International Journal of Latest Engineering Science (IJLES) E-ISSN: 2581-6659

DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 **January to February 2023** **www.ijlesjournal.org**

Designing and presenting a model for the development of human capabilities with an interpretive structural approach

Mahdi Jalali Zamani[1], Hadi hematian[2], Ehtesham Rashidi[3]

Department of Management, Semnan Branch, Islamic Azad University, Semnan, Iran

ABSTRACT

One of the important tools for the survival of the organization and achieving the desired goals and missions is the human element. The role of man in the organization and the way that one looks at him will have a significant contribution to the success or failure of the organization. In the meantime, the capable human resources have a special place, both as the main capital in each organization and as the user of other resources and facilities. The statistical population consists of capable experts and administrators of medical universities. In this research, the strategy of data foundation theory and fuzzy Delphi technique has been used to identify the criteria. In order to review and classify the criteria, interpretive structural technique (ISM) and model presentation with structural equation technique (SEM) based on Smart PLS software has been modeled. The present study consists of 9 dimensions, 23 components and 80 indicators, respectively, which are relatively comprehensive and complete model in terms of dimensions, components and indicators. Human capabilities with the organization's macro strategies have an important role in improving the performance of organizations and institutions and can be considered as a suitable way to achieve competitive advantage. Therefore, by using the technique of structural equation, the proposed model for the development of human resource capabilities was proposed.

Key words: *Interpretive structural technique, human capability, structural equations*

1- PhD Student of Public management, Semnan Branch, Islamic Azad University, Semnan, Iran.

2-Assistant Professor, Department of Public Management, Semnan Branch, Islamic Azad University, Semnan, Iran (Corresponding Author)

3-Assistant Professor, Department of Public Management, Semnan Branch, Islamic Azad University, Semnan, Iran.

Introduction

Organizations have goals that according to the environmental effects, must be designed a suitable organization to achieve the desired goals, and considering the extent of the issues and factors affecting them, have the best performance in this complex and changing environment. [1] Process models are more developed based on qualitative and subjective approaches. The purpose of this article is to show how to design a process model with a combined method including the interpretive structural modeling technique and action research. [2] Today, the customer is known as the most important source of knowledge for organizations [3], these organizations usually plan their own organizational processes in the attracting, developing and applying knowledge, and this issue will not be possible except by improving the level of individual capabilities of employees. Research shows that human abilities play an important role in improving the performance of organizations and institutions. Capabilities play a very important role in how to manage the development of capabilities and task skills [4], aligning with the strategic plans of organizations [5] as well as organizing and integrating what these organizations achieve. [6] More comprehensively, that how organizations function in a competitive environment has caused the research in the field of capabilities to become one of the most important schools that can be cited when researching in the field of strategic management. [7] Any organization that wants to progress and be dynamic and successful in today's rapidly changing market needs the development of human capabilities. Organizations can progress and achieve success only through their efforts

DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 **January to February 2023** **www.ijlesjournal.org**

and human capabilities. Another key factor in the success of organizations is the participation of employees and the social responsibilities. Therefore, it is important to understand the reactions of employees in such activities [8]. Interpretive structural modeling is an interactive learning process that deals with the relationship between the concepts of a problem through the interpretation of the opinions of a group of experts, and creates a comprehensive structure of a complex set of concepts and, in addition to specifying the precedence and delay of the influence of elements on each other, it determines the direction and intensity of the relationship between the elements of a complex set in a hierarchical structure [9]. In fact, using this method, the impact of a structure on other structures is checked. Therefore, it is possible to identify the relationships of the structures and provide a structural-interpretive model of the structures. Research shows that human abilities play an important role in improving the performance of organizations and institutions. [10] Therefore, the development of human resources capabilities in line with the organization's macro strategies can be considered as a suitable solution to achieve a competitive advantage for organizations in this complex environment. [11].

Methodology: The variables used in the model include 9 factors of employment potentials, specialized potentials, organizational potentials, cognitive characteristics, performance improvement, motivational and emotional characteristics, competitive advantage, productivity capabilities, and psychological characteristics that deal with the views of 12 experts on 80 indices through the screening and selection the final indices using the fuzzy Delphi technique (spectrum of 7 degrees) and in 3 rounds, and the mentioned variables were extracted. The next step is to aggregate the opinions of experts. To aggregation, a set of triangular fuzzy numbers has been considered as minimum l, and geometric mean m, and maximum u.

