

Impact of User Training and Support on Video-Conferencing Usage in Organizations in Jordan using Structural Equation Modelling Analysis Approach

Ayman N. Alkhalidi, Zawiyah M. Yusof and Mohammad J.A. Aziz

Faculty of Information Science and Technology,
Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia

Abstract: Information and communication technology is known for its impact on organization's competitive edge. However, no studies have been undertaken to research on video-conferencing in Jordan. This study seeks to identify the impact of user training and support on video conferencing usage in Jordan. A quantitative approach was used, employing questionnaire to collect data. A total of 1,800 questionnaires were distributed but only 434 were returned. Finally, 357 questionnaires were valid and thus, analysed using SPSS and AMOS. The findings show that user training and support can directly affect video conferencing usage and indirectly affect via user's perceived ease of use, but not their perceived ease of video conferencing usage. Thus, video-conferencing adoption in organizations in Jordan is impacted by user training and support, as a significant predictor.

Key words: Information and Communication Technology • Computer-Mediated Communication • User Training and Support • Video-conferencing • Jordan

INTRODUCTION

The role of Information and Communication Technology (ICT), in the maintenance of organizational effectiveness and competitive edge, has been debated prolifically [1, 2]. However, only ICT utilization and not ICT solution, provides a competitive advantage [2]. [3] mention that training should be held more comprehensively, especially in the context of Computer-Mediated Communication (CMC), where technology familiarity and its function adds additional dimensions to a complex adoption and usage. Basically, the concept of CMC is defined as "any communication pattern mediated by a computer" [4]. It was also defined by [5] as "any communicative transaction that occurs through the use of two or more networked computers" [6]. Popular forms of CMC occur via e-mail, v-mail, video-conferencing and instant messages [7, 8] This study focuses on measuring video-conferencing usage, which is defined as technology facilitating teams in two locations or more, who interact with each other simultaneously, via two-way video and audio transmissions, using electronic

transmitters [9]. CMC is essential to the intermediate's growth and its significance is increasing across-organizations [10]. However, according to [11], the CMC field of research, along with human perception to use it, is still in its infancy and its role should be explored.

The main aim of this study is to develop a conceptual model in order to examine the impact of user training and support on video conferencing usage both directly and indirectly through user's perceived usefulness. It is also to perceive ease of video conferencing use in private organizations in Jordan. To support this aim, three specific objectives are constructed as follows:

- Measure the possible indirect effect of user training and support on video-conferencing usage (mediated by users' perceived usefulness).
- Evaluate the possible indirect effect of user training and support on video-conferencing usage (mediated by users' perceived ease of use).
- Examine the possible direct effect of user training and support on video-conferencing usage.

Corresponding Authors: Ayman N. Alkhalidi, Faculty of Information Science and Technology,
Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia.
Tel: +603-8921 6759, & 03-8925 6732.

Background: Most research has been carried out in technologically developed areas of the world and little is known about CMC usage in Arabic regions [12]. In addition, most previous studies have been executed using traditional and relatively simple Information Technology (IT) systems, such as Personal Computers (PC), e-mail systems, word processing and spread sheet software. However, the adoption of complicated IT systems, which cut across organizational boundaries, requires a further exploration of user's perceptions, both before or during CMC adoption [2, 12]. The implementations of CMC in organizations are used to encourage enhancement and change user's perceptions of the work environment. However, user's perceptions of CMC adoption results also depend on the implementation process and the degree to which components of the implementation process, such as user training and support, are deemed effective by individuals [13]. According to [14], training could help to solve the barriers of adopting CMC in general and new technology or unusual technology in particular; and thus, help to ensure a successful use of the technology. Therefore, further exploration of the impact of user training and support is needed.

User training and support remarkably impacts end-user's skills and adoption, using technology mediums. Therefore, the training and support of end-users is appealing [15]. In fact, end-users need both support and training; as these could enhance both their skills and capabilities. User training and support are important indicators in organizations [16]; [17, 18]. Apparently, [12] asserted that previous Arabic studies reflected the importance and the motivating role of user training and support. Furthermore, [19] asserted that one of the objectives of training is to improve the pledge of users, provide users with specific understanding and [20, 21] improve user's capabilities and skills of CMC. Furthermore, [22] reported that user training could improve users' efficiency, success, performance, speediness and building their awareness in CMC.

