

The Effectiveness of Job Rotation in Enhancing Knowledge Accumulation: A Field Study of Employees' Opinions at Al-Kitab University, Iraq

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ABSTRACT

The study aims to examine the effectiveness of job rotation in enhancing the knowledge accumulation of workers' opinions at the Iraqi Al-Kitab University by measuring the impact and testing the relationship between job rotation and knowledge accumulation. 62 valid questionnaires were distributed. The study used the statistical program (SPSS) to prove the validity of the research hypotheses related to the correlation and influence between the two research variables (functional rotation, knowledge accumulation). The findings revealed a positive moral correlation between the combined job rotation and the combined knowledge accumulation of the university under study in terms of its variables according to the value of the correlation coefficient at the aggregate level. Some recommendations related to the results of the research were made, the most important of which were: the necessity of developing and pumping new blood into the university, helping the employee and the university to get out of the cycle of stagnation, and resisting the change caused by the belief that the job is the property of the employee.

1. Introduction

The world is witnessing unprecedented developments in all aspects of life, which prompted organizations to rely on non-traditional resources capable of facing events and developments in the environment. The most important of which is the human resource and job rotation, which are one of the effective ways in the development and development of human resources to keep pace with developments in the business environment and search for the best methods for making changes that achieve raising the efficiency and capabilities of its employees to obtain the best performance in addition to the accumulation of experiences with employees by transferring them from one job to another and thus relying on them in the future in the face of some problems that occur in one of the departments as a result of work pressures, absence or resignations. From this point of view came the idea of the current study, which is to shed light on the job rotation and its effectiveness in enhancing the knowledge accumulation of employees by transferring them from one job to another to increase their experience and skills so that they become qualified to work in any job places.

1.1 Research Problem

Knowledge represents the basis for the success of all organizations, especially educational ones. Therefore, these organizations worked to direct their employees to acquire and possess the knowledge to achieve their goals. Knowledge can be enhanced through the use of the concept of job rotation. In short, the research problem lies in the ambiguity of the relationship between job rotation and knowledge accumulation, which requires defining that relationship according to the interrelationship between the two variables, so it is possible to ask the following questions, which constitute the research problem, as follows:

1. To what extent is job rotation applied in the research organization (academic institution).
2. To what extent does job rotation increase the knowledge accumulation of individuals working in the research organization (the academic institution).

3. What are the prospects for the contribution of job rotation to the administrative staff's acquisition of the skills and experience necessary to carry out their work with high efficiency?
4. What is the nature of the correlation between each of the dimensions of job rotation and knowledge accumulation?
5. What is the nature of the effective relationship between the first major and second major variables?

1.2 Importance of Research

Many studies dealt with the concept of job rotation and its strategies in business organizations due to the business area's expansion globally and locally. On this basis, the research focusing on job rotation serves as a possible entry point for application by business leaders to ensure that the worker continues to take active roles in improving organizational effectiveness. The importance of this research is embodied in the following set of points:

1. Determining the possible strategies to reduce employee turnover rate and retention through the accumulation of knowledge and its sub-elements.
2. Providing a cognitive framework through the availability of the main elements in explaining this phenomenon to deal with future issues.
3. Providing the specialized local knowledge library in business administration with knowledge horizons keeps pace with the global knowledge library.

1.3 Research Objectives

After identifying the research problem and its importance, the objectives can be as follows:

1. This research provides a vital influence framework on the extent of interdependence and influence between rotation, occupation, and cognitive accumulation.
2. Providing a knowledge space to service managers in understanding the bonds of relationship between job rotation and knowledge accumulation in the work environment.
3. Providing opportunities for learning and training on knowledge and administrative relations and their effects on the organizational climate.
4. Studying the size of the costs incurred by the organization as a result of the overall relationship between job rotation and knowledge accumulation.
5. Studying the time spent achieving the extent of interdependence between the first major and second variables.
6. This interdependence provides a fertile ground to enable workers to interact with any job place to serve the organization's goals through interrelationship with the second variable (knowledge accumulation).