Relationship 1

$\square_{\square\square\square}$ = **(**$\square\square\square\{l\}, \prod\{\square\}, \square\square\square\{\square\}$**)**

Relationship 2

$\square_{\square\square\square}$ = **(**$\square\square\square\{l\}, \{ \frac{\sum \square}{\square}, \square\square\square\{\square\}$ **)**

Relationship 3

$\square_{\square\square\square}$ = ({ $\square$), {$\frac{\sum \square}{\square}$, {$\frac{\sum \square}{\square}$)

Each triangular fuzzy number resulting from the aggregation of experts' views for the jth index is shown below as:

$\square_{\square}$ = ($\square_{\square}$, $\square_{\square}$, $\square_{\square}$)

$\square_{\square}$ = min($\square_{\square\square}$)

$\square_{\square}$ = $\sqrt[\square]{\prod_{\square=1}^{\square}\square\square}$

$\square_{\square}$ = max($\square_{\square\square}$)

The index i refer to the expert people. So that

Xij: the evaluation value of the ith expert from the jth criterion

DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 January to February 2023 www.ijlesjournal.org

Lj: the minimum value of evaluations for the jth criterion

Mj: the geometric mean of the assessment value of experts from the performance of the jth criterion Uj: the maximum value of evaluations for the jth criterion
The fuzzy mean and the de-fuzzing output extracted from the values of the indices indicate that the de-fuzzed value greater than 0.7 is accepted and any index with a score lower than 0.7 is rejected.

In the Interpretive Structural Modeling (ISM) method, the effective and essential factors are first identified, and then the relationships between these factors and the way to achieve progress by these factors are presented. Structural-interpretive modeling helps in identifying the internal relationship of variables and it is a suitable technique for break down and prioritizing and analyzing the effect of one variable on other variables. [12] This methodology is a tool by which the group can overcome the complexity between the elements

The steps of implementing the ISM technique are as described in Figure No. 1.

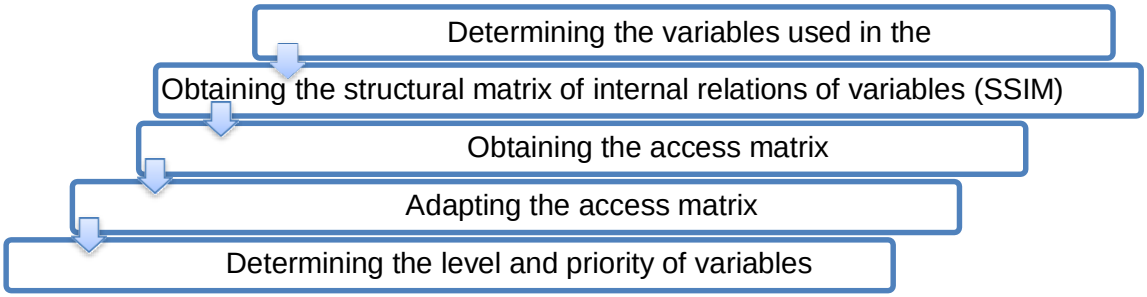


Figure 1. Implementation steps of ISM technique

Determining the variables used in the model: these variables are the same 9 factors extracted from the fuzzy Delphi technique.

Structural self-interaction matrix (SSIM): This matrix is with the dimensions of the variables, which the variables are mentioned in its first row and column in order. Then the two-by-two relationships of the variables are formed using four modes of conceptual relations

Table 1. Signs and symbols used to identify relationships

	V	A	X	O
	Variable i has an effect on j	Variable j has an effect on i	Two-way relationship	no relationship
(i, j)	1	0	1	0
(j, i)	0	1	1	0

In this matrix, the experts consider the criteria in pairs with each other and respond to the paired comparisons accordingly, that is, in each comparison two criteria from the letters of O.X.A.V are used based on the definitions.