Literature Review: A number of studies have investigated the impact of user training and support on perceived usefulness of system usage, or the indirect impact of user training and support on system usage, mediated via perceived usefulness. A study by [23] discovered the indirect effect of user training and support on IT usage, mediated via perceived usefulness. Similar findings were reported in a study by [24], on v-mail usage. Also, [12] emphasized that user training and support on

system usage was mediated via perceived usefulness, in public organizations in Kuwait. In contrast, [25] reported that the impact of user training and support is not mediated via the perceived usefulness of e-mail usage, because user training and support failed to affect perceived usefulness. However, some researchers have investigated the impact of user training and support on perceived usefulness of system usage only, without continuing on to system usage, such as [26], who reported that there was a positive effect of user support on perceived usefulness of IT usage, as well as a research by [27], on Enterprise Resources Planning (ERP) usage. Similarly, the positive effect of user training on perceived usefulness, such as in a study performed by [28] on microcomputer usage, as well as [29] on personal computing and [30] on IT usage.

Meanwhile, several other studies investigated the impact of user training and support on the perceived ease of system use, or the indirect impact of user training and support on system usage, mediated via the perceived ease of use. Work carried out by [12] emphasized that user training and support on system usage is not mediated via perceived ease of use, in public organizations in Kuwait, because perceived ease of use has no effect on system usage. Furthermore, a study by [24] reported the same, regarding e-mail and v-mail usage in an organizational context, where user training and support had no significant effect on user's perceived ease of use of e-mail usage, as well as v-mail usage. They also found no effect to the perceived ease of use of e-mail and v-mail usage. Meanwhile, some researchers examined the impact of user training and support on the perceived ease of system use only, without continuing on to system usage, such as Taylor [30, 31] and found that the availability of user training had a positive direct effect on the perceived ease of use of IT usage. Meanwhile, a study by [32] identified the positive effect of user support on the perceived ease of use of PC usage, in organizational settings in Nigeria. Similar findings were achieved in studies by [26] on IT usage; and [33] on digital measures use. Meanwhile, [2, 27] reported that user training leaves a positive effect on the perceived ease of ERP usage. Contrarily, [25] reported that user training and support is not significant on the perceived ease of e-mail usage.

Finally, a number of other studies, which examined the impact of user training and support directly on system usage, such as work by [34] discovered that user training and support had a positive effect on system usage. Similar findings were reported by [23] on IT usage; and [35] on E-

Learning Management Systems (ELMS) usage, in organizations and universities in New Zealand. Furthermore, [17] found that the availability of user training has a direct effect on IT usage in organizational settings. Similar findings were reported by [28, 29] on Microsoft Office usage. Another study by [36] asserted the positive direct effect of user support on IT usage in organizations in the Arab world. Similar findings were reported by [37] on PC usage in private and public organizations in Saudi Arabia. Also, research by [3, 38] reported the positive effect of user support on CMC usage. In contrast, [12] reported that there was no direct effect of user training and support on system usage in public organizations in Kuwait and [39] reported similar findings on ERP usage.

In summary, the literature mentioned here reflects the importance of investigating the impact of user training and support. Contradicting findings were yielded by studies on the impact of user training and support in different ICT technologies, settings and countries. [12] Asserted that these contradicting findings could be explained by the type of systems utilized (i.e., general system or IT, e-mail, v-mail, Microsoft Office, ERP and PC), type of settings (i.e., society, private, or public organizations) and country (i.e., Asian, Arabic, or Western). Therefore, there is a need to carry out this study, which aims to address the impact of user training and support, through particularly investigating video-conferencing systems in private organizations in Jordan.

Proposed Model: This study adapted part of [24] model, as the basis for developing a new model. [24] extended the original Technology Acceptance Model (TAM) theory, through hypothesizing that the availability of user training and support could have an indirect effect on system use (mediated by perceived usefulness), as well as on the perceived ease of use. However, this study adds the hypothesis that user training and support is likely to have a direct effect on video-conferencing usage. The new conceptual model proposed by this study, integrates user training and support, to measure its indirect and direct impacts on video-conferencing usage. As shown in Figure 1.

User Training and Support: Training and support can be offered to end-users from a set of three sources; namely information centres, local management information system staff and other informal sources. The information centre, as the focus source of training and support in this study,

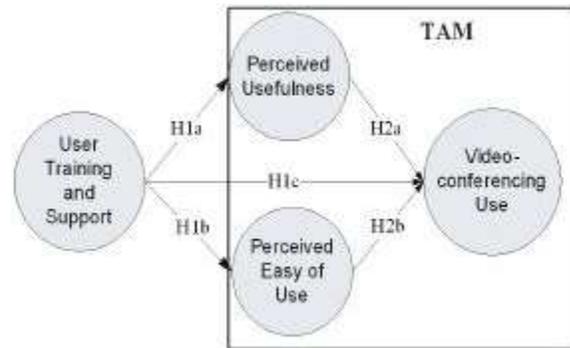


Fig. 1: The proposed model of this study

basically aims to lead users to assist themselves through offering services of support, such as hardware, software, functional, training sessions and data support [40]. However, this study focuses on measuring user training, by means of providing training sessions; and user support, by means of providing hardware and software support for users.