1.4 Research Scheme and Hypotheses

In light of the current research problem and after identifying its theoretical framework and field contents, a hypothetical scheme was built that reflects the nature of the relationship between the variables investigated to answer the research questions raised in the research problem.

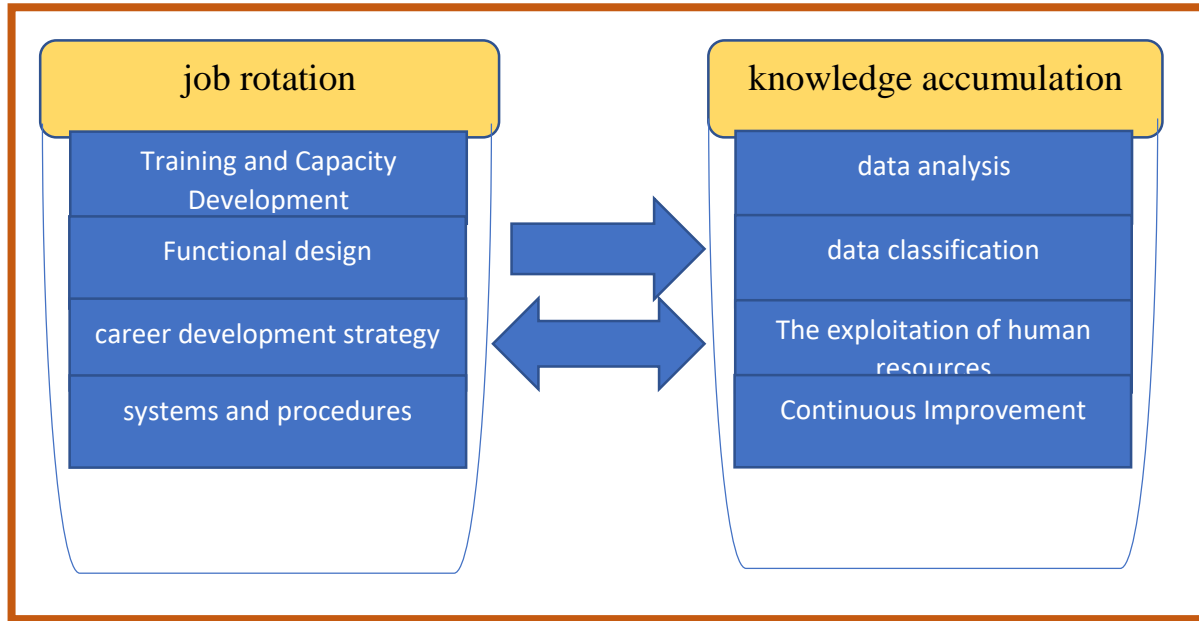


Figure (1) Hypothesis Research Scheme
Source: Prepared by the researcher

The research hypotheses were determined based on the hypothetical scheme to prove the statistical relationship and its branches:

- The first hypothesis: There is a significant correlation between the dimensions of job rotation and knowledge accumulation at the overall level.
- The second hypothesis: There is a significant effect of the dimensions of job rotation in enhancing the accumulation of knowledge at the overall level.

1.5 The Limits of Research

1. **Human limits:** it included a group of employees and directors of departments at Al-Kitab Private University.
2. **Location limits:** Al-Kitab National University was only considered in this study.
3. **Time limits:** the study extended from 15/1/2021 to 25/8/2021.

2. Research Methodology

2.1 Methods of data collection:

Two types of statistical methods were relied upon in collecting data and information, which are as follows:

- A. The first type is related to covering the theoretical side, as it was relied on what was facilitated by the contributions of specialists in the variables of research through many scientific sources, magazines, periodicals, and theses, as well as by relying on the international network (Internet).
- B. The second type of data was obtained through the field side, and the questionnaire form is the primary tool in collecting data and information for the research. In its final form and after making modifications to it, the questionnaire included two main variables (functional rotation and knowledge accumulation), as each of these variables includes the variables are a group of sub-dimensions shown in Table (1), which represents the structure of the questionnaire.

