TRADITIONAL LEARNING VS. e-LEARNING
Some Results from Training Call Centre Personnel

Mark Miley, James A. Redmond and Colm Moore

Department of Computer Science, Trinity College, Dublin 2, Ireland

Abstract: An analysis of the evaluation results on call centre trainees (n1 = 129, n2 = 176)) who underwent a Traditional Classroom course and an e-Learning course, showed little difference in performance. A survey questionnaire was completed by a subset of the same trainees (n = 43) later. The respondents expressed a subjective preference for the Traditional Classroom approach, but the analysis of the questionnaire responses indicated that they favoured e-Learning aspects slightly more. Although both courses were dissimilar in duration (7 hours vs. 1 hour) an argument can be made for blended learning. Despite the widely expressed preference for the traditional classroom mode, it appears that the e-Learning mode can be equally acceptable, perhaps if the duration is much shorter as happened here. When triangulated against the SPOT+ study (n = 2000), the results were similar.

1 INTRODUCTION

LCC's Learning and Development for Services (LDS) team provides training and coaching for LCC's operations which deliver multilingual support to a high quality Service Level. All support level offerings provide a 24x7x365 "break/fix" warranty to customers with an additional solutions team providing advanced software services. The total number of employees exceeds 400, and is rising constantly, across 15 teams, 4-5 management teams and 15 technical teams with a total of 7 languages (English, French, German, Dutch, Spanish, Italian and Portuguese) supported. The main focus is on operational performance (the key metric being customer satisfaction) and the LDS team's primary objective is to enable this to be met and exceeded from both a technical and behavioural level.

Coupled with increasing expansion, the advent of remote working and virtual teams has placed an extra emphasis on the need for flexible training solutions from the LDS team, with e-Learning being an obvious potential solution to be investigated.

The aim of the study was to evaluate e-Learning vs. Traditional Classroom learning for training help desk staff for a major PC manufacturing company.

2 TRADITIONAL CLASSROOM APPROACH

Tracey (1992) argues that there are a number of advantages with the Traditional Classroom approach. These include customization to meet the organizational needs, flexibility as the instructor can adjust content, instructional strategy, and methods and techniques to meet trainee needs. All of these require the "human touch" which King et al. (2001) note "cannot be easily given by technology-based training". However it is not a flawless approach and has inherent disadvantages including its success being dependent almost entirely on the competence of the instructor, and for large and dispersed trainee populations, time and expense become inhibiting factors

Kapp & McKeague (2002) acknowledge key advantages to traditional classroom based training which include "face-to-face exchange of information, ideas and concepts between the trainer and students and among students themselves". They continue that another interesting advantage is being "an effective method for teaching problem-solving". A recent American Society for Training and Development (ASTD) State of the Industry report (2004) indicated that instructor led training made up 62.8% of the total average of learning hours among benchmark Forum organisations. On this evidence it

is clear that the traditional classroom based approach is still the most popular amongst organisations.

3 e-LEARNING & BLENDED LEARNING

e-Learning (electronic learning) is a term covering a wide set of applications and processes, such as Web-based learning, computer based learning, virtual classrooms, and digital collaboration. "Learning via technologies has increased steadily since 1999 as classroom based training has decreased" (Sugrue, 2004). The figures point towards a sharp increase of technology based training up from 8.4% of average learning hours to nearly 30% between 1999 and 2004.

Kamsin (2005) identified a number of key benefits of e-Learning such as: convenience, flexibility, and self-paced individual instruction. Kapp & McKeague (2002) also note that "e-Learning delivers a consistent instruction" along with it being non-time bound, self-paced and both, cost and time saving.

However, they also pointed to the fact that drawbacks to e-Learning are just as important to consider: technology issues and limitations, and cultural acceptance. They also conclude that along with these drawbacks, e-Learning also "has no personal touch, does not promote problem-solving or network building by students, and is expensive to develop".