Perceived Usefulness: Perceived usefulness is one of the two major factors that determine the system's real use in the TAM developed by [41]. Perceived usefulness was defined by [41] as "the degree to which an individual believes using an information system would enhance performance." In this study, perceived usefulness is a mediator between user training and support with video-conferencing usage.

Perceived Ease of Use: Perceived ease of use is the other major factor that determines the system's real use in the TAM developed by [41]. Perceived ease of use was defined by [41] as "the individual believes that the given information system would reduce the intensity of their work." In this study, perceived ease of use is a mediator between user training and support with video-conferencing usage.

Video-Conferencing Use: Video-conferencing usage is the resulting factor determined by the system's real use in the TAM developed by [41]. Video-conferencing usage is the degree to which users accept and really use video-conferencing technology.

Hypotheses: The hypotheses of this study are as follows:

H1a: User training and support has a positive effect on users' perceived usefulness of video-conferencing usage.

- H2a:** Perceived usefulness has a positive effect on video-conferencing usage.
- H1b:** User training and support has a positive effect on users' perceived ease of use of video-conferencing usage.
- H2b:** Perceived ease of use of video-conferencing usage has a positive effect on video-conferencing usage.
- H1c:** User training and support has a direct positive effect on video-conferencing usage.

Method: Surveys adopting a quantitative approach are popular. A quantitative approach is suitable when the variables to be surveyed have been explored in previously [42]. Survey provides a numerical (quantitative) report of population attitudes, through exploring a sample of the population to generalize what the researcher has already hypothesized about them [43].

As this study uses a quantitative method to collect data, a non-structured questionnaire (or closed questionnaire) was used. All survey questions were closed, in order to get the respondents to answer the questions. The questionnaire consisted of two types of questions, namely multiple choice and Likert type scale. The researcher's approach started with questions related to the respondents' personal information (i.e., demographic factors) followed by questions that tested the hypotheses [44]. Respondents were asked to choose one of a selection of answers, with regards to gender, age, work experience, computer usage experience, video-conferencing accessibility and nationality. It was essential to ensure that respondent's had access to video-conferencing and that they were Jordanian before proceeding with the analyses of this study. Meanwhile, questions that tested the hypotheses were adapted from several studies, such as user training and support by [40, 24]; perceived usefulness and ease of use by [41]; and video-conferencing usage by [45] - with some modifications that were deemed appropriate for this study.

The questionnaire was designed in English and then translated into Arabic, as this study was carried out in Jordan (where Arabic is the official language) and thus, this provided a better understanding of the questionnaire questions for the participants. The researcher took into account suggestions by [44] to ensure the question's content, through ensuring that the language is controlled by the respondent; easy to understand; remove questions with the same meaning or purpose; not in the form of

general knowledge; words should be sensitive to the feelings of the respondents; and suitable in the context. All the questions in the survey are evaluated on a five point Likert type scale, namely; (1= strongly disagree; 2= disagree; 3= neutral; 4= agree; 5= strongly agree). Prior to the actual study, a pilot study was carried out prior to the actual study to ensure the s questionnaire is reliable and valid. Reliability was tested by calculating Cronbach's alpha, resulted in. 89 for the whole instrument. Validity was performed by submitting the survey questionnaire to expert panel, judgment by experts to test the instrument's content. As a result, the survey instrument was reliable and valid, thus ready to be distributed.

Data was collected by distributing questionnaires by hand to officers in upper and middle levels in private organizations in Jordan. The samples for the study were selected randomly. 1800 questionnaires were distributed, during 5th April to 18th July 2011 to 43 private organizations, in various regions in Jordan. The return rate was 24.1% (434). The number of sample meets the requirement for the study taking into account that 385 sample is satisfactory for a population of 10000 [46].

Data Analysis: Demographic profile of the samples and ultimately, Testing and Results are described as follows:

Demographic Profile: The demographic profile of the sample's gender, age, work experience and computer usage experience are shown in Table 2.

