Exploring the Relationship between Talent Management and Knowledge Creation Process in Amirkabir Petrochemical Company, Mahshahr

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Abstract
Talent management (TM) has been defined as a system for identifying, employing, educating, enhancing, elevating, and retaining the talented people with the aim of optimizing the organizational capability to achieve business results. Given the definition of TM and staff life cycle as a model of integration and of major human resource development processes, it might be perceived that the issues relevant to it are applicable to the entire processes within the cycle. On the other hand, in the modern world where new topics and sciences are taking shape and the foundations for rivalry have changed direction from the rise in efficiency toward information access, knowledge and awareness, and their organizing and retrieving. In fact, knowledge management is a necessity of management procedure. As is clear from its name, knowledge management means managing the existing knowledge while creating and capturing the new knowledge. The important point is being familiar with the existing knowledge in the era of growing scientific development can by no means solve the problems. Thus, the executives have to promote knowledge production in their companies so as not to fall behind competing organizations. Hence, the present paper first gives a description of such topics as talent, data, and information management as well as knowledge management and creation. Then, it proceeds with investigating the relationship among these variables using LISREL structural and software equations model. The current study is a descriptive, correlational research conducted via surveying.

Keywords: human resources, talent recruitment, knowledge management, knowledge creation process

Introduction
Knowledge management does not constitute an unsophisticated matter about saving, retrieving, and transferring information; it has to do mostly with interpreting and organizing the information from various respects. It is solely through changing the organizational culture that the model of interaction among the individuals, technologies, and techniques could be gradually transformed. When in a dynamic complicated environment, the organizations are constantly required to implement the new knowledge in creating, crediting, providing, distributing, and applying their products or services.

The use of technology would result in individual efficiency and information coherence within the organization where the social systems are invested with interpreting the information by offering new perspectives in a single field. Thus, the knowledge management constitutes a conscious procedure of creating, crediting, providing, distributing, and applying the knowledge.

The organizational success in 21 century, on the one hand, depends on effective use of the talented individuals. Talent-oriented organizations are endlessly in search of new talents. Keeping these individuals satisfied, they provide them with a challenging environment, so that they could work and operate with facility. Individuals may create and destroy an organization all at the same
time, since what matters most in business is individuals not the technology or even the financial capital. Individuals act as the driving force that propels 21st century organizations. In consequence, TM is yet another different capability over and above the previous ones required of the managers to be mastered. They need to know how to make maximum use of the individuals and how to strategically position them in a proper situation, a situation that is not to cause inaction and boredom by a routine job.

Accordingly, the present study identified and evaluated the effective TM indexes in developing the knowledge creating process within Amirkabir Petrochemical Company of Mahshar.

**Theoretical Backgrounds**

*Knowledge Management:* Knowledge management is not synonymous with IT as some of the IT experts have acknowledged that no connection has been found between investment in IT, organizational performance, and knowledge management. What matters is application and creation of knowledge, not its mere possession (Mel Hatra, 2000).

Nonaka and Takeichi, Davenport and Prasac, and Prast (2000) divide the knowledge into two categories, namely explicit (i.e. that which is contained in documents and papers inside and outside an organization) and implicit (i.e. the institutionalized and internalized knowledge within the individuals). Both, they observe, are necessary for knowledge production as a primary function of knowledge management process.

*Knowledge Organization:* This stage involves placing the acquired knowledge in combined moulds so that the members could make quick use of it. This often involves a knowledge improvement process to increase its value in the eye of the users. Librarians and knowledge management experts have developed ways and means to organize the knowledge using two strategies of codification and personification. The former methods highly depend on librarianship codes and standards, and IT, having to do with classification and storage of knowledge and information in data banks and other devices for storage and retrieval in order to facilitate its assessment and application by organization members and users. In this strategy, the information and knowledge is obtained from individuals, reports, books, minutes, and other media. They are, then, classified based on the knowledge topic and made available to the users for various purposes. It applies to explicit knowledge.

