

# Learner Satisfaction of e-Learning in Workplace

## Case of Oil Company in Middle East

Muhammad Al-Qahtani  
Saudi Aramco  
Dhahran, Saudi Arabia  
qahtms1b@aramco.com

Mansour Al-Qahtani  
School of Information System  
University of Western Sydney  
Sydney, Australia  
16605842@student.uws.edu.au

Hatim Al-Misehal  
Al-Misehal Company  
Dammam, Saudi Arabia  
hatim.almisehal@gmail.com

**Abstract**--The goal of this paper is to identify factors that affect e-Learners' satisfaction in a large corporation in Saudi Arabia. By adopting an organisational/technological perspective to the e-Learning system, the existing body of literature on e-Learning was reviewed and a suitable theoretical model was selected as an initial theoretical framework characterising various underlying factors for the e-Learners' satisfaction in today's workplace environments in general. Through four semi-structured interviews with employees selected from the case study organisation the current study attempts to identify additional factors that may be relevant to the large Middle Eastern corporations. This, in turn, will facilitate development of a survey questionnaire that crosses distinctively different cultures, which constitutes the author's future study.

**Keywords**—*e-Learning; workplace learning; organizational learning; technology acceptance model.*

### I. INTRODUCTION

#### A. Background

Over the past decade, there has been a sharp global trend in the adoption of e-Learning systems by multinational corporations. E-Learning is now considered as a popular approach to learning and teaching in the workplace due to its flexibility and ease of access, just-in-time delivery, and cost-effectiveness [1], as well as ease of access, consistency, and customer value [2].

Workplace learning is defined by Ellinger [3] as "the processes, means, and activities in the workplace by which employees learn from basic skills to high technology and management practices that are immediately applicable to their jobs, duties, and roles". Workplace learning, in general, and e-Learning at workplace, in particular, is a rapidly expanding sector in many of the Middle Eastern countries. Based on a recent study, most large companies in Saudi Arabia have a long history of adopting e-Learning in their workplace [4]. The top management is well informed about e-Learning and its possibilities, and they are looking for ways to enhance their initiatives with the latest that is available in the world. Based on a recent

study, the Saudi e-Learning market has been growing at 33% annually during the period 2008 – 2012 [4]. Based on other studies, the projected growth rate for the entire Middle East during the period of 2009-2014 is just 8%, making it one of the slower growth regions in the world. This may indicate that the Saudi Arabia is one of the fastest growing countries in the Middle East for embracing e-Learning methods for workplaces [4].

The current study applies an existing e-Learning satisfaction model to a workplace environment within a large petroleum company in the Middle East in order to: (i) evaluate the applicability of the model to the selected industry, and (ii) provide insights into additional underlying industry- and/or culture-specific factors that affect e-Learners in workplace environments that have not been explored in previous studies.

The ultimate aim of the study is to gain a better understanding of the above factors in workplace environments, the latter being severely under-studied. In other words, by assessing applicability of various success factors in e-Learning environments in higher education to the workplace environments the current study aims to develop a specialised theoretical framework for e-Learning satisfaction in the workplace as perceived by the adult learners. To achieve the above goals, the study adopts qualitative research methodology by conducting various semi-structured interviews with various stakeholders. Then, the results are analysed using thematic analysis in order to both evaluate the applicability of various underlying factors, as well as exploring additional factors that may affect e-Learners' satisfaction in the workplace in a large Middle Eastern corporation.

#### B. Case Study

The case study organization is a large oil company in the Middle East with main activities being crude oil production and petroleum refining. The company has almost 52,000 employees and the e-Learning environment of the study include Area Information Technology (IT) department with 3,000 user-learners. Arabic language development is a key requirement of the company's e-Learning program in the company, although many younger generations of employees who are graduates from the universities in western countries

are comfortable with just English language courses. A distinct cultural mix exists within the organisation as a result of the existence of a significant number of American and British citizens as well as young Saudi graduates from western universities at senior levels of company management. As a result of such cultural mix, one major objective of the company's workplace e-Learning program is to eliminate communication barriers throughout the organisation while, at the same time, hierarchy is to be respected and things may move slowly when it comes to decision making.

