

Designing a Model of Knowledge Management Based on Intellectual Capital With a Comparative Approach

Abbas Babaeinejad

Department of Public Management, Kerman Branch,
Islamic Azad University, Kerman, Iran

Masoud Poorkiyani

Department of Public Management, Kerman Branch,
Islamic Azad University, Kerman, Iran
(Corresponding Author)
Management7204020@yahoo.com

Saeed Sayadi

Department of Public Management, Kerman Branch,
Islamic Azad University, Kerman, Iran

Ayub Sheikhi

Department of Public Management, Kerman Branch,
Islamic Azad University, Kerman, Iran

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Abstract. The main purpose of this research is preparing a suitable management and intelligence sample based on an intellectual capital or comparative approach. The present research is a correlation descriptive type which has been done by a survey method. In this research for gathering the required data , two self-constructed questionnaires have been used the intellectual capital and knowledge management have been used. In order to ascertain reliability , the content analysis method has been used (specialists opinion). The findings of the research showed that the model for ascertaining and rendering an ideal sample of knowledge

management based on intellectual capital shall have a favorite value.

Keywords: Intellectual, Capital, Knowledge Management.

1. Introduction

Nowadays ,at this present world, when unbridled evolutions have been occurred, which according to Toffler, is called “Power shift”, the issue of intellectual capital management and intangible properties of organizations(after the issue of re-engineering and comprehensive quality management) have influenced upon all the aspects of evolutions in management as a significant phenomenon. In this regard, the newest paradigm covering the issue in organization management is intellectual capital management. Stewart believes that intellectual capital is a set of knowledge, information, intellectual properties and organizational experience and learning which can be used for creating wealth. In fact, intellectual capital of all staff includes their organizational knowledge and skills for value- added and it causes continuous competitive resources (Ghlichli&Meshiki ,2007). Therefore, intellectual capital tends to focus more than before on organizations, intellectual properties,knowledge, experience and organizational learning for full development. Unlike common beliefs, which considers mere technology a guarantee for development; sharing knowledge in organizations and human capital can guarantee development and improvement in performance. Drucker, the famous thinker of management, stated “we are entering a society in which financial capital, natural resources and workforce aren’t important anymore. The important source is intellectual capital. A variety of definitions and categories of knowledge management is presented among which Stoden ‘s theory (2002) is mentioned here. He considers knowledge management as active identification, optimization and management of intellectual capitals. Miller (2004) defined knowledge management as an emphasis on doing right actions rather than doing actions right. He considered it as a framework in which all processes of organization are based on knowledge management. According to the definition of American Productivity & Quality Center, Knowledge is a strategy to provide right knowledge for

right person at the right time (Salarzahi, 2013, p87). Knowledge management leads to knowledge identification in a way that refines low-grade and recurrent resources and transfers useful information to users. Tendency toward knowledge-based system (knowledge management) in universities makes them gain their real position in knowledge exchange and the process of insight growth of global community. So, effective meaningful survival which directs universities depends on knowledge-oriented movement. (Ramazani, 2014, p3). The current problems and challenges in universities have made university management a complicated task. Present managers should revolutionize and try to make the situation of universities appropriate. Consequently, nowadays university management is a management of change and evolution (Rahimi, 2014, p2). In order to be successful, managers should know what they need to change and where they should direct to. In this regard, using knowledge management is a proper means. Managers should observe problems, gain necessary information about activities and needs, realize the relation among problems, needs and information and finally use opportunities and facilities to present solutions (Barzipoor, 2014, p1). In addition, according to the conceptual overlap between intellectual capital of an organization (human, organizational and social capital) and knowledge management, the factors of intellectual capital of organization can form infrastructure of a conceptual pattern for knowledge management. Considering the definitions about the concept of knowledge plan, it can be implied that knowledge plan acts as a means for becoming aware of present properties, intellectual capital and recognition and tracking of place and relations between these properties in an organization. Therefore, a proper pattern for knowledge management can include making knowledge plans with different approaches (Allame,2014, p4). Assumptions such as the following one exist in society and non-governmental universities which lack necessary standards including universities, laboratories, the number and degrees of faculty members and generally knowledge management and have no special role in science production. While branches of Islamic Azad universities, particularly main branches such as the one in Kerman which has 11759 students and 231 faculty members, have a large number of students and faculty members, how is it possible that they don't have

