



Effect of User Training on Perception of Ease of Video-conferencing Use: The Moderating and Direct Effect of Time Orientation Cultural Values in Jordan

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ABSTRACT

User's perception of ease of technology use is deemed essential for its impact in technology acceptance and use. Providing training for end-users typically increases their perception of ease of use of any technology. Studies measuring the effect of user training on perception of ease of technology use are limited, and yielded inconsistent and contradictory findings, which possibly refer to the effect of time orientation. Furthermore, recent researches have indicated the urgent need to address the ambiguous effect of time orientation on the effect of user training on perception of ease of technology use. Yet, no study has been conducted either to examine the time orientation directly on users' perception of ease of use, or indirectly through moderating the effect of user training on ease of video-conferencing use, particularly in Jordan. This study seeks to develop a model of moderating and direct effect of time orientation on the effect of user training on perception of ease of video conferencing use in Jordan. A quantitative data was collected using a technique of survey questionnaire. The findings reflect that time orientation has a significant direct effect to increase the perception of ease of video-conferencing use, but fails to play a moderating role.

Keywords: perceived ease of use, time orientation, technology acceptance model, user training, video-conferencing

1. INTRODUCTION

Studies in the field of acceptance and use of Information Technology (IT) have proved that measuring the users' perceptions is crucial for successful adoption. IT acceptance and use is known to be affected by cultural factors [1, 2]. However, the impact of culture on IT has not been sufficiently investigated [3, 4]. It is worth mentioning that cultural impact on IT acceptance is still ambiguous, especially in developing countries [5].

Many studies have examined the effect of user training on perceived ease of use through various technology acceptance theories, especial Technology Acceptance Model (TAM). TAM produced critical results. Furthermore, user training is a vital variable to be examined through



adapting TAM [6]. However, it was argued that the variety in the benefits of offering training sessions might be influenced by cultural values. Also, investigating the effect of user training in different cultures is considered as a major field of investigation. Thus, these reveal the necessity to investigate the cultural influence on user training and support in IT acceptance [6].

2. STUDIES ON USER TRAINING EFFECT ON PERCEPTION OF EASE OF IT USE

Several studies have captured the effect of user training on the perceived ease of various systems use. A study conducted by [6] stressed the significant effect of user training in increasing the users' perceived ease of system use in Kuwait. Other study such as [7] reported the direct positive effect of user training on the perceived ease of IT use. A similar finding was found by a study carried out by [8] on perceived ease of IT use in Pakistan. Meanwhile, [9, 10], traced the positive influence of offering training for users on the perceived ease of use of ERP system. Also [11, 12, 13] reported its positive effect of user training on the perceived ease of use. In contrast, [14] found that user training has no impact on the perceived ease of use of e-mail. Also, [15] traced the non significance of user training on perceived ease of e-mail and v-mail use.

Other studies have explored the cultural role along with IT acceptance and use, such as, [16] found that American users are from short-term orientation culture, they are worried regarding the difficulty of starting to learn to use IT, whilst Chinese users are from long-term orientation culture, they look after the learning and practise stage, and believe that it would be easy to use the IT in the future. Hence, differently short-term time oriented users, long-term time oriented users might perceive easy to use IT.

Contradictory results were yielded by previous studies on the effect of user training in diverse technologies, and countries (i.e, cultures). For instance, [6] explored the impact of user training particularly in Kuwait. In the same way, a study by [17] concentrates on the effect of user training in Kingdom of Saudi Arabia. It is concluded that there are several cultural gaps with developing countries should be addressed, since most technologies was designed in developed countries. Thus, exploring the cultural influence can bridge those gaps towards a better understanding of IT acceptance. Therefore, there is a need to carry out this study, which aims to address the effect of user training through studying video-conferencing system, particularly in the Jordanian culture. Additionally, reflecting the expected cultural role (through adding external cultural factor) in examining the effect of user training.

The time orientation cultural dimension is based on Hofstede's cultural theory. However, Hofstede's cultural theory includes five cultural dimensions. However, this study adopted one factor only, following the suggestion made by [18], that this dimension is the one expected to influence users' difficulties in learning and using IT. Obviously, [18] explained that during the initial stages of using a new IT, it is typically difficult to be used. Nevertheless, in due course, when users get used the new IT, they would feel it ease of use and comfortable. This depends on the duration of time needed for changing users' perception of using IT, where it might be different over time, this due to cultural values concerning focus on time [18].