P	main variables	sub-variables	issue	Number
1	job rotation	Training and Capacity Development	5	1-5
		Functional design	5	6-10
		career development strategy	5	11-15
		systems and procedures	5	16-20
2	knowledge accumulation	data analysis	5	21-25
		data classification	5	26-30
		The exploitation of human resources	5	31-35
		Continuous Improvement	5	36-40

Source: Created by researchers

1. Testing the validity and reliability of the questionnaire: The research questionnaire, with its approved standards, was subjected to tests of validity and reliability, as follows:
 - A. Test the questionnaire before distribution (apparent honesty measurement): The questionnaire is presented to several arbitrators to express their observations regarding the validity of its paragraphs to reach the best level of accuracy in its design.
 - B. Resolution tests after distribution (reliability measure): This test is measured by the Alpha Crow Nebach method, which is one of the most statistical methods used in this field. The percentage was (0.74), which is a good percentage of research and this indicates the stability of the resolution.

2.2 Statistical methods used

A set of statistical tools were used, including those related to the description of the study variables, and other analytical tools, as follows:

1. **Descriptive statistical tools:** represented by (percentages, arithmetic mean, standard deviation).
2. **Analytical statistical tools:** (T and F test, correlation, simple linear regression).

3. Description of the Organization and Justifications

Determining the sector in which the research is being conducted is of great importance. The process of choosing the field of research is one of the essential axes in scientific research, as the appropriate and appropriate choice of the field of research contributes greatly to the validity of the results and the testing of hypotheses, and based on the foregoing, the justifications for choosing the field of research can be determined as follows:

1. Harmony of the nature and objectives of the research with the reality of the work of the research organization (the academic institution).
2. The importance of the role played by the research organization (the academic institution) in describing its outputs as inputs to all organizations regardless of their type of ownership, size, and the nature of the economic activity practiced by those organizations.

For the research, a random sample of employees at the university was selected as an applied field of research, and table (2) shows a brief introductory profile of the university as the research sample.

University Name	Date of Establishment	number of colleges	number of sections	number of units
University of the book	2012/10/9	9	21	22

Source: Created by researchers

4. Results and Discussion

4.1 Philosophical View of Job Rotation

4.1.1 The Concept of Job Rotation

Job rotation is moving the employee from his current job to another job horizontally at the same job level to obtain skills required by the current job or vertically to obtain skills required for his future career development, provided that the employee returns to his first job after the rotation (Al-Hayali and Ahmed, 135: 2013). (Ali, 2017: 1172), he defined it as a modern administrative technique to provide the opportunity and responsibilities for workers to develop them administratively and technically to keep pace with the changes that occur in the workplace to raise the high standards of educational institutions. And (Dinis & Fronteira, 2015: 18) added

that job rotation is the transfer of employees from one job to another to increase their expertise in all aspects, while (Jocom et al., 2017: 280) see it as working in different tasks or locations for a specific period, which allows employees to the acquisition of skills and knowledge to perform different jobs, while (Hussein et al., 2020:3037) indicated that job rotation leads to the development of skills and experiences and makes the job enjoyable and thus overcoming boredom. In light of the foregoing, the researcher believes that job rotation is (helping job occupants to become familiar with the various details of the work by transferring them from one job to another for a limited period to increase and refine their skills and professional experience as they become qualified to work in any job place).

4.1.2 The Importance of Job Rotation

Job rotation is a modern administrative technique through which it is possible to give employees equal opportunities and eliminate bureaucracy and monotony generated by jobs in which their owners stay for an extended period, primarily supervisory, administrative, and leadership jobs. The employees' work is based on monotony and lack of innovation and development (Ahmad, 2013:301). It also highlights its importance as a smart method for investing and benefiting from human resources at all levels. This method is often used in modern organizations that seek to invest expertise, creativity, and innovation in their work. It is also applied in organizations with similar jobs and academic qualifications for their human resources to eliminate bureaucracy and routine and monotony in technical and administrative works (Ismail, 2019: 276).

