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The Impact of training and information technology on knowledge sharing at Covid 19 (A case satudy)

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Abstract:

This study aims to investigate the impact of the Training and Information Technology variables on Knowledge Sharing using a case study on the ENIE company in Sidi Bel Abbes (western Algeria) by distributing 307 questionnaires to a random sample of employees, and data processing through the SPSS program, so that the results indicated that there is a positive impact between Training and Information Technology on Knowledge Sharing, and the study concluded with a different scientific contribution from previous studies about the importance of Training in improving cooperation relations between employees and sharing their knowledge and the importance of using Information Technology in this, especially during the outbreak of the COVID-19 pandemic.

Keywords: Training, Information Technology, Knowledge, Knowledge Sharing, Knowledge Management, COVID-19.

JEL Classification: M53, O15, J31.

Introduction:

Many companies rely on Knowledge Management to ensure the continuity of knowledge flow between their departments, and their company among employees, so that dealing with them, in particular, requires training inside or outside the company to ensure its effectiveness. Knowledge sharing is one of the most important knowledge management processes that Zack (1999)[2]considers that the knowledge-sharing process requires an open and free environment within the company, that is based on the distribution of a set of information and experiences

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[2] Zack, M. H. (1999), Developing a Knowledge Strategy, California Management Review, 41(03), 125-45.

to help in making decisions[3][4]. Knowledge sharing relies on relationships as an important factor. That's why Hansen (1999)[5] investigated the effect of the interpersonal relationship network on knowledge sharing, then Reagans & Mcevily(2003)[6] emphasized that companies must understand the dynamics of relationships, which contributes to increasing cooperation between individuals. And this cooperation requires effective and rigorous training. However, with the emergence of COVID-19, it has become necessary to use information technology to support business relationships, especially those that require teamwork to achieve organizational goals.

ENIE is an economic company that specializes in the manufacture of electronic appliances (TV, solar panels, phones, etc.) and it employs a huge amount of staff so that it requires accuracy in work and cooperation through training in order to achieve perfection and quality in products, so many employees resort to share knowledge among them. But, with the emergence of COVID-19, communication with others has become difficult, and the process of knowledge sharing may cause a risk of transmission of the epidemic, so this current study attempted to determine the importance of sharing knowledge by using training and information technology. Through this proposition, the current study can build its problem as follow: How does training and information technology affect the improvement of the knowledge sharing process among employees in ENIE Company of Sidi Bel Abbes especially when the COVID-19 pandemic emerges?

This study develops three hypotheses concerning the study variables, and tested at a 0.05 level of significance as follows:

H_1. The Training will positively impact knowledge sharing in ENIE Company of Sidi Bel Abbes;

H_2. The Information Technology will positively impact knowledge sharing in ENIE Company of Sidi Bel Abbes;

H_3. The Training and the Information Technology both will positively impact knowledge sharing in ENIE Company of Sidi Bel Abbes.

This study has three principal objectives that it seeks to achieve based on the problem of the study as follows: To examine whether training programs will improve employees knowledge sharing; Demonstrate clearly-effectively the information technology to improve knowledge sharing;; And determine the dual effect of training and information technology on knowledge sharing among employee in ENIE company of Sidi Bel Abbes;

This study is very important, especially for companies, in that it represents a practical guide that helps in improving the competencies of employees by analyzing the importance of training and the use of information technology and an

[3] Davenport, T. H., & Prusak, L. (1998), How Organizations Manage What They Know.

[4] Held, D., & Riss, J. (1998), Le développement des compétences au service de l'organisation apprenante, Employeur Suisse, 13, 01-07.

[5]Hansen, M. T. (1999), The Search-Transfer Problem : The Role of Weak Ties in Sharing Knowledge across Subunits Organization, Administrative Science Quarterly, 44(01), 82-111.

[6] eagans, R., & Mcevily, B. (2003), Network structure and knowledge transfer: The effects of cohesion and range, Administrative Science Quarterly, 48(02), 240-267.

important role in discovering knowledge sharing as an important means in that and improving human resource management tools in it. This study also helps other researchers to prepare for future research in the field of knowledge management and competency improvement.

