Asian Journal *of* Distance Education

http://www.AsianJDE.org
© 2006 The Asian Society of Open and Distance Education
ISSN 1347-9008 Asian J D E 2006 vol 4, no 1, pp 4 - 19

Feedback on E-learning at a Telecommunications Company in Malaysia

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ABSTRACT :

The prospects for e-learning have grown at a tremendous rate, both in the educational area and in the training area. According to the research firm IDC (International Data Corporation), in the year 2004, the training industry was valued at US$60 billion worldwide, with US$6.6 billion coming from e-learning. By this year, the e-learning market is expected to reach US$23.7 billion. Many organizations and learning institutions have slowly begun adopting e-learning as one of their learning tools complementing classroom-based or instructor-led training (ILT) to enhance the effectiveness of the learning or delivery of the training. Despite the enormous amount of money being spent on e-learning, this learning approach is not yet proven to be completely effective. There is a need to evaluate to what extent corporate e-learning is as effective as traditional classroom based learning. With this in mind, this research was conducted to examine employees' perceptions towards e-learning in a local publicly-listed telecommunications company. An empirical investigation was undertaken by using a sample of 82 employees. Overall, the results indicated that the employees were generally satisfied with their experience of utilising the e-learning courses provided by the company based on instructional design, content, navigation, graphical presentation and audio presentation, with simulation learning being ranked with the highest satisfaction amongst the available types of e-learning offered. Feedback on the utilisation of the e-learning based on level of designation and tenure of employment showed significant differences, while gender, department (except in 'navigation'), and academic qualification, showed no significant differences. Results also indicated that there was no significant association between computer-proficiency level, English-proficiency level, ease of accessibility and usual locations of accessing e-learning and the respective variable(s) of their utilisation of the e-learning courses.

1. INTRODUCTION :

1.1 Background of Research :

The blended approach has become a significant way of advancing learning both in the academic and training line. The availability of e-learning and its continuous rapid development does not mean that it has totally replaced the conventional classroom learning. Instead, it has become a vital tool to complement classroom learning in many ways that "blended learning" is now a favourite approach used to deliver learning or training.

E-learning, or less better known as "electronic learning" can be defined as acquiring of knowledge or skills via electronic devices, such as the computer, the internet, telecommunications tools like the telephone and other electronic devices, namely the video and CD-Rom. Extracted from his website, http://derekstockley.com.au/elearning-definition.html, Derek Stockley defines e-learning as "*the delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g. a mobile*

phone) in some way to provide training, educational or learning material. E-learning can involve a greater variety of equipment than online training or education, for as the name implies, "online" involves using the Internet or an Intranet. CD-ROM and DVD can be used to provide learning materials." In short, e-learning is the unifying term to describe the fields of online learning, web-based training, and technology-delivered instruction.

Blended learning, also called hybrid learning is simply defined as a combination of e-learning and the traditional face-to-face (f2f) learning or instructor-led training (ILT), and when necessary coaching, assignments & projects provided as a support & reinforcement tool.

Many educators today, be it those in the academic sector or instructors in the corporate sector believe that blended learning is 'the way to go' in delivering knowledge or building skills as a more efficient & effective way to meet the demands of learners & specific business objectives. When classroom training or ILT provides the human touch, whereby the facilitator & learner get to meet face to face in a classroom environment, e-learning provides the convenience of acquiring learning electronically – for example, simulation learning via a computer or lessons delivered via a training CD, web-based learning or even tele-seminar. E-learning has grown rapidly in the past few years due to the demand for e-learning for various reasons – one of the main reasons is to reduce cost of training. ILT method is costly, especially if it involves a large number of participants who are based in different locations and need to be grouped at one location in order to conduct a face-to-face session. This is due to the various logistics involved in conducting an ILT that ultimately boils down to cost. For instance, cost of accommodation for outstation participants and cost of transportation (flight tickets) that a company needs to fork out for bringing in a considerably large number of employees from various locations throughout the country to attend a face-to-face session. Assuming that simulation training is suitable to be done for the same training, whereby it can be loaded into the company's server & is accessible by the participants at their respective work location, it would have saved the company a large amount of money and the training can be completed in a much shorter duration. Besides, simulation training can be repeated for participants who have forgotten certain information, skills or functions, at their own time and convenience. Therefore, e-learning can be particularly cost-effective and time-saving for certain types of training, and can provide long-term support for the end-users – these are the main reasons more and more organizations as well as academic institutions are adopting e-learning as an important learning tool. The advancement of ICT in recent years have provided developers of e-learning programs with more room for creativity to enhance the appearance, display, as well as delivery of e-learning content. The various soft wares available in the market for developing e-learning programs also provide e-learning developers the convenience of updating and changing its content when necessary. However, it needs to be noted that not all types of training is suitable to be delivered via e-learning and may not be effective. Certain learning is more effective if done face-to-face and depending on the content and learning objectives, using the blended approach of training delivery via e-learning and f2f can prove to be a winning strategy.