In a recent ASTD study, Sugrue (2004) asserted that "efficiency and global access are key drivers of the shift to technology-based delivery. Organisations cut delivery costs dramatically if they have a large audience for learning content that can be transferred to reusable online materials. While the cost of digital development may go up, the cost per use becomes negligible if the audience is large".

3.1 The Blended Learning Approach

Blended Learning is learning events that combine aspects of online and face-to-face instruction. Blended Learning incorporates in some form both a traditional and an e-Learning approach. As Zenger and Uehlein (2001) noted, the "two methodologies can not only co-exist, but can also come together to create something far better".

Sparrow (2004) in his study into blended learning in the United States and United Kingdom, found that blended learning programs typically consisted of the following: (1) Instructor-led training; (2) Custom e-Learning courses; (3) Workshops and other print based materials; (4) Workplace assignments.

He discovered that key drivers for this new training method included participant time, cost of delivery, line manager commitment, participant costs and transfer of learning. However key challenges for implementing this approach to training cited in his study were: organizational culture, senior management support, content tailoring, cost of development, low uptake, cost of delivery and difficulty in co-ordinating programs.

Cost can also prove a prohibiting factor due to the fact that a company will have high front end costs for e-Learning and also keep a lot of the moderately high delivery costs associated with instructor-led training. Furthermore, implementers of training like blended learning itself are in unfamiliar territory, with selecting the appropriate target audience and tailoring of content being the hardest challenges.

Sugrue (2004) notes in a recent study that "while the ASTD's statistics cover learning content that is delivered via technology, in many cases technology based learning is preceded or followed by non-technology based learning, such as coaching, on-the-job practice, and live discussions" thus reflecting more of a blended approach being incorporated industry wide.

4 STUDIES

Many departments within LCC have adopted e-Learning at different times in the past, with little sustainable success, reverting back later to a traditional classroom approach with an instructor training the subject. It was decided to analyse comparative performance for two courses previously run by LDS for which performance data were available. These courses were chosen because there was a substantial overlap in the number of trainees who had taken both courses.

Data gathered on both training courses, one a traditional instructor led course and the other an e-Learning course, were taken over a two year period with all training taking place in LCC. Trainees included mainly technical agents but also managers, call expeditors and coaches.

4.1 Course Given via Traditional Classroom Approach

Problem Diagnosis Methodology (PDM) II is a soft skills based training course which is instructor led with a total duration of one (7 hour) day. It is a mandatory course for all New Hires into the technical support part of the organisation.

Its main objectives are to:
• Demonstrate technicians' ability to use the PDM II process within their role.
• Explain each stage of the process
• Define and create a correct Problem description
• Identify key changes within a call and prioritise these changes
• Show how PDM II integrates into the current environment

As a result of the training, the technicians will be able to execute the PDM II process to resolve problems over the phone and document the process.

The trainees must complete a 10-question post-course test upon completion of the training. The questions and answers to this test can be found in the Appendix C in Miley (2007).

4.2 Course Given via an e-Learning Approach

Problem Restriction of Hazardous Substances (RoHS) is a mandatory compliance, e-Learning training course given to all LCC employees. This is a response to the European Union (EU) directive commonly referred to as RoHS or Restriction of Hazardous Substances. RoHS requires all manufacturers of electronic goods to produce their products in such a manner as to restrict the content and amount of the following six hazardous substances: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs).

The course takes trainees between 30 and 60 minutes to complete and they must pass an 11-question post-course test upon its completion. The questions and answers to this test can be found in Miley (2007 - Appendix B).

4.3 Results from Training Course

Table 1 summarises the results for the two courses that were run, the traditional classroom based approach (PDM II) and the other being the e-Learning approach (RoHS). The passing score for the traditional course was 70% while the passing score for the e-Learning course was 80%. Results

are available for 129 people who attended the PDMII course. These also attended the RoHS course.

A paired t-test applied to the results gives a p-value of 0.0104 enough to reject the null hypothesis that the results are equal. But the 99% confidence interval ranges from -6.718 to 0.018 which passes through zero (barely) and so suggests there might not be a statistical difference in the results. An effect size analysis, using G*Power (Faul et al. (2007)) showed an effect size of 0.289, supporting the finding that the difference in means is relatively insignificant. A complete listings of statistical findings can be found in Miley (2007 - Appendix B).

