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Technological Knowledge and its Impact on Knowledge Creation: An Analytical Study of the Opinions of a Sample of Employees in Zain Telecom Company

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Abstract: The issue of Technological knowledge and knowledge creationin recent decades has received prominent attention by most researchers, That is, the goal of the current study lies in diagnosing the relationship between Technological knowledge and knowledge creation, by identifying the role played by (Technological knowledge) as one-dimensional, in improving the effectiveness of dealing with knowledge creation by its dimensions (socialization, exemalization, combination, internalization).As for the second main hypothesis (there is an impact of the Technological knowledge in knowledge creation), and therefore in order to diagnose this relationship, the opinions of 110 employees of the Zain Telecom Company.

were surveyed, and (110) were recovered, valid for analysis, at a rate of (100%), Use SPSS.V24,a set of statistical methods were adopted, such as the arithmetic mean, standard deviation, correlation coefficient Person, regression coefficient, deviation coefficient R2 and Cronbach's alpha coefficient to test the validity of the study's hypotheses. The study determined the first main hypothesis, which is that there is a statistically significant correlation between the Technological knowledge and knowledge creation, The results were summarized to the existence of a correlation and a statistically significant effect of the Technological knowledgein knowledge creationto indicate the socialization of the employees of the Zain Telecom Company, which improves dealing with knowledge creation in order to ensure the development and balance between the Technological knowledgeand the skills of dealing with knowledge creation among the employees of the Zain Telecom Company.

Keywords: Technological knowledge, knowledge creation.

INTRODUCTION

The idea that knowledge is an important entity, a unit of analysis, which presents certain kinds of problems that can no longer be left only to philosophers, but which require the attention of many other experts. This provides a variety of concepts, links, scrutiny and in-depth nomenclature, new language, redefinitions of old language, and changes in practices and methods, While some authors note cautiously that knowledge has been added as a "...a new 'emergency' factor for understanding organizational arrangements" or as a predictor of organizational arrangements, others view it as an independent construct indicating something approaching a revolution in managerial thought whatever that is. Few would object

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to a common conviction , Technology tends to be about creating or modifying organisms for specific purposes as needed or desired: from blacksmithing to genetic engineering, from Stone Age axes to modern nanomaterials, from figuring out how to make glue from corpses to figuring out how to build nuclear power plants. What indicates knowledge and technological activities is how careful they are when creating and using artefacts. Technology is all around us. In order to understand modern society, it is necessary to understand at least some aspects of technology.

Therefore, important aspects of technology run the risk of being overlooked, and technological knowledge can be evaluated on the basis of the non-technological view of knowledge. A philosophy of technology can be of great value to provide a strong knowledge base for education technology, separate from primitive crafts as well as the natural sciences, The creation of knowledge is the most important resource for the prosperity of companies, because it produces the most innovations. In order to achieve the appropriate level of knowledge creation and innovation, organizations have to effectively enhance the knowledge and skills of their employees. This process seeks more attention to the critical role of knowledge sharing in the organisation. Knowledge sharing is defined as "a culture of social interaction, which includes the exchange of employee knowledge, experience and skills through the entire department or organization". There is much theoretical paradigms and abundant literature that attempts to test knowledge of theoretical creation and engagement processes and frameworks still need additional empirical evidence in order to reinforce key concepts in this field. This paper examines the relationship between technological knowledge and knowledge creation in Zain Telecom.

First, the theoretical framework

1. Technological knowledge:

Historians of technology have lost interest in the topic. One illustration is Samuel Florman's [1992] review of Vincenti's book in Technology & Culture. In the review, Florman complains about Vincenti's excessive interest in epistemological details at the price of attention to people and organizational issues. Philosophers have not rushed in to fill the gap left by historians. Technological knowledge is, Treating science and technology as separate spheres of knowledge, both man-made, appears to fit the historical record better than treating science as revealed knowledge and technology as a collection of artifacts once constructed by trial and error" but now constructed by applying science. [Wise, 1985, p. 244; emphasis added] Vincenti approvingly quotes Wise and several other researchers, including Barnes and Layton, as concluding that "technology appears, not as derivative from science, but as an autonomous body of knowledge, identifiably different from the scientific" knowledge with which it interacts." [1990, pp.1-2; emphasis added].