any noticeable role in science production? On the other hand, some critics believe Islamic Azad university doesn't have any approved plans for different courses and uses professors of other universities. There aren't any organized educational groups with adequate facilities such as professors and required equipment such as colleges and laboratories in Islamic Azad University and even one of the full-time professors of another university is responsible for managing the group. In addition, university is one of the most basic components for evolution and innovation. Achieving great aims, independency, economic and social progress requires Higher education process. Universities whose structures are traditional and whose approaches are inflexible can't adapt with the changes and consequently, it is necessary for universities to be aware of features of modern organizations. According to the importance and necessity of knowledge intellectual properties particularly in university system and higher education which are the symbol of knowledge-based organizations ; the important role of the units for social and economic development of countries ; the fact that no research has been conducted about the relation between intellectual capital and knowledge management in university system and the research gap is limited in university system; the nature of knowledge-based universities and higher education institutions to play their roles more effectively , they need to manage the processes of producing knowledge properties seriously and realize the value of their intellectual capitals and the role that the systems are responsible for (Mohsenifard, 2014). Therefore, this study aims to study aspects of knowledge management and intellectual capital in Islamic Azad University of Kerman and Payame Noor University of Kerman based on current assumptions of society and presented information. It also aims to see if there is a meaningful relation between intellectual capital with its aspects and knowledge management.

2. Literature review

According to Bentis et al (2000) human capital is elusive but when it is found and used , it can be a new source for organization to compete and succeed. Pablos (2003) believes the difference between market capitalization of a company and its book value is intellectual capital. Knowledge-based resources improve the competitive privilege of

companies (Abbasi , 2011 , p61). Mortensen et al (2004) believe intellectual capital includes staff, customers, managing knowledge and activity. Brooking (1999) presented intellectual capital in a more comprehensive framework. Intellectual capital is hidden resources of an organization which aren't shown completely in traditional accounting reports. Neither human capital nor other components of Intellectual capital are visible in accounting system (BeniMahd, 2011, p 165). Intellectual capital is formed of all knowledge-based properties that differentiate between organizational factors (human capital and communication) and the share of real value as a framework for discovering and observing structures (visually and virtually) . Intellectual capital aims to transfer knowledge to value. Intellectual capital acts as invisible sources and properties in life cycle of organization which has unique abilities for making value-added and keeping the position of market (BaniMahd,2010, p165). One of the presented models in the field of Intellectual capital is Bennis model (1998). Considering his previous theories, Bennis (199) believed that Intellectual capital has the following 3 components: structural capital, human capital and relational (customer) capital (Hejazi,2016, p7). There is a variety of definitions and categories about knowledge management, from which Stowden (2002) 's theory will be mentioned. The theory considers knowledge management as realization, optimization and active management of Intellectual capital. Miller (2004) defined knowledge management as an emphasis on doing right actions rather than doing actions right. It is considered as a framework in which all processes of organization are based on knowledge management. According to the definition of American Productivity & Quality Center, Knowledge is a strategy to provide right knowledge for right person at the right time (Salarzahi, 2013, p87). Bavakhani(2016) conducted a research entitled "a study of the effect of intellectual capital on knowledge management in knowledge-based organizations". According to the findings, intellectual capital can be so effective in the process of producing and sharing knowledge of a knowledge-based organization. The findings of the research show that there is a meaningful relation between intellectual capital with its aspects and knowledge management. Rahimi (2015) conducted a research entitled "intellectual capital and the processes of