In the local public telecommunications company in which this research is done, blended learning has been adopted in the early years of the organization's set-up by its Training & Development Department (hereafter, referred to as the T&D Department), in which ILT was the main tool of learning/training delivery with basic e-learning tools like Video Learning being used as and when necessary or available. In recent years, more courses have been introduced via e-learning – web-based learning, virtual learning, simulation learning and training CDs. For certain training programs where reinforcement is necessary, learning or training acquired either via e-learning or ILT are followed by coaching, assignments or projects. While

ILT is still widely used in the company to deliver training, web-based learning, simulation learning as well as virtual learning has all become essential tools to deliver training either to complement the learning or to replace ILT where needed or applicable. Figure 1 illustrates the Blended Learning & Training Model of the mentioned telecommunications company of this study. Employees are offered a wide variety of courses, either to acquire specific skills needed for their jobs or for self-development. The company's Learning Management System (LMS) enables employees to obtain a short preview of courses, register for courses and for supervisors to monitor the learning of their subordinates. Some of the training programs require the employee to complete introductory modules via e-learning as a pre-requisite before attending ILT while some programs are completely done via e-learning; for example, simulation learning for certain applications used by front liners in the Customer Services Division (CS Division). There are other programs in which e-learning is the main tool in training delivery and ILT only acts as a discussion session for participants to clarify their doubts with the facilitator. With the increased use of e-learning in the company, it would be useful to find out the learners' experience and feedback in using e-learning. This brings us to the next discussion, i.e. the purpose and objectives of this research.

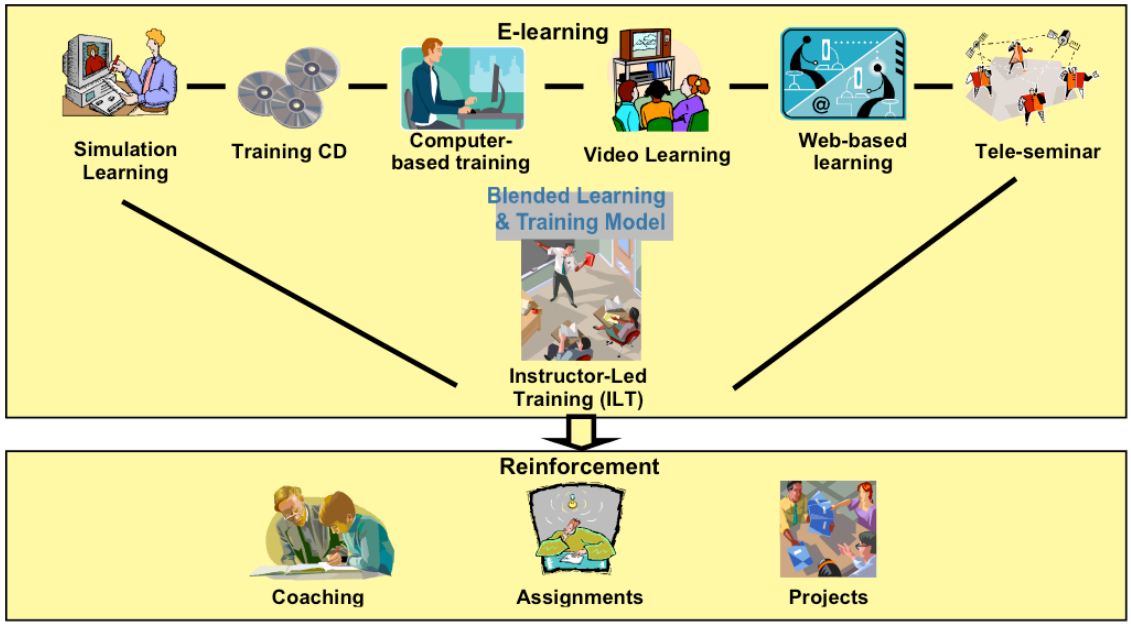

Figure 1 : A blended learning & training model of a local telecommunications company

1.2 Purposes & Objectives :

The main purpose of this research is to analyse the employees' feedback towards e-learning as part of a training tool in its blended learning approach. In specific, the objectives of this research are ; (1) to examine the demographic and personal characteristics of employees utilising e-learning programs/courses offered by the company, (2) to determine the employees' feedback towards e-learning courses based on instructional design, content, ease-of-use, graphical presentation, and audio/voice presentation, and (3) to determine the employees' preferred type(s) of e-learning.

1.3 Significance of the Research :

The findings from this research would be useful for T&D Department of this company to enhance the design & delivery of training programs using the blended approach, in which e-learning is one of the vital tools to help meet the training needs of all employees. By finding out the employees' perception towards e-learning, the T&D Department & line managers of

this company can use the information for "change management", whereby employees can be educated on the benefits of blended learning by using several ways to learn, as shown in the Blended Learning & Training Model. Feedback from the survey pertaining to the demographic and personal characteristics of employees utilising e-learning programs, the employees' perception towards e-learning programs based on several factors, i.e. instructional design, content, ease-of-use, graphical presentation and audio/voice presentation; and the employees' preferred type(s) of e-learning as part of blended learning would certainly be useful for developers (either solely from the company or in collaboration with a vendor) for future training programs to be developed.

2. LITERATURE REVIEW :

2.1 Blended Learning Models :

According to Valiathan (2002), an instructional design specialist for NIIT (a global software and training organization headquartered in New Delhi), blended learning is categorized into three models ; -

1 Skill-Driven Model
2 Attitude-Driven Model
3 Competency-Driven Model

These three models focus on the key features of each approach, in which situation an approach is adopted, and what blended techniques can be adopted to enhance learning.

The Skill-Driven Model recommends that this approach which mixes interaction with a facilitator through email, discussion forums and face-to face meetings with self-paced learning, such as web-based courses and books, works best when people are learning content at the knowledge or application levels.

The Attitude-Driven Model blends traditional classroom-based learning with online collaborative learning, and is recommended for teaching of content that required learners to try out new behaviours in a risk-free environment. An example is a soft skill course that requires learners to role play interacting with a customer, or a supervisor to role play coaching a staff.

The Competency-Driven Model is suitable for learning that facilitates the transfer of tacit knowledge; this is because tacit knowledge is better absorbed via observation and interaction with experts on the job. Therefore, the activities involved may include a blend of online performance support tools with live mentoring.