4.1.3 Objectives of Job Rotation.

There are many goals of the job rotation process that benefit the organization as well as the employee (Badr, 2016: 19):

1. To inject new blood into the organization and help the employee and the organization to get out of the cycle of stagnation and resist the change caused by the belief that the job belongs to the employee.
2. It leads to the fight against administrative corruption.
3. Job rotation enhances work development and effectiveness.
4. It leads to raising production efficiency and improving performance.
5. Weaving new social relationships.
6. Providing employees with new skills and experiences.
7. Eliminate monotony and boredom at work.

4.1.4 The dimensions of job rotation.

This study will address these dimensions of job rotation (training and capacity development, job design, career development strategy, systems, and procedures), and the following is a review of each of them:

1. **Training and Capacity Development:** Training is a focused and time-framed activity that helps build more personal and organizational relationships, skills, and changes behaviors that will lead to improving individual, group, and organizational performance (Jocom et al., 2017: 280) and the organization must choose the appropriate type of training So that she can achieve the desired goals and design training programs that fit the needs, where she chooses the resources to be trained as well as the machines to be trained, and capacity development is the development of a person's ability to help him understand the problems he faces (Kahina and Kahina, 2019: 29).
2. **Functional design:** the process of dividing and arranging the activities and work of the organization. The design of programs and organizational processes can be a major factor in the sustainability of competencies. The functional design also includes how responsibilities and roles are determined and establishing control, accountability, and decision-making (Alquraan, 2011:21).
3. **Career development strategy:** It is a strategy that the organization follows in planning the job, focusing on compatibility between the goals of its members on the one hand and career growth on the other hand, in proportion to the changes (Badr, 2016:10).
4. **Systems and Procedures:** Senior managers play essential roles in managing employees and encouraging them to innovate in the products and services that the organization provides. In other words, organizations that deliberately invest in building strategic skills and mindsets are more likely to have educational capabilities that support change and innovation (Selden & Macmillan, 2006:108).

4.2 The accumulation of knowledge. vision and prospects

The specialized intellectual contributions of researchers in the field of management study how the dynamic impact of knowledge affects the structures of organizations and how the processes of cognitive creativity have a reciprocal effect on the knowledge accumulation of employees in organizations. Its importance and dimensions.

4.2.1 The concept of knowledge accumulation

Knowledge is a human behavior that results in the individual obtaining information and representing it into knowledge and then using it to direct human activity, that is, how knowledge occurs within the human psyche (Kahlat, 2009: 19). Moreover, concepts and visions can be used to deal with problems, make decisions, and deal with different situations.

And the accumulation of knowledge means that the knowledge attainment of an issue becomes more significant than the required amount of knowledge for the person concerned with knowledge, and it is one of the phenomena that started simultaneously with the era of the availability of information and data easily through electronic media (Andy Dong, 2016: 35), and the development in the work of organizations came. As a result of the accumulation of knowledge, knowledge began to take on a basic cumulative meaning, but the relative rate of knowledge accumulation is higher than the relative rate of knowledge application, which created a clear gap between the increase of knowledge and its applications, and this gap narrows as the application of research results increases to manufacture technology, so there is significant competition at the level. The international community to benefit from scientific knowledge and turn it into technology, and scientific and technical progress was the main factor in the huge gap between the group of industrially developed countries and other countries (John & JoAnn, 2015: 2). Also, benefiting from the accumulation of knowledge requires changing the reality of the situation in each organization, by making the development of education and support for scientific research as two main pillars in the process of searching for an identity and creating a knowledge society, because solutions to the various fundamental human dilemmas cannot be achieved without a successful educational system and advanced scientific research (Al-Tamimi, 2019: 54).

4.2.2 The importance of knowledge accumulation

Everyone knows that this era is characterized by the explosion of knowledge and information inflation. The individual faces difficulty dealing with the increasing volume of information that flows through the international information network and other information technology means. This vast amount can benefit from developing appropriate strategies to achieve the goals (Renee Prendergast, 2019:415). One of the fundamental importance of this type of education is to confront the continuous growth in knowledge, a common phenomenon in all sciences and cannot be solved. (Cheng Colin et al., 2018: 179).