## II. THEORETICAL MODEL

Historically, several theoretical models have been proposed for explaining individuals' attitudes and

acceptance of information systems in general. The majority of those models are extensions of the original works, such as the *theory of reasoned action* [5], the *theory of planned behaviour* [6], and *technology acceptance model* [7], and have generalised these theories to the e-Learning environment by adopting an organisational approach a combination of organisational and technological approaches to the e-Learning. On the other hand, researchers in the fields of social psychology and information systems have identified different sets of factors for the success of e-Learning and e-Learners' satisfaction in higher education. A list of the major factors and brief explanation for each is presented in Table 1.

TABLE 1: FACTORS AFFECTING E-LEARNER SATISFACTION (ADOPTED FROM [8])

Factors	Source
Perceived usefulness and ease of use, course flexibility, interaction	[9][10]
Motivation, learner's attitude towards technology, computer anxiety, self-efficacy, instructor teaching style and technology quality	[11]
Course flexibility, perceived usefulness and ease of use, instructor's experience, timeliness and interaction	[12]
Learner's gender, age, initial computer skills, learning style, course quality, timeliness and interaction	[13]
Learner's initial computer skills, initial knowledge of e-Learning and courses, age, course design, instructor's timeliness, assessment methods and interaction	[14]
Motivation and interaction	[15]

A study by Sun et al. [16] provides an integrated e-Learning model based on the technology acceptance model aimed at learners in higher education with six categorical dimensions including student, teacher, course, technology, system design, and environmental dimension. The current study applies a modified version of the above model to the domain of e-Learning in the *workplace* while addressing specific issues and differences between the higher education and workplace environments. The above model is presented in Figure 1, along with the hypotheses of the study. On the other hand, some previous studies have provided insights into the differences between higher education and workplace environments, and indicate that one major difference between the two environments is the nature and motivation of the learners in the two environments [17]. The current study has incorporated these differences when designing interview questions and analysing the results.

## III. RESEARCH METHODOLOGY

This study adopts a positivist qualitative research method for the following two reasons: (i) a reasonable size of literature already exists in the domain of e-Learning in higher education that can initially be used for 'exploring' relevant and specialised constructs in workplace environments (hence, adopting a positivist perspective), and (ii) there are limited prior studies that investigate e-Learning in workplaces (hence, the choice of interview method).

Interview questions were developed using the theoretical model in Figure 1 in order to assess the relevance of those factors to the workplace environments. By analysing the interview results, we aim to develop a specialised model that explains e-Learning effectiveness in workplace environments in large Middle Eastern organisations. The results from these interviews provide guidelines for developing a comprehensive set of survey questions incorporating large number of respondents for further validation of the model. However, the latter is subject of future work.