The three models also provide a learning plan that consists of technology-based techniques and non-technology techniques. In the telecommunications company, to quote an example of one of the approach used based on the skill-driven model, is training of new recruits of customer service frontline staff on products and services whereby the knowledge that they require are at knowledge and application level. Techniques used to deliver the training to them are web-based learning and ILT, whereby the web-based learning is supported with printed assignments which are facilitated via face-to-face introduction at the beginning of each module and face-to-face discussion at the end of each module.

Singh (2003) looks at the various dimensions and learning delivery methods of blended learning programs, based on Khan's Octagonal Framework; the latter consists of eight ingredients (institutional, pedagogical, technological, interface design, evaluation, management, resource support, and ethical) which serve as a guide to plan, develop, deliver, manage and evaluate blended learning programs, and is particularly useful for organization to explore strategies for effective learning and performance, and thus high return of investment.

Singh (2003) believed that blended learning is favoured over single delivery mode programs by organizations due to the various benefits that blending learning provides compared to the traditional classroom setting. For example, the latter limits the learning to only those who can participate at a fixed time and location, whereas e-learning can be extended to remote audiences or those who cannot

attend a classroom training at a specific time, and can be played back or repeated. Singh (2003) also pointed out another benefit of the blended approach, that is the optimization of development cost and time – producing a totally online, self-paced, media-rich, web-based training content may be too expensive as it requires multiple resources and expertise. However, combining virtual collaborative and coaching sessions with simpler self-paced materials (either generic off-the-shelf e-learning programs or customized e-learning programs) may be just as effective or even more effective. In the case of 'new products' training for the customer service frontline staff of the telecommunications company of which this research paper is done, , this is indeed true, as the frontline staff needs to learn up the new product in a (short) specified period before the launch of the product and training developers will not have the luxury of time to develop a full-fledge e-learning program that is media-rich, interactive, and complete with quizzes and self-assessment to fulfil the effectiveness criteria. Although e-learning will seem convenient to deliver the learning content to a mass group of staff at different locations, the time constraint for developing the learning materials makes it impractical if not impossible to rely on e-learning alone. Using a blended approach, the techniques used are web-based learning (e.g. a less media-rich courseware which is quicker to develop), facilitated by a trainer or an SME (subject matter expert). To support the learning, a facilitator is present at the beginning to introduce the product or topic, and upon the learners' completion to facilitate discussion.

2.2 Past Studies of E-learning Adoption as part of a Blended Approach :

A study by Ndubisi (2005) at a Malaysian university on the factors influencing e-learning adoption intention, found that attitude has an important direct influence to adopt e-learning, whereby attitude is anchored to perceived usefulness, ease of use and system's security. Course leader's influence is positively associated with subjective norm, which also mediates in the relationship between course leader's influence and adoption intention. Another vital determinant of intention is perceived behavioural control which also mediated the relationship between self-efficacy, computing experience, training, access to technological facilities and e-learning adoption. Ndubisi (2005) concludes that in order to enhance e-learning adoption intention and in turn acceptance amongst Malaysian students, those who are interested to use e-learning as a learning delivery method must try to build favourable attitude through enhanced usefulness and ease of use perception, as well as security; improve perceived behavioural control by enhancing computer-self efficacy, general computer experience, access to technological facilities and resources, training and elimination or reduction in computer anxiety.

In a separate study by Sandhu and Asmawi (2002), whereby an empirical investigation was undertaken in Universiti Tun Abdul Razak (UNITAR) to explore and examine the perception of students towards the utilization of web-based courseware, one of the findings was that there were no significant differences on perception between genders. As for computer literacy, the male participants showed higher level of competency of web usage. The study also found that interactivity as an important determinant in the student's perception towards web-based courseware ; therefore, the latter can be used to complement face-to-face teaching.

Sambrook (2002) reported on two research studies (one in the United Kingdom and the other conducted across Europe over a span of two years), the article focuses on two main objectives – to investigate the factors that helped or hindered learning, especially in large and learning-oriented organisations, and the factors that influence learners' perceptions of the quality of computer-based learning materials. For the purpose of this research paper, the second objective, i.e. factors that influence learners' perceptions pertaining to the quality of computer-based learning materials, will be reviewed. Amongst the important factors identified in Sambrook's

research, the most significant factor is user-friendliness. Sambrook (2002) stated that user-friendliness is especially important with the increase in self-managed learning, where the learner could be alone or isolated.

2.3 Conceptual Framework and Hypotheses :

The dependent variable in this research is utilisation of e-learning courses; the independent variables are gender, level of designation, division, length of tenure, type of employment (permanent or contract), academic qualification, computer-proficiency level, English-proficiency level, accessibility, and location of accessing e-learning.

In the utilisation of e-learning courses in the telecommunications company, these factors are considered important and the findings will be useful for the T&D Department to learn about the factors that influence the utilisation of the e-learning courses that have been purchased, externally developed, internally developed in collaboration with selected vendors, or totally developed by internal staff.

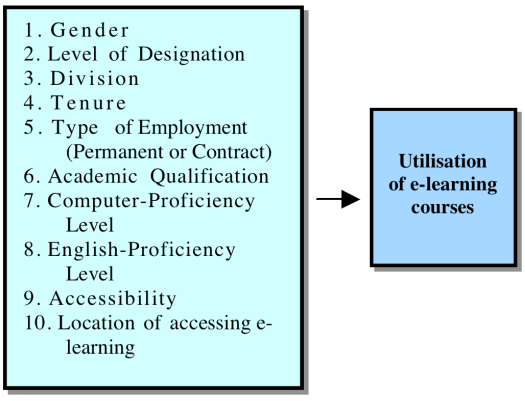

Figure 2: Schematic diagram of the theoretical framework

H_1: There is a significant difference between male and female employees on feedback towards "instructional design", "content, "navigation", "graphical presentation" and "audio presentation" of e-learning courses.