This discrepancy, (between rejecting the null hypothesis and the small effect size), can be explained by the low number of questions in the tests, 10 and 11 respectively, as well as the different pass levels. The data suggest that if there is an overall difference in mean results between the two methods, it is statistically very small.

Table 1: Group Statistics on Traditional and e-Learning Courses.

Group Statistics	Traditional Classroom	e-Learning (RoHS)
Count n =	129	176
Mean Score (Post-Test)	81.63	84.68
Median	80	90
Standard Deviation	10.37	11.38

5 QUESTIONNAIRE SURVEY

It was decided to follow up the training with a questionnaire to the staff trained on these two courses so as to get feedback on their attitudes to e-Learning versus a Traditional Classroom course.

The design of this Questionnaire was influenced by the data collection used in the Spot+ survey (Spot+, 2003). The essential idea for doing this was to help compare the various studies via a triangulation to the Spot+ study. The same questions were asked on this questionnaire as had previously been used in part of the Spot+ (2003) study. Loveridge (1990) defines triangulation as "multiple methods to capture a sense of reality".

The Questionnaire consists of 32 questions. It is made up of three sections:
- the general environment (Questions 1 to 5);
- course evaluation and preference of approach; the views of the trainees about the value of e-

Learning methods and traditional methods along with their actual educational potential (Questions 6 to 8).
- The final section was heavily influenced by the research carried out in the Spot+ report (Questions 9 to 32).

A copy of the Questionnaire is presented in Miley (2007 - Appendix A).

The first section of the questionnaire has five questions dealing with the general environment: the gender of the respondent, ownership of a Personal Computer (PC), type of broadband, tenure and support regions.

The second section seeks to measure preferences between studying with e-Learning and studying with traditional methods so the next three questions (Questions 6 - 8) attempt to measure trainee satisfaction ratings of the e-Learning course (Restriction of Hazardous Substances (RoHS)), the traditional classroom course (Problem, Description Methodology II (PDM II) and their overall preference for e-Learning over the traditional classroom approach. All items are measured on a four point scale (1 = "I totally agree"; 2 = "I mostly agree"; 3 = "I mostly disagree"; 4 = "I totally disagree"). A fifth category (5 = "I do not know") was added for trainees who lacked the information or experience needed to answer the question.

The final section of the questionnaire (12 questions + 12 questions) uses the same four point scale as Section 2 and seeks to measure two main areas. Firstly, it logs the "positive perception of the different advantages that e-Learning can bring to learning and education", and secondly, "positive attitude towards learning with traditional methods and negative attitude towards learning with e-Learning". The 24 questions are provided in a randomised order to prevent contrasting questions appearing next to each other .

5.1 SPOT+ Study

The SEUSISS project Final report (2003) "based in part upon 10 years of data collection in the University of Edinburgh, was a partnership between seven European universities, all of them traditional and research-oriented". Overall data were collected and analysed on more than 13,000 students in universities across Europe on their views on ICT, along with employers views on ICT.

The Spot+ survey, a follow-on study to SEUSSIS, which studied "Students' perceptions of the use of ICT (Information and Communications Technology) in university learning and teaching",

collected and analysed data on about 2000 students from about thirteen different universities in Europe.

5.2 Questionnaire Administration: Distribution, Sampling & Coding

Prior to sending out the questionnaire, all questions were tested in a pilot version. Based on responses from participants in the pilot test, appropriate changes were made to the questionnaire.

The questionnaire for this research was developed and administered using Microsoft's Sharepoint Web Services Portal, an application all participants are familiar with in their everyday work.

Amongst the many advantages of using Sharepoint was the fact that it enables the researcher to generate surveys automatically and distribute them electronically. In addition, all respondents can reply automatically and responses are recorded online. Computer administered questionnaires have the advantage of relatively low cost, ease of administration, elimination of interviewer bias, and the opportunity to do instantaneous evidence collection and analysis.