Table 2: Summary of demographic profile of the sample's gender, age, work experience and computer usage experience

Demographic Profile	Categories	Frequency	Percentage(%)
Gender	Male	257	72.0
	Female	100	28.0
Age (year)	< 20	1	.3
	20-24	36	10.1
	25-29	112	31.4
	30-40	140	39.2
	41-50	52	14.6
Work experience (years)	> 50	16	4.5
	< 3	43	12.0
	4-6	71	19.9
	7-9	70	19.6
	10-12	71	19.9
	13-15	46	12.9
Computer usage experience (years)	> 15	56	15.7
	< 1	5	1.4
	2-4	51	14.3
	5-7	92	25.8
	8-10	83	23.2
	11-13	56	15.7
	> 13	70	19.6

Table 1: Convergent validity and reliability

Construct	ITEM	Standardized Estimates	AVE	CR	α
Video-conferencing Use (VU)	VU1	0.8520	0.6353	0.7757	0.771
	VU2	0.7380			
Perceived Ease of Usefulness (PEOU)	PEOU1	0.8050	0.5564	0.7875	0.758
	PEOU2	0.6160			
	PEOU3	0.8010			
User Training and Support (UTS)	UTS1	0.6100	0.6840	0.8729	0.850
	UTS2	0.9230			
	UTS3	0.9100			
Perceived Usefulness (PU)	PU1	0.8790	0.8003	0.8466	0.921
	PU2	0.9490			
	PU3	0.8530			

Note: Average Variance Extracted = AVE, Construct Reliability = CR, Cronbach's alpha = α

Table 2: Discriminant validity

	VU	PEOU	UTS	PU
VU	0.7970			
PEOU	0.420	0.7459		
UTS	0.273	0.152	0.8271	
PU	0.323	0.421	0.319	0.8946

Note: User Training and Support = UTS, Perceived Usefulness = PU, Perceived Ease of Use = PEOU, Video-conferencing Use = VU

Testing and Results: [47] Suggest a data analysis approach consisting of two steps. The first is to estimate the measurement model, to test reliability and convergence and discriminant validity. The second is to produce a structural model to test the model's fitness and hypotheses.

Measurement Model: In this study, measuring reliability was refined and construct validity was tested, Confirmatory Factor Analysis (CFA) was conducted, in order to test how each item measured its own construct and explore and confirm the construct structure. It is essential to launch convergent and discriminant validity, as well as the reliability of the constructs, when achieving a CFA [48].

Item(s) with a factor loading value (output as standardized estimates) of less than 0.5 are claimed as poor item(s) and fall into the deletion group. Convergent validity also assessed to find whether the indicators shared a high proportion of variance in common to their specific construct. Two measurements were involved to identify convergent validity, namely Average Variance Extracted (AVE) and Construct Reliability (CR). According to [48], an AVE value of higher than 0.5 shows adequate convergence validity between an item and its construct. A CR value of higher than 0.7, also indicates that all items have a consistently represented construct. A Cronbach's alpha (α) value showing greater than 0.7 ensures that the entire item was reliable to its construct. As shown in Table 1.

Table 2 demonstrates measurement in discriminant validity. Discriminant validity was assessed to ensure that a construct is highly distinct compared to another construct. The diagonal value is the square root of AVE for each construct. This value must be higher than the correlation value to show that each construct shares more variance in its item's measurement, compared to another construct [49, 48]. Overall, these results reflect that the measures in this study obtain sufficient reliability and validity.

Structural Equation Modelling (SEM): SEM was conducted to estimate the structural model 'goodness of fit', along with a test of the hypothesized effects among the four constructs. These constructs are: user training and support; perceived usefulness; perceived ease of use; and video-conferencing usage. Table 2 shows the Model's goodness of fit; whilst Table 3 shows a summary of the hypotheses results and Figure 1 shows the final structural model.

The results in Table 2 show a Chi-Square value of 87.373, which is significant at 0.05 with a p-value of less than 0.05. [48] Mentioned that a dataset with a sample greater than 250 and an observed variable of less than 12 tended to have insignificant p-values, even with a good fit. Normed Chi-square, which was noted by CMIN/Df, has a value of 2.299, which is less than 5. Other fit indices values are given by 0.060 for RMSEA, 0.976 for CFI, 0.958 for GFI, 0.927 for AGFI, 0.959 for NFI and 0.966 for TLI. All of these fit indexes have values lower than their cut-off

Table 2: Model's goodness of fit

Model fit index	Cut-off value	Result
Chi-Square (χ^2)	Small	87.373
p-value of χ^2	<0.05	0.0000
CMIN/Df (χ^2/df)	= 5	2.299
RMSEA	= 0.07 with CFI 0.97 or higher [48]	0.060
CFI	= 0.95 [48]	0.976
GFI	= 0.90 [50]	0.958
AGFI	= 0.90 [50]	0.927
NFI	= 0.90 [51]	0.959
TLI	= 0.95 [48]	0.966