knowledge management in a quantum organization: a case study of Kashan university. The purpose of the research was to study the role of intellectual capital and processes of transferring knowledge in quantum organization. The findings show that the mean of each of the variables such as intellectual capital, processes of knowledge transfer and quantum organization in university is more than hypothetical mean. Also, when the components such as intellectual capital, processes of knowledge transfer in university increase, the components of quantum organization are fulfilled to the same extent. Allameh(2015) conducted a research entitled “ a study of the effect of intellectual capital as mediator of knowledge management and cultural capital on performance”. The findings of analyzing data show that human and structural capital have affected the performance of organization positively. On the other hand, these components have affected the performance of organization as mediator of cultural capital and actions of KM positively. Therefore, all research hypotheses of the study are confirmed. Merlo (2016) conducted a research entitled “The factors affecting knowledge management used in entrepreneurial technologies in companies of south of the united states”. The findings show that the 8 variables of explicit knowledge, system knowledge, supervisor, colleague, leadership, encouragement, perceived usefulness and user satisfaction have the most effect in performing knowledge management. Kirsch et al (2015) conducted a research entitled “a model for sharing industrial knowledge to improve the performance of risk management”. The results show that according to the applied structural model, factors such as innovation features, staff features, career features and organizational factors can be effective for sharing knowledge. Lenzion (2015) conducted a research entitled “Human resources management in the system of organizational knowledge management”. The results show that doing knowledge management is an important factor which can lead to meritocracy and organizational success in organizational sources in 38 polish companies. Miklosik (2015) conducted a research entitled “ A framework for overcoming obstacles of performing knowledge management”. This framework shows a periodical process that consists of 5 groups of activities. Knowledge management can be practical in company by choosing the framework and doing some normal interactive and

corresponding actions determined by case studies. In this research, the independent variable (intellectual capital) was used by Bentis model (1998) and the dependent one (knowledge management) was used by Lawson (2003).

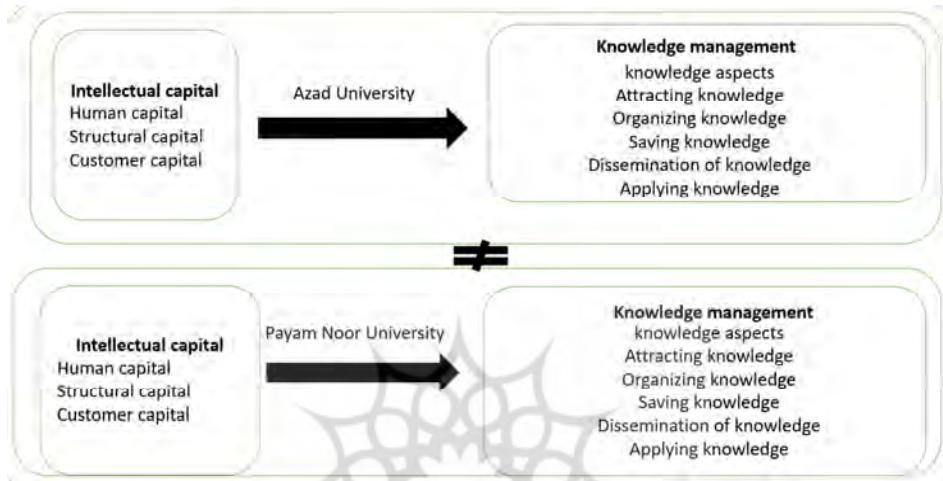


Fig 1. The conceptual model of research

According to research literature the research hypotheses are as follows:

- (A) There is a relation between intellectual capital and knowledge management in Islamic Azad University of Kerman Province.
- (B) There is a relation between intellectual capital and knowledge management in Payam Noor University of Kerman Province.

3. Method

The present research is 'operational' in terms of objective and is 'descriptive/non-experimental' in terms of research data collection method. In interview section, to determine questionnaire types, the method revolves round 'descriptive/survey' research. Among survey interview methods applied, to determine model types, 'Delphi' method was utilized. In identifying and presentation of conceptual model dimensions and investigating the interaction and reciprocal effects of model variables on each other, the research was chosen as 'correlational'. Meanwhile, the researches in which correlational matrix is analyzed

through covariance, Factor Analysis (FA), and Structural Equation Modeling (SEM) were carried out. Pearson correlation was used to investigate correlational link between model dimensions. Correlational research applied is of bivariate type. Statistical population covers all faculty members of Islamic Azad and Payam Noor Universities of Kerman province, their numbers amount to 747 and 153 respectively and calculated separately for each academic center. According to Cochran's formula the number of samples came to be 256 for Islamic Azad and 110 for Payam Noor Universities chosen based on random stratified sampling method. Gathering data was carried out through intellectual capital questionnaire containing 22 questions with validity rate of 88% and extent of reliability of 96%. The questionnaire of knowledge management utilized, contained 24 questions with 88% validity and 95% reliability. In this research two types of descriptive statistical methods were utilized to analyze demographic data and referential statistics to test hypotheses. In referential statistics, data analysis is carried out through explanatory factor analysis, confirmatory factor analysis and path analysis, in which 'structural equation modeling' technique has been applied and testing hypotheses dimension relations has been carried out through Pearson Correlation.