As a result, to date, there is no model developed to address the effect of time orientation cultural values on the effect of user training on perception of ease of video-conferencing use, particularly in Jordan. Therefore, there is an urgent need to fill this gap. Thus, the objective of this study is to develop a model for examining the direct and moderating effect of user training on perception of ease of video-conferencing use in the country.

3. CONCEPTUAL MODEL

This study is based on part of Karahanna and Limayem's (2000) model, for developing a new model. [15] extended the TAM theory through hypothesizing the direct effect of user



training effect on perceived ease of use of e-mail and v-mail. However, this study alters the explored systems (i.e, e-mail and v-mail) with video-conferencing system. This study has also generalized additional hypotheses to address the possible effect of time orientation cultural values. The hypotheses are drawn to illustrate the new proposed model as shown in Fig 1.

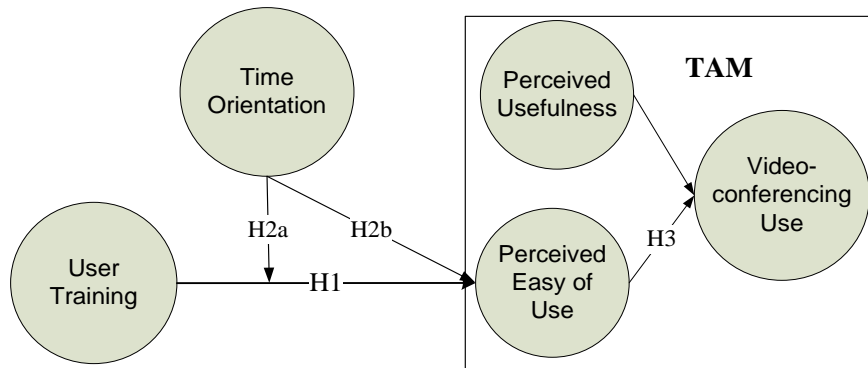


Figure 1: The new proposed model

The adapted variables in the new proposed model are hypothesized their possible effect on each other, to be measured. It is essential to define the aspects of these variables from the perspective of this study, as follows:

3.1 User Training

In this study, the training sessions could be provided for users in aims to build and/or increase the ability to assist them in using video-conferencing [19].

3.2 Time Orientation

The concept of time orientation is the diversity of focusing on time for being long-term time oriented or short-term time oriented. In long-term time orientation cultural values, reflects focusing on future time and solving problems by time. On the contrary, in short-term time orientation values, focusing on the past and present time, through respecting the tradition and follow trends [20].

3.3 Perceived Ease of Use

Perceived ease of use has been defined by [21] as "individual believes that the given information system would reduce the intensity of their work." Perceived ease of use is one of the two major determinants on the actual system's use in TAM, developed by [21].

3.4 Video-conferencing Use

Video-conferencing use is the degree to which users really use video-conferencing, it is the sole dependent variable in TAM, developed by [22], determined by the perceived usefulness and ease of use. However, this study measures the determinant effect of perceived ease of use only.

The expected effects of the four variables are then tested by means of hypotheses formulated in the model of this study. These are:

Hypothesis 1

H₁: User training has a direct effect on user's perceived ease of video-conferencing use in Jordan

Hypothesis 2a

H₁: Time orientation cultural values have moderating effect on the effect of user training on user's



perceived ease of video-conferencing use in Jordan

Hypothesis 2b

H₁: Time orientation cultural values have a direct effect on user's perceived ease of video-conferencing use in Jordan

Hypothesis 3

H₁: User's perceived ease of video-conferencing use has a direct effect on video-conferencing use in Jordan.

4. METHOD

Quantitative approach by survey questionnaire technique is used, as it is proper technique when the variables to be surveyed have been explored in previous studies. In addition, a survey questionnaire is able to attract respondents to express their perceptions, beliefs, and values [23].