Table 3: Summary of hypotheses results

Hypothesis	Path	Coefficient	Standard Error	Critical ratio	Supported or not
H1a	UTS_PU	0.319***	0.067	5.337	Yes
H2a	PU_VU	0.122	0.088	1.804	No
H1b	UTS_PEOU	0.166**	0.046	2.718	Yes
H2b	PEOU_VU	0.341***	0.137	4.735	Yes
H1c	UTS_VU	0.183**	0.09	2.932	Yes

Significance levels are *** p < .001, ** p < .01, * p < .05, n.s not significant

Note: User Training and Support = UTS, Perceived Usefulness = PU, Perceived Ease of Use = PEOU, Video-conferencing Use = VU

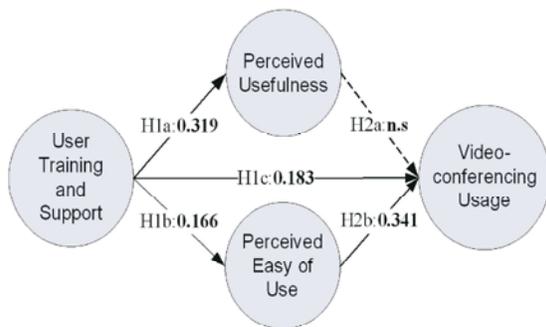


Fig. 2: The final structural model

value. Overall, the results show that this model was well fitted to the data. Figure 2 shows the hypotheses testing results and Table 3 reveals a summary of the hypotheses results.

H1a: User training and support has a positive effect on users' perceived usefulness of video-conferencing usage.

From hypothesis testing of H1a, user training and support was significant, having a direct effect on perceived usefulness by 0.319 with a p-value of less than 0.05. R-square value for perceived usefulness reflects that 10.1% of variances in perceived usefulness were explained by user training and support. This implies that the availability of user training and support increases the user's perceived usefulness of video-conferencing usage. Thus, the hypothesis was supported.

H2a: Users' perceived usefulness has a positive effect on video-conferencing usage.

From hypothesis testing of H2a, user's perceived usefulness of video-conferencing did not significantly influence video-conferencing usage, since the p-value given was 0.071, which was greater than 0.05. This implies that user's perceived usefulness of video-conferencing usage was not significant to affect video-conferencing usage. Thus, the hypothesis was not supported.

H1b: User training and support has a positive effect on users' perceived ease of use of video-conferencing usage.

From testing hypothesis of H1b, user training and support was significant, having a positive effect on user's perceived ease of use by 0.166, with a p-value of (0.03), which is less than 0.05. R-square value for perceived ease of use reflects that 17.8% of variances in perceived ease of use were explained by user training and support. This implies that the availability of user training and support increases the user's perceived ease of use of video-conferencing usage. Thus, the hypothesis was supported.

H2b: Users' perceived ease of use of video-conferencing usage has a positive effect on video-conferencing usage.

From hypothesis testing of H2b, user's perceived ease of use of video-conferencing was significant, having a positive effect on video-conferencing usage by 0.341, with a p-value of (0.00001), which is less than 0.05. This implies that the user's perceived usefulness of video-conferencing usage increases video-conferencing usage. Thus, the hypothesis was supported.

H1c: User training and support has a positive effect on video-conferencing usage.

From hypothesis testing of H1b, user training and support was significant, having a positive effect on influencing video-conferencing usage by 0.183, with a p-value of (0.003), which is less than 0.05. The R-square value for video-conferencing usage reflects that perceived usefulness and user training and support and perceived ease of use explained 23.2% of the variance in video-conferencing usage. This result shows that the availability of user training and support has a direct positive effect on video-conferencing usage. Thus, the hypothesis was supported.

Findings

The Indirect Effect of User Training and Support on Video-Conferencing Usage (Mediated by Users' Perceived Usefulness): As observed, the results of testing (H1a) indicate that user training and support increased user's perceived usefulness of video-conferencing use. However, the unexpected results of testing (H2a), was that perceived usefulness of video-conferencing did not increase video-conferencing usage. Thus, the results of testing (H1a and H2a) indicate that the indirect effect of user training and support towards video-conferencing usage were not completed, since there were no significant effects between perceived usefulness and video-conferencing usage. This finding is consistent with studies such as [23, 26, 30] on IT usage; [12] on system usage; [24, 25] on e-mail usage; [27] on ERP usage; [28] on microcomputer usage; [29] on personal computing.

However, this finding is in contrast to a study by [25], who reported that user training and support had no effect on user's perceived usefulness of e-mail usage. Furthermore, researches carried out by [24] on v-mail usage; and [32] on PC usage.