Table 2. SSIM self-interaction structural matrix

C09	C08	C07	C06	C05	C04	C03	C02	C01	SSIM
V	V	O	V	V	A	A	A		**C01**
V	V	V	V	V	V	V			**C02**
O	V	V	V	V	O				**C03**

DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 January to February 2023 www.ijlesjournal.org

V	V	V	V	V					**C04**
X	O	V	V						**C05**
A	V	X							**C06**
A	V								**C07**
A									**C08**
									C09

The matrix obtained in this step shows which variables a variable affects and from which variables it is affected.

Access matrix: The access matrix is obtained by transforming the self-interaction structural matrix into a two-valued matrix of zero and one. To extract the reachability matrix, in each row of the self-interaction matrix the number one is used instead of X and V symbols and zero is used instead of A and O symbols. The obtained matrix is called the initial reachability matrix. The entries of the main diameter are equal to one.

Table 3. access matrix of research variables

C09	C08	C07	C06	C05	C04	C03	C02	C01	RM
1	1	0	1	1	0	0	0	1	**C01**
1	1	1	1	1	1	1	1	1	**C02**
0	1	1	1	1	0	1	0	1	**C03**
1	1	1	1	1	1	1	0	1	**C04**
1	0	1	1	1	0	0	0	0	**C05**
0	1	1	1	0	0	0	0	0	**C06**
0	1	1	0	0	0	0	0	0	**C07**
0	1	0	0	0	0	0	0	0	**C08**
1	1	1	1	0	0	0	0	0	**C09**

Accommodating the access matrix: After the initial access matrix is obtained, its internal compatibility must be established, in other words, the cells marked with * are the relations that have been established in the accommodated matrix. One of the possible strategies to calculate different paths from i to j is to access the T matrix. The access matrix T is accommodated using the following Boolean rules:

0+0=0

0 + 1 = 1; 1 + 0 = 1

1 + 1 = 1
Therefore, to calculate the access matrix (T) we have:

$T = (I + D)^{n-1}$; $tij = \{$ 1; □□ □h □□□ □□□□□□□ □ □□□□h □□□□ □h □ □□□□□□□□□ □□□ □□ □□□□□□□□□□ □□□ 0; in otherwise

DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 January to February 2023 www.ijlesjournal.org

The way of obtaining the access matrix is by using Euler's theory in which we add the adjacency matrix to the unit matrix. Then we raise this matrix to the power of n, if the entries of matrices do not change.

Determination the final access matrix

$$A + I$$
$$M = (A + I)^n$$

Matrix A is the initial access matrix of the identity matrix and final access matrix. The operation of raise to the power of the matrix is done according to Boolean rules.

Table 4. The final access matrix of research variables

C09	C08	C07	C06	C05	C04	C03	C02	C01	TM
1	1	1*	1	1	0	0	0	1	C01
1	1	1	1	1	1	1	1	1	C02
1*	1	1	1	1	0	1	0	1	C03
1	1	1	1	1	1	1	0	1	C04
1	1*	1	1	1	0	0	0	0	C05
0	1	1	1	0	0	0	0	0	C06
0	1	1	1	0	0	0	0	0	C07
0	1	0	0	0	0	0	0	0	C08
1	1	1	1	1	0	0	0	0	C09

Determining relationships and leveling of dimensions and indicators:

To determine the relationships and leveling of the criteria, the set of outputs and inputs for each criterion should be extracted from the reachability matrix.

- Access set (row elements, outputs or affecting): Variables that can be reached them through this variable.

- Prerequisite set (column elements, inputs, or affected): Variables through which can be reached to this variable.

- The set of outputs includes the criterion itself and the criteria that are affected by it. The set of inputs includes the criterion itself and the criteria that affecting it. Then, the set of two-way relations of the criteria is specified. For the variable C_i, the access set (output or effects) includes the variables that can be reached through the variable C_i. The prerequisite set (inputs or affecting) includes the variables through which can be reached the variable C_i. After determining the access set and the prerequisite set, the intersection of the two sets is calculated.