4. Findings

The assumed model presented in this research (RMSEA) is equal to 0.067 and Chi square equals 1.49, indicating that there is an appropriate fitness of the model. All index quantities shown in table (1) enjoy proper model fitness.

Table 1. Indices relating to final model fitness (Payam Noor University)

Variable	x2/df	RMSEA	GFI	RMR	CFI	NFI	NNFI
Final Model	1.99	0.067	0.93	0.13	0.94	0.93	0.93
Proper level	<5	<0.1	>0.90	<0.5	>0.90	>0.90	>0.90

Standard coefficients and significant numbers are utilized to prove or reject the hypotheses. Significant number in Lisrel's software is the same as 'sig' number in SPSS software. The only difference is that in order to be counted as significant, the number's 'sig' has to be greater than 1.96

or smaller than -1.96 and it is generally utilized to prove or reject hypotheses. A significant number greater than 1.96 means that the independent variable has a stronger relation with the dependent variable. Standard coefficient is the bivariate coefficient value between the two variables. The greater the number, the stronger the effectiveness of independent variable on the dependent one. The value less than 0.3 is average, between 0.3 and 0.6 is good and greater than 0.6 is excellent. Considering the significant number of 7.22 between intellectual capital and knowledge management in Payam Noor University, since the value is greater than 1.96 , therefore the research hypothesis is proved and there is direct and significant relationship between the two variables. Considering the coefficient of correlation of 0.73 which is greater than 0.60 , it is evident that intellectual capital has significant influence on knowledge management in Payam Noor University. Considering the significant number of 3.77 between structural capital and knowledge management in Payam Noor University, since its value is greater than 1.96 , therefore the research hypothesis could be proved and a direct significant relationship exists between the two variables. Focusing on coefficient of correlation which is equivalent to 0.19 and less than 0.30 , it become evident that structural capital bears an average effect on knowledge management in Payam Noor University. Considering the significant number of 4.81 between human capital and knowledge management in Payam Noor University, since its value is greater than 1.96 , therefore the research hypothesis is proved and as a result there is direct and significant relationship between the two variables. Coefficient of correlation is equivalent to 0.27 and is less than 0.30 . Therefore it becomes evident that human capital bears an average effect on knowledge management in Payam Noor University. Considering the significance of the number between customer capital and knowledge management in Payam Noor University which is equivalent to 6.24 and is greater than 1.96 , we get to the result that the research hypothesis is proved and therefore a significance and direct relationship exists between the two variables. Since coefficient of correlation is equivalent to 0.42 and ranges from 0.30 to 0.60 , therefore it is evident that customer capital bears an appropriate effect on knowledge management in Payam Noor University. The assumed hypothesis model presented in the research was

resulted as RMSEA equivalent to 0.055 Chi and 1.76 Chi Square, showing that the model bears good fitness. Value indices of the model presented in the table below show that all bear good fitness.

Table 2. Indices related to the fitness of final model (Islamic Azad University)

Variable	χ^2/df	RMSEA	GFI	RMR	CFI	NFI	NNFI
Final Model	1.76	0.055	0.91	0.081	0.98	0.97	0.98
Proper level	<5	<0.1	>0.90	<0.5	>0.90	>0.90	>0.90

Considering the significant number between structural capital and knowledge management in Islamic Azad University which is equivalent to 12.27, since the value is greater than 1.96, therefore the hypothesis gets approved and thus direct significant relation exists between the two variables. As coefficient of correlation is equivalent to 0.86 and the value is greater than 0.60, therefore it becomes evident that intellectual capital bears a strong effect on knowledge management in Islamic Azad University. Considering the significant number equivalent to 8.00 between structural capital and knowledge management in the Islamic Azad University, since the above is greater than 1.96, therefore the hypothesis is proved and there is a direct and significant relationship between the two variables. Coefficient of correlation is equivalent to 0.45, ranging from 0.30 to 0.60 and it is clear that structural capital bears a proper effect on knowledge management in the Islamic Azad University. Considering significant number between human capital and knowledge management in Islamic Azad University which is equivalent to 8.05 and since its value is greater than 1.96, therefore the hypothesis gets proven and there is a significant direct relationship between the two variables. Coefficient of correlation is 0.46, ranging from 0.30 to 0.60, showing that human capital bears good influence on knowledge management in Islamic Azad University. Taking into account the significant number between customer capital and knowledge management in Islamic Azad University equivalent to 7.06 we note that it is greater than 1.96 and therefore proves the research hypothesis and bears significant and direct relationship between the two variables. Focusing on coefficient of correlation equivalent to 0.36 - ranging from 0.30 to 0.60- it is indicated that customer capital has a good effect on knowledge management in Islamic Azad University.

