National College of Ireland

A Framework for the Transition from Traditional Classroom Delivery to e-Learning

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0. Abstract

ESB Training is a part of the Electricity Supply Board (ESB) and provides a training service to a broad range of customers internally within the company and externally to customers in Ireland and internationally.

In the current training business environment, ESB Training is operating within an organisation currently undergoing major change in the form of preparation for competition, reorganisation, downsizing, and proactive compliance with regulatory requirements, etc.

This is having a major effect on how ESB Training currently delivers its service. The customer is no longer willing or can afford to send its staff to training centres with all the associated expense and time away from the job.

e-Learning or a blended learning approach to training delivery has been identified a potential solution. In order to implement e-Learning it is necessary to develop a 'framework for the transition from the traditional classroom delivery of training to e-Learning'.

The development of the framework took into consideration the following areas:

- The current Instructional Design System used in ESB Training,
- The need to implement an e-Learning approach for learning within the organisation,
- The requirements to integrate an e-Learning approach to learning and training into the ESB Training business and that of its customers,
- The technical and support requirements needed, and
- The effectiveness of the framework from the perspective of the staff in ESB Training.

The methodology selected was primarily research of relevant literature and the use of a semi-structured interview schedule to gather information from the training and support staff about the 'Framework for the Transition from Traditional Classroom Delivery to e-Learning'. The information gathered was both specific and measurable as the questions posed during the semi-structured interview were constructed in a manner so as to provide both qualitative and quantitative data and included the staff's perceptions as to the effectiveness of e-Learning and its requirements.

Further information and data was gathered from other sources such as published texts, whitepapers, journals and the online documents from the following authors:

(Centre for Instructional Technology, 1998); (Collins et al., 2001); (Dick et al., 1990);

2. Literature Review

ESB Training's Instructional Design System

When a performance gap has been identified that can be addressed by a training solution, the Instructional Design System uses a six stage process to effectively and efficiently design and deliver the training solution.

The six stages of the process are:

- Training Needs Analysis
- Data / Information Analysis
- Course / Lesson Design and Development
- Delivery
- Evaluation, and
- Maintenance.

Each of the stages of the Instructional Design System has its own set of processes that need to be completed if the stage is to effectively and efficiently contribute to the successful completion of the other stages. In effect, the Instructional Design System aims to be a supra-system consisting of a number of subsystems that are dependant upon and influenced by each other.

e-Learning Framework Objectives

The objective of the e-Learning Framework is to provide guidance to the staff of ESB Training in their role as training instructors, instructional designers, project managers or administrators in the transition from classroom training to e-Learning.

A framework is essential to ensure that the staff involved in e-Learning can best make use of their existing skills and knowledge of the training business and successfully adapt them to the area of e-Learning. As the ESB Training business is primarily based on classroom delivery of training and learning solutions, a framework for the transition from the traditional classroom delivery to e-Learning is therefore required. The existing instructional design system can be used to provide the training or learning solutions for the traditional classroom based requirements but if e-Learning or a blended learning approach is required, a variety of alternative criteria and requirements must be taken into consideration.

The framework for the transition from a traditional classroom delivery to e-Learning will work in conjunction with this system and make use of existing system processes if necessary.

The framework is ideally placed as to facilitate the transition to e-Learning:

(Edmonds et al., 1994); (e-Learning Centre, 2002); (Ewing et al., 2002); (Forcheri et al. 2003); (Gagné et al., 1992); (Gerlach, 1980); (Gustafson, 1991); (Hartley, 2000); (Inglis et al., 1999); (Interaction Associates, 2001); (Kruse, 2000); (Learning Circuits, 2002); (Lguide, 2001); (The Masie Centre, 2002); (Patterson, 2003); (Rothwell et al., 1992); (Rosenberg, 2001); (Rowland et al., 1994); (Sampson, 2001); (Senge, 1990); (Siemens, 2002); (Smith, 2001); (Smith et al. 1993); (Spector et al, 2000); (Tripp et al., 1990); (Troha, 2002); (Walls, 2000); (Wang, 2000); (Winn, 1997).

A full listing is included in the 'Bibliography' section.

The findings of this dissertation indicated a broad support among the training staff of ESB Training Services, for the introduction of e-Learning as part of ESB Training's business but are aware of the level of support required to maintain an effective e-Learning initiative as outlined in the 'framework'.

1. Purpose of Research

The Electricity Supply Board (ESB) is a utility company involved in the generation, distribution and supply of electrical power on behalf of its customers and the Electricity Regulator in the Republic of Ireland. ESB Training is a part of ESB and provides a training service to a broad range of customers internally within the company and externally to customers in Ireland and internationally.

In the current training business environment, ESB Training is operating within an organisation currently undergoing major change in the form of preparation for competition, reorganisation, downsizing, and proactive compliance with regulatory requirements, etc.

This is having a major effect on how ESB Training currently delivers its service. The customer is no longer willing or can afford to send its staff to training centres with all the associated expense and time away from the job.

Similarly, the restrictions with numbers attending or even a lack of numbers available to attend, necessitates ESB Training to facilitate both its own needs as a training business and satisfy the customers needs in terms of delivering on their identified training needs.

Ongoing analyses of the business performance at both management and staff levels have indicated that there is a need to adapt to the changing business environment. Based on discussion and experience among staff and management with current trends in training and learning, e-Learning or blended learning has been suggested as a potential solution to assist ESB Training in addressing these issues.

It is therefore essential to establish a framework that can be used by ESB Training to ensure that if e-Learning is to be used, all the necessary requirements and criteria are in place and considered to ensure that e-Learning can provide an effective solution to a customer's identified training need.