The research population chosen for the study consists of the actual LCC trainees who attended both the Traditional Classroom based training and also the e-Learning training over a two year period. An initial email was sent to all prospective respondents outlining the nature of the research and notifying them about the location of the questionnaire on Sharepoint, a specific date of completion, and a set of directions as to how the survey should be completed and their responses recorded. The completed questionnaires filled in by the respondents using Microsoft's Sharepoint Services were analysed using the statistical package DataDesk, Version 6.2. A complete set of the descriptive statistics and results is provided in Miley (2007 - Appendix B).

6 ANALYSIS OF THE QUESTIONNAIRE RESPONSES

The study findings are broken down into four sections. In the first section there is an initial breakdown of the sample population by gender, length of tenure in LCC, Personal Computer (PC) ownership, internet accessibility and support regions. In the second section the findings relating to evaluations of the Traditional Classroom based training and the e-Learning training approach are

presented. Next we present the findings from a positive perception of e-Learning and a positive perception of the Traditional Classroom based approach resulting from responses gathered via the questionnaire. Finally we look at further statistical analysis of the traditional classroom training and e-Learning training which took place.

6.1 Breakdown of Sample Population

The questionnaire was sent to all trainees who had participated in both courses within the previous two years. However a number of out of office (OoO) replies were returned indicating that some had left LCC since attending the training. Consequently the actual number of recipients who received the questionnaire was 141. 43 of these responded giving a response rate of 32.7% for the sample population.

The 43 respondents included mainly technical support personnel, but also managers, call expeditors, coaches and trainers who had attended both training courses. The sample population represents a good cross section of the Enterprise Expert Centre (EEC) workforce. Of this sample population the gender breakdown was strongly male orientated with just one female.

12% of the population had been in LCC for less than 6 months. The majority (70%) of employees have been employed for less than 2 years. This breakdown reflects the relative youth of the LCC European Expert Centre (EEC) which has only been in existence since 2001 and the high attrition rates which are associated with call centre environments (Finnegan, 2005). Overall only 9% of employees who attended both training courses have been in LCC for 5 years or more.

Only one of the sample population did not have access to a PC outside of work. 9% of the sample did not have Internet access. The sample population also covered a wide cultural background and all spoke, at least, basic English.

This points to a positive and open environment for e-Learning opportunities without restrictions on access to equipment.

6.2 Evaluation of Training Approaches

The responses evaluation for the Traditional Classroom (PDM II) based approach and the e-Learning approach (RoHS) reflect a very high degree of satisfaction with both courses.

44% of participants "totally agreed" with the traditional classroom course (PDM II) being taught very well, while 16% felt similarly towards the e-Learning course. However 47% of participants "mostly agreed" that the Traditional Classroom course (PDM II) was taught very well as opposed to 58% for the e-Learning course (RoHS). To summarise, 91% were happy ("totally agree" + "mostly agree") with the teaching of the PDM II (Traditional Classroom) course vs. 74% being happy with the teaching of the RoHS (e-Learning) course. No participant thought either course was taught badly.

In contrast to the evaluation of the individual courses 47% of respondents mostly disagreed with the preference of e-Learning over the Traditional Classroom based approach, with a further 26% totally disagreeing with this statement. This is illustrated further in Table 2 with a breakdown of the frequencies with regard to Preference of e-Learning over Traditional Classroom based approach. Only 19% of respondents agreed in some form to this statement.

Table 2: Preference for e-Learning vs. Traditional Classroom.

Totally agree	Mostly agree	Mostly disagree	Totally disagree	Do not know
3%	12%	47%	26%	9%

Q. 8: I prefer e-Learning over the traditional classroom based approach

This table shows a very strong preference (73%) for the Traditional Classroom approach over e-Learning despite the fact that the e-Learning course was much shorter (about 1 hour) than the traditional classroom course (1 seven hour day). The responses show a very high level of preference for the Traditional Classroom approach over e-Learning.