H_2: There is a significant difference between employees CS Division and those from other departments on feedback toward "instructional design", "content, "navigation", "graphical presentation" and "audio presentation" of e-learning courses.

H_3: There is a significant difference between employees in different levels of designation on feedback towards "instructional design", "content, "navigation", "graphical presentation" and "audio presentation" of e-learning courses.

H_4: There is a significant difference between employees with different tenure of employment on feedback towards "instructional design", "content, "navigation", "graphical presentation" and "audio presentation" of e-learning courses.

H_5: There is a significant difference between employees with different academic qualification on feedback towards "instructional design", "content, "navigation", "graphical presentation" and "audio presentation" of e-learning courses.

H_6: There is a significant association between computer-proficiency levels on feedback towards "instructional design" and "navigation" of e-learning courses.

H_7: There is a significant association between English-proficiency levels on feedback towards "content" and "audio" of e-learning courses.

H_8: There is a significant association between ease of accessibility of online e-learning courses with "navigation".

H_9: There is a significant association between locations of accessing e-learning courses and "navigation".

3. METHODOLOGY :

A sample of 82 employees from the telecommunications company who have used e-learning courses provided by the company was surveyed and the selection of sample was based on convenience. The sample was divided into two categories – "CS Divisions (being the major users of e-learning courses) & "Others", in which the latter was employees from several other departments. Before embarking on distributing the questionnaire to the sample, a pilot study was done whereby the survey was given to 7 employees from various departments holding different positions.

This was done to ensure reliability of the questions asked, in which feedback was given on some areas, which needed some minor amendments to make the question or instructions clearer. The data of this research were collected via a self-administered questionnaire by the author, whereby the questionnaire was divided into three sections – Section I, II and III. Section I consisted of questions eliciting demographic characteristics that aim to find out the association of the latter with the utilisation of e-learning courseware. Section II comprised of questions designed for the aim of gathering the perception of employees towards the utilisation of e-learning courseware based on instructional design, content, ease-of-use, graphical presentation, and audio/voice presentation. A five-point Likert scale was used in Section II whereby the respondents were required to state the extent to which they agreed or disagreed with the statements in the questionnaire. And finally, Section III required the respondents to rank their preferred type(s) of e-learning courseware that are commonly used, i.e. simulation learning, computer-based learning, web-based learning, virtual classroom, video learning, and tele-seminar.

4. DATA ANALYSIS :

4.1 Demographic Characteristics of the Sample :

Table 1 shows a tabulation of the demographic data from the frequency distribution of the survey.

Based on the results, there were more female respondents (54.3%). The respondents are mostly from the CS Division (86.6%) – mainly due to the survey being administered based on convenience sampling. The majority of respondents are non-executives (65.9%) ; the high percentage is due to convenience sampling. 78% of the respondents are permanent employees, which may explain the higher percentage in length of tenure of employment falling into the range of 4 – 7 years (35.4%) and 8 – 10 years (26.8%). The academic qualifications of the respondents are mainly in the category of "diploma holders" (32.9%) and "degree holders" (30.5%), in which the reason may be due to the majority of respondents are from the non-executive level.

Table 1: Demographic Characteristics
Sample size, n = 82

Demographic	Frequency	Valid %
Gender :		
Male	37	45.7
Female	44	54.3
Department :		
CS Division	71	86.6
Others	11	13.4
Level of Designation :		
Non-executive	54	65.9
Executive	20	24.4
Managerial	8	9.8
Tenure of Employment :		
Less than 1 year	10	12.2
1 – 3 years	13	15.9
4 – 7 years	29	35.4
8 – 10 years	22	26.8
More than 10 years	8	9.8
Type of Employment :		
Permanent	64	78.0
Contractual	18	22
Temporary	0	0
Academic Qualification :		
SPM / 'O' Level	18	22.0
STPM / 'A' Level	8	9.8
Diploma	27	32.9
Degree	25	30.5
Post-graduate	1	1.2
Others	3	3.7

4.2 Other Descriptive Statistics on the Respondents' Usage of E-learning :

Table 2 shows a tabulation of other descriptive statistics on the respondents' usage of e-learning courses provided by the company.

Based on the results in Table 2, all respondents' computer-proficiency level fell into the range of average to very strong (none in the "weak" range), while English-proficiency is mainly at the range of strong (62.2%) and very strong (28%). The results are possibly due to basic knowledge and proficiency in using computers and fluency in the English language are main requirements of hiring. For number of e-learning courses completed and enrolled in the past six months, the highest percentage fell into "none" (38.3%), while '1 – 3'

Table 2: Other Descriptive Statistics

Item	Frequency	Valid %
Computer-Proficiency Level :		
Average	31	37.8
Strong	30	36.6
Very Strong	21	25.6
English-Proficiency Level :		
Very Weak	1	1.2
Average	7	8.5
Strong	51	62.2
Very Strong	23	28.0
No. of e-learning courses Completed & Enrolled in the past 6 months :		
None	31	38.3
1 – 3	29	35.8
4 – 6	17	21.0
7 – 10	2	2.5
More than 10	2	2.5
Recommendation of e-learning Courses to Colleagues :		
Yes	41	50.0
No	41	50.0
Ease of Accessibility :		
Difficult accessibility most of the time	3	3.9
Disruption in accessibility sometimes	37	48.1
Good accessibility most of the time	37	48.1
Location of Accessing e-learning :		
Own workstation	60	75.9
T&D training room	17	21.5
Another work location	1	1.3
At home	1	1.3
Usefulness of Accessibility of E-Learning from Home :		
Yes	71	87.7
No	10	12.3
Internally Customized or Off-the-Shelf Courses :		
Internally customizes and developed by T&D Department	63	76.8
Off-the-shelf courses	17	20.7
Both	2	2.4
Purpose of taking e-learning Courses :		
Compulsory or required for job function	51	62.2
For self-development (voluntary or recommended by supervisor)	20	24.4
Both	11	13.4

