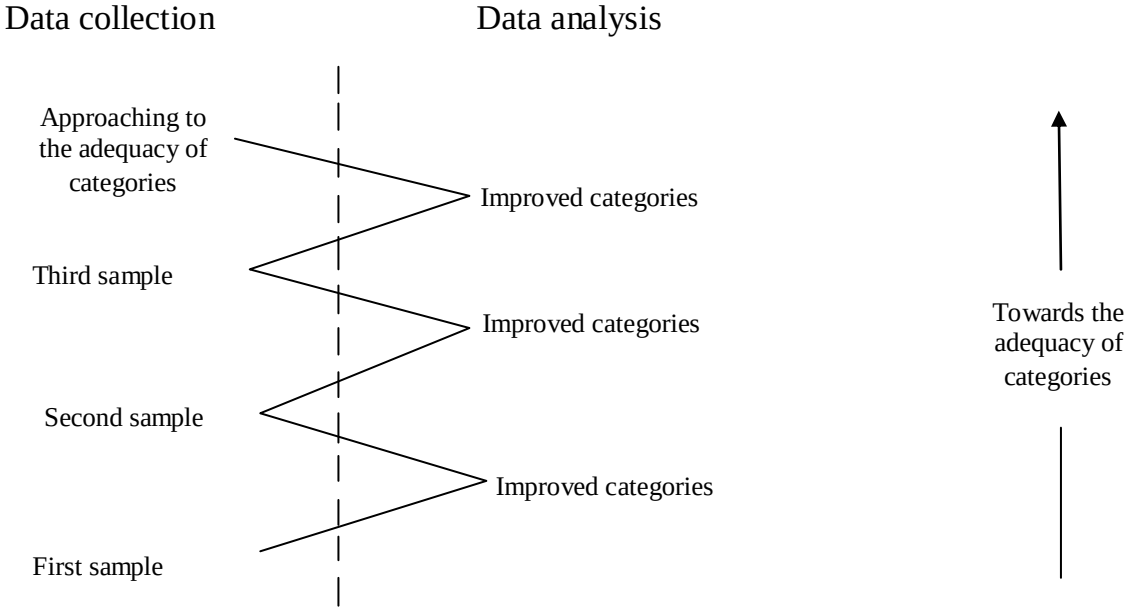
In order to illuminate the information in a particular context, the follow-up questions were used where necessary. Some of the follow-up questions in the research are provided:

- Can you give me an example in this regard?
- Are you trying to say that…?
- Can you express your true feeling?

Moreover, interviewees according their working experiences and academic backgrounds stated the challenges against the triple dimensions of human capital in industrial organizations, and some of them mentioned some solutions for encountering these challenges.
During the interviews, the non-verbal behaviors of the interviewees have been under consideration and recorded by the researcher. The interviews periods varied between 40 and 70 minutes. The location and time of the interviews have been selected by the interviewees, and as a result, all the interviews were conducted in the interviewees' offices.

The sampling method and sample size for the qualitative part of the research

In this study, in the qualitative part and for selecting the samples to be interviewed, the theoretical sampling has been employed. In the theoretical sampling, samples are selected in a way that they could end up in the components and features of the concepts and categories. In one hand, the theoretical sampling enhances the quality of concepts and categories, and on the other hand, it specifies the next sample and the path. The sampling is continued until the theory is developed and is lasted with the theoretical adequacy. The theoretical adequacy shows the appearance of a theory or a category, and thus, it indicates the end of the theoretical sampling for that theory or category (Danaei fard, 2004). It can be explained that the theoretical adequacy is obtained as soon as collecting any type of data does not help enhance the features and components of a category. In fact, by obtaining similar repetitive data, the researcher can make sure that the category has achieved the adequacy. After wards, s/he needs to try to do the same for the rest of categories. The process of theoretical sampling is continued until the theoretical adequacy is attained, which is exhibited in figure1.



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Figure 1 -The reciprocating movement of data collection and data analysis in order to achieve the adequacy of categories

In the framework of the current study, having accomplished 10 detailed interviews, the theoretical adequacy was achieved. Since the primary objective was to identify the local dimension and components of the human capital in industrial organizations. in order to verify the results, it was attempted to conduct 14 interviews with the elites and researchers of Iranian industrial organizations, who were reasonably familiar with the human capital concept. Since a limited amount of data was obtained for identifying the main and minor categories, it was assured once again that the theoretical adequacy has been truly fulfilled.

Abbreviations

Several points with regard to the abbreviations used in the analysis of the interviews need to be remarked:

- P stands for "point" indicating the "key points".
- A,B,C,D,E,F,G,H,L,M,N,P,K shows each of the interview cases.
- X1,2,3,… for the human capital factors displays the number assigned to the corresponding key point. For instance, PB8 denotes the 8th key point of the interview B.