This study adopts a quantitative approach to collect data using structured questions (i.e, closed-ended questionnaire). Structural questions could ease the participants in answering the questions [24]. Two types of questions were used, namely multiple choice and Likert type scale. Following the suggestion by [25], the questionnaire started with questions associated with the participants' demographic information, and then questions about the hypotheses. Meanwhile, those questions to test the hypotheses were adapted from several previous studies such as user training from [15]; time orientation from [18]; perceived ease of use from [21]; and video-conferencing use from [22], with some modifications deemed fundamental to make questions fit with the aim of this study.

A pilot study was conducted prior to the actual use of the questionnaire. Reliability testing was performed by calculating Cronbach's alpha. Validity testing was accomplished by submitting the questionnaire to three experts, to criticize the questionnaire's content. As a result, after passing questionnaire survey the testing of reliability and validity, hence ready to be distributed.

Data was collected by distributing 1,800 questionnaires (by hand) purposely to senior managers in 47 manufacturing firms in various regions in Jordan. The questionnaires were distributed between the April 5 and July 18 2011. However, the number of returned questionnaires was 434, which approximately rate (24.1%). As suggested by [24], the number of samples meeting the requirement for this survey took into consideration that 385 samples were satisfactory for a population of 10,000.

5. DATA ANALYSIS

Scales reliability testing, exploratory factor analysis, and hypothesis testing are described as follows:

5.1. Scales Reliability Testing

Cronbach's alpha value is 0.702 for the time orientation, 0.758 for perceived ease of use, and 0.771 for video-conferencing use scales. As a result, all the scales are valid, since these values are ranged within the acceptable level of reliability, as suggested by [26].

5.2. Exploratory Factor Analysis (EFA)

The Principal Component Analysis (PCA) was used with Varimax rotation method to test constructs validity. This method utilized the threshold Eigenvalue used is 1.0, it is suitable to detect any possible item(s) with low and/or double loading [27]. However, there is no low loading or double loading item(s) were detected, as shown in Table 1. Additionally, the measure of sampling adequacy, namely Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity (BTS) were taken into consideration to guarantee the suitability of EFA analysis. The KMO



reflects acceptable value, which is 0.685. The value of BTS was significant, as the significance value is less than 0.05. Thus, EFA is considerable for this study.

Table 1. Rotated Component Matrix and Communalities

Items	Components				Communalities
	UT	TO	PEOU	VU	
UT1	.989				.987
TO1		.718			.541
TO2		.812			.724
TO3		.832			.705
PEOU1			.866		.774
PEOU2			.724		.587
PEOU3			.855		.749
VU 1				.862	.806
VU 2				.897	.833

UT= User Training, TO= Time Orientation, PEOU= Perceived Ease of Use, VU= Video-conferencing Use

5.3. Hypotheses Testing

This study utilizes linear regression statistical technique to test the hypotheses, through using both standard regression (for direct effect), and hierarchical regression (for indirect effect or moderating). The regression a result of testing the hypothesis 1 is appears in Table 2, results of testing Hypothesis 2a and H2b are shown in Table 3, and the result of testing Hypothesis 3 is shown in Table 4:

Table 2. Regression result of testing the direct effect of user training on video-conferencing use

Independent factor	β Coefficient	Std. Error
UT	.464***	.012
R ²	0.816	
F	1576.568***	

UT = User Training

Significance levels are *** $p < .001$, ** $p < .01$, * $p < .05$

The standard regression result appears in Table 2, indicates that the model has a high R-square value, which is 0.816; this reflects that 81.6% of variance in perceived ease of video-conferencing use is explained by user training factor. Statistic value $F = 1576.568$, and it is significant ($\alpha < 0.05$), this proof the capability of the model in predicting the perceived ease of video-conferencing use. User training is a significant factor in increasing the users' perception of ease of video-conferencing use. Therefore, the Hypothesis 1 is supported.