In light of the foregoing, the importance of knowledge accumulation lies in the following:

1. Benefiting from the abundance of information in developing organized ideas and strategies.
2. Develop technical and intellectual human capabilities.
3. Managing relations with all beneficiaries.

4.2.3 Objectives of knowledge accumulation

Knowledge is a significant resource that provides a competitive advantage in innovation for enterprises. Knowledge-accumulation activities such as research and development and staff training can enhance the enterprise's productivity, as knowledge accumulation is one of the main drivers of economic growth (Cassidy et al., 2005:3). Malherbe and Simon-Lee (2017:2) indicated that learning and accumulating knowledge gives individuals an advantage and increases their experiences by exchanging knowledge and generating accumulated knowledge.

The objectives of knowledge accumulation for organizations lie through the following:

1. Develop new methods of management and organization to interact with changing conditions.
2. The organization's possession of the keys to science and technology can impose its will on the rest of the organizations that are still stumbling.
3. Contribute to raising awareness and developing the capabilities of thinking and thus the formation of intellectual capital in the organizations.

4.2.4 Dimensions of knowledge accumulation

1. Data analysis: Data analysis is the practice by which raw data is arranged and organized understandably so that useful information can be extracted from it. Data analysis plays an important role in making more scientific decisions and helping organizations to operate more effectively (Aleš Popovič et al., 2018: 2).
2. Classification of data: Classification is the process of distinguishing data from each other, dividing and arranging them according to their similarity into groups, where each class includes a group of units common to each other in certain characteristics or properties (Jan De Leeuw, 2014: 411). Data classification saves time, effort, place organization, and good use of spaces
1. The order in matters related to the home contributes to obtaining the required information at the required time and speed (Vinithra et al., 2015: 55).
2. The exploitation of human resources: Human resources are considered the most important and primary factor in the development of the economy of countries. Although the availability of natural resources affects the economy, without the

presence of human resources, these natural resources would not have been exploited, and most of the countries that took advantage of this point are Germany and Japan. It has few natural resources but solid human resources, which made it in the first row with the solid and developed countries in the world (Rodrigo Valio, 2018: 2). Investing in the human resource is one of the most valuable and rewarding types of capital

3. Through the human resource, nations advance, and the economy is of limited value if it is not exploited for progress through human forces that transform wealth from mere qualitative quantities to diverse technological energies that achieve the desired progress (John et al., 2013: 2914).
4. Continuous development: The principle of continuous development is embodied that all employees in the organization have the right to develop through achieving small steps, but their impact will be great in the future. On the other hand, the concept of continuous development is applicable in all organizations. In addition to that, it is also helpful in Non-Profit Organizations (Sikandar Ali, 2018: 41).

5 Description and diagnosis of research variables and testing its hypotheses

5.1 Description and diagnosis of the dimensions of the research and its variables

5.1.1 Describe and diagnose the dimensions of job rotation

Table (3) shows a summary of the dimensions of job rotation, where the rate of general agreement on the dimensions of job rotation was (78.1%), meaning that the individuals whose opinions were questioned at the university under study emphasized the university's use of the dimensions of job rotation in terms of its tools, while the interviewed individuals whose opinions were in the direction The negative rate represented (7.5%). In comparison, the percentage of the respondents who had no opinion or their answer was neutral was (14.4%), and the preliminary analysis of the respondents' answers confirms their opinions on the university's possession of the dimensions of job rotation. All dimensions were mediated by Arithmetic value is (3.86), standard deviation (0.86), and coefficient of difference (0.222). The importance of job rotation dimensions can be arranged as follows:

1. The career development strategy contributed to the positivity of this variable, as it came with an agreement rate of (80.1%) in the first place, with an arithmetic mean of (4.02), and a coefficient of variation (0.203).
2. Training and capacity development came in second place with a degree of agreement (78.5%), an arithmetic mean of (3.79), and a coefficient of difference (0.229).
3. Systems and procedures came in third place with a percentage of (77.2%) by agreement, an arithmetic mean of (3.96), and a coefficient of difference (0.219).
4. Finally, the job design came with a degree of agreement (76.8%), an arithmetic mean of (3.70), and a coefficient of difference (0.237).