Personification, however, focuses on organizing the knowledge for the individuals developing and exchanging it face to face. It applies to the explicit knowledge not lending itself to codification and storage in computer-based data systems. It is generally accessible via direct communication and continuous dialogue with those possessing it. Accordingly, experts in communication and knowledge management have been developing diverse models to ease personal exchange between the implicit knowledge owners and explorers. Some corporations, for instance, like “Hugs”, “Microsoft”, and “Time Life” have created knowledge plans illustrating the rated knowledge, skills, and capabilities of some individuals, as well as where to refer to and who to contact.

*Knowledge Distribution:* The final stage of knowledge management develops mechanisms for the members to gain access to the necessary knowledge. Overlapping on the second stage, it involves facilitating the access to knowledge and sustaining the possibility for the users to apply it over again. As mentioned earlier, the methods devised by experts in communication and knowledge management are divided into three types, namely autonomous distribution, knowledge service networks, and easy communication.

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1 Information Technology

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The former method largely draws on members’ control over and initiative for knowledge distribution. Autonomous methods typically involve data banks to store knowledge and “place-setting” systems to help members find the required knowledge. The data banks, in turn, may comprise multiple data such as material analysis reports and customer information data. In the meantime, place-setting systems could be pigeonholed among those ranging from a simple phone directory to advanced search engines. Knowledge services and networks explain knowledge mobilization and transfer using special support and organized channels to implement it all over the organization. Comprising a variety of supports for knowledge distribution, knowledge services include backup sections, information systems, and knowledge packages. Furthermore, it is likely for them to include particular units and functions showing the knowledge current, organizing it in very helpful forms. Knowledge networks, also, establish a link among the members to share and exchange knowledge and learning. This may well be in electronic form as in communication via internet chatrooms, organizational intranet, debate data banks, and teleconferences. The fact remains that no sound organization could claim to have at its disposal sufficient knowledge; it is by perception of this matter that almost all successful organizations try to create knowledge while interacting with the environment. In fact, while in knowledge management we are dealing with what is learned, we are investing in knowledge production on what is not learned so as to achieve competitive advantage despite intelligent present-day competitors. The present study, thus, seeks to derive and test indexes in the form of TMS concept at Amirkabir Petrochemical Company level to describe the characteristics shown above.

**Talent Management**: In recent years the subject of education and development of manpower in such various forms as talent identification and education, successor training, future managers, shadow managers, and so on have attracted attention with the Iranian organizations. TM ensures that eligible individuals with relevant skills are occupying proper vacancies to achieve the anticipated goals of the business. TM, indeed, involves a complete set of procedures to identify, implement, and manage the individuals to successfully execute the business strategy the organization requires (Michaels, 2001). Being effective in personnel life cycle as well, they are divided into three major areas of talent recruitment, talent convergence and retention, and talent expansion.

**Talent Recruitment**: On top of the TM processes stands recruitment of talented individuals. Selecting and recruiting ideal individuals according to proper indexes poses one of the difficulties ever in the organizational systems. To that aim, they should relinquish traditional recruiting methods and resort to creative recruiting strategies like websites and networks active in this field, programs introducing colleagues, and salaries higher than market level.

**Talent Convergence and Retention**: Once an organization have succeeded in accomplishing the recruitment process for the intended positions, it needs to know what the next step is. At this point, it is necessary that the relevant skills of the individuals converge and align with their career responsibilities. In other words, workforce performance need be managed, so that the organization ensures it is following a course where its manpower has the highest efficiency.

Another issue worthy of attention as to the process of talent retention is service compensation system. Besides the need within the organization to develop fair service compensation policies, it is required to take into account the output of reports and analyses having as their source the individual talents and performance evaluation in the system of calculating personnel service compensation.

**Talent Expansion**: The closing stage of the process relates to issues on learning and expansion. There, the personnel need a tangible clear path of career expansion. In this regard, the organization has to invest more on the personnel to provide opportunities for learning and expansion so as to keep their skills up-to-date in response to potential needs and expectations of the
organization. Given the unique qualities of talented individuals, expansion and enhancement strategies have to be quite specific. The principal role as to talent enhancement is invested with operational managers (i.e. individuals’ immediate managers). It is these people who should comprehend what strengthens an employee. One such alternative is to encourage the employees to take charge of their own personal expansion and improvement (Phillips and Roper, 2009). Recent studies on 40 global corporations have shown that all of them cope with the problems caused by not applying TM strategies; thereby resulting in shortage of talented personnel to fill strategic organizational positions, considerably limiting the potential for expansion (Collings and Mellahi, 2009). An illustration of a TM model based on key values and merits have been given in figure 1, below.