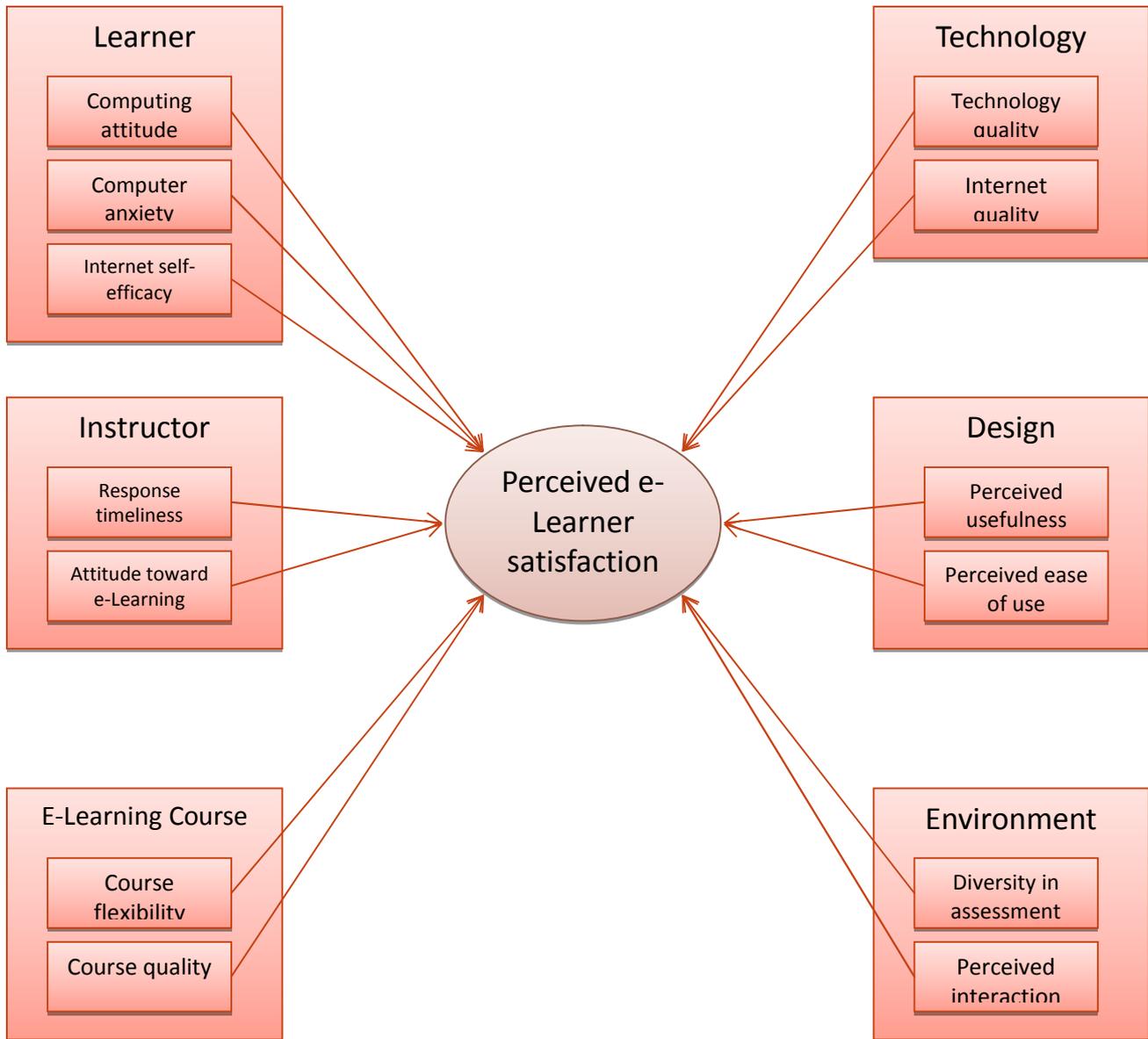


Figure 1. Proposed Conceptual Model (adopted from [16])

#### IV. INTERVIEW QUESTIONS

Four interviewees were selected purposefully each representing sample from various major user groups within the e-Learning organisation with adequate knowledge about the program. Each interview took almost 30 minutes. The major aim of these interviews was to assist in the development of a large survey questionnaire instrument for a future study by identifying various hidden factors and measures that collectively define e-Learning satisfaction in the case study organisation. More specifically, the interview questions were developed to achieve the following goals:

- Understanding the background of the company's e-Learning system by applying the theoretical model of the study. Such

understanding was achieved by learning about various e-Learning environmental dimensions specified in the theoretical model of Figure 1.

- Confirming/assessing suitability of the above model, and
- Discovering possible additional factors that may be specific to the large corporations in the Middle East.

A summary of the interview questions is shown in the following paragraphs. These questions were used to guide the interviewee towards an understanding of underlying factors that may affect learner's satisfaction, as described by the learners and their management. Detailed responses are not reported in this paper. However, an analysis of the findings is provided in the next section.

Question 1: What type of computer attitude do you expect employees must have towards successful completion of this e-Learning course? Do they have to love computers and feel easy and comfortable about it OR they can still succeed even if they are not very comfortable with computers in general? Does such fact make any difference in the success of employees? Please explain your reasons in some details.