The main features of the human capital of industrial organizations

In order to identify the factors comprising the human capital in Iranian industrial organizations, all 14 interviews were extracted and transcribed, and afterwards, the key points were extracted. In general, regarding the human capital, 8 points were extracted from the first interview, 8 from the second, 10 from the third, 13 from the fourth, 13 from the fifth, 10 from the sixth, 10 from the seventh, 10 from the eighth, 7 from the ninth, 7 from the tenth, 8 from the eleventh, 11 from the twelfth, 5 from the thirteenth, and 5 from the fourteenth interview. In the following section, these key points and the open codes resulting from them, which form the inferential theme, are presented. Table2 shows The key points and open codes regarding the case study D

Table 2 - The key points and open codes regarding the case study D

Marker	Key points	Open codes
PD_x1	*In order to have a knowledge core in Iranian industrial organizations, it is needed to possess capable individuals.*	*Competence and Capability*
PD_x2	*The skills, expertise, and capability are the perquisites to achieve knowledge.*	*Skills*
PD_x3		*Knowledge*
PD_x4	*As a characteristic of the industrial organizations, it could be state that they are technology-cantered. Another characteristic is the existing complexity and uncertainty in the industrial organizations products. As the features of the human resources in Iranian industrial organizations., it can be mentioned that in addition to expertise, inclination to team working, and synergizing in the work, in order to overcome the existing complexity, both organizational and individual learning need to be pursued concurrently.*	*Experience*
PD_x5		*Training and Learning*
PD_x6		*Awareness*
PD_x7	*Creativity and innovation are key to reach the objectives in the industrial organizations.*	*Creativity and Innovation*
PD_x8	*Undoubtedly, commitment to the senior management, the employees' responsibilities, and the organization need to be attended in the field of human capital.*	*Commitment*

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PD_x9	*One of the central features of the human capital is being able to understand the regulations. People need to assume themselves dedicated to comply the law.*	*Ethical and rule-based*
PD_x10	*An important principle regarding the human capital is satisfaction and motivation. It should be expressed that the circumstances need to be well prepared for human capital. It is worthwhile to assert that human capital can be achieved by incurring high costs and spending long periods, but it can be missed much easier. Hence, it is highly needed to have a special and strategic perspective towards the human capital.*	*Satisfaction*
PD_x11		*Motivation*

Formation of concepts from the open codes of the human capital factors

After coding the key points, they were studied and those referred to similar subjects were categorized as the components. Table 3 shows the concepts recognized from the interviews. For example, in row 1, the "competence and capability" was identified as a concept, which was recognized from two open codes obtained from the first and second interviews, including "the effect responsibility in presenting more creativity" and "the extensive assignments of responsibilities to staffs for advancing the affairs".

Table3 - Formation of concepts of the human capital factors from the interviews' codes

No	Indicators	The codes' markers
1	*Knowledge-based*	PA_x1- PC_x1- PD_x3- PE_x3- PF_x1- PG_x1- PH_x1- PM_x6- PN_x1- PK_x1- PP_x2- PQ_x1
2	*Experience*	PA_x2- PC_x2- PD_x4- PE_x7- PF_x2- PG_x6- PK_x6- PQ_x3
3	*Commitment*	PA_x5- PB_x2- PC_x3- PD_x9- PE_x7- PF_x8- PL_x1- PM_x1- PN_x4- PQ_x4
4	*Creativity and Innovation*	PA_x6– PB_x3- PC_x3- PD_x7- PE_x7- PF_x5- PH_x4- PL_x5- PM_x3- PN_x2- PK_x2- PP_x1
5	*Skills*	PB_x1- PD_x2- PE_x6- PF_x3- PG_x7- PH_x7- PN_x6- PK_x4- PP_x5- PQ_x2
6	*Training*	PD_x5- PE_x4- PG_x8- PH_x3- PL_x7- PK_x9
7	*Motivation*	PA_x7– PB_x7- PC_x9- PD_x13- PE_x5- PF_x12- PG_x9- PH_x10- PM_x4- PN_x7- PK_x8
8	*Satisfaction*	PA_x8- PB_x8- PC_x10- PD_x12- PE_x12- PF_x11- PG_x10- PH_x9- PM_x5- PN_x8- PK_x11
9	*Interest to the country*	PB_x6- PE_x9- PL_x3- PN_x5- PH_x1- PL_x4
10	*Ethical and Rule-based*	PC_x6- PD_x11- PE_x9- PF_x9
11	*Awareness*	PC_x9
12	*Intellectual spirit*	PG_x3- PD_x6
13	*Competence and Capability*	PD_x1- PE_x1- PF_x4- PG_x7- PK_x7
14	*Providence*	PE_x11- PP_x4
15	*Risk taking*	PE_x10- PG_x2- PK_x5

Formation of categories according to the obtained concepts

Having made some comparisons between the concepts, the common points were realized, called categories. While15 concepts were identified in the previous stage and by comparing between the concepts, 3categories were recognized, which showed in figures 2,3 and 4.