Layton in turn seems to derive this view from the work of Alexandre Koyr´e, writing that [Koyr´e] held that technology constituted a system of thought essentially different from that of science. Technology generated" its own independent rules which came ultimately :to constitute a body of technological theory. [Layton, 1974, p. 40], To anticipate my conclusion: although the literature on technological knowledge is significantly shaped by the strong-emancipation ideal, efforts to realize it have not only been scattered and idiosyncratic, but also significantly underestimate the difficulties in establishing the ideal. My arguments do not show that strong emancipation is impossible to defend, but they do show that current arguments are ineffective, The Sundqvist study (2016) featured a broad range of technology content with a focus, building activities that appear to have no purpose from an employee's point of view. They also include more complex content, such as exploring the adequacy of artefacts and materials, how technical realities and systems work, and what makes for stable construction. The study also shows that content that deals with areas other than technology is described as technical education by workers,(Technological

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knowledge in early childhood education: provision of learning opportunities by staff, **Technological knowledge variable with one scale in one dimension**.

2. knowledge creation:

Knowledge was defined as "true, justified faith" (Nonaka and Takeuchi). More specifically, most definitions of knowledge range from “the complex, accumulated experience that exists in individuals and is partially or largely indescribable” to “more meaningful content and structure.” According to Nonaka et al., knowledge is generated through the interaction and interweaving of implicit and explicit knowledge, following four different modes of convergence, i.e. SECI. Nonaka and Kono suggest that the main theme of knowledge creation is the establishment of a 'bachelor's degree' in an institution. They define “bachelor” as a common place, context or space for knowledge Create. Focusunaka and (Takeuchi[)that four types of ba can be used to represent SECI. the first ba type arises. It is a place where people exchange experiences mainly through face-to-face communication and by being in the same place at the same time. The origin of ba is related to the method of socialization to create knowledge, The second one is interacting ba. It may contribute to the externalization mode of knowledge creation. Interacting ba indicates a place where tacit know**, The dimensions of knowledge integration are: socialization,** Besides Weidman’s model of undergraduate socialization, Chickering and Gamson created the conceptual model—Good Practices—to explore the socialization process. Scholars have utilized the good practices as a framework which examines how often college students experience the good practices and the impacts brought by those practices on students. Good practices in general, and cooperative learning with peers in particular, were positively associated with self-reported gains in college, such as general education, intellectual development, and personal/interpersonal development (Kuh, Pace & Vesper,1997). Good practices such as faculty-interactions with students and peer involvement have also been positively associated with cognitive development, plans to attend graduate school, and attitudes toward learning (Cruce, Wolniak, Seifert, & Pascarella,2006). It has been accepted widely that good practices indicate a positive socialization experience., **exemalization:**Choi and Lee (2002) studied the effect of knowledge management strategies on four knowledge creation mechanisms on the basis of samples from 58 Korean firms. They cited knowledge management strategies as human or system oriented and then studied how companies should adjust their strategies with four knowledge creation mechanisms. They concluded that human strategy is more likely to be practical for socialization while system strategy is more likely to be appropriate for **combination.** Lin et al. (2008) studied knowledge creation and knowledge sharing in a professional virtual community composed of teachers. Guided by a grounded theory, they identified the sequence of causal conditions, action/interaction strategies, consequence, and contextual environments as knowledge creation and **internalization:**. The causal conditions are divided in two levels: individual level and group level. Three action/interaction strategies are: collaboration, using information technology (IT) and knowledge sharing and creation strategies. The consequences are viewed in individual level and group level.

A- Research Methodology

Research problem

The main problem of the research is how to create knowledge through technological knowledge and access to creative creative ideas from the employees of Zain Telecom, and according to the above research problem, the basic questions that the research seeks to address can be asked as follows:

1- Does technological knowledge contribute to influencing knowledge creation in the research sample company?

2- What is the reality of technological knowledge in the research sample company?

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3- Are there obstacles to using technological knowledge in the research sample company?

Secondly. research importance

The importance of the research stems from the following points:

1- The current research acquires its importance through the importance of its variables.

2- The research contributes to supplying scientific libraries with two topics (technological knowledge, knowledge creation.

3- Drawing the attention of the company officials in the research sample to the importance of technological knowledge and its role in creating knowledge.

4- Other researchers benefit from the research results and recommendations in conducting deeper and more comprehensive studies on research variables, especially crisis management.

Third:research aims

The current research includes a set of goals that it seeks to achieve, which are as follows:

1. Recognize how to deal with technological knowledge in the research sample company.
2. Identifying the dimensions of knowledge creation and how to adapt it to achieve the desired goals in the research sample company.
3. Knowing the relationship between technological knowledge and knowledge creation.
4. Provide a practical vision of how to show the role of technological knowledge in influencing the creation of knowledge.
5. Presenting a set of recommendations that help the research sample in the college need to be committed to developing and achieving a balance between technological knowledge and the dimensions of knowledge creation.