1. Conceptual framework

Training is seen as the most important human resource management endeavor that contributes to creating cooperation among employees to share knowledge, improve productivity, and contribute to organizational learning.[7] Ipe (2003)[8] and Nonaka & Takeuchi (Nonaka & Takeuchi, 1995)[9] believe that knowledge sharing between individuals is the process in which tacit individual knowledge is transferred to others explicitly and comprehensibly. Zheng (2017)[10], emphasizes the process of sharing knowledge is individual behavior and voluntary awareness. Training may also help in developing employee knowledge by adopting effective training programs.[11] Also, many studies have linked the relationship between training and knowledge management and with innovation that contributes to achieving the goals of the company, given the great importance of training as an investment in human capital when used to share knowledge.[12]

According to Hendriks(1999),[13] knowledge is not a commodity to be easily exchanged, but rather a process that originally needs knowledge to be shared among employees. Therefore, the information technology variable is studied to smooth this process and relate the company's departments with each other, especially with the social distancing imposed in the COVID-19 epidemic. As Lewis (1997)[14] explained - that information technology contributes to learning and he called it supported learning. But, Nonaka& Konno(1998)[15]explain that information technology is the way to facilitate the movement of knowledge in the company.

[7] Aboyassin, N. A., & Sultan, M. A. F. (2017), The Role of Human Resources Training in Improving the Employee's Performance: Applied Study in the Five Stars Hotels in Jordan, International Journal of Business Administration, 08(05), pp.46-56.
[8] Ipe, M. (2003), Knowledge sharing in organizations: A conceptual framework, Human Resource Development Review, 02(04), 337-359.
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[12] Dietz, D., & Zwick, T. (2021), The retention effect of training : Portability, visibility, and credibility, The International Journal of Human Resource Management, 01-32.
[13] Hendriks, P. (1999), Why Share Knowledge? Knowledge and Process Management, 06(02), 91-100.
[14] Lewis, R. (1997), Sharing professional knowledge: Organizational memory, International Journal of Continuing Engineering Education and Life-Long Learning, 07(02), 95-107.
[15] Nonaka, I., & Konno, N. (1998). The concept of "Ba": Building a foundation for knowledge creation. California Management Review, 40(03), 40-54.

2. Literature Review:

Previous studies have been conducted to evaluate the link between Training, Technology information, and Knowledge sharing. The study of Ahmadi et al.(2018)[16] assessed the association between high-performance work components and knowledge employees' knowledge sharing, given the mediating role played by managers' information and communications technology skills, using the descriptive-correlational methods by distributing 92 questionnaires to managers at the Electricity Distribution Company in Iran. The findings of the analysis showed that there is a positive relationship between variables. Another study by Kucharska &Erickson[17](2019)was conducted aimed at measuring the impact of organizational technology efficiency in its three dimensions: IT-knowledge, IT-operations, and IT-infrastructure on knowledge sharing. A questionnaire was distributed to 910 knowledge employees employed in Poland with different roles and experiences and across different industries, and the results indicated that technology infrastructure is a necessary but not sufficient factor to ensure the flow of knowledge sharing in companies, while information technology knowledge and information technology processes are as well and thus information technology processes and information technology knowledge are vital factors to support effective knowledge sharing.

But, Al Bastaki et al.(2021)[18]looked at the link between training and knowledge sharing, for a group of startups in the United Arab Emirates, through the study of the mediator variable of motives and social interaction among employee, the survey was conducted on a sample of 384, to which a questionnaire was distributed. The results showed that there is a positive effect between training and knowledge sharing. Murray et al.(2021)[19]conducted a study aimed at determining the importance of tacit knowledge to help create a job training system at all levels within the company, by using a vocational education and training model that helps build an effective employees training system, through a systematic review of 77 documents on the topic. The study results revealed that a positive relationship existed between effective training and tacit knowledge sharing. And the importance of this training model in setting the value of training by tacit means or through codification can be measured through the diffusion and appropriateness of knowledge and skills.

[16] Ahmadi, A., Abzari, M., Isfahani, A. N., & Safari, A. (2018), High-performance , knowledge sharing and ICT skills, Human Systems Management, 37(03), 271-280.

[17] Kucharska, W., & Erickson, G. S. (2019), Organizational IT Competency, Knowledge Workers and Knowledge Sharing. In E. Tome, F. Cesarie, & R. R. Soares (Eds.), Proceedings of the 20th European Conference on Knowledge Management (Issue 01, pp. 665–671), Universidades Europesia (acpi).

[18] Al Bastaki, S., Haak-Saheem, W., & Darwish, T. K. (2021), Perceived training opportunities and knowledge sharing: the case of the United Arab Emirates, International Journal of Manpower, 42(01), pp.113-130.

[19] Murray, S., Castaño, V. M., Cortes, C. A., & Muñoz, F. M. (2021), The Know-How and the Know-What : The Compatibility of Tacit and Codified Training Knowledge in Creating a Functioning Training Regime at the Firm and Interfirm Levels Authors, Fundación Marcelino Muñoz, March, pp.01-15.