courses fell second at 35.4%. Being a company that encourages learning and development, with a vast amount of courses provided via e-learning, it seems that many employees have not been utilising the e-learning courses; thus, is an important point for the company to take note of. And linking this point to the percentage of e-learning having been taken due to job function requirement (62.2%) under the category of 'purpose of taking e-learning courses', the percentage also indicates that for those who has done e-learning courses, it was mainly because it was compulsory and not many were interested to take the e-learning courses for self-development. The information here would be useful for the T&D Department of the company to find out the reason of the low percentage of respondents taking e-learning courses for self-development – amongst others, whether it is due to lack of awareness of the e-learning courses provided or lack of suitability to the needs of employees' self-development. The percentage of the respondents recommending e-learning courses to others is the same with those who did not (50% respectively). Again, this is an area worth exploring further – possibly due to lack of recommendation from supervisors or amongst peers in taking e-learning courses to improve their skills or knowledge, or lack of suitable e-learning courses, especially those for self-development. The above statistics also shows that most of the respondents have been accessing e-learning from their own workstation (75.9%) and from the T&D Department's training rooms (21.5%) which could explain the reason that "good accessibility of e-learning courses" scores a high percentage of 48.1%, and "difficult accessibility" at a low percentage of 3.7%; indicating that the servers used by the company have good capacity in supporting employees' usage for accessing e-learning courses. The high percentage of respondents accessing e-learning from their own workstation and from T&D Department training rooms could be due to access of e-learning from home is not readily available for all employees. Employees who need to access to the Learning Management System (LMS) where the e-learning courses reside, need to apply for access which need to be justified and approval obtained from the Head of Department. From the above statistics, 87.7% of respondents rated availability of access from home is useful; another feedback that could be further

explored by the company. For "internally customized courses" versus "off-the-shelf" courses having been done by respondents, the former scored a high percentage of 76.8%; possible due to internally customized e-learning courses has a better match to the respondents' specific job functions and skills (note that the above statistics as mentioned showed that 62.2% of respondents had taken e-learning courses due to job function requirements). This is an important indication that internally customized e-learning courses are more effective in meeting the employees' learning needs compared to off-the-shelf courses in which the latter's content could be more general and less specific to the situation within the company.

4.3 Reliability Test :

A Cronbach's coefficient alpha test was conducted on the factors generated to test the reliability of the item variables in Section II for determination of internal consistency of the scale used. The closer the Cronbach's alpha is to 1, the higher the internal consistency. Some of the statements in the questionnaire are negatively worded and were recoded prior to the analysis. According to guidelines by Sekaran (2003), a coefficient of 0.6 is considered to be poor, 0.7 is acceptable, and over 0.8 is good. The values of Cronbach's alpha coefficient are given in the Appendix. An alpha value of 0.958 was obtained for the overall variables, which indicates a good consistency of the scale used.

4.3 Frequency of Feedback towards Utilisation of E-learning Courses :

This section covers data analysis of frequency of respondents' feedback towards the utilisation of e-learning courses based on instructional design, content, navigation, graphical presentation and audio presentation.

Eight assertions were used to examine the feedback of employees towards e-learning courses based on instructional design (Table 3a). On the whole, all the assertions were generally skewed towards agree and strongly agree. In three of the assertions, "appropriate examples provided", "check-point questions provided" and "useful assessment", the percentage of employees who marked "agree" and "strongly agree" totalled up to more than 70%. The rest of the assertions marked "agree" and "strongly agree" also totalled up to a high percentage, in the range of 60– 70%.

Table 3a : Frequency of Feedback towards Instructional Design

	Clear Performance Based Objectives	Available Glossary	Easy To follow	Interactive & stimulates learning	Appropriate examples provided	Checkpoint questions provided	Useful assessment	Useful feedback For Checkpoint questions & assessment
Strongly Disagree	3	0	0	0	0	0	0	0
Disagree	4	4	2	2	2	1	1	4
Neutral	23	24	24	27	19	16	15	23
Agree	41	42	43	40	50	51	50	40
Strongly Agree	11	11	13	13	11	14	16	14
Total	82	81	82	82	82	82	82	81

Analysis of feedback towards content also had eight assertions (Table 3b), and results were also skewed towards "agree" and "strongly agree". "Usefulness of content for self and career development" and "appropriate level of language used" both had above 80% of the employees scoring them "agree" and "strongly agree". "Accurate information", "meets course objectives" and "clear content" were scored "agree" and "strongly agree" by a range of 68 – 72% of the employees. The rest of the assertions with "agree" and "strongly agree" marked were in a range of 51 – 65%.

Table 3b : Frequency of Feedback towards Content

	Clear content	Applicable to current area of work	Meets course objectives	Sufficient coverage of topic	Useful for self & career development	Appropriate Level of language	Accurate information	No typo error
Strongly Disagree	0	1	0	0	0	0	0	0
Disagree	3	7	4	7	3	2	2	4
Neutral	20	32	21	22	12	10	23	32
Agree	44	31	47	43	50	54	43	28
Strongly Agree	15	11	10	9	17	16	12	16
Total	82	82	82	81	82	82	80	80

For employees' feedback towards navigation (Table 3c), five assertions were used. Overall, the assertions were also skewed towards "agree" and "strongly agree". Here, "easy navigation", "clearly labelled buttons", and "clear guidelines on how to navigate" were marked "agree" and "strongly agree" by more than 60% of the respondents. "Links & audio function well" has a lower percentage (48.8%) scoring "agree" and "strongly agree".