Fourthly. default search form

Figure 1 depicts the research's hypothetical model, which depicts the nature of the interaction between the research variables as follows:

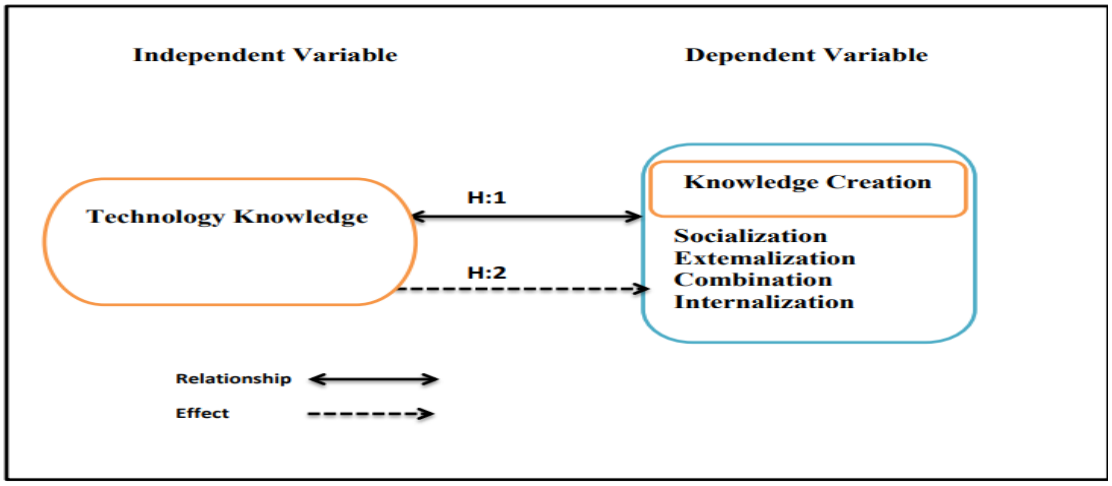

Figure (1)

hypothetical research model

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V. research hypothesis The first main hypothesis / (there is a significant statistically significant relationship between technological knowledge and knowledge creation in its dimensions (socialization, justification, interconnected group, internal assimilation) from which the following sub-hypotheses emergz.

1. Technological knowledge is statistically associated with socialization.

2. Technological knowledge is statistically correlated with, exemalization.

3. Technological knowledge is statistically related to the combination.

4. Technological knowledge is statistically related to internalization.

The second main hypothesis / (there is a statistically significant effect between technological knowledge and knowledge creation in its dimensions (socialization, exemalization, combination, internalization) from which the following sub-hypotheses emerge:

1. Technological knowledge has a moral effect with socialization.

2. Technological knowledge has a moral effect with exemalization.

3. Technological knowledge has a significant effect on the combination.

4. Technological knowledge has a moral effect with internal internalization.

Third: Study methodology and procedures

1. Description of the research sample

The sample:

The population of the study is represented by Zain Telecom, and the sample that can be accessed was represented, and the questionnaire was distributed to the 125 workers, and because of cases of apology or incomplete cases that are not valid for analysis, (15) forms were excluded. Thus, the number of valid forms for study and analysis is (110) only.

Table (1) presents the characteristics of the research sample in terms of demographic information represented by (age, gender), frequencies and percentages have been extracted to describe the research sample. The results of the table show that the most frequent age of the research sample was within the age group (31-40) and that the predominant proportion of the research sample was (43%), while the percentage (3%) was the least.

Table (1) Coding and characterization of the questionnaire

No.	Variables	Target categories	Fi	Relative
1	**Gender**	Males	74	67%
		Female	36	33%
		Total	**110**	**100%**
2	**Age**	- 30	4	4%
		31-40	39	43%
		41-50	36	33%
		51-60	28	25%
		61-	3	3%
		Total	**110**	**100%**
3	**Career Title**	executive	17	15%

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		Technical	26	24%
		Engineer	44	40%
		Associate observant	23	21%
		Total	**110**	**100%**
4	**Academic qualification**	Higher Diploma	3	3%
		M.A.	53	48%
		PhD	54	49%
		Total	**110**	**100%**

2. Measurement Tool

There are two key aspects to the search measurement tool. The first section contains demographic and functional information. The study variables are represented in the second part, and Table (2) gives a full description of these measurements.