DOI: 10.51386/25816659/ijles-v6i1p105

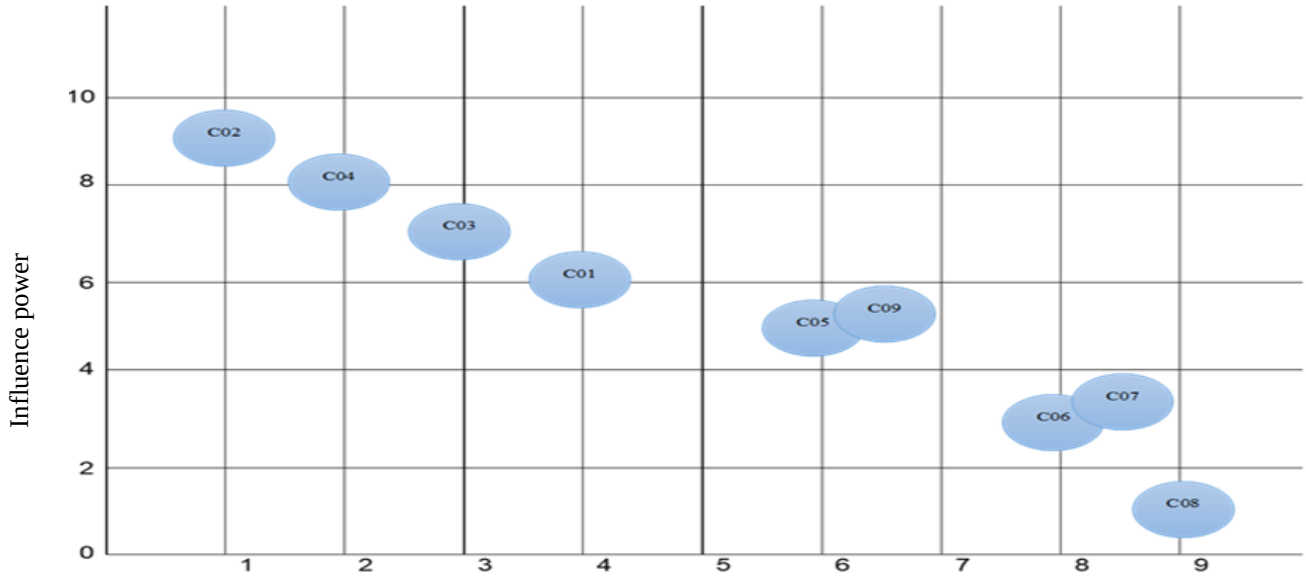
Volume: 06 Issue: 01 January to February 2023 www.ijlesjournal.org

The first variable for which the intersection of the two sets equals the accessible set (outputs) will be the first level. Therefore, the elements of the first level will have the most effecting in the model. After determining the level, the criterion whose level is known is removed from the whole set and the set of inputs and outputs is formed again and the next variable level is obtained. This process continues until all indices are removed.

Table 5. Determining relationships and leveling of dimensions and indicators

level	intersection	Input: affected	Output: affecting
4	C01	C01,C02,C03,C04	**C01,C05,C06,C07,C08,C09**
7	C02	C02	**C01,C02,C03,C04,C05,C06,**
5	C03	C02,C03,C04	**C01,C03,C05,C06,C07,C08,**
6	C04	C02,C04	**C01,C03,C04,C05,C06,C07,**
3	C05,C09	C01,C02,C03,C04,C05,C0	**C05,C06,C07,C08,C09**
2	C06,C07	C01,C02,C03,C04,C05,C0	**C06,C07,C08**
2	C06,C07	C01,C02,C03,C04,C05,C0	**C06,C07,C08**
1	C08	C01,C02,C03,C04,C05,C0	**C08**
3	C05,C09	C01,C02,C03,C04,C05,C0	**C05,C06,C07,C08,C09**

In order to better understand the decision-making, the interrelationships and impacts between criteria and relationship of the criteria of different levels in the influence-dependency power analysis chart are shown by the managers. In order to determine the key criteria of the power of influence - dependence, the criteria are formed in the final access matrix (Table No. 4).



DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 January to February 2023 www.ijlesjournal.org

dependence rate

Chart 1. Influence power and dependence rate (MICMAC output)

Using the Smart PLS software output, the summary of the results related to the standard factor load of the variables has been presented, and the t-statistics and bootstrapping value to measure the significance of the relationships have also been provided. Factor load is a value between zero and one. If the factor load is less than 0.3, the relationship is considered weak. A factor load between 0.3 and 0.6 is acceptable, and if it is greater than 0.6, it is very desirable. Therefore, according to the information extracted from the PLS software, all the standard factor load of the variables are within the acceptable and very favorable range. In this study, the bootstrapping method was used, which gives the t statistic. At the 5% error level, if the bootstrapping statistic value of t-value is greater than 1.96, the observed correlations are significant. Therefore, with 95% confidence, it can be claimed that all independent variables have a positive and significant effect on dependent variables.