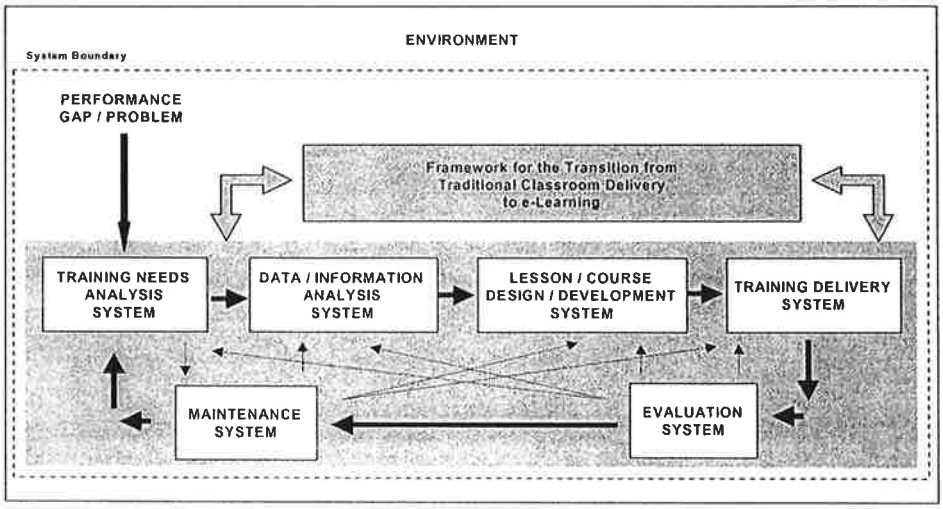

Figure 1. Relationship between 'Framework for the Transition from the Traditional Classroom Delivery to e-Learning' and the 'ESB Training Instructional Design System'. Source: Author

We now present an overview of the Framework for the Transition from Traditional Classroom Delivery to e-Learning. The framework can be placed within the instructional design system in this context, but is also capable of facilitating, not only a transition to e-Learning but the design, development and implementation of an e-Learning or blended learning intervention, with all its inherent advantages, in its own right. It can be used to implement either a specific e-Learning, classroom or blended learning approach to the delivery of training or learning solutions.

One of the fundamental components is a Learning Management System (LMS) which is a software application system that is used to launch e-Learning courses and provides registration capabilities, automated course catalogues, competency management, assessment, resource management, tracking and reporting (LGuide, 2001).

Also, a specific Instructional Design system input to the framework is required to facilitate e-Learning, classroom learning and blended learning approaches. It does this by using the existing ESB system and this interacts with the Learning Management System to analyse, design, develop, implement and evaluate training and learning solutions using information and communications technology such as the Internet, company Intranet or mobile communications technology, etc.

The framework can then be used to assimilate the various components and facilitate the launch of an appropriate e-Learning training or learning product.