The effect of user training and support was not mediated by the perceived usefulness to use video-conferencing. As the main aim of offering training and support for users is to encourage them to use video-conferencing medium, this finding implies that there is no

need to focus on offering training and support for users in an attempt to increase their engagement of video-conferencing through their perception of usefulness.

The Indirect Effect of User Training and Support on Video-Conferencing Usage (Mediated by Users' Perceived Ease of Use): The results of testing (H1b) revealed the influence of offering user training and support in increasing user's perceived ease of use of video-conferencing. Furthermore, the results of testing (H2b) show that user's perception of ease of use does increase their video-conferencing usage. Thus, the results of testing (H1b and H2b) reveal that the effect of user training and support was fully mediated by perceived ease of use of video-conferencing. This finding is consistent with a study by [52] on text-based chatting usage; [30, 31] on IT usage. Correspondingly, it is also consistent with studies examining the impact of user training and support on perceived ease of system use only, without continuing on to system usage, such as [26, 30, 31] on IT usage. Similar findings were achieved in a study by [2, 27] on ERP usage; [32] on PC usage; and [33] on digital measures use.

However, this finding is in contrast with a study by [12], who found that user training and support on system usage is not mediated via perceived ease of use, because perceived ease of use has no effect on system usage. Similar results were found in research by [24] on e-mail and v-mail usage. In the same way, it also contrasts with studies investigating the impact of user training and support on perceived ease of system use only, without continuing on to system usage, such as [25] on e-mail usage.

In this study, perceived ease of use exerts the strongest effect on video-conferencing usage, which agrees with the findings a study by [52]. This study provides evidence that user training and support has an effect on the perceived ease of use of video-conferencing in Jordan. However, this finding is in contrast with a study by [12] in system usage.

This finding provides evidence that offering user training and support as a strategy would lead users to perceive video-conferencing as being easier to use, then adjust to adopt video-conferencing to satisfy user's needs to engage more effectively and efficiently.

Direct Effect of User Training and Support on Video-Conferencing Usage: This finding reveals the influence of offering user training and support to encourage officers in private organizations to use video-conferencing. Thus, the effect of user training and support was directly affecting video-conferencing usage.

This finding is consistent with a study by [17, 23, 34, 36] on IT usage; [35] on ELMS usage; [28] on microcomputer usage; [29] on personal computing usage; [37] on PC; and [3, 38] on CMC usage. However, this finding is in contrast to a study by [12] on system usage; [39] on ERP usage; and [17] on IT usage.

Interestingly, most studies have identified the positive significant effect of user training and user support on system usage. This provides evidence that the availability of user training and support is positive in nature; especially when a technology is usually adopted (or in use). This finding offers the required momentum to recognize the important influence of offering user training and support in increasing video-conferencing usage directly, without taking into consideration the mediating role of usefulness or ease of use of video-conferencing usage. In other words, providing training and support for users is capable of motivating their engagement in video-conferencing usage, even regardless of intervening with their perception of usefulness or ease of use of video-conferencing.

Conclusion and Future Work: This study developed a new conceptual model, with the aim of examining the impact of user training and support on video-conferencing directly; also indirectly, through user's perceived usefulness as well as their perceived ease of video conferencing use, in private organizations in Jordan. This study surveyed literature, employed a quantitative method to collect data and then achieved an appropriate data analysis, in order to validate the conceptual hypotheses of the conceptual model. On testing the hypotheses, this study validated a conceptual model, as shown in Figure 2. The findings imply that the required momentum to recognize the important influence of offering user training and support in increasing video-conferencing usage either indirectly (via ease of use) and directly; is worthy of further investigation, in various contexts, countries and information systems. The conceptual model is applicable to other studies of different scopes, since measuring values in different countries (cultures) could lead to different findings. Further research is needed to show national cultural impact. Besides, it would be useful to combine both quantitative and qualitative approaches. Moreover, the contrary results found in examining the impact of user training and user support separately provided evidence that there is a need to examine their impacts separately in future researches.