Table 3c : Frequency of Feedback towards Navigation

	Easy navigation	Minimum or no technical disruption	Links & audio Function well	Clearly labelled buttons	Clear guidelines on how to navigate
Strongly Disagree	0	0	2	0	1
Disagree	2	5	12	5	4
Neutral	25	30	28	24	23
Agree	44	36	30	41	45
Strongly Agree	11	11	10	10	9
Total	82	82	82	80	82

Feedback of employees towards graphical presentation contains six assertions (Table 3d). Again, the assertions were skewed towards "agree" and "strongly agree". "Layout and graphics stimulates learning", "graphics complements text and enhance learning", "multimedia appropriate and interactive", and "appropriate colour scheme" were marked "agree" and "strongly agree" by more than 60% of the respondents.

Table 3d : Frequency of Feedback towards Graphical Presentation

	Layout & graphics Stimulates learning	Easy to read	Graphics complement text & Enhance learning	Multimedia appropriate And interactive	Colour scheme appropriate	Consistent Layout of graphic
Strongly Disagree	0	2	0	0	0	0
Disagree	5	5	3	2	2	1
Neutral	25	30	24	27	29	33
Agree	45	35	46	45	44	37
Strongly Agree	6	9	8	7	6	10
Total	81	81	81	81	81	81

Lastly, in examining employees' feedback towards utilisation of e-learning courses based on audio presentation, four assertions were used (Table 3e). Here, the assertions were also skewed towards "agree" and 'strongly agree" but only one of them, "audio complements text, graphics and animations, and enhances learning" had over 60% of the respondents marked "agree" and "strongly agree". The rest of

the assertions, despite having less respondents scoring "agree" and "disagree", recorded a minimum of 47% scoring them such for one assertion ("clear pronunciation and suitable accent"). The other two assertions were scored by 55 – 60% at "agree" and "strongly agree".

Table 3e : Frequency of Feedback towards Audio Presentation

	Audio stimulates interest	Complements text, graphics & animation & enhances learning	Clear pronunciation & suitable accent	Good quality audio
Strongly Disagree	0	0	1	1
Disagree	4	4	9	7
Neutral	29	23	32	28
Agree	37	42	27	38
Strongly Agree	11	11	11	6
Total	81	80	80	80

4.5 Student's *t*-Test Results :

Student's *t*-test was done for "gender" on their feedback towards their utilisation of e-learning courses (instructional design, content, navigation, graphical presentation and audio presentation). A similar test using the same dependent variables was done for "department".

4.5a Student's *t*-Test for Gender :

The following table summarizes the results for the *t*-tests done for gender on the following variables, at 5% significance level.

Table 4a : Student's *t*-Test for Gender

Variables	p-value / sig.
Instructional Design	0.864
Content	0.864
Navigation	0.625
Graphical Presentation	0.677
Audio Presentation	0.575

There is no significant difference between male and female towards their feedback on instructional design, content, navigation, graphical presentation and audio presentation.

4.5b Student's *t*-Test for Department :

The following table summarizes the results for the *t*-tests done for departments – between CS Division and other departments, on the following variables, at 5% significance level. No significant difference was found between respondents from CS Division and other departments towards their feedback on instructional design, content, graphical presentation and audio presentation. However, there was significant difference between respondents from CS Division and other departments towards their feedback on navigation.

Table 4b : Student's *t*-Test for Department

Variables	p-value / sig.
Instructional Design	0.138
Content	0.138
Navigation	0.006
Graphical Presentation	0.294
Audio Presentation	0.094

4.6 ANOVA Test Results :

Since there were more than two groups for level of designation, tenure of employment, type of employment and academic qualification, ANOVA was conducted towards feedback of respondents towards their utilisation of e-learning courses (instructional design, content, navigation, graphical presentation and audio presentation).

4.6a ANOVA for Level of Designation :

The following table summarizes the results for ANOVA done for level of designation (non-executive, executive and managerial levels) on the following variables, at 5% significance level. A significant difference ($p < 0.05$) was found between the various designations and their perception towards 'audio presentation'.

Table 5a : ANOVA Test for Level of Designation

Variables	p-value / sig.
Instructional Design	0.073
Content	0.073
Navigation	0.075
Graphical Presentation	0.427
Audio Presentation	0.036

4.6b ANOVA for Tenure of Employment :

The following table summarizes the results from ANOVA done for length of tenure of employment (less than one year, 1 – 3 years, 4 – 7 years, 8 – 10 years, and more than 10 years) on the following variables, at the 5% significance level. A significant difference was found between the various employment tenures and their perception towards 'navigation' but only at a 10% level of significance.

Table 5b : ANOVA for Tenure

Variables	p-value / sig.
Instructional Design	0.406
Content	0.406
Navigation	0.065
Graphical Presentation	0.941
Audio Presentation	0.839

4.6c ANOVA for Academic Qualification :

The following table summarizes the results for ANOVA done for academic qualification (SPM / 'O' Level, STPM / 'A' Level, Diploma, Degree, Post-graduate and others) on the following variables, at the 5% significance level. No significant difference was found between academic qualification and any of the variables.