![Figure 1. TM Model based on Key Values and Merits Adapted from Phillips and Roper (2009)](image)

**Review of Related Literature**

In a study titled Designing an Infrastructural Framework Required for Implementing Knowledge Management within Organizations, Najafbeigi and Sarrafzadeh (2011) aimed at providing an infrastructural framework to implement knowledge management in Iranian state organizations. The results indicated that LISREL of structural and software equation model of organizational culture revolving around learning culture, confidence and cooperation, and an organizational structure pivoting around decentralization and casualization, as well as support for IT and personnel motivation are considered the most significant infrastructures required to implement knowledge management at the governmental organization level under study.

Another study titled Talent Management: Identifying and Ranking the Factors Effective in Recruiting and Retaining Scientific Talents by Tahmasebi, Gholipour and Javaheripour (2012) the aim, as it appears from the title, was to identify and rank the major factors which affect recruiting and preserving scientific talents in organizations. It was an applied research conducted in Tehran University by means of a quantitative and descriptive method. Sampling was done randomly and the means of data collection were questionnaires. The analyzed data and the results indicated that factors of research atmosphere and SPSS data collected by the research software exerted the greatest effect on recruiting the talents in Tehran University. Elsewhere, Heso (2008) carried out his study entitled Investigation of the Relationship of Knowledge Management with Organizational Learning Capability and New Product Development Performance. The study was carried out via planning two stages of research involving interviews and investigations, on the one hand, and a four-section questionnaire, on the other hand. The interviews were meant to achieve measures compatible with intellectual capitals and the new product development performance where 125 items were collected and the hypotheses tested using least squares. Subsequent to analysis of his data on the basis of the experimental data and least squares, Heso proved that human capital and relational capital, in fact, enhance the new product development performance through organizational learning capability. He also demonstrated that knowledge management elements have a positive effect on the organizational learning capability (Heso, 2008, pp. 664-667).

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The expression “knowledge management” has just recently been added in the dictionary. In 1989 a consortium of organizations across the United States began to work in order to announce its initiative to chart knowledge management as a capital in organizations. For the first time in 1991, materials on knowledge management were issued by celebrated publishing houses. One might observe that the most extensive research work ever performed in the area of knowledge management since 1991 was by Kojie, Nafoka, and Hirotaketakishi in a knowledge producing organization called “How the Japanese Organizations Create Innovation and Dynamism?”

**Theoretical Framework of the Study**

Rooted in the recommendations by Nonaka and Takuchi besides Phillips and Roper’s theory which are about knowledge production process and TM, respectively, the theoretical framework of the study was designed as being indicative of the relationship between TM and three elements of knowledge production process (i.e. knowledge creation, organization, and distribution), as shown in the diagram 1. The research hypotheses were formulated accordingly.

**Research Hypotheses**

1. Aspects of TM have positive significant effect on knowledge production;
2. Talent recruitment has positive significant effect on knowledge production;
3. Talent convergence and retention have positive significant effect on knowledge production
4. Talent development has positive significant relationship on competitive advantage.

Given the results of the preceding studies and the above proposed hypotheses, the following theoretical framework was put forward for the present study.

![Diagram 1. Theoretical framework of the Model](http://www.european-science.com)

**Data Population of the Study**

As regards the importance of knowledge creation process in the success of petrochemical industry, and given the fact that there has been barely any research in this area, in the present study the theoretical model was evaluated in Amirkabir Petrochemical Company. The number of staff employees available in the company was 250 among whom a total of 160 questionnaires were distributed and out of which 153 collected.