a) Technology knowledge

The researchers used a scale (Hossini, 2012) to measure the technological knowledge variable, which is one-dimensional. This scale consists of (11) paragraphs according to the five-point Likert scale, measuring (strongly agree) - (strongly disagree) and the Cronbach's alpha coefficient for this variable reached (0.861), and this indicates The presence of internal consistency in the answers of the research sample towards this scale.

b) Creating knowledge

It was based on the scale ((Akhavan, 2012) to measure the variable of knowledge creation, which includes four dimensions (socialization, justification, interconnected group, internal assimilation). This scale consists of (22) items for each dimension of the variable's dimensions. respectively (0.855, 0.821, 0.798, 0.849), which indicates the presence of internal consistency in the answers of the research sample towards this scale.

Data analysis tools

The study used a number of appropriate statistical methods to describe and analyze the study data, which included the arithmetic mean, standard deviation, and the simple correlation coefficient data analysis.

Statistical description

Table (2) presents the statistical description of the study variables. As noted through the arithmetic mean, all the variables were close to the level of moderation, and the standard deviation indicates the consistency of the answers received towards these variables**.**

Table (2) Correlation Matrix and Statistics Summary (N = 86)

Var.	X	Y	Y1	Y2	Y3	Y4
X	1					
Y	.652*	1				
Y1	.765*	.820**	1			
Y2	.711*	.721*	.630*	1		
Y3	.705**	.462*	.651**	.659**	1	
Y4	.674**	.785**	.752	.718**	.734**	1
Means	3.28	3.54	3.77	3.48	3.36	3.54
SD.	1.02	1.34	1.33	1.12	1.34	1.26

*** $p < 0.05$; ** $p < 0.01$.**

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Hypothesis testing:

Correlation hypothesis1-

The matrix of correlation coefficients in Table (2) shows that there are statistically significant correlations at the (1%) or (5%) level among most of the study variables, and this provides support and acceptance for the first main hypothesis.

2-Impact Hypothesis

The second main hypothesis

Table (3) results of the regression analysis indicate that there are significant influence relationships at the level (0.01-0.05) statistically (there is a statistically significant effect between technological knowledge and knowledge creation in its dimensions (socialization, justification, interconnected group, internal assimilation) and this supports the validity of the hypotheses sub-hypothesis and thus the second main hypothesis is accepted

Table (3) The results of the second main hypothesis test

regression pat			regressio coefficien		R^2	
Y	<-		.60	5.709*	0.8	**45.15
Y	<-		.71	4.953	0.7	*33.20
Y	<-		.72	5.369*	0.7	*40.69
Y	<-		.82	*4.24	0.8	**38.9

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Discuss the results

The results of the study argue the interest of employees in the studied telecom companies to encourage their employees to achieve the goals directed by understanding the (socialization, exemalization, combination, internalization) of the society in which it is working to Creating knowledge ideas in a fundamental way that contributes to achieving organizational excellence and achieving its desired goals, as well as the interest of the studied companies to develop their capabilities by granting managers More independence in developing their abilities to complete their work in order to enhance their ability and talent to implement individual creative ideas through learning, creativity and acquiring new knowledge.

The study also recommends Encouraging employees to develop the technological knowledge they possess and keep pace with all innovations and innovations, which leads to the creation of knowledge that improves the performance level of Zain Telecom and satisfies the needs of its customers. and necessity of distinguishing workers from other companies by attracting talented and highly skilled individuals to be an essential point for generating more ideas towards developing the combination and exemalization of other workers to knowledge creation.

References

1. Arora, 1996] A. Arora. Contracting for tacit knowledge. Journal of Development Economics,50, 233—256, 1996.[Audi, 2002]

ISSN 2576-5973 (online), Published by "Global Research Network LLC"
under Volume: 5 Issue: 8 in Aug-2022 https://www.grnjournals.us/index.php/AJEBM