Framework for the Transition from Traditional Classroom Delivery to e-Learning

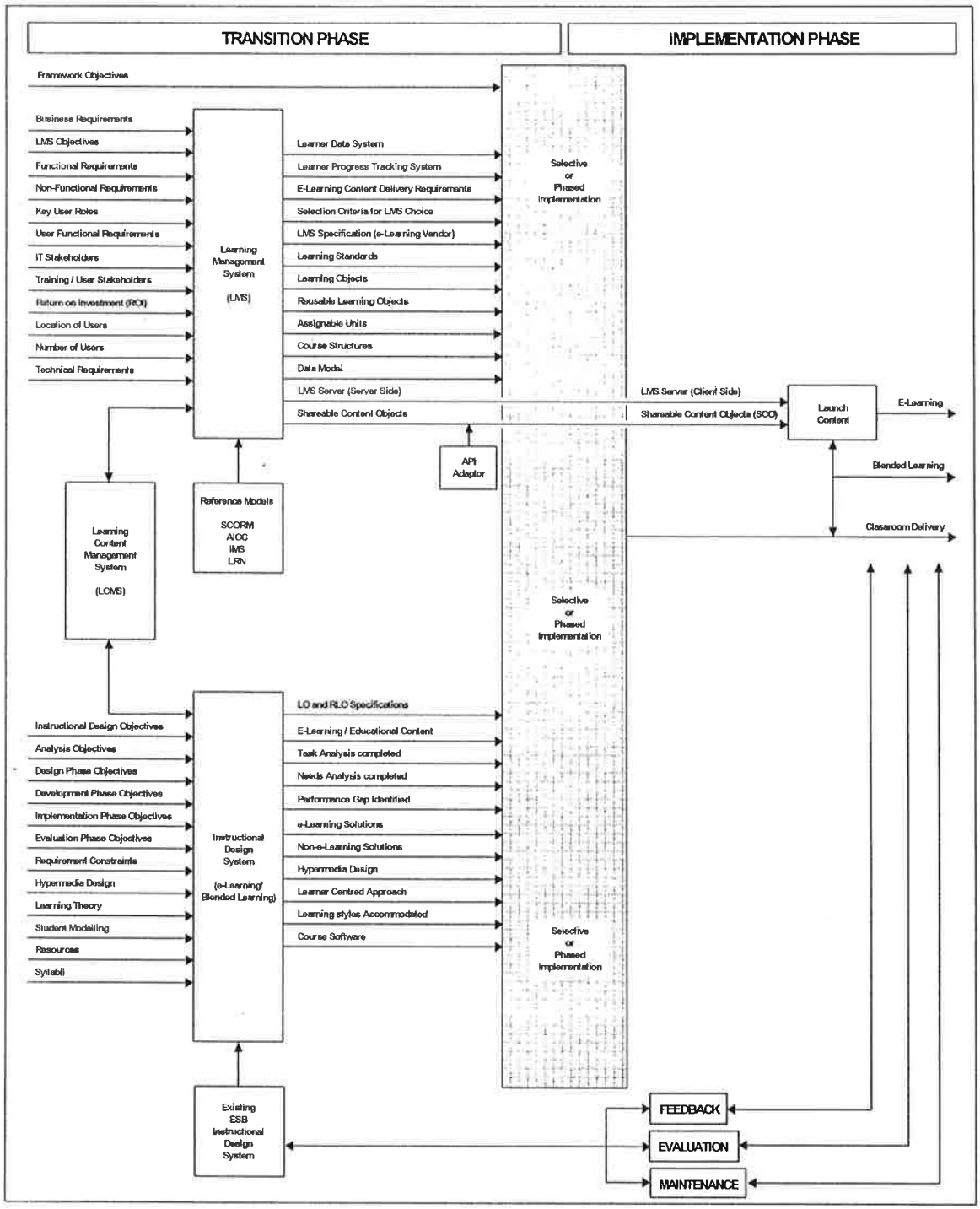

Figure 2. 'Framework for the Transition from the Traditional Classroom Delivery to e-Learning'. Source: Author.

e-Learning

The term e-Learning refers to the use of Internet technologies to deliver a broad array of solutions that enhance knowledge and. However, it is based on three fundamental criteria performance (Rosenberg, 2001):

1. e-Learning is networked.
2. It is delivered to the end user, via a computer, using standard Internet technology.
3. It focuses on the broadest view of learning.

It can be seen that e-Learning covers a wide set of applications and processes (Learning Circuits, 2002) from Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. e-Learning is the process of gaining skills and knowledge through planned interactive educational materials that are accessible using a common Web browser such as Internet Explorer.

Benefits of e-Learning

Digital courseware, by which we mean tuition materials, developed for delivery by digital media, such as CD ROM or the Internet, in conjunction with digital communication such as e-mail, chat facilities and computer conferencing, has the potential to offer increased flexibility with respect to: place, time, pace, entry and exit' (Inglis et al., 1999).

e-Learning vs. Classrooms

'There is no single best approach to on-line delivery. The approach that is most appropriate in each situation will depend upon a range of factors, such as the nature of the subject, the background of the learners, the outcomes being sought, and the context in which the programme is being offered' (Inglis et al., 1999).

Technology does not alter the core of most industries or fields. It enhances processes, increases accessibility, and creates a knowledge base/history. Technology, when applied to industries/organisations, plays a supporting role to existing functions. When applied to education, the core elements of learning remain unchanged, i.e., the student, the instructor/trainer, the organisation and the content (Siemens, 2002).

The author suggests that the use of e-Learning must be matched to very specific goals at the organisational, occupational and individual levels and believes that there are advantages to both e-Learning and classroom as delivery methods in themselves, but a blended solution gives you the best of both.

True e-Learning provides many, if not more, opportunities for interaction than instructor-led training (Walls, 2000).

The first and best way to start a blended learning pedagogy is to evaluate the materials and practices that you have been using to train your learners (traditionally) and see how your programmes can be improved or enhanced with technology (Smith, 2001).

If e-Learning, classroom or blended learning are to be considered as the methods of delivery either exclusively or in combination, the learning intervention has a greater chance of success if it has been 'instructionally designed'. This will address the pedagogical issues associated with the technological integration. The principles of instructional design are needed to ensure a solid foundation for fitting technology into educational practice (Centre for Instructional Technology, 1998).

Instructional Design is the systematic process of translating principles of learning and instruction into plans for instructional materials and activities (Smith et al., 1993). There hare many models of instructional design, which have all been developed to suit a wide variety of applications and environments.

Examples of instructional design systems include the 'Dick and Carey Model', (Dick et al, 1990), and other systems such as the 'Hannafin and Peck' Instructional Design Model (Edmonds et al., 1994), the 'Knirk and Gustafson' Instructional Design Model (Gustafson, 1991), the 'Tripp and Bichelmeyer Rapid Prototyping Design Model' (Tripp et al., 1990), the 'Jerold Kemp Instructional Design Model (Edmonds et al., 1994) or even the Gerlach-Ely Instructional Design Model (Gerlach et al, 1980).

Instructional Design has tended to follow the rational route, but a move toward a more creative methodology is necessary (Rowland et al., 1994). Instructional design is basically about the planning and implementation of environments and systems that facilitate learning or improve performance (Wang, 2002).

The diagram shows the various dimensions associated with instructional design. The interactions among these items are dynamic and ongoing, but often vague and uncertain due to the inherent complexities of learning and working situations (Spector et al., 2000).