**Means and Methods of Data Collection**

To collect the data for analyzing the hypotheses and testing the model, a 52-item closed questionnaire was utilized. Four items dealt with sociological variables and 48 were designed to evaluate the specific variables of the study. To gain a clear picture of the variables, they were tabulated as follows:

<table>
<thead>
<tr>
<th>Table 1. Scale, Number of Questions, and Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>TM</td>
</tr>
<tr>
<td>Talent Creation Process</td>
</tr>
</tbody>
</table>
Data Analysis

This section entirely elaborates on findings of the study at two levels of descriptive and inferential using SPSS and LISREL statistical software. These two levels are detailed, respectively.

Descriptive Findings

Four questions were posed to evaluate the demographic condition of the samples. Description of the demographic variables of the study has been given in table 2, below. As observed, 90.8% out of a population of 153 completing the questionnaire were male and 9.2% were female. 54% of the population had less than 10 years of professional record, and more than 51% of them held BA and higher degrees; 42% of the participants were supervising engineers.

Table 2. Demographic Characteristics of the Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>Percentage</th>
<th>Variable</th>
<th>Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>90.8</td>
<td>Education</td>
<td>Higher diploma</td>
<td>15.7</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>9.2</td>
<td></td>
<td>BA</td>
<td>51.6</td>
</tr>
<tr>
<td>Experience</td>
<td>Up to 10</td>
<td>54.2</td>
<td></td>
<td>MA and PhD</td>
<td>32.7</td>
</tr>
<tr>
<td></td>
<td>10-20</td>
<td>30.7</td>
<td>Organizational Position</td>
<td>Technician</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>20-30</td>
<td>15</td>
<td></td>
<td>Supervising Engineer</td>
<td>42.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Production Manager</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R&amp;D Manager</td>
<td>13.7</td>
</tr>
</tbody>
</table>

Confirming Factorial Analysis of TM Variable

Figure 2 represents the model for measuring TM in the standard estimation mode. The results of estimation (the lower section of the figure) suggest the relevance of the model. Given the LISREL output, the amount of calculated $\chi^2$ is equal to 179, being relatively low and proper number with regard to the sample volume.
The low quantity of the index implies the little difference between the theoretical model and the observed data of the study. Also, the output shows RMSEA = 0.014 for the model. In addition to $\chi^2$, the more the amount of RMSEA index being lower than 0.1, the better suitability the model enjoys. Moreover, the measurement models in the standard estimation mode represent the effect of each of the variables in explaining the variance of scores for that particular variable or the main factor. For instance, concerning the talent recruitment variable (JAZBE), question 1 (0.63) performed best in explaining the variance of human capital variable. To put it differently, the correlation of this variable with the aforementioned factor and the effect it exerts on which is higher than other variables, also for convergence and retention (HAME) and Talent Expansion (TOE) variables, the fourth (0.91) and second (0.51) questions, respectively, explained the variance of the variables better than the rest of variables. Other indexes suggesting the suitability condition of the model, i.e. GFI and AGFI are appropriate, too.

**Correlation Coefficient**

The matrix of internal correlation of variables, mean, and standard deviation of them have been demonstrated in table 3, below.

<table>
<thead>
<tr>
<th>N</th>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TM</td>
<td>3.84</td>
<td>0.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Talent Recruitment</td>
<td>3.04</td>
<td>0.49</td>
<td>0.67</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Talent Convergence and Retention</td>
<td>3.17</td>
<td>0.42</td>
<td>0.85</td>
<td>0.33</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Talent Expansion</td>
<td>3.13</td>
<td>0.50</td>
<td>0.48</td>
<td>0.11</td>
<td>0.59</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Knowledge Creation Process</td>
<td>3.14</td>
<td>0.37</td>
<td>0.59</td>
<td>0.32</td>
<td>0.54</td>
<td>0.48</td>
<td>1</td>
</tr>
</tbody>
</table>

**Structural Model of the Study**

The structural model is explanatory of connection between the hidden variables of the study. The research hypotheses could be examined by making use of it. The examination was conducted via LISREL software, version 8.5. The diagram that follows represents the overall measurement model in the standard estimation mode and significant numbers.

![Figure 4. Results of Standard Coefficients and Significant Values of Overall Research Model](http://www.european-science.com)
To test the hypotheses of our research, the coefficients and significant values of the
directions have to be specified. The amount of t and direction coefficients has been given in the
table 4, below.