Mohiuddin & Su(2021)[20] conducted a study aimed at analyzing how the Center for Continuing Education in Canada can further develop sustainability as far as efficiency by executing successful knowledge sharing procedures using information and communication technologies and the organizational cultures. The case study methodology was utilized to consider the variables that impact knowledge sharing in an academic institute, conducting interviews with a group of employees in order to build a model for developing competencies, not for statistical analysis. The results showed that both knowledge management systems and suitable organizational culture are needed to implement knowledge-sharing. As for Olusegun & Kassim(2021)[21]conducted a study aimed at determining the impact of knowledge management and information technology on knowledge sharing was conducted to knowledge experts in Malaysia, It adopted a descriptive survey research design, by distributing questionnaires to 50 experts in the field of knowledge. The findings of the research showed that both knowledge management and information technology on knowledge sharing.

3. The current study contribution:

Different authors have handled the impact of training and technology information on knowledge sharing in previous studies Ahmadi et al., 2018; Al Bastaki et al., 2021; Kucharska & Erickson, 2019; Mohiuddin & Su, 2021; Murray et al., 2021; Olusegun & Kassim, 2021, that giving itemized clarifications on the connection between knowledge sharing and training in the company. But, there are no studies that dealt with the relationship between the three variables each, so this is the most important for our contribution, no empirical paper has assessed the joint impact of training and information technology on knowledge sharing; also, these studies did not address the topic of COVID-19 and this is the aim of the current study's contribution.

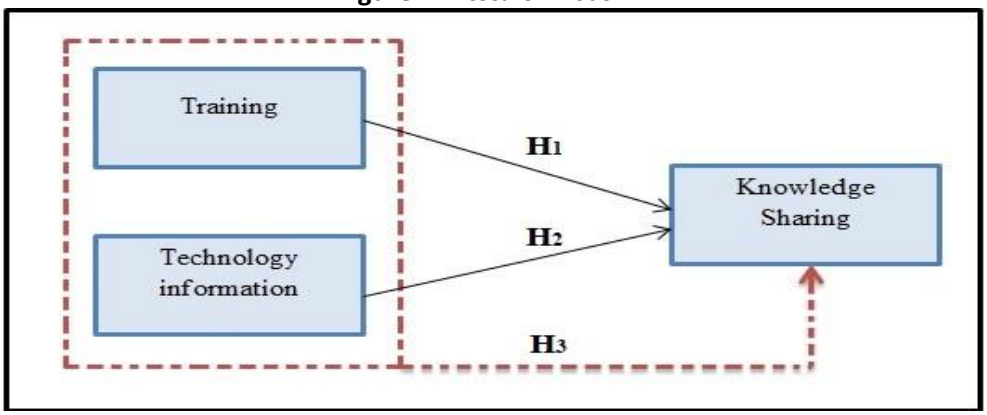
4. Research model:

The research model was designed based on hypotheses created from the literature review as cited in the section below (Fig.01).Where those training and information technologies are independent variables and knowledge sharing represents the dependent variable in the study.

[20] Mohiuddin, M., & Su, Z. (2021), Information and communication technology (ICTs) and organizational culture for knowledge sharing strategy : case study of a center for continuing education. International Journal of Innovation, Creativity and Change, 15(02), pp.86-108.

[21] Olusegun, O. J., & Kassim, A. M. (2021), Identified Human Factors in Knowledge Management in the Context of Knowledge Sharing, Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(03), pp.1963-1968.

Figure 1. Research model



Source: Prepared by authors in 2022

5. Materials and methods:

The research is based on a quantitative approach with a case study on the ENIE company of Sidi Bel Abbes-western Algeria, which has a total of nearly1600 all employees and represents the study population. There is a good formula for estimating sample size in simple random samples based on the response rate estimated from the literature review that we assumed to be 55%. The formula for the equation is as follows:[22] $n = \frac{t_\alpha^2 * p * q * N}{(N-1) * e^2 + t_\alpha^2 * p * q}$

Where: n=sample size to be calculated; N=the population size (1600); p=expected ratio of response (55%); q=1–p (45%); t_α=value of the normal curve associated to the confidence level 1.96 for a confidence of 95%; e=accepted margin of error (0.05).So, n=307.43 or 307 respondent.

The primary data was collected through a questionnaire distributed to employees, which, the number of questionnaires retrieved 150 due to the general health conditions that the whole world is going through as a result of the COVID-19 virus, there was not enough response to opinions; 110 usable questionnaires were filtered and the rest of the questionnaires were excluded due to lack of or containing insufficient information in the study.