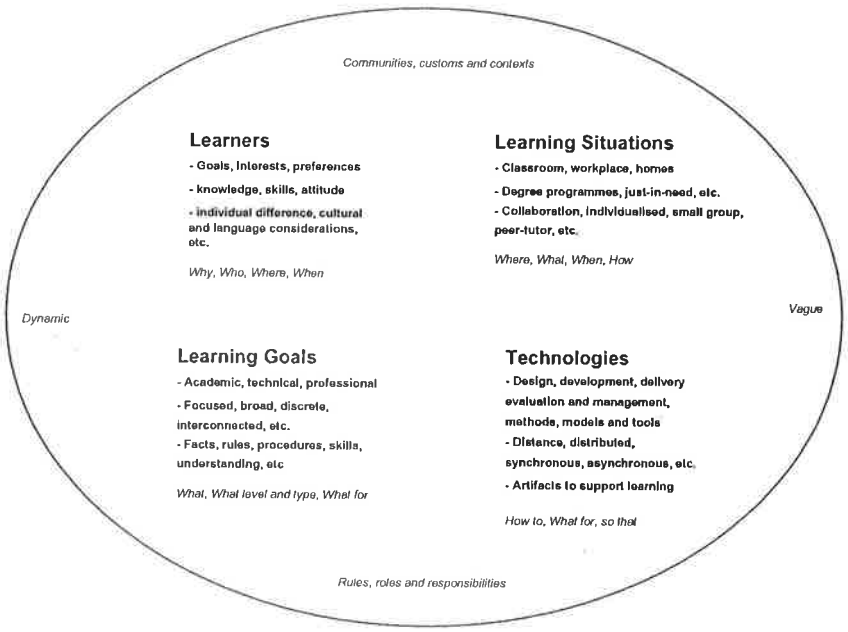

Figure 3. Complexities of Instructional Design (Spector et al, 2000)

Learning Management System

Definition of an LMS: A 'Learning Management System' is software that automates the administration of training events. The Learning Management System (LMS) registers users, tracks courses in a catalogue, and records data from learners; it also provides reports to management. An LMS is typically designed to handle courses, by multiple publishers and providers. It doesn't usually include it own authoring capabilities; instead, it focuses on managing courses created by a variety of other sources (Masie Centre, 2002).

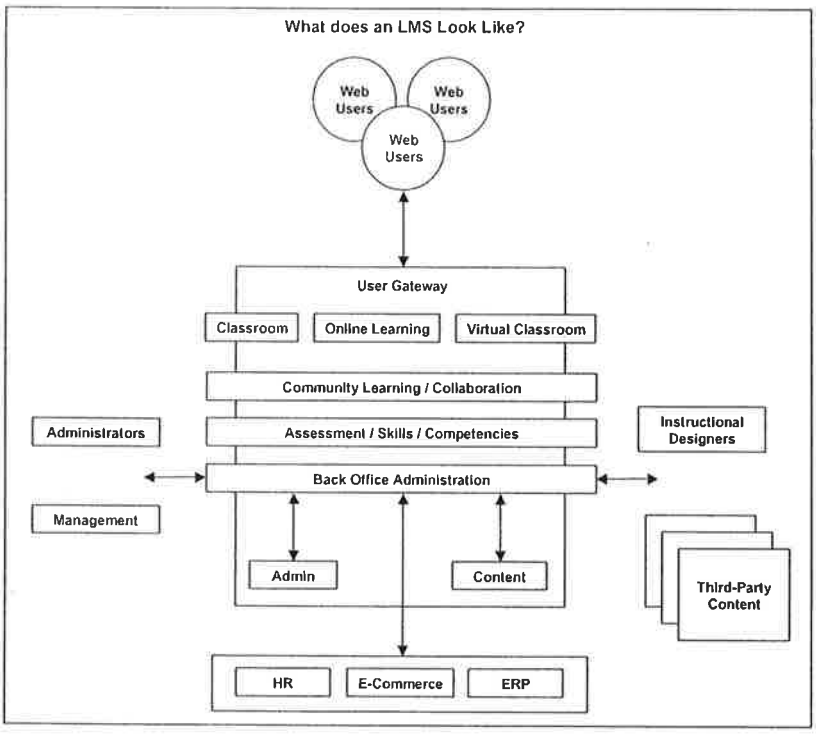

Figure.4. What does an LMS Look Like? (Patterson, 2003)

Figure 4 outlines what an LMS looks like. It can be seen that there are a lot of systems interacting within the Learning Management System itself and there is a requirement to interact with a range of external systems or processes.

It is therefore essential that the system selected is right for the business – its size, deployment, budget, sophistication, etc. (Rosenberg, 2001).

3. Research Methodology

Research Statement

From the literature review, the following has been established that:
- Instructional design can be applied to e-Learning
- The Framework for the Transition from Traditional Classroom Delivery to e-Learning must be compatible with existing systems and processes within ESB Training and the ESB organisation as a whole.
- There are many systems and processes that must be taken into consideration, each with their own merits and appropriateness for training and learning solutions within ESB

The research statement can therefore be stated as follows:

> ***'What are the essential criteria of a methodology for the development for the transition from the traditional classroom delivery to e-Learning'.***

Research Approach

From the research statement, it is necessary to gather information primarily from the staff in ESB Training. It would therefore seem appropriate, considering the range of experience and expertise in the fields of both training and instructional design, that a qualitative approach is the most suitable method of gathering the information.

The qualitative approach has the advantage of gathering information which is based on the personal experiences, observations and perceptions of the individuals using ICT in the delivery of training and learning solutions.

Research Instruments

A semi-structured interview schedule was developed to gather a wide range of information and data from the staff in ESB Training. The format of the interview schedule was a questionnaire with 10 questions arranged under the following headings:

1.	Need for e-Learning in ESB Training.	(4 Questions)
2.	Development of the 'Framework'.	(1 Questions)
3.	The introduction of e-Learning in ESB Training.	(2 Questions)
4.	The Implementation of e-Learning in ESB.	(2 Questions)
5.	The Future for e-Learning.	(1 Questions)

4. Data Analysis

Interview Schedule Findings

The findings from the ten questions in the interview schedule are shown below.

Question 1: How well are you using computers, the Internet, or the ESB Intranet for business purposes?