5. Discussion and Conclusions

The findings revealed that intellectual Capital and its dimensions; structural capital, human capital and customer capital have direct relationship with knowledge management. These findings correspond with the findings of Lotfi (2018), Sanjari (2016) and Jozak(2018). It could be concluded that by the advent of 'Information Technology' revolution and appearance of information community and also the rapid growth and development of technology, the pattern of global economic growth has also undergone essential changes. As a result of these evolutions, knowledge as the most important capital, has globally replaced financial and physical capital in the arena of world economy. Information integration and unification of employees, equipment and commercial processes inside a coordinated and flexible facility is all set to promptly respond to upcoming events and environmental changes. Since intellectual capital includes intangible assets which gradually create wealth for the organizations and make them utilize new technologies increasingly. Relationship between intellectual capital and knowledge management becomes of vital importance to the organization. These complement each other because of the overlap that exists among them. This overlap is to a great extent dependent on plans and priorities of the organization. Knowledge management plays an important role in the process of development and productivity in the field of intellectual capital and focuses on facilitation and management of knowledge-based activities so that a friendly work environment is created which allows intellectual capital to flourish. The increase of intellectual capital through its links with knowledge management becomes possible when existing knowledge processes are managed in a systematic and object-oriented method. In order to have a systematic approach to knowledge management, it must be viewed beyond traditional boundaries which exist in today's management. Here all factor affecting the identification of intellectual capital and its components and activities which have links with the execution of knowledge management must be identified and taken into account. This requires integration among different technologies, human resources and system through special emphasis on personnel. This approach requires management, measurement and alignment of intellectual capital and knowledge management through

innovation and continuous discovery of important ideas regarding better products and services. This will cause constant and stable relationship with customers and customer capital. Therefore, in a culture of effective information and knowledge sharing, the experts try to gain knowledge from everywhere. Knowledge management creates value and worth for the organization through converting human capital into organized intellectual assets for the organization. Rational & intellectual management is situated at the center of contemporary knowledge management. Development of measurement and assessment of intellectual capital is a snail-paced process with little research. Most of the current and existing methodologies for the measurement and assessment of intangible assets and intellectual capital have originated from the core of researches in the realm of economy, management, accounting, human resources, social sciences etc. The result of these processes is to access some frameworks, methodologies and patterns which could be used to strengthen the measurement and assessment of economic sectors in the direction of assessment of knowledge-based assets. The objective of this study is to gradually discover concepts which could match with the aspects of service sectors. Through hidden variable concepts of research, we could as well demonstrate how to prepare indices for these variables and by assessing these indices show the importance of factor analysis once again. Following such studies we have to demonstrate that organizations with high level of intellectual capital must have services with higher value addition, organizational learning and strong information security and supply throughout organizational knowledge. Analysts and research scholars have to formulate such a capital. Because of the implicit concept of intellectual capital, the analysts are not allowed to measure intellectual capital by using economic variables. This could be an alarm for financial and accounting specialists who are trying to find an answer to the question; "How much is intellectual capital worth for our organization?" The formula which has never existed. Since some state organizations in service sector have been or are being transferred to private sector during recent years, measurement of intellectual capital and its influence on organization performance could evaluate the results of such policies as well. The author(s) have (has) tried to present a comprehensive

framework to connect the findings of recent researches about knowledge management and human capital in order to analyze the knowledge included in human capital and introduce its two dimensions i.e. strategic worth and uniqueness. Anyhow, the organization has to manage all its compounds and human capital system, because it is only through these human capital processes which we could have access to organizational objectives. As it was mentioned above, different human resource systems are needed for different types of human capitals and it must be noted that using one system would cause decrease in productivity.

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