REFERENCES

1. Ghorbani, M. and S.J. Sangani, 2011. Role of Information Technology on the Organizational Effectiveness in Mashhad City Hall. *World Applied Sciences Journal*, 13(9): 2095-2107.
2. Amoako-Gyampah, K. and F. Salam, 2004. An Extension of the Technology Acceptance Model in an ERP Implementation Environment. *Information and Management*, 41(6): 731-745.
3. Liou, C. and Y. Peng, 2009. Training Effects on Computer-Mediated Peer Review. *System*, 37(3): 514-525.
4. Metz, M., 1994. Computer-mediated Communication: Literature Review of a New Context. *Interpersonal Computing and Technology*, 2: 31-49.
5. McQuail, D., 2005. *Mcquail's Mass Communication Theory*. Sage Publications, pp: 94.
6. Yu, B., 2011. Computer-Mediated Communication Systems. *TripleC*, 9(2): 531-534.
7. Bishop, J., 2009. Enhancing the Understanding of Genres of Web-based Communities: The Role of the Ecological Cognition Framework. *International Journal of Web-Based Communities*, 5(1): 4-17.
8. Thurlow, C., L. Lengel and A. Tomic, 2004. *Computer Mediated Communication: Social Interaction and the Internet*. Sage Publications, pp: 23.
9. Kamakari, A. and A. Drigas, 2010. Video conferencing and knowledge management in in-service teacher distance lifelong training and development. In *Technology enhanced learning: quality of teaching and educational reform*, Eds., Lytras *et al.* Berlin Heidelberg: Springer, pp: 610-619.
10. Miller, D. and C. Brunner, 2008. Social Impact in Technologically-mediated Communication: An Examination of Online Influence. *Computers in Human Behavior*, 24: 2972-2991.
11. D'Urso, C., 2009. The Past, Present and Future of Human Communication and Technology Research: An Introduction. *Journal of Computer-Mediated Communication*, 14(3): 708-713.
12. Rouibah, K., I. Hamdy and Z. Al-Enezi, 2009. Effect of Management Support, Training and User Involvement on System Usage and Satisfaction in Kuwait. *Industrial Management and Data Systems*, 109(3): 338-356.
13. Shaw, G., V. Sethi, A. Jeyaraj and K. Duffy, 2010. Modeling User Training and Support for Information Technology Implementations: A Bayesian Test of Competing Models. *Information Resources Management Journal*, 23(2): 20-32.

14. Veiga, F., S. Floyd and K. Dechant, 2001. Towards Modelling the Effects of National Culture on IT Implementation and Acceptance. *Journal of Information Technology*, 16: 145-158.
15. Hilla, H.K., L. Stewarta and S. Asha, 2010. The Training and Support Needs of Faculty and Students Using a Health Information Technology System were Significant: A Case Study in a Dental School. *AMIA 2010 Symposium Proceedings*, pp: 301-305.
16. Kim, G. and S. Kim, 2008. An Exploratory Study of Factors Influencing ASP Application Service Provider. *The Journal of Computer Information Systems*, 48(3): 118-24.
17. Gallivan, J., K. Spitler and M. Koufaris, 2005. Does Technology Training Really Matter? A Social Information Processing Analysis of Co-workers' Influence on IT Usage in the Workplace. *Journal of Management Information System*, 22(1): 153-192.
18. Mahmood, M., M. Burn, A. Gemoets and C. Jacquez, 2000. Variables Affecting Information Technology End-user Satisfaction: A Meta-analysis of the Empirical Literature. *International Journal of Human-Computer Studies*, 52(4): 751-771.
19. Garavan, N., P. Wilson, C. Cross and R. Carbery, 2008. Mapping the Context and Practice of Training, Development and HRD in European Call Centres. *Journal of European Industrial Training*, 32(8): 612-728.
20. Shariff, S.M. and M. Muhamad, 2010. Learning in an Industrial Practicum Training Program: A Case Study in a Public University in Malaysia. *World Applied Sciences Journal*, 11(11): 1361-1368.
21. Khilji, B.A., Z.K. Kakar and S. Subhan, 2012. Impact of Vocational Training and Skill Development on Economic Growth in Pakistan. *World Applied Sciences Journal*, 17(10): 1298-1302.
22. Jahanian, R., Z.N. Nav and A. Asadi, 2012. The Impact of Information Technology and Communication Training on the Performance of Human Resources in Educational Organizations. *World Applied Sciences Journal*, 16(6): 850-855.
23. Al-Gahtani, S. and M. King, 1999. Attitudes, Satisfaction and Usage: Factors Contributing to each in the Acceptance of Information Technology. *Behaviour and Information Technology*, 18(4): 277-297.
24. Karahanna, E. and M. Limayem, 2000. E-Mail and V-Mail Usage: Generalizing Across Technologies. *Journal of Organizational Computing and Electronic Commerce*, 10(1): 49-66.
25. Karahanna, E. and D. Straub, 1999. The Psychological Origins of Perceived Usefulness and Ease-of-Use. *Information and Management*, 35(4): 237-250.
26. Lewis, W., R. Agarwal and V. Sambamurthy, 2003. Sources of Influence on Beliefs about Information Technology Use: An Empirical Study of Knowledge Workers. *MIS Quarterly*, 27(4): 657-678.
27. Bradley, J. and C. Lee, 2008. Training and user acceptance in a university ERP implementation: applying the technology acceptance model. In *Global implications of modern enterprise information systems: technologies and applications*, Eds., Gunasekaran, A. Hershey: IGI Global, pp: 242-260.
28. Igarria, M., T. Guimaraes and B. Davis, 1995. Testing the Determinants of Microcomputer Usage via a Structural Equation Model. *Journal of Management Information Systems*, 11(4): 87-114.
29. Igarria, M., N. Zinatelli, P. Gragg and M. Cavaye, 1997. Personal Computing Acceptance Factors in Small Firms: A Structural Equation Models. *MIS Quarterly*, 21(3): 279-305.
30. Taylor, S. and A. Todd, 1995. Understanding Information Technology Usage: A Test of Competing Models. *Information System Research*, 6(2): 144-174.
31. Venkatesh, V. and D. Davis, 2000. A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46(2): 186-204.
32. Anandarajan, M., M. Igarria and P. Anakwe, 2002. IT Acceptance in a Less-developed Country: A Motivational Factor Perspective. *International Journal of Information Management*, 22: 47-65.
33. Baker-Eveleth, L. and W. Stone, 2008. Expectancy Theory and Behavioral Intentions to Use Computer Applications. *Interdisciplinary Journal of Information, Knowledge and Management*, 3: 135-146.
34. Karahanna, E., W. Straub and L. Chervany, 1999. Information Technology Adoption across Time: A Cross-sectional Comparison of Pre-adoption and Post-adoption Beliefs. *MIS Quarterly*, 23(2): 183-213.
35. Nanayakkara, C., 2007. A model of User Acceptance of Learning Management Systems: A Study within Tertiary Institutions in New Zealand. *The International Journal of Learning*, 13(12): 223-232.
36. Straub, W., D. Karen and E. Hill, 2001. Transfer of Information Technology to the Arab World: A Test of Cultural Influence Modeling. *Journal of Global Information Management*, 9(4): 6-28.
37. Al-Gahtani, S., 2004. Computer Technology Acceptance Success Factors in Saudi Arabia: An Exploratory Study. *Journal of Global Information Technology Management*, 7(1): 5-29.