Table (3) summary of job rotation dimensions

job dimensions	turn	Totally agree, agree	neutral	Do not agree, not completely agree	Arithmetic mean	standard deviation	Coefficient of variation
Training and Capacity Development		78.5	13.2	8.3	3.79	0.87	0.229
Functional design		76.8	15.1	8.1	3.70	0.88	0.237
career development strategy		80.1	13.8	6.1	4.02	0.82	0.203
systems and procedures		77.2	15.7	7.1	3.96	0.87	0.219
General Average		78.1	14.4	7.5	3.86	0.86	0.222

Source: Prepared by the researcher based on the outputs of the statistical program.

5.1.2 Describe and diagnose the accumulation of knowledge

Table (4) shows a summary of the dimensions of knowledge accumulation, where the rate of general agreement on the dimensions of knowledge accumulation was (78.5%), meaning that the individuals whose opinions were questioned at the university under study emphasized the university's use of knowledge accumulation in terms of its dimensions, while the interviewed individuals whose opinions were in a negative direction. It represented a rate of (6.8%), and the percentage of the respondents who had no

opinion or whose answer was neutral constituted (14.7%). The preliminary analysis of the answers of the individual respondents confirms their opinions on the possession of the university in question for the accumulation of knowledge. All the tools came with a median of Its value is (3.97), standard deviation (0.84), and coefficient of difference (0.216). The importance of describing the accumulation of knowledge can be arranged as follows:

1. The classification of the data contributed to the positivity of this variable, as it came with an agreement rate of (81.2%) in the first place, and an arithmetic mean of (3.98).
2. The exploitation of human resources came in second place, with an agreement of (79.3%), and an arithmetic mean of (3.96).
3. Continuous development ranked third, with a degree of agreement (77.8%), and an arithmetic mean of 3.99.
4. Finally, the data analysis came with a degree of agreement (75.4%), and an arithmetic mean of (3.97).

Table (4) Summary of the dimensions of knowledge accumulation

knowledge accumulation	Totally agree, agree	neutral	Do not agree, not completely agree	Arithmetic mean	standard deviation	Coefficient of variation
data analysis	75.4	18.8	5.7	3.97	0.85	0.22
data classification	81.2	11.3	7.4	3.98	0.87	0.22
Exploitation of human resources	79.3	13.7	6.8	3.96	0.81	0.20
Continuous Improvement	77.8	15.3	7.1	3.99	0.87	0.21
General Average	78.5	14.7	6.8	3.97	0.84	0.216

Source: Prepared by the researcher based on the outputs of the statistical program.

6. Testing the Relationship Contained in the Research Scheme

6.1 Analyzing the correlations between the research variables

Testing the first hypothesis: it states (there is a positive and significant correlation between job rotation and knowledge accumulation in terms of their dimensions at the macro level). Table (5) shows the results of testing the correlations related to this hypothesis.

Table (5) Results of the correlation test at the university under research

The explanatory variable The transponder variable	job rotation
knowledge accumulation	0.67*

N=62

0.05 ≤ P*

Table (5) indicates the existence of a significant and positive correlation between the combined job turnover and knowledge accumulation, as the value of the total index of the correlation coefficient was (0.67), at the level of significance (0.05), which is evidence of the existence of a relationship between the two variables. This result indicates that the more the university in question increases its interest in job rotation as a whole, the more it contributes to enhancing the accumulation of knowledge through diversifying and discovering knowledge and working to exploit it optimally.

6.2 Analyzing the Influence Relationships Between the Research variables

Testing the second hypothesis states (there is a significant effect of job rotation in enhancing the accumulation of knowledge, in terms of their dimensions at the overall level). Table (6) shows this effect as follows:

Table (6) the effect relationship between the research variables

The explanatory variable The transponder variable	job rotation			F
	β0	β1	R ²	
knowledge accumulation	0.721	0.736 (12.137)*	0.51	99.02