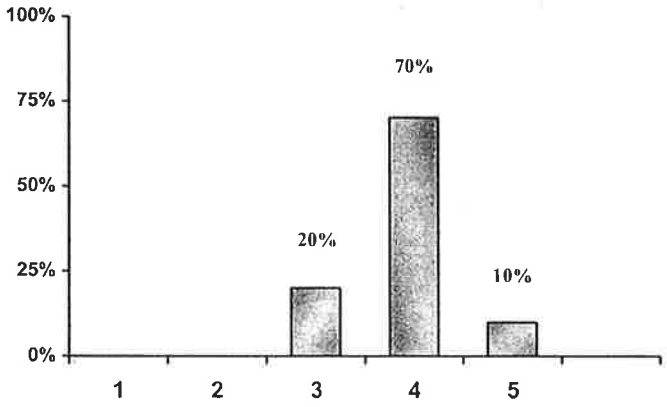

Figure 5. Use of ICT in ESB Training

Overall, as can be seen from the results, most of the staff in ESB Training has indicated that they are using ICT in their everyday work environment. Examples of use would be that on a daily basis, staff would log onto their personal computer. All staff are also provided with a mobile phone.

Question 2. How well is the term e-Learning defined in ESB Training?

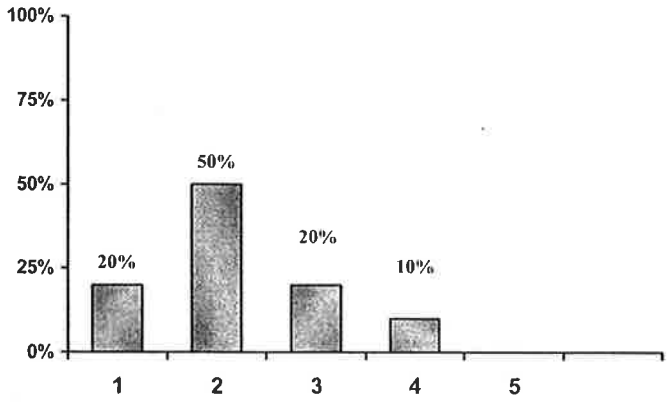

Figure 6. How well is e-Learning defined?

The responses indicated that 20% of the respondents thought of e-Learning in terms of the traditional Computer Based Training (CBT). They felt that if e-Learning resembled this type of learning, it would have little chance of success.

50% indicated that e-Learning was new to them but they were aware of the term and of some of the basic concepts associated with this type of learning, such as the anytime, anyplace, anywhere philosophy of learning.

20% of the respondents were aware of initiatives currently being progressed in the area of e-Learning.

10% of the respondents had a broad-based knowledge of e-Learning and were aware

of the potential applications within ESB training in terms of knowledge management, performance support and learning on the Web.

The results indicated that specific knowledge about the term e-Learning and all that it entails is not widely available or experienced among the staff.

Question 3. Is there a need for e-Learning in ESB Training?

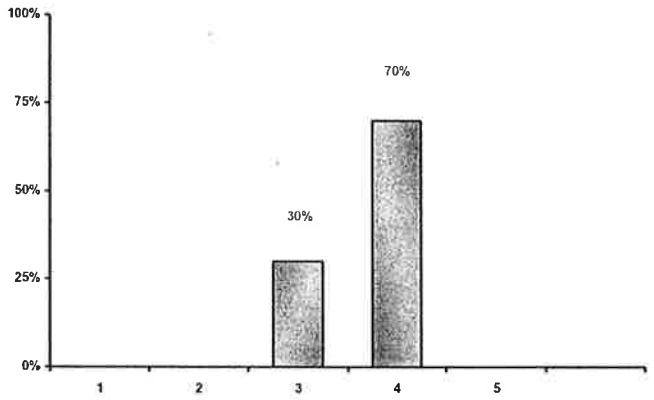

Figure 7. Need for e-Learning

30% of the respondents indicated that there may be a requirement to adopt an e-Learning strategy within ESB Training.

70% of the respondents felt that if ESB Training was to survive in a competitive environment there is a requirement to change to meet that challenges presented.

Question 4. How much access do ESB Training staff and potential learners have to the Web in terms of anytime, anyplace, anywhere?

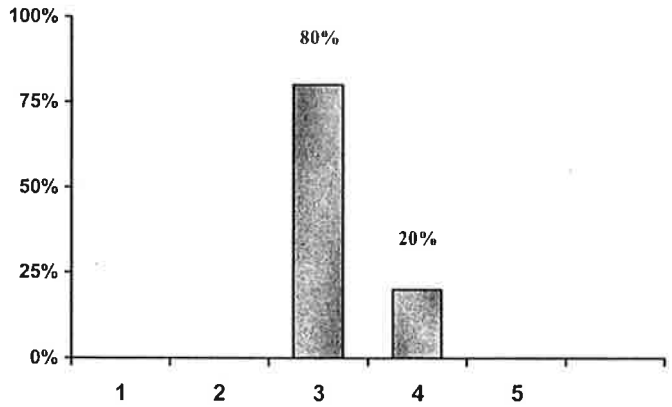

Figure 8. Access to the Web

20% of respondents were of the opinion that ESB has attained almost universal access in the work environment and that access in the field or the home would be easily achieved. e-Learning could therefore be easily facilitated if required.

Question 5. The following are the objectives set for the Framework for the Transition from Traditional Classroom Delivery to e-Learning?

How would you rate on a scale of 1 to 5, the importance of the objectives?

Objective 1: To enable an efficient and effective means of developing, designing and delivering e-Learning or Blended Learning training programmes.