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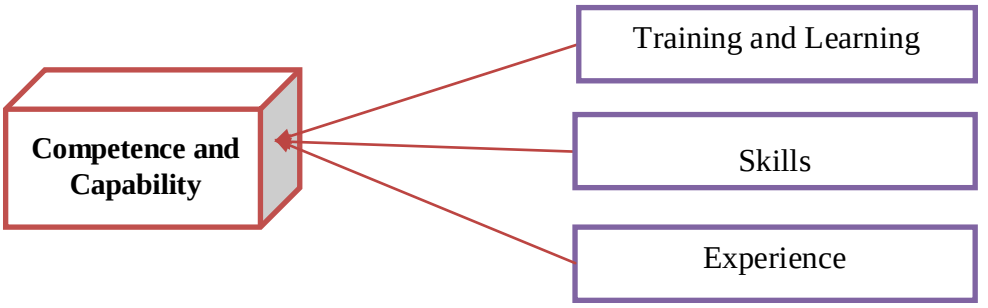


Figure2 – The appearance of the component "Competence and Capability"

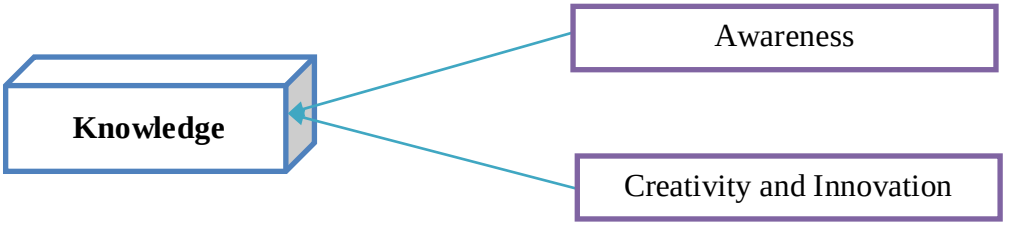


Figure3 – The appearance of the component "Knowledge"

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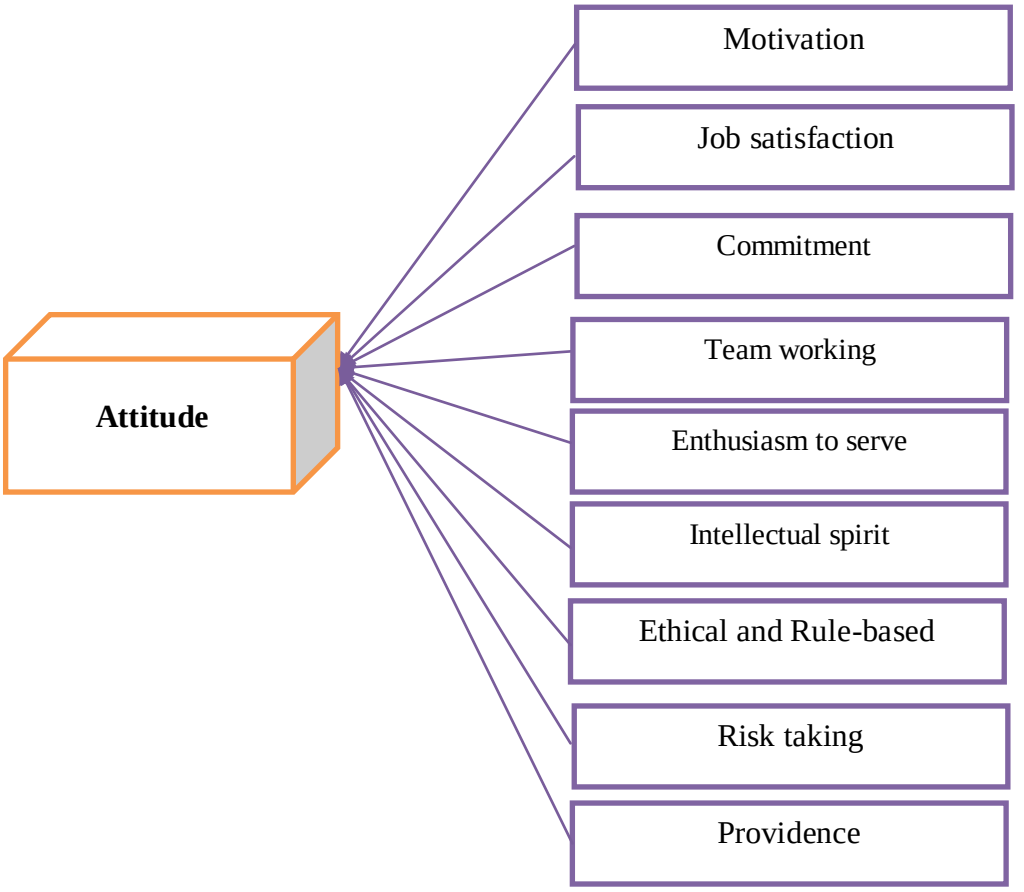


