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How to facilitate learning transfer in the organization following the use of e-learning

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ABSTRACT: E-learning is considered as a learning style, which continuously improves the employees' skills. The question therefore becomes to know how to facilitate the learning transfer in the organization after the use of e-learning. The object of the study is to identify the susceptible factors which are likely to influence effective learning transfer and to consequently understand the factors hindering this transfer after the use of e-learning through a survey based on a questionnaire addressed to 109 learning employees, preceded by 17 semi-directive interview guides directed to learners and training managers of the companies practicing e-learning as an additional learning style. The study has enabled us to highlight the role of motivating the learners to transfer their learning as well as the superiors' encouragement and the colleagues' support.

KEYWORDS: E-learning, e-learning efficiency, the motivation to transfer, superiors' encouragement, and colleagues' support.

KEY POINTS

Learning transfer is a complex phenomenon; its study requires reviewing the learner's motivational dynamics as well as the social relationships in the organizational context.

The **learner's satisfaction** with the training program explains more learning transfer after the use of e-learning.

The **motivation to transfer** shows a positive impact on learning transfer after the use of e-learning.

1 INTRODUCTION

Facing the needs of skills and knowledge continuous development, e-learning occupies a central position in a wide and diversified set of acquisition modalities and organizational capacities development, since it allows the employees to update their knowledge and to incorporate new professional knowledge.

E-learning is likened to a learning process through which the individuals acquire new skills or knowledge thanks to multimedia technologies (Homan and al., 2005; Imamoglu, 2007; Jong-Ki Lee and Woong-Kyu Lee, 2008). Along the same lines, just like the traditional learning methods, e-learning is meant to allow the learners to update their knowledge and to incorporate new skills within their professional behavior. Consequently, it can be likened to a learning style only if it continuously improves the employees' skills. Thereby, its use by the employees has to insure satisfactory results in terms of performances improvement.

The question is therefore to know how to facilitate learning transfer in the organization after the use of e-learning. Therefore, the study of this transfer conditions after the use of e-learning acquires certain legitimacy. Consquently, this process of learning transfer is at the heart of our inquiry.

Learning transfer after the use of e-learning is a process through which the knowledge, the know-how and the interpersonal skills achieved during e-learning are used in the conduct of various professional activities. However, being able to transfer learning from one learning situation to another which is completely different is a difficult process. And even though learning transfer is not a new question since some studies have been conducted on this topic (Baldwin and Ford;

1988, Lim and al; 2007, Park and Wentling; 2007, Jong-Ki Lee Woong-Kyu Lee; 2008) there are still numerous controversies associated with it.

Indeed, the traditional explanations introduced to explain the problem of learning transfer are diverse and varied, however they can not claim but to partially explain this phenomenon.

A set of questions has guided us throughout this research. We have sought to find out at once: How can the perception of the learner's e-learning efficiency influence the employee's ability to transfer his skills? How may the learning employee's motivational characteristics influence his ability to transfer learning? And finally how may the organizational context affect the employee's ability to transfer his skills?

By trying to update new explanatory factors of the phenomenon of learning transfer after the use of e-learning, we have chosen to conduct an investigation based on a questionnaire addressed to 109 learning employees preceded by 17 semi-directive interview guides with the learners and the training managers of the companies practicing e-learning as an additional learning style. Our objective is to explain what hinders the process of learning transfer after the use of e-learning.

2 THEORETICAL FRAMEWORK

Several authors argue that skills transfer occurs when the knowledge constructed during training is included in the work environment (Baldwin and Ford, 1988; Saks and Haccoun, 2004; Lim et al, 2007; Park and Wentling, 2007, Jong-Ki Lee Woong-Kyu Lee, 2008). The majority of the researches and studies believe that the individual's learning transfer to the organization after the use of e-learning is difficult.

We can see while in the workplace, we denote a real learning transfer when the learner manages to apply in his work the knowledge and the skills which he has acquired by participating in a training content. Learning transfer after the use of e-learning is a process through which the realized learning is applied in the practice of the professional activities. Indeed, learning transfer in a workplace is the objective of any company which invests in e-learning. However, being able to transfer behavior from a training situation to another which is completely different is not easy at all. This is why researches on learning transfer confirm the difficulty of behavior during learning transfer via e-learning.