38. Rentsch, R., A. Delise, E. Salas and P. Letsky, 2010. Facilitating Knowledge Building in Teams Can a New Team Training Strategy Help?. *Small Group Research*, 41(5): 505-523.
39. Kamhawi, M., 2008. Examining the factors affecting project and business success of ERP implementation. In *Global implications of modern enterprise information systems: technologies and applications*, Eds., Gunasekaran, A. Hershey: IGI Global, pp: 242-260.
40. Govindarajulua, C. and J. Reithelb, 1998. Beyond the Information Center: An Instrument to Measure End-user Computing Support from Multiple Sources. *Information and Management*, 33: 241-250.
41. Davis, D., 1989. Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology. *MIS Quarterly*, 13(3): 319-340.
42. Chaitani, M., 2010. National culture and economic development in the Middle East: a quantitative correlational study, PhD. thesis, University of Phoenix.
43. Creswell, J.W., 2009. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Sage publication, pp: 107.
44. Chua, Y.P., 2009. *Statistik Penyelidikan Lanjutan: Ujian Regresi, Analisis Faktor dan Analisis SEM*. McGrawHill Education, pp: 63.
45. Adams, D., R. Nelson and P. Todd, 1992. Perceived Usefulness, Ease of Use and Usage of Information Technology: A Replication. *MIS Quarterly*, 16(2): 227-247.
46. Watson, J., 2001. *How to determine a sample size*. University Park, PA: Penn State Cooperative Extension. Available at: <http://www.extension.psu.edu/evaluation/pdf/TS60.pdf> (accessed 1 July 2011).
47. Anderson, C. and W. Gerbing, 1988. Structural Equation Modeling in Practice: A Review and Recommended Two-step Approach. *Psychological Bulletin*, 103(3): 411-423.
48. Hair, J.F., W.C. Black, B.J. Babin and R.E. Anderson, 2010. *Multivariate Data Analysis: A Global Perspective*. Upper Saddle River: Pearson Education, pp: 343.
49. Fornell, C. and D. Larcker, 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1): 39-50.
50. Byrne, B.M., 2010. *Structural Equation Modeling with AMOS: Basic Concepts, Application and Programming: Multivariate Application Series*, pp: 284.
51. Hu, T. and M. Bentler, 1999. Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. *Structural Equation Modelling*, 6(1): 1-55.
52. Rouibah, K. and H. Hamdy, 2009. Factors Affecting Information Communication Technologies Usage and Satisfaction: Perspective from Instant Messaging in Kuwait. *Journal of Global Information Management*, 17(2): 1-29.