2. C. W. Choo. The Knowing Organization. Oxford University Press, 1998.[Collins, 1973] H. M. Collins. The TEA set: Tacit knowledge and scientific networks. ScienceStudies 4: 165—186, 1973.[Collins, 1982] .
3. Choi Byounggu and Lee Heeseok(2002) 'Knowledge management strategy and its link to knowledge creation process',Expert System with Applications,Vol.23,pp.173-187.
4. Chou, S & He, M. (2004) ' Knowledge management: the distinctive roles of knowledge assets in facilitating knowledge creation', Journal of Information Science, Vol.30 No. 2, pp.146-164.
5. Cruce, T. M., Wolniak, G. C., Seifert, T. A., & Pascarella, E. T. (2006). Impacts of good practices on cognitive development, learning orientations, and graduate degree plans during the first year of college. Journal of College Student Development, 47(4), 365-383.
6. D. Leonard and S. Sensiper. The role of tacit knowledge in groupinnovation. California Management Review, 40, 112—132, 199 *(6) (PDF) The Nature of Technological Knowledge*. Available from: [accessed Jun 22 2022].
7. H. M. Collins. Tacit knowledge and scientific networks. In: Science in Context:Readings in the Sociology of Science, B. Barnes and D. Edge, eds., MIT, 1982 *(6) (PDF) The Nature of Technological Knowledge*. Available from: [accessed Jun 22 2022].
8. H.Skolimowski. The Structure of Thinking in Technology. In: Philosophy *(6) (PDF) The Nature of Technological Knowledge*. Available from: [accessed Jun 22 2022].
9. I. Nonaka and H. Takeuchi, The Knowledge-Creating Company (O.U.P., New York, 1995). [2] I.
10. Kroes, 1992] P. A. Kroes. On the role of design in engineering theories. In: Technological Development and Science in the Industrial Age, P. A. Kroes and M. Bakker, eds., pp. 69–98,Kluwer, 1992.*(6) (PDF) The Nature of Technological Knowledge*. Available from: [accessed Jun 22 2022].
11. Krogh, G. V. (1998) 'Care in Knowledge Creation', California Management Review, Vol. 40 No. 3, pp.133-153.
12. Kuh, G. D., Pace, C. R., & Vesper, N. (1997). The development of process indicators to estimate student gains associated with good practices in undergraduate education. Research in Higher Education, 38(4), 435-454.
13. Layton, 1974] E. Layton. Technology as knowledge. Technology and Culture, 15, 31—41, 1974.[Leonard and Sensiper, 1998] .
14. Lin, F. , Lin, S. and Huang, T. (2008) 'Knowledge sharing and creation in a teachers' professional virtual community', Computers & Education, Vol. 50, pp.742–756.
15. M. Balconi. Tacitness, codification of technological knowledge and the organi-zation of industry. Research Policy, 31, 357—379, 2002.[Baumard, 1999]
16. M. Bunge. Technology as applied science. Technology and Culture, 7, 329—347,1966.[Bunge, 1967] M. Bunge. Scientific Research II: The Search for Truth. Springer, 1967.[Choo, 1998]
17. Nonaka, R. Toyama, and N. Konno, SECI, ba, and leadership: a unified model of dynamic knowledge creation Long Range Planning (32) (2000) 5–34
18. P. Baumard. Tacit Knowledge in Organizations. Sage, 1999.[Berry, 1987] D. C. Berry. The problem of implicit knowledge. Expert Systems, 4, 144—151,1987.[Broens and de Vries, 2003] R. C. J. A. M. Broens and M. J. de Vries. Classifying technologicalknowledge for presentation to mechanical engineering designers. Design Studies, 24: 457—471,2003.[Bunge, 1966] .
19. R. Audi. Epistemology: A Contemporary Introduction. 2nd ed., Routledge, 2002.[Balconi, 2002]

ISSN 2576-5973 (online), Published by "Global Research Network LLC"
under Volume: 5 Issue: 8 in Aug-2022 https://www.grnjournals.us/index.php/AJEBM

20. Simon, 1981] H. A. Simon. The Sciences of the Artificial, 2nd ed. MIT, 1981.[Solimowski, 1972]
21. Sundberg, B., Areljung, S., Due, K., Ekström, K., Ottander, C., & Tellgren, B. (2016). Understanding preschool emergent science in a cultural historical context through activity theory. European Early Childhood Education Research Journal, 24(4), 567–580.
22. Sundqvist, P. (2016). Teknik i förskolan är inget nytt, men idag är vi mera medvetna om vad vi kallar teknik. Personalens beskrivningar av teknik som innehållsområde i förskolan. [Technology in preschool is nothing new, but today we are more aware of what we call technology. The staf's descriptions of thechnology as content area in preschool]. [Licentiate Thesis]. Mälardalen University, Västerås.
23. Wise, 1985] G. Wise. Science and technology. Osiris 2nd series, 1, 229-246, 1985.

ISSN 2576-5973 (online), Published by "Global Research Network LLC"
under Volume: 5 Issue: 8 in Aug-2022 https://www.grnjournals.us/index.php/AJEBM