The study of this transfer has for objective to observe whether or not the acquired knowledge in a training situation fully applies in the working context. Learning transfer becomes then synonym of the implementation of the acquired knowledge, the know-how and the interpersonal skills in the workplace. Consequently we deduce that the implementation of the acquired knowledge after the use of e-learning in the workplace promotes skills acquisition.

Several researchers in the field of classic learning have reached the conclusion that transfer raises a problem for the company, and that the quantity of training offered by the company is not always reflected through convenient transfer in the workplace (Kirkpatrick, 1959; Noe, 1986; Baldwin and Ford, 1988; Tracey and al, 2001). The problem increases even more within the framework of e-learning. The learner who has undergone an online learning is facing a great difficulty in reproducing it in the workplace because its/his mission consists in redoing a virtually acquired learning in a practical context.

An in-depth study of the literature on the phenomenon of learning transfer after the use of e-learning, has allowed us to notice that the phenomenon of learning transfer depends on the training efficiency, on the learner's characteristics (among which a central attention is granted to its motivational dynamics regarding the training), as well as for the factors related to the organizational context, and in particular the superior's support and the colleagues' influence (Baldwin and Ford, 1988; Lim and al., 2007; Park and Wentling, 2007).

3 THE CONCEPTUAL FRAMEWORK OF THE RESEARCH: THE DETERMINANTS OF LEARNING TRANSFER EFFICIENCY AFTER THE USE OF E-LEARNING

3.1 THE LEARNER'S PERCEPTION OF LEARNING EFFICIENCY VIA E-LEARNING.

Several researches have studied the appropriate factors leading to learning efficiency via e-learning (Zhang and al, 2005; Wang and al, 2007; Lim and al, 2007; Jong-Ki Lee and Woong-Kyu Lee, 2008). These researches have stipulated that measuring e-learning efficiency is a major issue which has been confined in numerous studies to traditional learning as a standard. Indeed, the measurement of learning efficiency is a problem for the research on learning efficiency via e-learning as well as for those on face to face learning.

Multiple measures of e-learning efficiency have been then used. However, there are no models in the literature which have linked all the components of this concept. Wang and al (2007) have proposed a "multi-criterion" evaluation model of e-learning efficiency which contains six dimensions which are: the quality of the system, the quality of the information, the quality of the service, the utility of the system, the satisfaction of the user, the advantages of the system.

Similarly, Lim and al (2007), have built a model of variables which influence transfer after the use of e-learning. This model is reflected in two dependent variables which are: learning and transfer efficiency. The authors have tried to mark out the determiners of e-learning efficiency which are: motivation, individual efficiency, training content, face to face meeting, and the ease of use.

As for, Jong-Ki Lee and Woong-Kyu Lee (2008) they have developed a measurement model of e-learning efficiency. Through this model, the authors have shown that the efficiency is determined by the learner's satisfaction. The latter is influenced by several variables which are: the quality of the service, the quality of the information, the perceived utility and the perceived ease of use.

All these authors have tried to determine the variables which affect e-learning efficiency; however the determination of the various dimensions of the efficiency of this type of learning has been largely debated. Several authors have considered that e-learning efficiency can be attributed to the learner's satisfaction with the training content and to the ease of use of the technological system (Wang and al., 2007; Lim and al., 2007). We agree with the reflection of these authors and we consider that e-learning efficiency is based on two main components, namely the learners' satisfaction with the training content as well as the ease use of the adopted technological system.

The learner's satisfaction with the training content is the first level of Kirkpatrick model (1959), which is used to estimate training efficiency. This variable has been valued by a large number of authors (Noe, 1986; Tracey and al., 2001, Zhang and al., 2005; Wang and al., 2007; Lim and al., 2007; Jong-Ki Lee and Woong-Kyu Lee, 2008). It is generally measured at the end of the training; thereby it would be easy to be estimated within the framework of our study. On the other hand, and with the integration of information technologies in the classical modes of training, new approaches have appeared and have been adopted in order to realize an effective learning.