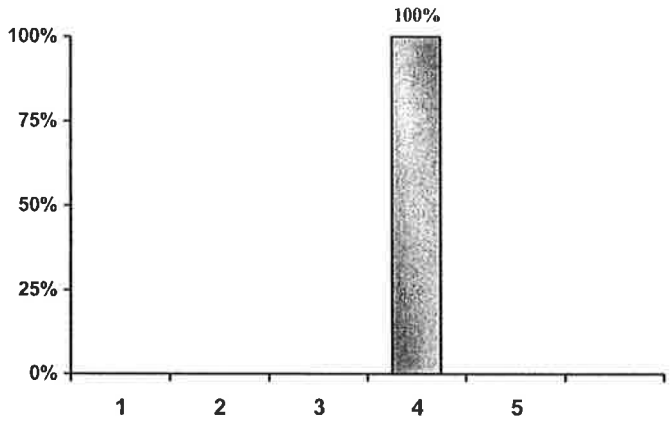

Figure 9. Importance of efficiency and effectiveness of 'Framework'

All the respondents felt that this was a very important aspect of the 'Framework'.

Objective 2: To create ownership of the e-Learning 'Framework' among ESB Training staff.

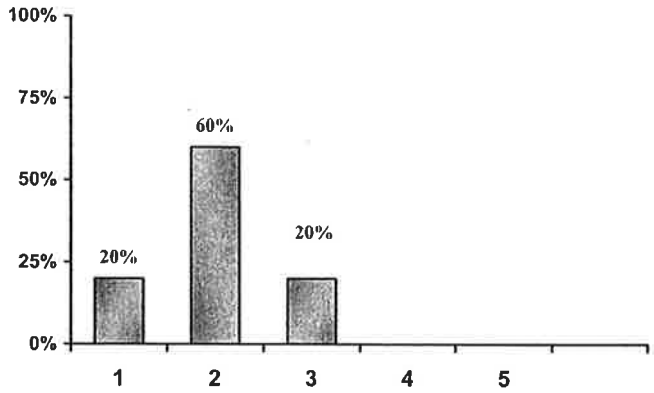

Figure 10. Ownership of the 'Framework'

The issue of ownership of the framework was not considered very relevant, but in general it was felt that if it the 'Framework' was useful, then that was all that mattered.

Objective 3: To enhance the ability of the ESB Training in meeting the needs of customers.

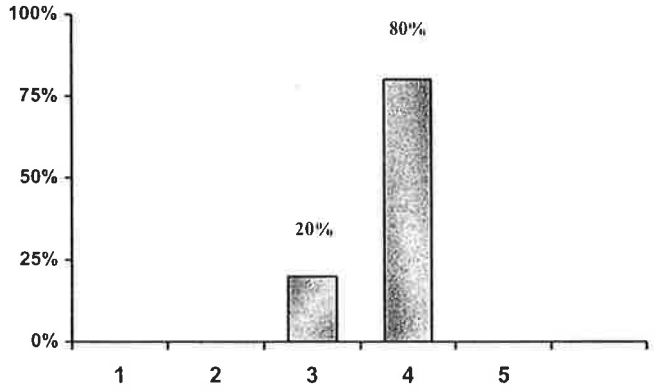

Figure 11. Enhancement of ability to meet needs of customers

20% of the respondents indicated that the 'Framework' in itself would have no impact one way or the other from the perspective of the customer.

However, 80% of the respondents recognised that to ensure that the goals of ESB Training of meeting the customer's needs are actually satisfied that this can have a greater chance of success if the staff are confident that all the relevant issues with e-Learning are taken into consideration.

Objective 4: To increase the relevance of e-Learning to job and customer needs.

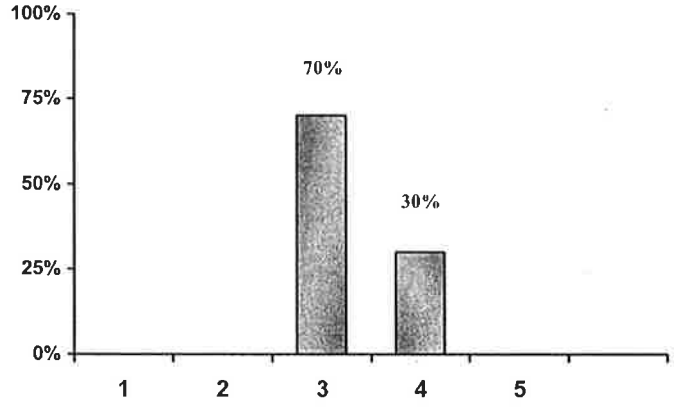

Figure 12. Relevance of e-Learning

70% of the staff felt that the relevance of e-Learning to job and customer needs were not necessarily increased as a direct result of the 'Framework'.

30% of the staff agreed in broad terms with the rest of the respondents but pointed out that having a 'Framework' in place increased the chances of a more effective delivery of an e-Learning product by ESB Training.

Objective 5: To ensure the consistent approach to e-Learning throughout ESB Training and the organisation as a whole.

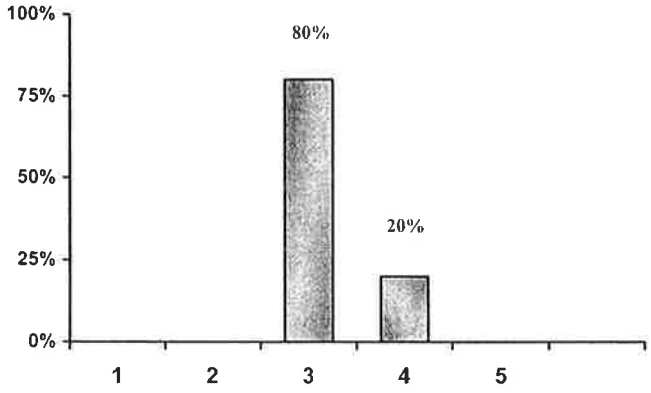

Figure 13. Consistency of approach

80% of the respondents felt that the 'Framework' would, go a long way towards making the staff aware of the issues involved in e-Learning.