6.3 Positive Perception of e-Learning

Sections 6.3 and 6.4 give the results of the Positive Perceptions questions of both methods respectively. An initial glance at the frequencies shows there is a very positive perception of the overall improvements that can be achieved with the aid of e-Learning materials in the learning environment. Table 3 shows a further breakdown of the frequencies in a more graphical view.

Table 3: Improvements to overall learning.

	Totally agree	Mostly agree	Mostly disagree	Totally disagree	Do not know
Q.14	21%	65%	5%	2%	7%
Q.20	70%	26%	5%	0%	0%

Q. 14: I think e-Learning can improve my learning
Q. 20: I think audio and video material can improve my learning

86% of respondents believed e-Learning can improve their learning, while 96% of respondents agreed that audio and video material improved their learning. This indicated a high level of confidence that both methods could improve their overall learning experience.

6.4 Positive Perception of the Traditional Classroom

The responses regarding the level of need for face to face contact when learning was very high at 80% (Table 4). Coupled with these findings was a mixed level of responses for studying with a computer first, and then returning to a traditional education methods - 58%.

Table 4: Computer study and human interaction.

	Totally agree	Mostly agree	Mostly disagree	Totally disagree	Do not know
Q.11	33%	47%	19%	2%	0%
Q.25	21%	37%	28%	7%	7%
Q.32	40%	42%	12%	0%	7%

Q. 11: Good access to a tutor requires face to face interaction
Q. 25: If studying with a computer turned out to be too complex, I would like to return to traditional education methods
Q. 32: Computer-based teaching is lacking in "human" interaction, since there is no face to face contact.

Approximately 80% of respondents agreed with the need for face to face contact, either in a computer based teaching approach or when seeking a tutor. This is in contrast with approximately one fifth of respondents who disagreed with these statements. Irrespective of this, just over half of respondents stated that they would return to Traditional Classroom methods if studying with a computer turned out to be too complex. Very few respondents opted for neutral ground on any of the three statements, with only 7% indicating that they "do not know" with two of the statements. 82% felt that "computer-based teaching is lacking in human interaction since there is no face-to-face interaction".

6.5 Information

Section 6.5 gives general information from the remaining questions asked about both methods. The

responses to reading and locating information are displayed in Table 5 below.

Table 5: Information.

	Totally agree	Mostly agree	Mostly disagree	Totally disagree	Do not know
Q.13	14%	49%	28%	7%	2%
Q.15	9%	19%	53%	19%	0%

Q. 13: I prefer reading from printed text
Q. 15: Quality information is hard to find on the Web

A mixed set of responses from participants greeted the statement of reading from printed text with 63% showing support towards the statement and 35% indicating their disagreement with the statement. In contrast approximately 70% of participants indicated that they disagreed with the statement that quality information is hard to find on the world wide web (WWW), with the remaining 30% agreeing with it.

The responses regarding the Traditional Classroom training approach are presented graphically in Table 6 below. An overwhelming 94% of respondents preferred being taught in a traditional classroom based setting, with only 5% preferring not to be. 58% preferred to study with traditional education methods while 35% disagreed. 7% of respondents remained neutral indicating that they did not know.

Table 6: Traditional Classroom Methods/ Settings.

	Totally agree	Mostly agree	Mostly disagree	Totally disagree	Do not know
Q.24	16%	42%	35%	0%	7%
Q.31	47%	47%	5%	0%	2%

Q. 24: I prefer to study with traditional education methods
Q. 31: I like being taught in a classroom setting

7 ANALYSIS OF E-LEARNING & TRADITIONAL CLASSROOM COURSES

Table 7 shows the summary statistics for "positive perception of the different advantages e-Learning can bring to learning and education" and "positive attitude towards learning with traditional methods/negative attitude towards learning with e-Learning". These values were calculated using the Spot+ report as a model, selecting twelve pro

traditional learning questions and twelve pro e-Learning questions and omitting any "I do not know" answers. The percentage of "I do not know" answers can be found in Miley (2007 - Appendix E) and are also discussed later. Higher scores are more positive, minimum score is 1 and maximum score is 4.