Table 5c : ANOVA for Academic Qualification

Variables	p-value / sig.
Instructional Design	0.284
Content	0.284
Navigation	0.202
Graphical Presentation	0.400
Audio Presentation	0.228

Based on the t-tests and ANOVA done on the demographic characteristics, it was found that there were no significant differences between each category of the demographic characteristics and the overall feedback towards utilisation of e-learning courses. This information is useful as it indicates that the instructional design, content, navigation, graphical presentation and audio presentation need not be customized according to the above-mentioned demographic characteristics when designing e-learning courses in-house.

4.7 Chi-Square Tests Results :

Pearson's Chi-square tests were conducted to find out whether there was any relatedness / dependence ; - (a) between computer-proficiency level with instructional design and navigation, (b) between English-proficiency level with instructional design, content and audio, (c) between ease of accessibility of online e-learning courses with navigation, and (d) between usual location of accessing e-learning courses with navigation. At a 5% level of significance, a p-value that is greater than 0.05 indicates that there is no relatedness between the variables.

4.7a Chi-Square for Computer Proficiency :

The following Table 6a gives the value of chi-square and its two-tailed level of significance for relatedness / dependence between computer-proficiency level and instructional design. This value was found to be not significant as p-value (0.201) > 0.05. The result indicates that there is no significant association between computer-proficiency levels with instructional design.

Table 6a : Chi-square on Relatedness of Computer-Proficiency Level with Instructional Design

Variables	chi-square	Sig (two-tailed)
Computer-proficiency level	45.050	0.201

The following Table 6b provides the Pearson chi-square and its two-tailed level of significance for relatedness/dependence between computer-proficiency level and navigation. The value was found to be not significant as p-value (0.295) > 0.05. The result indicates that there is no significant association between computer-proficiency levels with navigation.

Table 6b : Chi-square on Relatedness of Computer-Proficiency Level with Navigation

Variables	chi-square	Sig (two-tailed)
Computer-proficiency level	25.051	0.295

4.7b Chi-Square for English Proficiency

The Pearson's Chi-square value for relatedness between English-proficiency levels and instructional design is given in Table 6c, and was found to be not significant as p-value (0.775) > 0.05. The result indicates that there is no significant association between English-proficiency levels with instructional design.

Table 6c : Chi-square on Relatedness of English-Proficiency Level with Instructional Design

Variables	chi-square	Sig (two-tailed)
English-proficiency level	48.691	0.775

The Pearson's Chi-square value for relatedness between English-proficiency levels and content is given in Table 6d, and was found to be not significant as p-value (0.775) > 0.05. The result indicates that there is no significant association between English-proficiency levels with content.

Table 6d : Chi-square on Relatedness of English-Proficiency Level with Content

Variables	chi-square	Sig (two-tailed)
English-proficiency level	48.691	0.775

Chi-square between English-proficiency and audio is given in Table 6e, and was found to be not significant as p-value (0.957) > 0.05. The result indicates that there is no significant association between English-proficiency levels with audio and are independent of each other.

Table 6e : Chi-square on Relatedness of English-Proficiency Level with Audio

Variables	chi-square	Sig (two-tailed)
English-proficiency level	20.429	0.957

4.7c Chi-Square for Ease of Accessibility

Chi-square between ease of accessibility and navigation is given in Table 6f, and was found to be not significant as p-value (0.187) > 0.05. The result indicates that there is no significant association between ease of accessibility with navigation, and they are independent of each other.

Table 6f : Chi-square on Relatedness of Ease of Accessibility with Navigation

Variables	chi-square	Sig (two-tailed)
Ease of accessibility	27.656	0.187

4.7d Chi-Square for Usual Location of Accessing E-learning

Chi-square value between the usual location of accessing e-learning and navigation is given in Table 6g, and was found to be not significant as p-value (0.729) > 0.05. The result indicates that there is no significant association between usual locations of accessing e-learning with navigation, and they are independent of each other.

Table 6g : Chi-square on Relatedness of Ease of Accessibility with Navigation

Variables	chi-square	Sig (two-tailed)
Ease of accessibility	27.690	0.729

4.8 Ranking :

According to Sekaran (2003), ranking scales are used to tap preferences between two or among more objects or items (ordinal in nature). For this study, "forced choice" method is used, whereby respondents are required to rank objects relative to one another, among the alternatives provided. The alternatives for respondents to rank in this study are the types of e-learning, i.e. simulation learning, computer-based learning, web-based learning, virtual classroom, video learning, and tele-seminar. From the 82 respondents, a total of 57 respondents gave their rankings, in which 35% of the 57 respondents ranked "simulation learning" as the most preferred type of e-learning, followed by "web-based learning" (26%), and video learning (25%). Only 7% of the 57 respondents ranked "computer-based training" and "training CD" as their most preferred type of e-learning. This is consistent with the results that "training CD" has the highest percentage (33%) being rated as the least preferred type of e-learning.