(*)Denotes the calculated T value

N=62 D.F=1. 60

P ≤ 0.05*

It is clear from the regression analysis table (6) that there is a significant positive effect of the job turnover collectively as explanatory variables in the knowledge accumulation combined as a response variable, as the calculated (F) value reached (99.02), which is greater than its tabular value at two degrees of freedom (1.60). At a significant level (0.05), the coefficient of determination was (R²) (0.51), and this means that (51%) of the explained differences in the combined knowledge accumulation are due to the effect of the dimensions of job rotation combined. From following up on the coefficient (β_1), the increased interest in the dimensions of Job rotation with one unit leads to a change of (0.672) in knowledge accumulation. The coefficient (β_0) means that the banks in question achieve knowledge accumulation, regardless of the effectiveness of job rotation, and from following up on the calculated t-test. (*12.137), we find that it is a significant value and greater than its tabular value at a significant level (0.05) and two degrees of freedom (1,60), thus accepting the second main hypothesis, which states that: under consideration).

7. Conclusions and Suggestions

7.1 Conclusions

1. The study showed that arranging the dimensions of job rotation according to their importance from the point of view of the research sample members (career development strategy, systems, and procedures, training and capacity development, job design).
2. The study showed that the order of the dimensions of knowledge accumulation according to their importance from the point of view of the research sample members is (data classification, human resource utilization, continuous development, data analysis).
3. There is a significant positive correlation between the combined job rotation and the knowledge accumulation of the university under study in terms of its variables according to the value of the correlation coefficient at the overall level.
4. A positive moral effect of the dimensions of the job turnover was achieved in the accumulation of knowledge, which indicates that the increased interest of the university administration under consideration in the dimensions of the job turnover combined will enhance the accumulation of knowledge.
5. Job rotation is a smart method for investing and benefiting from human resources at all levels. This method is often used in modern organizations that seek to invest expertise, creativity, and innovation in their work. It is also applied in organizations with similar jobs and educational qualifications for their human resources.
6. The development in the work of organizations came as a result of the accumulation of knowledge. The knowledge began to take a basic cumulative meaning, but the relative rate of knowledge accumulation is higher than the relative rate of knowledge application, which created a clear gap between the increase of knowledge and its applications.

7.2 Suggestions

1. Qualifying the human resources at the university under research and training them to face new jobs through training courses and periodicals.
2. Work to encourage employees to adopt job rotation and to spread its concept and philosophy in the university and with all relevant parties in an optimal manner.
3. The need to focus on the issue of accumulating knowledge because it gives an advantage to individuals and increases their experiences by exchanging knowledge, which in turn generates excellence.
4. The need for the administration in the university under discussion to realize the importance of job rotation in educational institutions and its direct impact on acquiring knowledge, as the absence of that interest in it will lead to the loss of valuable opportunities for educational institutions in achieving their goals of growth, expansion, survival, and excellence.

References

- [1] Ahmed, M. A. (2013). The impact of managerial job rotation on the development of human resources - an analysis of the views of managers in several university colleges, *institutes, and colleges of the Technical Education Authority in Mosul, Human Development Journal, No. (3)*.
- [2] Ali, N. M. (2017), Job rotation and its role in human resource development - an analytical study of the opinions of a sample of administrative employees at the University of Zakho, the *Journal of Human Sciences of the University of Zakho, Volume (5), Number (4)*.
- [3] Al-Tamimi, W. (2009). The effect of knowledge accumulation on the success of developing new products. *Journal of the University of Baghdad College of Economic Sciences, Issue Twenty-first*.
- [4] Al-Hayali, I. A and Ahmed, M. A. (2013). the reality of the application of job rotation for some Iraqi banks - an exploratory study of the opinions of a sample of workers in Rafidain bankers at the University of Mosul and Mosul for Development and Investment / Andalusia Branch, *Al-Rafidain Development Journal, 37, No. (119)*.
- [5] Ismail, M. G. (2019). The relationship between job rotation and organizational performance - an exploratory study of the opinions of a sample of employees at the Iraqi University Presidency, *Al-Danner magazine, issue (16)*.
- [6] Badr, N. S. (2016). Job Rotation and its Role in Productive Efficiency in Palestinian Ministries, Master Thesis, Al-Aqsa University, Gaza, Palestine.
- [7] Kahlat, S. (2009), Empowerment of Knowledge in the Algerian Organization - A Field Study in the Libraries of the University of Batna, Master's Thesis, Mentouri University - Constantine, Algeria.