Table 7: Some Group Statistics of Student Responses on Positive Perceptions of e-Learning approach and Traditional Classroom approach.

Group Statistics	e-Learning	Traditional Classroom
Count n =	43	43
Mean Score (Post-test)	3.25	2.80
Median	3.25	2.78
Standard Deviation	0.28	0.43

Carrying out a paired t-test on the difference between the mean results of the pro Traditional Learning and the mean results of the pro e-Learning questions provides a p value of < 0.001 enough to reject the null hypothesis that Traditional Learning and e-Learning are favoured equally by the candidates.

This can be reinforced by calculating a 99% confidence interval on the difference between the results of the pro Traditional Learning questions and the pro e-Learning questions. An interval of between 0.2272 and 0.6671 is calculated, representing the difference between the pro e-Learning and the pro traditional learning questions showing that the e-Learning is favoured by the candidates.

We note the small sample size of n = 43, and we also note that we are comparing a 1-day traditional classroom course with a 1-hour e-Learning course taken at the user's convenience. We also must question how good the short (10/11 questions) Post-Question tests are? A complete listings of statistical findings can be found in Miley (2007 - Appendix D).

7.1 Evaluation of Training Courses

Both training courses, PDM II and RoHS received very high levels of satisfaction with approximately 90% of respondents feeling that each course was taught very well. Although this is only the first level measurement of evaluation according to Kirkpatrick (1998), he does suggest how important it is to achieve a positive reaction from a training course as a "positive reaction may not ensure learning, but a

negative reaction almost certainly reduces the possibility of its occurring". This bodes well for further training delivery using both methods and illustrates that a number of pitfalls associated with both approaches have been avoided.

In addition, when respondents were questioned on the preference of e-Learning over the Traditional Classroom based approach, over 70% of respondents disagreed. This points to the fact the adoption of an e-Learning approach is dependent on a mixture of factors as discussed by Kapp & McKeague (2002). This demonstrates the importance for Learning and Development for Services (LDS) to learn and adhere to these dependent factors when formulating, delivering and evaluating an e-Learning training course.

7.2 Positive Perception of e-Learning

Overall, outcomes from respondents on the view of the different merits that e-Learning can bring to learning and education proved very positive. This viewpoint concurs with results from the Spot+ report. Upon further investigation, however, interesting findings are revealed for analysis. Respondents showed strong agreement with the use of e-Learning for information exchange, such as "to ask questions of experts and relevant people, no matter where they are" and "to share information and ideas with people who have similar interests", again concurring with the Spot+ findings on the role of ICT. Mixed views of disagreement for e-Learning were expressed specifically around "effective sharing of experiences".

This indicates that although the respondents believe e-Learning allows them to share information amongst themselves and with experts on the subject, they also believe that Traditional Learning methods allow them to better share "experiences" and more then just information.

7.3 Positive Perception of the Traditional Classroom

Unlike the Spot+ report, respondents expressed mixed views on learning purposes in the context of a positive perception of the Traditional Classroom based approach (defined as printed text and a classroom setting). Almost all respondents preferred "being taught in a Traditional Classroom setting". However approximately 35% disagreed with preferring "reading from a printed text" which is an obvious characteristic of the Traditional Classroom approach. This, in isolation, is interesting, but as

approximately 70% disagreed with the question: "Quality information is hard to find on the web", it adds significant support to a blended learning approach model.

The preceding responses, however, may be heavily influenced by the nature of the work performed by the sample group. Online searching for quality information is a core aspect in being successful in one's role in EEC in LDS.

Further evidence is apparent when viewing the results of the statement "prefer to study with traditional education methods" which received a mix of positive and negative results, approximately 50% and 35% respectively. While in contrast, approximately 80% of respondents agreed in some form with "computer-based teaching/learning is lacking in "human interaction"".