Figure4 – The appearance of the component "Attitude"

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Table –4major and minor categories

Component	Dimension	Indicator
Human Capital	**Competence and Capability**	Training and Learning
		Skills
		Experience
	Attitude	Motivation
		Job Satisfaction
		Commitment
		Team working
		Enthusiasm to serve
		Intellectual spirit
		Ethical and Rule-based
		Risk taking
		Providence
	Knowledge	Creativity and Innovation
		Awareness

Concluding the findings obtained from the qualitative data of the interviews' questions

Having made some comparisons amongst the concepts, the common points were realized, called categories. While 15 concepts were identified in the previous stage and by comparing the concepts, 3 categories were recognized. To analyze the qualitative data related to the main features of human capital in the Iranian industrial organizations, the key points of the interviews were initially extracted and considering the commonalities between them, the concepts were identified and then classified into the major and minor categories. The overall results related to the interviews' questions indicate three chief components according to the theoretical bases, which are called "training and learning", "knowledge", and "attitude". Afterwards, a brief review of the major and minor categories along with their supporting points is provided in table 4.

The resulting theory

The most fundamental factors constituting the human resource model in the industrial organization are "training and learning", "knowledge", and "attitude".

This theory demonstrates that in order to succeed in human resource plans, relying on the factors, aptitudes, and internal resources, exploiting the skills and expertise of the elites, coordinating plans, and leading them perfectly, all play significant roles. The conceptual model has provided an effective and considerate support for this theory, and has answered many of the related questions, including the following examples: What is the main factor in the human capital successes? Why the human capital activities (researches in particular) have been unable to advance in many of the developing countries? Why such activities, which are taking place in many parts of the public and private entities of these

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countries, are disjointed and incoherent? Why the research achievements of the research centers in these countries cannot enter into the industry?

Moreover, it should be mentioned that the presented conceptual model could suggest the reasons for success of advanced countries in one hand, and the reasons for failure of developing countries in gaining the human capital objectives in the Iranian industrial organizations (effects) on the other hand. It can further provide valuable ideas about how to resolve the weaknesses (causes).

This theory recommends that through absorbing, retaining, supporting, directing, and leading the aptitudes, the motivation and job satisfaction can be maintained as the principal sources for reinforcing the human capital. Moreover, by exploiting the creativity and innovation in several limited fields, the prominence in those arenas can be achieved.

Conclusions

In the knowledge era, competitive power in the global arena and particularly in the field of industrial good scan be essentially acquired based on the attainment of human capital abilities. In fact, through learning new abilities and gaining the power of human capital's creativity and innovation, the comparative advantages of the country in the global market will be affected. As a result, the country will gradually reposition from the production and export of labor-intensive goods or the goods based on local raw materials, towards the production and export of capital-, idea-, and knowledge-intensive goods, the way that many of the developed countries have discovered it and evolved rapidly towards it.

In the current paper, the factors and variables shaping the human capital in the industrial organizations were reviewed. Subsequently, by using the "grounded theory" method, the concepts resulting from the interviews were extracted and presented in the format of a conceptual model. Having analyzed the obtained information, the factors of "competence and capability", "knowledge", and "attitude" were comprehended as the pivotal factors of the model (Davenport et al., 1998) (Liebowitz, 1999) (Yahya and Goh, 2002) (Hauschild et al., 2001) (Wong and Aspinwall, 2005) (Rehman and Mehmood, 2010) (Valmohammadi, 2010) (Bernina et al., 2000) (Chen et al., 2004) (Mehralian et al., 2012) (Namvar et al., 2010). By exploiting the team working spirit between the human capitals of an organization or between several organizations, the organizational objectives can be more appropriately supported. On the other hand, the enthusiasm for performing tasks plays a significant role.

This conceptual model constitute the foundation and infrastructure of the theory. By using this theory, many of the questions with respect to the success factors in the plans and policies implemented for the human capital in various industries of the developed countries can be answered.

The research by Matthew (2007), "convergence of the human capital in large corporations on the intellectual capital and on the report's stability, with the focus on the human capital issues", demonstrated that there is a broad commonality between the following three points, 1. Description of the human capital, 2. Variety of the reports, and 3. Assessment of the quality and intensity of training.

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