Training efficiency has become essentially determined by the technological aspect. Unlike traditional learning, the availability of the technological resources turns out to be a major prerequisite in the introduction of e-learning. Because, e-learning is essentially based on the use of web technologies, its use depends on the availability of a technological platform acquired by the organization in order to be used for the purposes of learning. Numerous studies have shown that the technologies under various forms have positive effects on learning (Cavanaugh, 2001; Waxman and al., 2003). Similarly, the technological problems may cause frustrations and relinquishments (Maor and Volet, 2007). Besides, some authors like Ho (2009), Ho and Kuo (2010) and Ho, Kuo and Linen (2010) recommend to offer to the learners a training session on computer before they undergo a training via e-learning, with the objective of improving their attitudes, and particularly their feeling of personal efficiency.

Starting from these analyses, we can assert that e-learning efficiency depends on the learners' satisfaction with the training content as well as on the used technological system. We can therefore, introduce the following hypothesis:

Hypothesis 1: The perception of e-learning efficiency by the learner positively influences learning transfer after the use of e-learning.

3.2 THE LEARNERS' MOTIVATIONAL CHARACTERISTICS

Yamnill and Mc clean (2001) have asserted that human behavior understanding is essential in order to withstand the transfer degree of a desired training. Indeed, several authors have tried to study the effect of the factors related to the trainees' personality on learning transfer. The concept of motivation is the most mentioned among the individual factors affecting the process of acquired learning transfer after to the use of e-learning. This concept is dominant in all the literature review on classical or on-line training.

Within the framework of learning transfer, several authors valorize the learner's motivational dynamics. It is about his motivation to learn within the framework of a training program or his motivation to transfer his acquired learning after the use of e-learning.

The motivation to learn turns out to be one of the most important studied individual characteristics susceptible to influence learning achievement (Noe, 1986; Tracey and al., 2001; Warr and Bunce, 1995). It refers to the individual's desire to acquire new knowledge or know-how, and to apply what he is going to learn in his work (Guerrero and Sire, 2001). It is

defined as being the specific desire to learn the training content (Noe, 1986). It supplies the necessary energy to realize transfer behavior, it directs this energy towards the objectives meant to achieve and incite to persist as much as it's necessary to reach the objectives. This motivation consequently influences the success of the learning process. However, during an e-learning process, besides the motivation to the course, the learner must also be motivated to learn how to use the electronic device. According to Keller (2000), the motivation to learn should establish the basis of the design of the training content. It is more critical during e-learning because the learner is more isolated.

The motivation to transfer has been considered by several authors as an essential explanatory variable in the process of learning transfer (Colquitt, LePine and Noe, 2000; Park and Wentling, 2007, Lim and al., 2007; Park and Jacobs, 2009; Torrey and Shavlik, 2009). It is defined as the learners' desire to use the acquired skills and knowledge during a training program in the work (Noe, 1986). It refers to the individual's desire to learn new knowledge or know-how, and to apply what he is going to learn in his work (Guerrero and Sire, 2001).

Starting from these analyses, we can introduce the following hypothesis:

Hypothesis 2. The learner's motivational characteristics positively influence learning transfer after the use of e-learning.

3.3 THE ORGANIZATIONAL CONTEXT

Much research has been enrolled in the study of the organizational factors which affect the personal attributes of the participants in the training (Baldwin and Ford, 1988; Tracey and al, 2001). Recently, and within the framework of e-learning, Park and Wentling (2007), have considered that the organizational context affects learning transfer after the use of e-learning more critically than after the use of classical training. Indeed, in certain situations, learners acquire knowledge, however they find themselves unable to use this new information in their working environment; consequently, learners would find themselves motivated to make a good work when they have the opportunity to apply what they have learnt.

The overall research has shown that the environment of the learner has an influence on the acquired skills transfer in the work. The support and the advice of the supervisors and the colleagues can encourage and empower the learners to make changes and to improve their performance.