Question 2: Can you answer the above question again in relation to the knowledge of the Internet? Do you expect learners/employees to be very knowledgeable about the Internet? Why and why not? What is your minimum set of criteria for the learner’s knowledge of the Internet for successful completion of the course?

Question 3: Compared with the traditional face-to-face learning, in what ways do you believe that taking the e-Learning course will help learners to improve their work and efficiency? In other words, explain the advantages and disadvantage of each method in terms of working efficiently: which method is more useful and why?

Question 4: Compared with the traditional face-to-face learning, in what ways do you believe that taking the e-Learning course will help learners to progress in their career more quickly? In other words, explain the advantages and disadvantage of each method in terms of career progress of the learners. Which method is more useful and why?

Question 5: Do you believe e-Learning course motivates learners to learn better? Why and why not?

Question 6: In what ways do you think the e-Learning course might improve the way learners learn? Explain

Question 7: How do you think the e-Learning course can be provided in more useful way?

Question 8: Do you think that there is any productivity gains in using the e-Learning courses compared to the traditional courses? Justify your answer.

A summary of the results, in the form of the most frequent responses (as interpreted by the researcher) is provided in Table II below:

TABLE II: A SUMMARY OF INTERVIEW RESPONSES

Question	Response
1	- Not a major problem today. Everyone here knows about computers and Internet - People’s knowledge differs; it should be flexible in that so no one gets bored (also related to Q3, ‘motivation’).
2	<same as above>

3	- available when users need to complete a task - available when users need it: on-demand - available in small chunks (15-20 minutes) - it should be tailor for individuals; one size does not fit all, otherwise some will lose motivation (past experience)
4	- It must bring learning to people not people to learning - must have visible effects on my career/promotion
5, 6, 7	- Local language: Here, very few are comfortable with just English language courses. - Adults like socialization & require emotional engagement in activities. There should be opportunities for people to communicate, collaborate and share experience - Use of mobile phones is widespread. Most people carry two phones. However, data access is costly. - In the past, sometimes strictly observing hierarchy has had negative effects on me
8	- If it brings various (small/large) groups together, productivity will increase through experience-sharing - It must be directly related to my work activities

V. ANALYSIS OF RESULTS

The current study is the first phase of a large research project that consists of a preliminary qualitative study (the current study) and a comprehensive quantitative study (the future study) in order to enhance effectiveness of e-Learning methods when applied to large workplace environments. The goal of the interviews in the current study is to develop further insights into the design of the main quantitative study. Based on such objective, the interview results are analysed in this section.

One major finding from the interviews was that no instructor was normally present in the case study organisation; therefore, there were no interactions between the learner and instructor. As a result, no questions could be asked about the *Instructor’s Response Timeliness, Instructor’s Attitude Towards e-Learning and Perceived level of Interaction* factors that appear in the proposed theoretical model originally developed for the Higher Education.

Furthermore, findings indicated that their e-Learning system did not provide any interaction and communication functionalities among e-Learners, indicating that the current study was unable to investigate the relationship between the level of interaction among the e-Learners and the perceived e-Learner satisfaction in the workplace. However, the

interviewees provided insightful comments on this matter. They suggested that one of the main motivations for the case study organisation to adopt e-Learning method is the need for “managing employee’s e-Learning rather than just promoting rich learning experiences” as currently the e-Learning courses are offered with little interaction and communication functions. Confirming the above suggestion, many researchers have already suggested that interactive instructional design (highly communicative) is an essential factor for learning satisfaction and success [13][18], therefore it is recommended that organisations implement, utilise and promote interaction and communication functions in their e-Learning courses in order to enhance the life-long learning experience in the workplace.

Overall, respondents identified a variety of measures for measuring various environmental dimensions shown in Figure 1 that can be utilised when designing the survey questions of the future main study. For example, the answers to Question 1 implied that, while some employees may still prefer ‘paper work’, almost all of them recognised that the use of computers will certainly facilitate their task. Such recognition of the benefits that automated workflows may ultimately be useful to for them to overcome the short-term difficulties of learning about computers (e.g., anxiety of working with computers, etc.). Similar interpretations of other interview results will provide useful hints for developing the main survey questionnaire instrument as was one of the main intentions of the current study.