Table 3: Regression results of testing the direct and moderating effect of time orientation on the effect of user training on perceived ease of video-conferencing use

Independent factors	Un-standardized coefficient	Std. Error
UT	.513***	.009
TO	-.520***	.030
UT X TO	.090*	.044
R ²	0.903	
F	1094.626 ***	

UT = User Training, TO = Time Orientation, UT X TO = the interaction of user training and time orientation (moderator)

Significance levels are *** $p < .001$, ** $p < .01$, * $p < .05$

Table 3 shows that the R-square for the model was 0.903, which reflects that 90.3 % of variance in users' perceived ease of video-conferencing use is explained by the independent factors. Statistics value, $F=13.045$ is significant at $\alpha < 0.05$, thus the model is useful in predicting the users' perceived ease of video-conferencing use. Time orientation was significant factor in decreasing the users' perceived ease of video-conferencing use directly, since the effect is negative ($\beta = -.520$). Time orientations has significant moderating role, since the interaction of user training and time orientation is reflect the minimum level of significant ($p < .05$). Therefore, the hypothesis 2a, and hypothesis 2b are supported.

Table 4. Regression result of testing the direct effect of perceived ease of use on video-conferencing use

Independent factor	Un-standardized coefficient	Std. Error
PEOU	.613***	.085
R ²	0.126	
F	51.389 ***	

PEOU = Perceived Ease of Use

Significance levels are *** $p < .001$, ** $p < .01$, * $p < .05$

As shown in Table 4, the R-square for the model was 0.126, with means that 12.6% of variance in video-conferencing use is explained by perceived ease of video-conferencing use. Statistic value is $F=51.389$, and significant, thus the model is capable in predicting the video-conferencing use. Perceived ease of use was found a significant factor in increasing the real use of video-conferencing, since the effect is positive ($\beta=0.606$). Therefore, the hypothesis 3 is supported.

6. FINDINGS

The finding implies that offering training for end-users will make the perception concerning video-conferencing as easier system to use. This finding is in line with several



previous studies, such as [6, 7, 9, 10, 11, 12, 13, 15]. Nevertheless, this finding is inconsistent with the findings reported by [14, 15].

The effect of user training was increased, when time orientation cultural values taken into consideration. This study discovered that the participants are from a short-term time orientation culture, which is consistent with finding reported by [28] about Jordanian people. The finding also proves that the strong, direct, and positive effect of the high perceived ease of use in determining the video-conferencing use. This means that the Jordanian virtual teams believe that the easier the system, the more the system will be used. This finding is consistent with findings by [7, 12]. On the other hand, the finding is contrary to a study by [29]. The finding is also inconsistent with [6], who reported that perceived ease of use fails to affect system use, also a study by [15] in e-mail and v-mail use.

7. THEORETICAL AND PRACTICAL IMPLICATIONS

Theoretically, this study conducted a sufficient review concerning user training and time orientation cultural dimension, and correlated this review with the existing acceptance models. This study proves that offering user training has a positive effect in nature when coupled with effect of time orientation cultural. This study also added a reference to the theoretical literature on the impact of time orientation cultural values along with user training effect in IT acceptance and usage. Furthermore, this study has developed, developed a new model, and throughout successfully extends the TAM theory into the examination of the use of video-conferencing use, particularly in Jordanian culture.

From practical, the findings provide a guideline for user training to motivate communication among virtual teams via video-conferencing in manufacturing firms in Jordan. This study discovered the significant strategy of offering user training for virtual teams, which will help in diffusion and innovative use of video-conferencing. Thus, manufacturing firms in Jordan should undertake strong strategies of user training on video conferencing, whilst cultural values are not serious obstacles in perceiving video-conferencing as an easy system to use. The adjustments to satisfy the users' needs of perceiving video-conferencing as an easy system, and then be engaged in actual use mark the requirements to offer training programs to users.

8. CONCLUSION AND FUTURE WORK

This study has successfully developed a model of effect of time orientation cultural values with relation of user training in video-conferencing usage in manufacturing firms in Jordan. The study discovered that user training is influenced by time orientation values and beliefs. Also, this study reflects the importance and effective influence of the user training in perceiving the ease of video conferencing use and ultimately use. It is concluded that it is worthy to explore the time orientation with relation to user training in further in various systems. Furthermore, future research should apply the model for further investigation in different countries (i.e, cultures), which promising different findings. Future research also should explore the influence of different time cultural factors other than time orientation, such as monochronic time versus polychronic time. Furthermore, as this study used SPSS statistical package for analyzing the data collected, hence, future researches are suggested to use other statistical packages such as AMOS, and it might provide more extensive results.

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