Indeed, the role of the superiors in the maintenance and the transfer of the acquired skills after the use of an e-learning training program has been valorized by a large number of researchers (Park and Wentling, 2007). The fact that the organizational context is the result of the superior's behavior; that is, his role in the training with his employees is paramount. Consequently, the superior could favorably influence the employee's motivation to transfer the new acquired knowledge in his work. Thereby, he plays an important role in the development and the preservation of the organization, because, without the application and the strengthening of the recently acquired skills, the new acquired behavior will disappear.

Similarly, the colleagues influence the opportunity which the trainees have to apply the training program in the workplace through their supplied support to apply the acquired skills. Wenger (1998) has found that the agents when handling an ambiguous situation will be committed in informal interactions with their colleagues. He has noticed that they train a "community" in the sense that they work with other people with whom they share the same conditions. Further to this finding, we can consider that the colleagues can encourage and motivate the learner to transfer his learning.

A favorable working context to learning transfer plays a determining role since it exercises an important influence on the motivation to apply the new acquired skills after the use of an e-learning training. Starting from these advanced analyses, we can deduct the following hypothesis:

Hypothesis 3: The organizational context, particularly the superior's support and the colleagues' encouragement, positively influence learning transfer after the use of e-learning.

Thereby, by basing ourselves on the previous analyses, we can consider learning transfer after the use of e-learning a process which depends on the learners' appreciation of its efficiency, on their motivational characteristics, and on the organizational context. These three factors are interrelated. The following diagram (Figure.1) represents the influence of these factors on learning transfer.

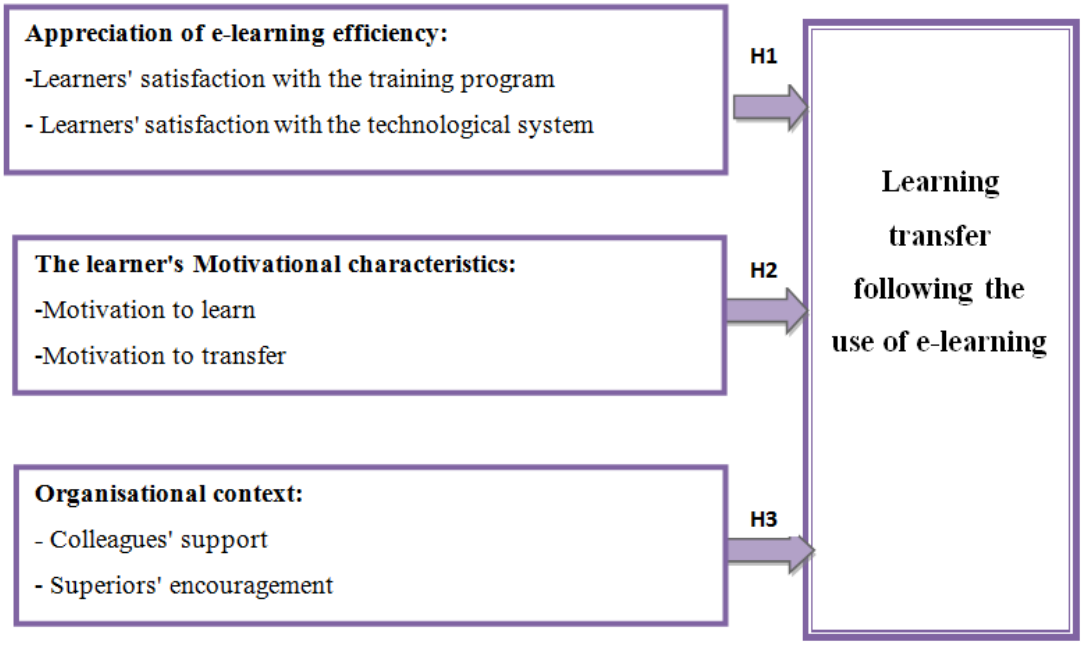

Figure 1: Theoretical model: the factors influencing learning transfer after the use of e-learning

4 RESEARCH METHODOLOGY

The objective of our search is to explain: how does the appreciation of e-learning efficiency by the learning employee influence his capacity to transfer his acquired learning? How do the motivational characteristics of the latter influence his capacity in learning transfer? And how does the organizational context influence the learner's capacity to transfer his newly acquired skills?