20% of the respondents felt that knowledge of the issues relating to e-Learning would better place, those responsible for the design, development or implementation of any e-Learning initiative within the organisation.

Objective 6: To facilitate the creation of a database of knowledge and information for use by the organisation.

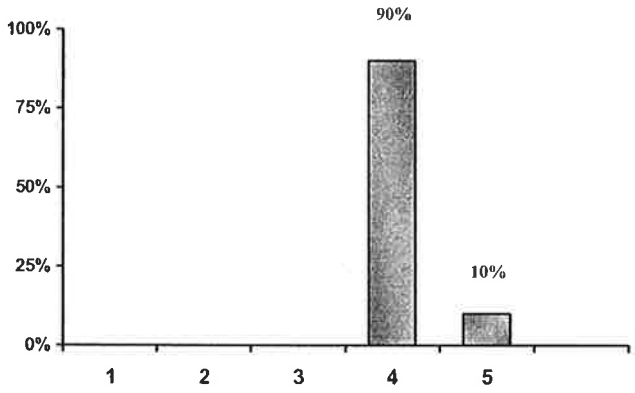

Figure 14. Facilitation of creation of knowledge and information database

90% of the respondents felt that having information and knowledge material available in a database would be extremely beneficial to the organisation

10% of the respondents felt that the creation of a database of knowledge is a fundamental part of any e-Learning initiative.

Objective 7: To make training more strategic in the operations of ESB.

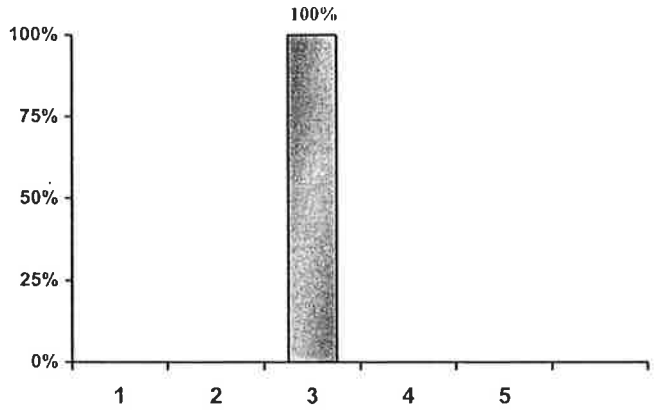

Figure 15. Making training more strategic

All respondents indicated that form a strategic perspective, e-Learning in itself would not make training more strategic, but e-Learning can be used to show that ESB Training is a progressive business that can work across the organisation to help achieve business goals.

Objective 8: Is ESB Training ready to move beyond their reliance on classroom delivery to a more balanced approach to e-Learning?

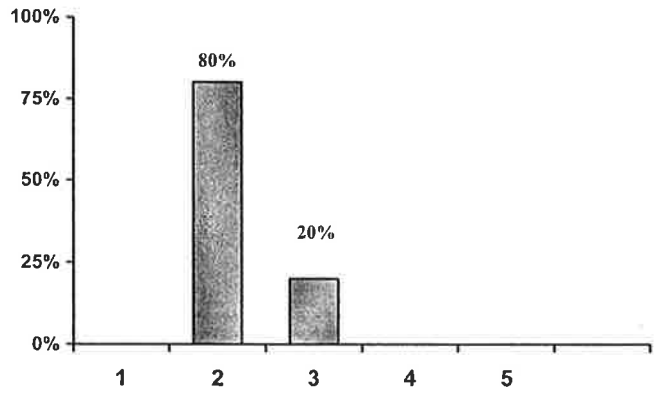

Figure 16. Readiness to move beyond reliance on classroom delivery

There is a realisation that there is a need to progress to a different model, but there are concerns that the financial management of ESB Training in the short term may take precedence over the future viability of the training business.

Objective 9: How well can ESB Training demonstrate the benefits of e-Learning to both the training staff and the rest of the organisation?

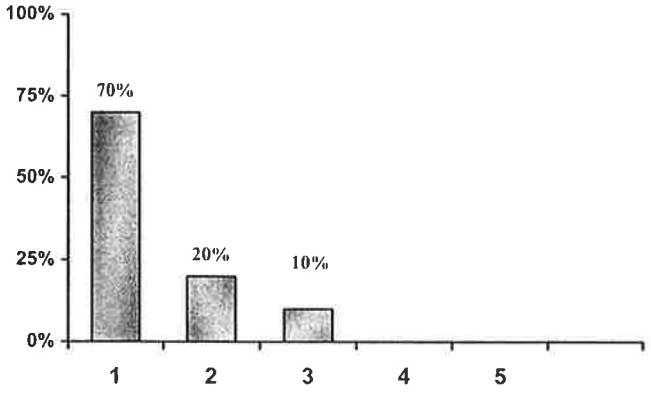

Figure 17. How well can e-Learning benefits be demonstrated?

ESB Training has a lot to do if it wants to demonstrate the business benefits of e-Learning. Internally, there is a need to demonstrate the benefits to the business of ESB Training itself and the need to invest in the future. There is no doubt among the staff that this will be a difficult job.

However, recent surveys of ESB Training's customers on the performance of ESB Training have proved to be very encouraging, so there is a need to follow through and respond to the needs of the customers.

Objective 10: How prepared is ESB Training to deliver training or learning solutions in alternative locations, such as in the workplace?