Table 6. Summary of research hypothesis test results using PLS software output

Hypotheses	**independent variable**	**dependent variable**	**factor load**	**t statistic**	**result**
Hypothesis 1	specialized potentials	organizational potentials	0.885	9.879	confirmed
Hypothesis 2	specialized potentials	cognitive characteristics	0.830	9.186	confirmed
Hypothesis 3	organizational potentials	employment potentials	0.453	3.945	confirmed
Hypothesis 4	cognitive characteristics	employment potentials	0.415	3.739	confirmed
Hypothesis 5	employment potentials	motivational and emotional characteristics	0.723	6.383	confirmed
Hypothesis 6	employment potentials	psychological characteristics	0.792	9.442	confirmed
Hypothesis 7	motivational and emotional characteristics	performance improvement	0.734	9.001	confirmed
Hypothesis 8	psychological characteristics	competitive advantage	0.826	6.506	confirmed
Hypothesis 9	performance improvement	productivity capabilities	0.369	3.882	confirmed
10	competitive advantage	productivity capabilities	0.506,	5.802	confirmed

DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 **January to February 2023** **www.ijlesjournal.org**

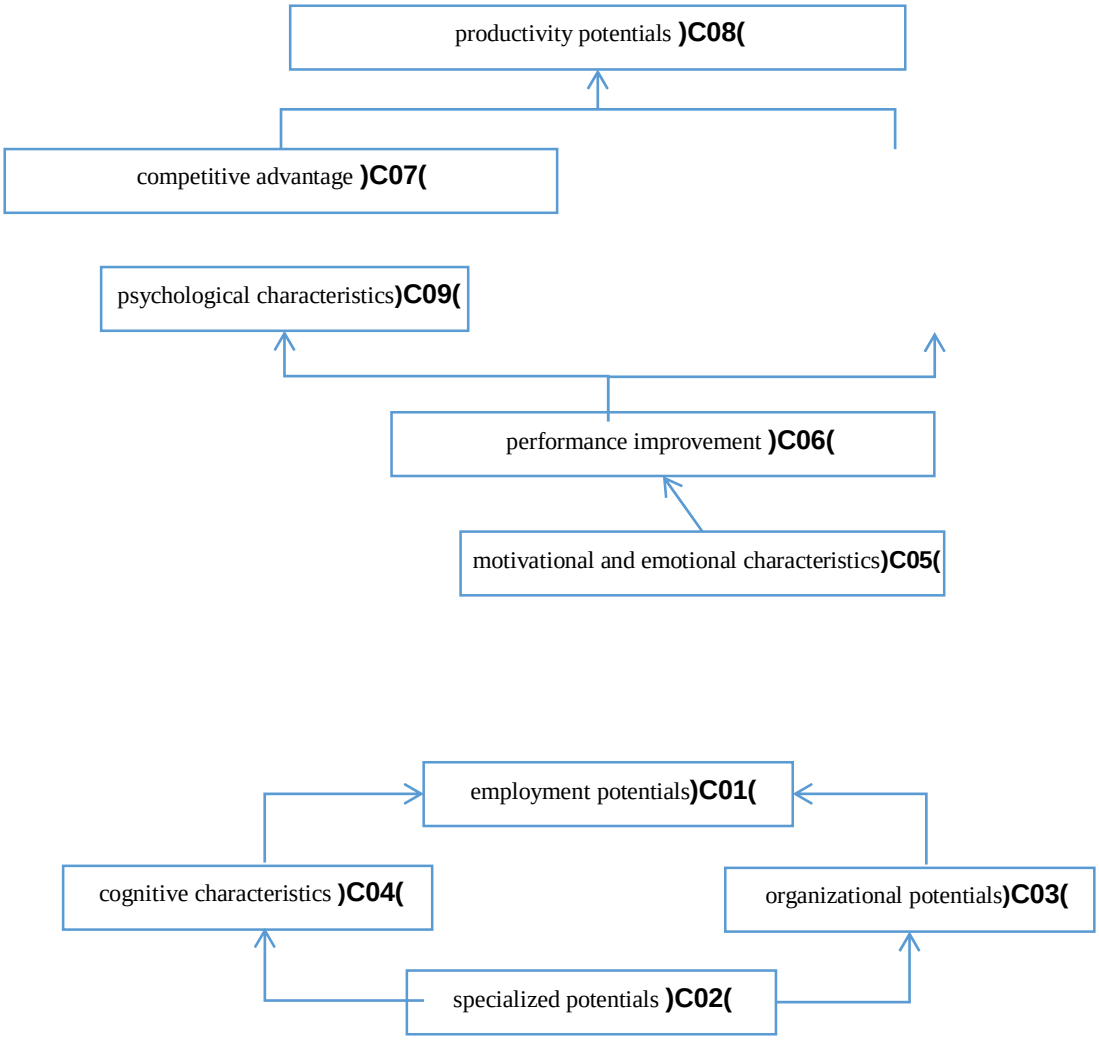
Discussion and conclusion:

The main goal of this research is to design and present a model for the development of human capabilities with an interpretative structural approach. To achieve this goal, first the affected factors and indices effecting on the development of human capabilities of human resources have been determined, then these factors and indices have been evaluated and screened. In line with the organization's macro strategies, human capabilities play an important role in improving the performance of organizations and institutions and can be considered as a suitable solution to achieve a competitive advantage. This issue has been compared with some domestic and foreign researches, which, while the model of this research has its components and indicators, it has identified and calculated a number of new components and indices, which is a strong point for this research. The reviewed research and related to the excellence of human resources showed that, firstly, the research conducted was not systematic; i.e. 9 factors affecting the development of human resources have not been identified and mentioned; secondly, they have not deal with the issue of human resources development from all aspects such as individual, family, social, occupational, cultural, economic, physical, etc., while in this research, all the aforementioned aspects have been addressed and the indices and the components have been identified for each one that show the comprehensiveness of the model. Based on the interviews conducted and the review of studies with experts and managers of medical sciences universities, 9 main categories, 23 sub- categories and 80 codes were identified. Employment potentials have three sub- categories of unintelligible job, lack of knowledge of talented and expert people and unequal conditions; specialized potentials have two categories of managerial conflicts and individual conflicts; organizational potentials have three categories of organizational structure, communication and organizational technology, and organizational training; cognitive characteristics have three categories of clear imaging of the labor market, clarification of the organizational selection and revision in the employment strategies; improving performance have three sub- categories of empowering human resource, improving organizational processes and performance evaluation; motivational and emotional features have two categories of strengthening organizational relationships and strengthening individual and organizational motivation; competitive advantage have two categories of balance of employment system and fair distribution of responsibilities; productivity capabilities have three sub- categories of managing path management, creating functional stability and empowering human resources; and psychological characteristics have two categories of compatibility of moods and work environment and individual creativity. In order to determine the validity (verifiability) of the findings, three techniques include data collection from multiple sources, analysis of negative cases and flexibility of the method were used. Data sources are varied and the alignment is applied. In analyzing the negative cases of the interviews, the researcher has resolved the contradictory explanations interpreted in the data. Also, the interview program has been re-evaluated many times and its content and processes have been reviewed and the interpretations, suggestions and findings have been completely flexible. The results of the quantitative part of the research indicate that the findings of the qualitative part have been fully approved by the experts. It should be explain that the indices show that the users have confirmed the above model without removing any of the indices, and the findings of the quantitative part are objectively valid for the qualitative part.

The results of the research include the description of the human resources capabilities development model with the PLS partial least squares technique and the analysis of the results of the influence- dependence matrix. The development model of human resources capabilities is obtained from the review and analysis of the relationships and leveling of dimensions and indices according to table number (5). In other words, by combining the relationships of dimensions and indicators, the interaction network diagram can be turned into an integrated model of human resource development. The final pattern of the levels of the identified variables is shown in the figure below. In this diagram, only the meaningful relationships of the elements of each level on the elements of the bottom level, as well as the meaningful internal relationships of the elements of each row, are considered.

DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 January to February 2023 www.ijlesjournal.org



Human resource capabilities development model

In the mentioned model and according to the output of ISM calculations, productivity potentials are the basis of the model and are at the first level because it affects all other dimensions. The variables of performance improvement (C06) and competitive advantage (C07) are in the second level, which is indicated by a double arrow. The variables of psychological characteristics (C09) and motivational and emotional characteristics (C05) are in the third level which these two variables are also shown with a double arrow. The variable of employment potentials (C01) is in the fourth level, the variables of organizational potentials (C03) are in the fifth level, and cognitive characteristics (C04) are in the sixth level, and finally, specialized potentials (C02), the most basic element of the model, are at the seventh level.

In order to determine the key criteria of influence -dependency power, the criteria are formed in the final access matrix.

DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 **January to February 2023** **www.ijlesjournal.org**

In this analysis, the variables are divided into four groups of autonomous, dependent, linked (interface) and independent.

Autonomous: Autonomous variables have a low degree of dependence and direction power. These criteria are generally separated from the system because they have weak connections with the system. A change in these variables does not cause a serious change in the system.

Dependent: Dependent variables have strong dependence and weak direction; basically, these variables have high affecting and low affected on the system.

Independent: independent variables have low dependence and high direction, in other words, high affecting and low affected are the characteristics of these variables.

Linked: Link or interface variables have high dependence and high direction power, in other words, the affecting and the affected of these criteria is very high, and any small change on these variables causes fundamental changes in the system.

Based on the power of dependence-influence, a group of variables that are among independent variables, such as specialized potentials (C02), are placed in the stimulus subgroup and have the greatest effect on capacity building, these variables have high influence and little dependence. Another group of variables (dependent variables) such as productivity capabilities (C08) have a high degree of dependence and low influence power, which are the results of the product development process and are less likely to become the basis of other variables. The variables of cognitive characteristics (C04), organizational potentials (C03) and employment potentials (C01) are independent variables, in other words, these variables have low dependence and high influence. The variables of competitive advantage (C07) and performance improvement (C06) are located in the other side which is a subset of dependent variables, and their characteristics include high dependence and low power of influence. Regarding other variables, it should be noted that the variables with equal level mean that they have mutual interaction with each other.

According to the results of the research, the "specialized potentials" factor is the most basic factor in the development model of human resources capabilities of Razavi Khorasan universities of medical sciences, which should be given serious attention by the managers of this field. The results of this research will help managers and policy makers to choose a more suitable way for the development of human resources and the improvement of its capabilities.

This research has been confirmed by other researchers such as Nowrozi et al. (2017) and Kushki Jahormi et al. (2016).

According to the factors identified in this research, the following suggestions are provided for the implementation and development of the human resource capabilities model:

- it is necessary to create a cultural transformation in the training of human resources to strengthen the values, capabilities, needs and mechanisms required by the organization and accordance with the moral charter of the employees.

- Eradication of organizational harms can be institutionalized in organizations to improve the productivity of the organization and workforce.

- Emphasis on the factors that enhance job satisfaction in the organization through revising the payment system and matching salaries with costs, implementing the job classification plan and delegating responsibility to the workforce based on talents, capabilities, abilities, experience and expertise also seems necessary.

-Realistic evaluation of employees and taking into account the specified criteria in career mobility and promotion and creating confidence in the organization regarding career advancement can help organizations to achieve their goals.

DOI: 10.51386/25816659/ijles-v6i1p105

Volume: 06 Issue: 01 **January to February 2023** **www.ijlesjournal.org**

- Designing methods of encouragement and punishment in the work environment in order to increase the productivity rate, reduce negligence, escape from work and irresponsibility in the work environment are other effective factors for the success of organizations in the use of the efficiency and capabilities of employees in the organization.

- The model presented in this research is related to the development of human resources in the universities of Razavi Khorasan province. Therefore, with a few changes, it can be adapted and used for other areas. Therefore, it is suggested that the proposed models be examined separately.

- The impact of effective factors such as centralized organizational structure, hierarchy of the administrative system, rules and regulations from top to bottom, etc. in the implementation of the model of human resources development in universities should be investigated.

In this research, it has always been tried to propose and present suggestions according to the results of the literature review and the findings of the analysis of interviews and questionnaires and the limitations of the research, so that on the one hand, the relevant officials and decision-makers, by using these suggestions, while planning and making the necessary policies, take the necessary executive actions, and on the other hand, be a guide for researchers who intend to conduct research in this field, and they examine the issues that have not been addressed in this research.