The questionnaire construction was made from 17 semi-directive interview guides, realized with five training managers and twelve experimented employees. These interviews have allowed us to adopt the measurement scales found in the literature in a Tunisian context. The empirical validation of the theoretical model was realized through a questionnaire, tested with 20 employees and administered, afterwards with 109 learning employees. The questionnaire is based on items drawn from the existing measurement scales found in the literature review.

The variable to be explained is the following: transfer efficiency is measured by four items adopted by Holton and al (2000). The explanatory variables have been measured as follows: the appreciation of e-learning efficiency by the learners has been measured through ten items adopted from the questionnaires of Nehari and Bender (1978) and that of Leidner and Jarvenpaa (1995). Equally, the learner's motivational characteristics have been measured through a scale adopted from the questionnaire of Guerrero and Sire (2001) as well as Noe and Schmitt (1986). Finally, the organizational support of the colleagues and the superiors has been measured through 9 items taken from the scale of Guerrero and Sire (2001). Each developed item has been evaluated through Likert scale (a 5 point scale) going from "strongly disagree" to "strongly agree".

5 THE MAIN OBTAINED RESULTS

For each of the adopted measurement scales, we have realized a factor analysis in order to ensure the unidimensional structure of the scale. Each of the factor analyses shows a KMO value superior to 0.7 and a significant Bartlett's test. The internal consistency between the items has been guaranteed by Cronbach's alpha.

The following table summarizes our work:

Table 1. Results of factor analyses and Cronbach's alpha

Variable	Number of factors	Factors' Appointment	Number of items	Cronbach's Alpha
-Learner's appreciation of e-learning efficiency	2	-satisfaction with the training content	5	0.877
		-satisfaction with the used technological system	5	0.565
The learner's motivational characteristics	2	Motivation to learn	6	0.624
		Motivation to transfer	4	0.875
The organisational context	1	Organisational context	9	0.945
Learning transfer efficiency	1	Learning transfer efficiency	4	0.951

In order to test our theoretical model as well as the relation between its variables, we have preceded a linear regression analysis. The most important advantage of this method consists in the identification of the most determining variables in the explanation of the independent variables. It allows testing not only the existence of a relation, but rather the exact nature of this relation. In our case, this method has allowed us to determine the importance of each variable on learning transfer efficiency. These relations are expressed by regression coefficients.

The principal components factor analysis of e-learning efficiency appreciation scale has allowed finding out the two dimensions evoked in the theoretical part. The learner's appreciation efficiency of e-learning is the result of two dimensions which are: the learner's satisfaction with the training contents as well as his satisfaction with the used technological system. The regression analysis shows that the two dimensions explain 20 % of the learning transfer after the use of e-learning (R squared = 0.204; adjusted R squared = 0.188). This model is significant. This regression model is written as follows:

Learning transfer efficiency = 0.448 learner's satisfaction with the training contents (t^1 3.950; p=0.000) + 0.076 learner's satisfaction with the used technological system (t^1=0.704; p=0.483).

This implies that the **learner's satisfaction** with the training program explains more learning transfer after the use of e-learning.

- The principal components factor analysis of the learner's motivational characteristics scale has allowed finding the two dimensions evoked in the theoretical part.

The learner's motivational characteristics result from two dimensions which are the motivation to learn and the motivation to transfer the acquired learning. The regression analysis shows that the two dimensions explain 53 % of the learning transfer after the use of e-learning (R squared = 0.536; adjusted R squared = 0.526). This model is significant (F = 7.829; p = 0.000). This regression model is written as follows:

Learning transfer efficiency = 0.616 motivation to transfer (F=7.829; p=0.000) + 0.161 motivation to learn (F=2.137; p=0.035). This result implies that the motivation to transfer influence more learning transfer efficiency after the use of e-learning.