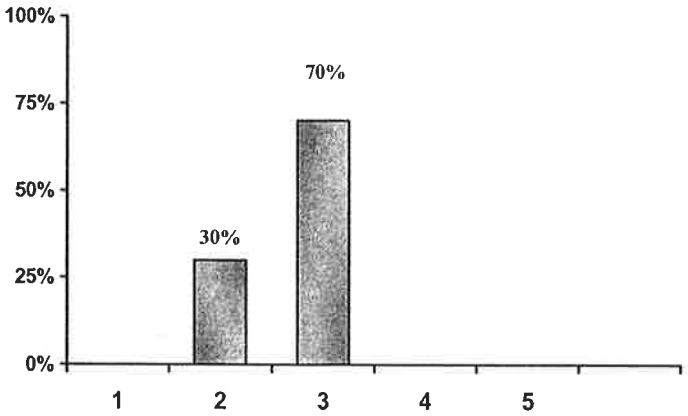

Figure 18. Preparedness to deliver training in alternative locations?

The main areas of concern were related to the protection of the training staffs' own work and related issues such as expenses and subsistence. E-Learning will have a direct impact on how people will both deliver and receive training and learning in the future. However, the term 'support' is of critical importance and this will have to be the focus of any initiative in the future.

Objective 11: How prepared are you to update your skills from a learning management, instructional design delivery perspective?

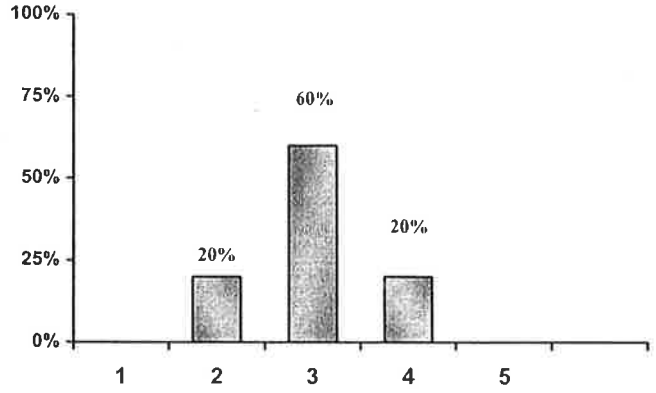

Figure 19. Preparedness to update skills?

20% of the respondents indicated that in general that there would not be ready to change the way they work to any great extent.

60% of the respondents felt that the skills areas outlined in the framework do need to be addressed, and they are prepared to take on board the necessary changes if they see that it is beneficial to both them and to ESB Training.

20% of the respondents would take a proactive approach to any initiative and would take advantage of any new initiative, provided it was supported.

Objective 12: Do you feel that the 'Framework for the Transition from Traditional Classroom Delivery to e-Learning' has the potential to facilitate and support the design and development of e-Learning for ESB Training?

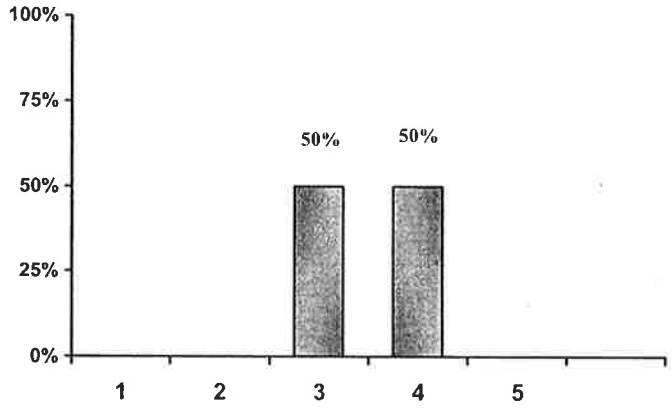

Figure 20. Potential to support development of e-Learning

50% of the respondents indicated that the 'Framework' might, or may not have the potential to facilitate and support the development of e-Learning in ESB Training.

50% of the respondents indicated that the 'Framework' has a good potential to raise

awareness of all the relevant issues associated with e-Learning and thereby by default increase the chances of a more successful outcome for this initiative.

5. Conclusions

The 'Framework for the Transition from Traditional Classroom Delivery to e-Learning' is basically an enabling system to facilitate the introduction of e-Learning into the business of ESB Training. It will enable ESB Training to develop skills, knowledge and resources in the field of e-Learning on a phased basis.

It is not envisage that e-Learning will become the primary method of training delivery in the short to medium term. Although there is a Learning Management System in place within the organisation, it facilitates e-Learning of computer software applications only.

However, the target audience and the specific type of specialist learning required by ESB Training's main customers is either not available of not yet developed.

Initial investigations in this area have indicated that there would be significant investment required in third party development of such material and the cost would not justify replacing the current training delivery methods of classroom delivery and on-site training. However, the economic conditions require a proactive approach to current training developments.

Also, there is significant expertise in the area of instructional design, which has been developed over a number of years. This has contributed to the success of the training business of ESB Training and significantly improves the efficiency and effectiveness of the service supplied. On further exploration, the design and development of specific learning content to be delivered via e-Learning or blended learning, has revealed considerable cost implications for 'reinventing the wheel' for a different road when it comes to learning content development.

Analysis of the research would indicate that the ground has been significantly prepared among the staff in terms of preparedness to embrace change within the training environment and the organisation itself. Ongoing change within the organisation is having a direct impact on the way ESB Training is doing its business, and will continue to do so into the future. ICT infrastructures are receiving the highest priority within the organisation and will soon reach all areas and all staff within the organisation.

The introduction of e-Learning could have positive implications for all stakeholders.

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