The study questionnaire was constructed by the authors, which consists of four sections. The first section is about the demographic data of the study sample; the second section is concerned with determining the training variable; the third section investigates the information technology items; as for the last section on the knowledge sharing items, with a five-point Likert Scale has been applied on the questionnaire. This paper extended to analyze the reliability of the study through Crombach's Alpha, which requires an increase in its value greater than (Crombach's ≥0.6) so that the study found three values for the questionnaire axes, representing 73.1% for training across 11 items, 68% for information technology for 10 items, and 81% for information technology for 14 items. As for the

[22] Del Águila, M. R., & González-Ramírez, A. (2014), Sample size calculation, Allergologia et Immunopathologia, 42(05), pp.485-492.

description of the study sample, the percentage of males occupied more than 60%; a good percentage of the educated is estimated at 64%.

6. Results & Hypothesis testing:

Table 1. Model summary

Model	R	R-square	Adjusted R-square	Std. Error of the Estimate
01	0,405	0,164	0,149	0,34852

Source: based on the SPSS program

To ensure the validity of the model, the study relied on the analysis of the results of the multiple regression shown in Table.01 so that the value of R-Square shows the potential impact of training and information technology on knowledge sharing, and they explain the deviation about 16.4% of the change that obtains knowledge sharing, It is a relatively small percentage and explains the weak effect of the independent variables(training and information technology) on the dependent variable (knowledge sharing). And the remaining percentage represents the effect of variables the other on the dependent variable is not included in the current study.

Table 2. Coefficients t- test for H_1 and H_2

Independent variables	Dependent variable	t- calculaed	Sig
Training	Knowledge sharing	9,012	0,000
Information Technology		3,257	0,001

Source: based on the SPSS program

Table.02 represents the test of the impact of training and information technology on knowledge sharing, like the t-test for training and knowledge sharing was estimated at 9.01, and the value of information technology and knowledge sharing, which was estimated at approximately 4, is greater than the tabular value of 1.984, and they are statistically significant so that $\alpha \leq 0.05$; Hence, hypotheses H_1 and H_2 can be accepted, and we conclude that training affects participation, and information technology also affects it in ENIE.

Table 3. ANOVA Analysis for H_3

Model		Sum of Squares	Df	Mean Square	F	Sig
01	Regression	255,2	2	127,6	10.50	0,000
	Residual	299,7 1	107	12.1	6	
	Total	554,9 1	109			

Source: based on the SPSS program

In order to test the effect of the two independent variables(Training and Information Technology) on knowledge sharing in order to test hypothesis H_3, the

ANOVA test was analyzed and the value of F was calculated, which was found to be approximately 11, which is greater than the tabular value 1.27, and they are also statistically significant with a value of 0.000≤ 0.05, and thus it can be concluded H_3 is acceptable and the null hypothesis that negates is rejected, so that both training and information technology affect knowledge sharing in ENIE company.

The findings of previous statistical tests have proven that training has an impact on knowledge sharing in ENIE company by improving employees' abilities to communicate and promoting an organizational culture to increase cooperation between them, especially in COVID-19, which imposed social distancing and employees not going out to training centers, and thus training in the workplace, which increases from the process of transferring knowledge and sharing it between individuals, as the above results demonstrated the existence of statistical significance between the two variables and rejecting the null hypothesis. Also, these research results were in agreement with literature review Ahmadi et al., 2018; Al Bastaki et al., 2021; Kucharska & Erickson, 2019 that found a relationship between them. As for the impact of information technology on the sharing of knowledge in the ENIE company, statistical tests also proved an effect between them through the use of technological media and the Internet, especially when social distancing measures exist in COVID-19, so that these results are in line with previous literature Mohiuddin & Su, 2021; Murray et al., 2021; Olusegun & Kassim, 2021.

Whereas, the effect of the two independent variables (Training and Information Technology) on knowledge sharing, which we did not find studies that dealt with it, especially in Algeria . Thus, the study found a strong influence relationship by interpreting the value of F and comparing it with the value of Mean Square and the presence of statistical significance for hypothesis H_3 estimated at 0. 000, which is a confirmed hypothesis, and this is the contribution of the current study.

Conclusions:

Based on the above, the findings indicated that there is a positive impact between Training and Information Technology on Knowledge Sharing, but the ratio of the effect between the variables was very small, so the following recommendations can be suggested: ENIE Company needs to try to intensify training programs, especially in COVID-19, open the way for employees to communicate, and increase support for senior management by providing social networks and providing appropriate technology for work and communication, and this is what helps in improving competencies. One of the limitations of the current study is the lack of a significant response to the research objectives because of fearing spreading the COVID-19 virus through the distributed questionnaire sheets.

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