**Table 4. Results as to Research Hypotheses**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Direction Coefficient</th>
<th>Significant Number</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>TM</td>
<td>Knowledge Creation Process</td>
<td>0.55</td>
<td>6.12</td>
<td>Confirmed</td>
</tr>
<tr>
<td>H1a</td>
<td>Talent Recruitment</td>
<td>Knowledge Creation Process</td>
<td>0.36</td>
<td>3.22</td>
<td>Confirmed</td>
</tr>
<tr>
<td>H1b</td>
<td>Talent Convergence and Retention</td>
<td>Knowledge Creation Process</td>
<td>0.72</td>
<td>8.84</td>
<td>Confirmed</td>
</tr>
<tr>
<td>H1d</td>
<td>Talent Expansion</td>
<td>Knowledge Creation Process</td>
<td>0.66</td>
<td>7.48</td>
<td>Confirmed</td>
</tr>
</tbody>
</table>

**Conclusion**

Findings of the present study indicating the presence of significant relationships between
variables of TM and job satisfaction were confirmed. They were compared with those of different
studies conducted before; they are given here in further detail as follows:

The results indicated there was a significant relationship between talent recruitment and
employees’ job satisfaction. This is particularly in line with the results by Yarahmadi Khorasani
(2007) who lists increase in employees’ job satisfaction and efficiency among the benefits of
manpower planning.

Armstrong, however, thinks of what is mentioned further on as benefits proposed for
payment based on performance: it creates motivation; satisfies the employees, and provides a
tangible means for giving bonuses and identifying achievements. Besides, Saedi and the colleagues
came to the conclusion in their research that salary and premium, promotion, appreciation, and
organizational policy are among the main sources of job satisfaction.

As for the results of the present study it must be acknowledged that Amirkabir Petrochemical
Company of Mahshar is in urgent need of formulating appropriate policies in order to realize each of
the factors concerning talent recruitment and retention. In particular, it should pay greater attention
to the subject of research and experimentation. Ultimately, one must point out that TM is a relatively
new topic in the realm of human resource management that has received slight attention as the
majority of the studies conducted earlier are hovering around successor training. Thus, the talent
scouting project and the ensuing human resource enhancement in the company at issue is an
immature system capable of expanding the range of its activities through more effort, legitimization,
and stronger support by top executives, acting as the key factor decisive in the election and
appointment system of human resource management while communicating to other organizations
the relevant records as a successful management experience in an attempt to pave the way for
establishment of meritocracy in our country.

A number of recommendations could be made as applicable in various studies to come. For
instance, organizations where the individuals are recruited and probed based on merits, capabilities,
and talents using both practical and simulated employment tests as well as through employment
agencies and structured interviews, will enjoy more satisfied, more efficient employees. Hence, they
are recommended to exploit this recruitment and probing model.

Expansion of talents and human resources constitute a major share of an organization’s
progress towards establishment of a learning organization. In so doing, they first need to have
knowledge of planning to improve external communication with their clients, suppliers, and
investors. In order to institutionalize organizational learning, individual learning and expansion
programs have to be developed for employees all around the organization. Having created a working
course expansion program within the organization, the human resources will experience more satisfaction in their jobs and the organization will be profited by the learning organizations. So, these institutions are recommended to allow for educational and individual development plans.

To encourage innovation, the internal culture of the banks should be directed in a course, so that novel ideas are presented, investigated, and executed via confirming the relevant technologies at the right time and forming contact and cooperation with the innovators instead of repelling them.

In addition, instituting a culture that boosts learning and experimentation, rewarding failed or accomplished innovative works with the result that the individuals will not be discouraged from making mistakes but motivated to innovate.

In view of the necessity for the organizations to keep pace with the rapid changes in the international level, designing programs to implement TM within the organizations, management support for TM process, and holding conferences and seminars to introduce the managers to the concept may lead the organizations to enhanced performance and higher competitiveness. Likewise, since other factors besides TM affect innovation. It is advised that they be divided into factors of success and hurdles, and then properly investigated.

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