The results suggest that "simulation learning" is a popular choice due to its higher level of interactiveness, which simulates higher interest and more effective learning amongst the respondents. As most of the respondents are from the CS Division, in which as mentioned, the staff would have used a fair amount of simulation learning for their systems training, an example is illustrated here to explain the high preference of simulation learning. Most of the systems training, especially for CS Division staff, are developed in-house using the "Simulation Producer" software, whereby different functions of using a particular application are simulated. Categorized into 3 ways of learning, the simulation learning produced using this software contains: "Show Me", "Guide Me" and "Let Me". "Show Me" simply has the software simulating how each function is provided (e.g. what button to click, the options to select, etc). "Guide Me" contains "pop-out notes" that guide the learner to perform the function after having watched the simulation via "Show Me" to reinforce the learning. Lastly, "Let Me" requires the learner to perform the function on his/her own as self-assessment. The learner can repeat any one of those if he/she is still not confident in performing that particular function. Simulation learning is also used for some soft-skills courses that focus on behavioural or problem-solving learning, for instance, teaching learners ways to respond or deal with other people in certain situations or given certain problems. Done in a simulated or risk-free environment, these benefits of simulation learning as briefly illustrated can explain the high preference amongst respondents. On the other hand, "training CD" scoring the highest percentage as the least preferred e-learning, could be due to the limited use of "training CD" used by the company (this information was obtained from training managers and facilitators of the company). Thus, many respondents lacking the experience of using "training CDs" may not have ranked it highly as their most preferred type of e-learning. Besides, training CDs especially those which needed to be purchased (e.g., Ron Kauffman's or Tony Robbin's training CDs may cost hundreds or thousands of Ringgit). Even if the company were to purchase these CDs for employees to use, only a few units are purchased, which means learners need to reserve the CD, and wait for their turn – such hassles may explain the reason of learners' reluctance to use "training CDs".

5. DISCUSSION :

This research is an exploratory study that examines the feedback of employees towards the utilisation of e-learning courses provided by the company. Generally, the feedback of employees towards utilisation of e-learning courses based on instructional design, content, navigation, graphical presentation and audio presentation, analysed using the Likert scale, found that a high percentage of the respondents rated the assertions in each of the areas at "agree" and "strongly agree". This could be an indication that the employees are generally satisfied with e-learning courses that they

have completed or are enrolled in.. Also, with a majority of the respondents (76.8%) having done e-learning courses that are internally customised, it can be an indication that most of the employees are satisfied with the internally customised e-learning courses. This information is vital for the company and its T&D Department to note the effectiveness of such internally customised courses; therefore, the T&D Department can work on customizing more e-learning courses instead of purchasing them off the shelf.

Ranking of the preferred type of e-learning courses found that simulation learning has the highest percentage of respondents preferring this type of e-learning. This finding supports the "Attitude-Driven Model" of Valiathan (2002), in which the model explains the benefit of blending classroom-based learning with online collaborative learning, and is recommended for teaching of content that requires learners to try out new behaviours in a risk-free environment.

When comparing between feedback of male and female employees towards utilisation of e-learning courses based on instructional design, content, navigation, graphical presentation and audio presentation, it was found that there was no significant differences between male and female employees on their feedback. This supports the findings by Sandhu and Asmawi (2002) which found that there were no significant differences between male and female students in their perception towards the utilisation of e-learning courses. Except for "navigation", employees from the different departments tested, i.e. 'CS Division' and 'Others', it was found that there is no significant differences in the two different groups of employees towards their feedback of e-learning courses. As the data collection for this survey was done based on convenience sampling in which the majority of the respondents (86.6%) are from the CS Division, it is also a challenge to conclude the reason behind the differences towards "navigation". Results in Table 3c on 'frequency of feedback towards navigation' shows that most of the respondents being satisfied with 'navigation' of e-learning courses (which comprise 'easy navigation', 'minimum or no technical disruption', 'clearly labelled buttons', 'clear guidelines on how to navigate'), with less than 40% stating the contrary or being neutral. 'Links and audio function well' under "navigation" has a lower percentage of satisfied respondents. Also, majority of the respondents accessed e-learning courses at their own workstations, which may explain that certain departments located at a different location (therefore, using different servers) may have slightly more difficulties in navigation of e-learning courses. This could be important information for the T&D Department to note, so that servers used for the company's e-learning are well maintained. However, comparison between other demographic characteristics, i.e. level of designation, tenure of employment and academic qualification, found that there is no significant differences amongst the different categories of each demographic characteristics towards their feedback on utilisation of e-learning.

Sambrook (2002), in her article that reported on two research studies, in which one of the objectives focussed on factors that influence learners' perception of the quality of computer-based materials, found that "user-friendliness" was the most significant factor, especially with the increase in self-learning, where the learner could be alone or isolated. Comparing Sambrook's finding with the findings in this research in the same area, it was found from this study that "content easy to follow" and "easy navigation" which can be categorized under user-friendliness were ranked highly ("agree" and "strongly agree") by most of the respondents. This finding supports the study by Sambrook (2002) that user-friendliness is a significant factor and is therefore important for the telecommunications company to continue ensuring the quality in this area when developing internally customized e-learning courses or when purchasing off-the-shelf courses.

Access to technological facilities and resources, being one of the factors found by Ndubisi (2005) in his study at a Malaysian university, was concluded to be an

important factor in enhancing e-learning adoption intention. Comparing Ndubisi's findings with the findings of this research, it was found that most of the employees of the company have access to technological facilities and resources at work (having the LMS system available at all employees' workstations besides at the T&D Department training room). Also, most of the employees responded that having access to the company's e-learning courses from home is useful, another finding that could be useful for the company to consider giving employees access to the company's e-learning courses which may help them in both job-skills development as well as self development.

The findings presented in this study may not be completely useful to generate conclusive evidence on the utilisation of e-learning, especially when the sample size was small and done using convenience sampling, in which the survey was not vastly distributed to employees at various departments, and at different levels of designation. However, the findings in this research should be useful in encouraging further research into the utilisation of e-learning courses. In addition, future researches should explore further into examining the effects of utilisation of e-learning courses in helping meet learning requirements, in complementing the blended approach and ultimately in improving employees' skills and performance. Proceeding further, future researches can also go into examining factors influencing effectiveness of e-learning courses and ways to improve the effectiveness. These will all prove to be useful information for the tele-communications company and other companies that encourage e-learning to improve on the e-learning courses provided in terms of its instructional design, content, navigation, graphical presentation and audio presentation, or perhaps other new factors that could be discovered in further studies.

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