## VI. CONCLUSION AND FUTURE RESEARCH

Among other things, one major objective of the current study was to act as a pilot study for developing a survey questionnaire instrument for a large sample across multiple organisational cultures. Most e-Learning courses are designed in Western cultures, whereas the largest and fastest-growing countries originate from eastern cultures such as China, Japan, India, and now the Middle East. With globalisation increasing and cross-cultural exchanges accelerating in the recent years, a future similar study that incorporates various organisational and national cultures would facilitate success of e-Learning in workplaces. We intend to extend the current study to other major corporations in various other cultures in order to explore culture-specific factors for the success of e-Learning programs in today’s organisations.

## REFERENCES

[1] Wang, M. (2011) Integrating organizational, social, and individual perspectives in Web 2.0-based workplace e-learning. *Information Systems Frontiers* 13, pp. 191-205.

- [2] Rainer, R.K., Turban, E. and Potter, R.E. (2007) *Introduction to Information Systems: Supporting and Transforming Business*, Hoboken, NJ., John Wiley and Sons.
- [3] Ellinger, A. D. (2005). Contextual factors influencing informal learning in a workplace setting: the case of "Reinventing Itself Company". *Human Resource Development Quarterly*, 16(3), 389-415.
- [4] Garg, A. (2012) Upside Learning Solutions, Punakar Complex, Survey No-117, Maharashtra, India, <http://www.upsidelearning.com/blog/index.php/2010/03/29/workplace-elearning-in-saudi-arabia-first-impressions/> (last viewed 28th September 2012).
- [5] Ajzen, I. and Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*, Prentice-Hall, Englewood Cliffs, NJ.
- [6] Ajzen, I. (1991). The theory of planned behavior. *Organizational Behaviour and Human Decision Processes*, 50, pp. 179-211.
- [7] Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), pp. 982-1002.
- [8] Daneshgar, F., Van Toorn, C., Ramburuth, P and Hsu, J., (2010), An Investigation into e-Learner Satisfaction in the Workplace: An Australian Experience, *The International Journal of Learning*, V. 7(12), pp 29-44.
- [9] Arbaugh, J.B. (2002) Managing the on-line classroom. A study of technological and behavioral characteristics of web-based MBA courses. *Journal of High Technology Management Research*, 13 (2), pp. 203-223.
- [10] Arbaugh, J.B. (2000) Virtual classroom characteristics and student satisfaction with internet-based MBA courses. *Journal of Management Education*, 24(1), pp. 32-54.
- [11] Piccoli, G., Ahmad, R. and Ives, B. (2001) Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic it skills training. *MIS Quarterly: Management Information Systems*, 25 (4), pp. 401-
- [12] Arbaugh, J.B. and Duray, R. (2002) Technological and Structural Characteristics, Student Learning and Satisfaction with Web-based Courses: An Exploratory Study of Two On-line MBA Programs. *Management Learning*, 33 (3), pp. 331-347.
- [13] Hong, K.S. (2002) Relationships between students' and instructional variables with satisfaction and learning from a Web-based course. *Internet and Higher Education*, 5(3), pp. 267-281.
- [14] Thurmond, V.A., Wambach, K. and Connors, H.R. (2002) Evaluation of student satisfaction: determining the impact of a web-based environment by controlling for student characteristics. *The American Journal of Distance Education*, 16 (3), pp. 169-189.
- [15] Kanuka, H. and Nocente, N. (2003) Exploring the effects of personality type on perceived satisfaction with web-based learning in continuing professional development. *Decision Education*, 24 (2), pp. 227-245.
- [16] Sun, P.C., Tsai, R.J., Finger, G., Chen, Y.Y. & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers and Education*, 50(4), pp. 1183-1202
- [17] Daneshgar, F. and Van Toorn, C. (2009) e-Learning in Workplace versus e-Learning in Higher Education. *Australian Educational Computing*, 24(1), pp. 16-22.
- [18] Nahl, D. (1993) Communication dynamics of a live interactive television system for distance education. *Journal of Education for Library and Information Science*, 34 (3), pp. 200-217