Unsurprisingly, comparing the responses of perception of Traditional Learning and e-Learning from this study with those of the Spot+ report provides very similar results. Mean values for a Positive Perception to e-Learning are 3.25, aligning well with 3.27 in the Spot+ report, and Positive Perception towards the Traditional Classroom based approach is 2.80 which is quite similar to 2.69 in the Spot+ report.

7.4 Results: Traditional Classroom vs. e-Learning Approach

The relatively high scoring marks for both courses illustrates a ceiling effect and also a floor effect. This is because trainees must continue to sit the end of course exam until they have passed it, in essence making it a pass/fail exam rather than a specific scoring exam.

This is reflected in mean results of 81.63% in the Traditional Classroom course and 84.68% in the e-Learning course. Interestingly, although both results are quite similar, the pass marks for each course were different. 70% in the former and 80% in the latter.

This points to the traditional class performing better with stronger delta improvements when the pass mark is subtracted from the respondent's score. The fact remains that both a ceiling effect and floor effect occur in the results of the exams, instead of a Bell curve for normal distribution.

7.5 Limitations & Implications for Future Practice

The first limitation, as noted earlier, is that responses to the survey was relatively low at just 33%. A further limitation in the research is that it only deals with a questionnaire and results from the same group of trainees in two different courses, e-Learning and Traditional Classroom, both of which are quantitative in nature. Also both courses were not of the same duration (one hour vs. one seven hour day).

One other limitation is the fact that the post-course exams completed by trainees at the end of both the e-Learning course and Traditional Classroom based course only contain 11 and 10 questions respectively. Hence this is a very limited question pool from which to adequately test the knowledge gained from attendees. However this does fulfil the business need from an LCC perspective as a method to test training success which is both quick and cost efficient.

For LCC, the main implication arising from the study is the subjective preference shown towards the Traditional Classroom based approach. The widely expressed dislike shown towards an e-Learning course, even a short one, suggests that finding a blended approach is a better way to proceed. Perhaps the 7:1 ratio of traditional course duration to e-Learning duration, which just happened in this study, reflects what could be a good blend ratio in practice. There is evidence in other situations of dislike for e-Learning and also anecdotal evidence of such dislike. There is also evidence to support a small quantum of e-Learning for a larger quantum of traditional teaching (Lee, Redmond & Dolan, 2007).

7.6 Don't Know Analysis

Some areas of concern however centre around the "I do not know" responses, high amongst respondents concerning "in online courses, small-group learning may become disorganised" at 26%. Other examples, are "learning with E-Learning requires highly developed study skills" at 14% and 7% "e-Learning can improve my learning". Similar results were experienced in the Spot+ report which put forward the argument that this may be caused due to low levels of experience with ICT. This is not the case in the Enterprise Expert Centre (EEC) due to the background and job role of the sample group. Instead, a low level of experience with e-Learning by the sample population may have caused them to cautiously view it and instead opt for the Traditional Classroom based approach which they have encountered since childhood.

8   CONCLUSIONS

It can be seen from the research carried out on this small sample population that there are statistically significant differences between Traditional Classroom training and e-Learning with regard to exam results from either course amongst trainees but they are relatively small in magnitude favouring e-Learning.

There were high levels of PC ownership and access to the Internet outside of work among the participants which facilitates the use of e-Learning tools without worrying about access to equipment. Evaluation of both training courses, Traditional and e-Learning, received high levels of satisfaction from respondents and scoring for the end of course exam for both courses showed only small differences. However, when questioned directly via the questionnaire, over Preference for e-Learning over Traditional, the majority preferred the Traditional Classroom approach by far, illustrating a strong degree of support for current training approaches in the industry.

Regarding the degree of support for a Positive Perception of e-Learning and a Positive Perception of Traditional Classroom, the findings point to there being a small difference in favour of e-Learning.

The results on a sample population of a computer call centre trainees were similar to the SPOT+ study on about 2000 university students.

There is a paradox in that the trainees disliked e-Learning but the questionnaire statistics show that they preferred the e-Learning methodology in their questionnaire replies.

As noted elegantly in a Chinese Proverb:

"Teachers open the door.   You enter by yourself" .

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