- The principal components factor analysis of the organizational context scale has allowed finding out a unique dimension which we have called "the organizational context". The regression analysis shows that the organizational context explains 61 % of learning transfer after the use of e-learning (R squared = 0.618; adjusted R squared = 0.614). The coefficient of determination R-squared records a value of 0.61. Thus, 61 % of learning transfer efficiency is determined by the organizational context. This model is significant (F = 12.662; p = 0.000). This regression model is written as follows:

Learning transfer efficiency = 0.813 organizational context (t=12.662; p=0.000).

The regression coefficients through the reflection of the strength of the relations between the various dimensions and the variable to be explained, allow us to notice that the most important variable influencing learning transfer is "the organizational context". Similarly the learner's motivational characteristics influence his capacity to transfer his motivation and his learning. With that in mind, the learner's motivation to acquire new knowledge does not mean that the employee would be motivated to transfer his learning. And finally, the learner's satisfaction with the training contents is a variable which exercises an influence on the learner's learning transfer behavior. However, the learner's satisfaction with the technological system seems to have no big value on behavior transfer. These results are confirmed by the results of the correlation between the dimension "motivation to transfer" and the variable "organizational context" which is very

significant with a correlation index of 0.710. Similarly, the correlation between the dimension "learner's satisfaction with the training contents" and the dimension "motivation to transfer" is significant with a correlation index of 0.437.

6 CONCLUSION

This study has offered us a great contribution, because it has allowed us to better understand the most important factors influencing the employee's behavior towards transferring the acquired learning after the use of e-learning. We have noticed that **learning transfer** is a complex phenomenon; its study requires reviewing the learner's motivational dynamics as well as the social relationships in the organizational context.

We have noticed that like any investment, e-learning has to prove its **efficiency**. Therefore, evaluation is needed to justify the committed means and legitimize the choices of the training initiatives.

We have tried to show the positive impact of **the motivation** to transfer on learning transfer after the use of e-learning.

In spite of the fact that it is insufficient, motivation stays among the important conditions to the application of the newly acquired skills after the use of e-learning at work.

Indeed, after acquiring new necessary skills for his work, the employee often finds himself in boring situations which demotivate him to apply what he has learnt. An important barrier depends on the will of the employees to transfer their knowledge. The incentives from their respective directions only have a little effect. The feeling of the learner that he has learnt new theoretical knowledge, new work methods, new behavior, and especially if he is supported by his superiors, may have a positive effect on his capacity to transfer learning. In addition, if the employee's colleagues have noticed that he has acquired new skills at work, he will have a more favorable behavior to transfer the newly acquired knowledge. He would say that the deployed effort during the training was beneficial.

This behavior is very important because it influences at the same time the training contents transfer in the workplace as well as the learner's motivation to apply what he has learnt. This report is generalized to all the interviewed individuals. The respondents have valued the influence of the workplace on the favorable behavior to the learner's learning transfer. They have asserted that in certain situations, the learners acquire knowledge and skills, but they don't find support to use this new information in their workplace. The support and the supervisors' and colleagues' advice can encourage and empower the learners to transfer their newly acquired skills. This context has a crucial role since it has an important influence on the motivation to apply the acquired skills after the use of e-learning. Consequently, the superiors and the colleagues can positively influence the employee's motivation to transfer his knowledge in his work.

Since we have valorized the encouragement behavior of the colleagues and of the superiors, we have discovered that the motivation to transfer is influenced by the encouragement exercised by the context of the work. The encouragement and the support of the superiors as well as the colleagues proved to be of great importance in stimulating the learner's motivation to apply what he has learnt during his training at work. On the other hand, the indifference of these actors may demotivate our employee and consequently, he will be incapable of applying what he has learnt.

The atmosphere in the organization or among the group of actors encourages him to cooperate. He gets involved in interactions with his colleagues which allows him to facilitate learning transfer. The knowledge transmitter activates then the knowledge transfer process. He shares his knowledge and his skills with the others. The knowledge receiver on his part shows his will to acquire new knowledge and know-how and easily addresses with no problem or prejudice towards his colleagues who have benefited from an e-learning training. This motivation to transfer and to receive knowledge and know-how facilitates the learning transfer process in the organizational context.

A future research may valorize the role of social interactions on learning transfer after the use of e-learning.

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