Appreciation

Hereby, all managers and experts of medical sciences universities are appreciated and it is hoped that the results of this study will be effective in improving conditions and developing human resources capabilities.

Conflict of interest

The authors have no conflict of interest in this research and this article is taken from the PhD thesis of Islamic Azad University, Semnan Branch.

References

[1] Nemati, Saeed; Khaif Elahi, Ahmad Ali; Momeni, Nona, 2014, Designing a service compensation system in knowledge-based organizations with a structural-interpretive modeling approach, Organizational Resource Management Research, Volume 3, Number 2, pp. 131-152.(persian)

[2] Lashkar-e-Bloki, Mojtaba, 2012, Strategic Management Thought, Year 6, Fall and Winter No.2.(persian)

[3] Amiri, Rezvan, Babak Teymourpour, 2014, Designing a Structural Model of Bank Customer Knowledge Management Using Interpretive Structural Modeling, Organizational Resource Management Research, Fourth Year, Fall, No. 3.(persian)

[4] Kotha, R., Zheng, Y., & George, G. (2011). Entry into new niches: The effects of firm age and the expansion of technological capabilities on innovative output and impact. Strategic Management Journal, 32(9): 1011-1024

[5] Capaldo, A., & Messeni Petruzzelli, A. (2011). In search of alliance- level relational capabilities: Balancing innovation value creation and appropriability in R&D alliances. Scandinavian Journal of Management, 27(3): 273 -286.

[6] Heimeriks, K. H., Schijven, M., & Gates, S. (2012). Manifestations of higher-order routines: The underlying mechanisms of deliberate learning in the context of postacquisition integration. Academy of Management Journal, 55(3): 703 -726.

[7] Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M. A., Singh, H., Teece, D. J., et al. (2007). Dynamic Capabilities. Understanding strategic change in organizations. Malden, MA: Blackwell Publishing.

[8] Koch,Carina, Bekmeier-Feuerhahn,Sigrid.(2019).Employees' perceived benefits from participating in CSR activities and implications for increasing employees engagement in CSR. International Journal Emerald Insight,

[9] Govindan, K., Palaniappan, M., Zhu, Q. & Kannan, D. (2012). Analysis of third party reverse logistics provider using interpretive

structural modeling. International Journal Production Economics .

[10] Sen, Amartya (1992). *Inequality reexamined*. New York Oxford New York: Russell Sage Foundation Clarendon Press Oxford Univ. Press. ISBN 9780198289289.

[11] Koushki Jahromi, Alireza, Valian, Hassan, 2017 Design and development of human resource capabilities model based on data theory of the foundation, Quarterly Journal of Resource Management in Law Enforcement, Year 6, No. 1. (persian)

[12] Azar, Adel; Tizro, Ali; Muqbal Ba'riz, Abbas; Anvari Rostami, Ali Asghar, 2008, Supply Chain Agility Model Design; Interpretive-structural modeling approach. Lecturer of Humanities - Management Research in Iran. (persian)

[13] Azari, Ghasem, Rezaei Noor, Jalal, 2019, Development of structural model of national knowledge creation processes using a combination of Delphi methods and interpretive structural modeling, Journal of Educational Technology, Volume 13, Number 3, pp. 537-552. (persian)

[14] Hajiloo, Vahid, Memarzadeh Tehran, Gholamreza, Alborzi, Mahmoud, 2018, Dynamic Modeling of Human Capital Development in Government Organizations, Quarterly Journal of Development and Transformation Management, No. 35, pp. 38-25. (persian)

[15] Malam Salihu Sabiu, Kabiru Jinjiri Ringim, Tang Swee Mei, Mohd Hasanur Raihan Joarder, 2019 "Relationship between human resource management practices, ethical climates and organizational performance, the missing link: An empirical analysis", PSU Research Review, https://doi.org/10.1108/ PRR-12-2016-0022.

[16] Belhaj Rachid , Professor Tkiouat Mohamed , Mohamed Ali Khouaja , An Agent Based Modeling approach in the Strategic Human Resource Management, including endogenous and exogenousfactors, Simulation Modelling Practice and Theory (2018), doi: https://doi.org/10.1016/j.simpat.2018.07.008.