- [8] Farhi, M and Muammar, N. (2016). The Role of Knowledge Management in Improving the Performance of the Economic Institution Case Study: Sonelgaz Foundation - Tebessa-, Master's Thesis, Larbi Tebessa University - Tebessa.
- [9] Kahneh, F and Kahneh, K. (2019). The Role of Training in Human Resources Development - Case Study of the Institution of Promotion and Real Estate Management of the State of Bouira, Master's Thesis, Akli Mohand Olhadj University - Bouira - Algeria.
- [10] Andy D. (2016), Concept formation as knowledge accumulation: A computational linguistics study. *Artificial Intelligence for Engineering Design Analysis and Manufacturing* 20(01):35-53.
- [11] Renee P. (2019). Accumulation of knowledge and accumulation of capital in early 'theories' of growth and development. *Cambridge Journal of Economics* 34(3):413- 431.
- [12] Cheng C and Shiu, E. C. (2018). Critical success factors of new product development in Taiwan's electronics industry. *Asia Pacific Journal of Marketing and Logistics, Volume: 20, Issue: 2, Page: 174 -189, Publisher: Barmarick Publications.*
- [13] Aleš P, Ray H, Rana T, and Mauro C. (2018). The impact of big data analytics on firms' high-value business performance. *Information Systems Frontiers* 20(2):1-14, DOI: 10.1007/s10796-016-9720-4.
- [14] Jan L. (2014). Studies in Classification, Data Analysis, and Knowledge Organization. DOI: 10.1007/978-3-642-46808-7_28.
- [15] Vinithra, S.N., Anand K, M, and Soman, K.P. (2015). Analysis of sentiment classification for Hindi movie reviews: a comparison of different classifiers. *Int. J. Appl. Eng. Res.* 10.
- [16] Rodrigo V. D. (2018). Innovation by knowledge exploration and exploitation: an empirical study of the automotive industry. *Gest. Prod., São Carlos, v. 25, n. 1, p. 1-15.*
- [17] John G, and JoAnn G. (2013). Defining knowledge management: Toward an applied compendium. *Online Journal of Applied Knowledge Management, Volume 3, Issue 1.* 1-8.
- [18] Sikandar A. (2018). PAPER-20-Impact of Continuous Improvement on Organization. Organization process improvement, DOI: 10.18178/ijimt.2018.9.1.779.
- [19] Hussein, M. A. & Hamad, B (2020). Reflection of Talent Management Processes in Job Rotation. *Journal of Xi'an University of Architecture & Technology, Issn No: 1006-7930.*
- [20] Jocom, J & Lambey, L (2017). The Effect Of Job Rotation and Training On Employee Performance Input. Pegadaian (PERSERO)Manado, *Jurnal EMBA, Vol.5 No.2.*
- [21] Dinis, L, I & Fronteira, I (2015). The influence of job rotation in the job satisfaction of nurses in a surgical service *Revista de Enfermagem Referência Journal of Nursing Referência, Vol,5.*
- [22] Selden, L and Ian M. (2006). Manage customer-centric innovation- systematically. *Harvard Business Review.*
- [23] Cassidy, M. & Görg, H (2005). Knowledge accumulation and productivity: Evidence from plant-level data for Ireland. research paper series Globalisation, Productivity and Technology.
- [24] Malherbe, M & Simon-Lee, F. (2017). Learning and knowledge accumulation as sources of influence for actors during path constitution: the example of the emergence of NFC technology. HAL archives – oufertes.fr.
- [25] Alquraan, I. F. I. (2011). Job Rotation and Its Impact on Administrative Employees Performance in UNRWA ñ Gaza Field Office. The Islamic University of Gaza, Deanery of Higher Studies, Faculty of Commerce.
- [26] John G, J. G. (2015). Defining knowledge management: Toward an applied compendium. *Online Journal of Applied Knowledge Management, Volume 3, Issue 1.* 1-8.