

**The Effective Implementation Of
Technology-based SME Management
Development Programmes**

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DECLARATION:

This thesis is my own work and has been composed entirely by me.

James Carr.

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*My mother, Mary,
and the memory of my father, Jimmy.*

ABSTRACT

Learning technology is seen as a solution to the problem of delivering training in Small and Medium-sized Enterprises (SMEs). This thesis investigates how the Higher Education (HE) sectors can use its learning technology and pedagogical expertise to develop effective SME management development solutions. Three main research questions are explored in this context:

1. What factors shape learning technology implementation experiments in HE?
2. What are the differences between HE and SME learning?
3. In view of these differences, how can expertise gained by HEIs in the implementation of learning technology be adapted for SMEs?

The study develops the *Learning Technology Practice Framework (LTPF)* and employs it to analyse the implementation process, from initial conception through to use with actual learners, to identify the factors required for successful intervention. The *LTPF* has two main components: the *context of learning development* and the *context of learning use*. The *context of learning development* is the socio-technical milieu in which learning technology is developed, and the *context of learning use* is the socio-technical milieu in which learning technology is used.

The research methodology draws on literature in the fields of the Social Shaping of Technology (SST), the Management of Technology (MoT) and learning technology implementation, supported by primary research in SME management development. The empirical work has three main elements: the first is a case study of learning technology implementation among undergraduate business studies students at The University of Edinburgh and Heriot-Watt University; the second is a case study of learning technology implementation among SME learners at the University of East London; and the third is a survey of SME learners that examines the nature of SME learning and the potential offered by learning technology solutions.

It is found that there is potential for the transfer of new learning technologies from HE to SMEs, but the process is complicated by the need to ensure materials are adapted to an SME context. Developers need to recognise two key issues: that effective implementation means much more than technology installation; and the unstructured nature of SME learning. The implementation approaches required in the HE and SME sectors exhibit similarities and differences. The main similarity is that a working integration must be achieved between the *context of learning development* and the *context of learning use* if effectiveness is to be maximised. The two main differences are the relative informality of SME learning, and the locational rupture that occurs between the *context of learning development* and the *context of learning use* when learning materials developed in the HE sector are transferred to the SME context.

The recommendations from this thesis are that when developing and implementing learning technology solutions for SMEs, HE educators, learning technology developers, SME trainers and public funding bodies should recognise:

- that learning technology implementation is a socio-technical practice;
- the importance of informal learning to SME learners;
- that the more the intended use of learning technology deviates from the developing institution's practice, the more attention must be paid to the *context of learning use*;
- the value of involving end-users in the development stage to provide an understanding of the *context of learning use*;
- the need for analytical frameworks for studying learning technology in use to provide a feedback loop into the *context of learning development*.

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Chapter one

Learning technology implementation in the UK Higher Education sector

This thesis examines the diffusion of management development learning technologies from Higher Education Institutions (HEIs) to Small and Medium-sized Enterprises (SMEs). Management development e-learning solutions are seen by policy-makers as a means of improving UK SME competitiveness by providing cheap and flexible access to education and training materials (DfES, 2003; Marchmont, 2001; Lawless *et al.*, 2000; Woods, 1998). HEIs have taken a leading role in the development and use of learning technology, both in its technological components and its social incorporation into learning contexts (Mayes, 1995). For the developers of learning technology in Higher Education (HE), SMEs are seen as a market in which this expertise in pedagogy and technology may be exploited (Woods, 1998). However, technology studies have shown that as a technology diffuses into communities of users a process of adaptation to suit new contexts of use occurs (Fleck, 1987; Fleck & White, 1987; Fleck & Howells, 2001), which makes the simple and smooth transfer of materials developed in the HE context to the SME context unlikely. This thesis considers how HEIs can ensure their learning solutions are adapted to fit the learning context of SMEs and how SME trainers can ensure that learning materials developed in HEI are used effectively.

In order to provide background to the topic, this chapter first provides an introduction to learning technology implementation *within* the United Kingdom (UK) higher education (HE) sector. Attention is then turned to management learning technology implementation in particular, again within the UK HE sector. This leads to a consideration of some initial issues surrounding the potential impact of the transfer of management learning technology materials from HE to the SME sector. Following this, the primary research questions to be addressed in this thesis and their origins are presented. The chapter then closes with an overview of the thesis structure.

1.1 Learning technology implementation in HE

The advent of learning technology is seen by some commentators (for example Ford *et al.*, 1996; Peters, 2000) to offer the chance for a revolution in the way teaching and learning is conducted in higher education. Benefits for the student may include enhanced learning experiences and increased access to learning opportunities, but moves to implement learning technology are perhaps driven more strongly by the

external political environment (Mayes, 2001) and economic imperatives (Hase & Ellis, 2001). Mayes (1993, 1995) considers two main issues that are currently setting the agenda in the learning technology debate in the UK higher education sector. The first is the need to reduce the cost of education and training while simultaneously increasing provision to a growing customer base. The second is that quality must not only be maintained, but improved, and its relevance to industry increased. Learning technology is emerging as a possible solution to current issues faced in higher education, but it has a 'long history of failed promises' (Mayes, 1995:1). Commentators on learning technology implementation in schools (e.g. Crook, 1994), which has an even longer history to draw upon, express surprise at such 'slow' progress. Universities are also being accused at being slow to adapt to technological change (Van Lieshout *et al.*, 2001). One explanation for this slow innovation process may be a result of a concentration on supply-side (technology) rather than demand-side (learner needs) issues, as suggested by Laurillard (1994):

“What students are most likely to need is not access to more information. Where understanding is difficult they need more guidance, practice and supervision. The technology does not easily offer that, however, and technology leads, not pedagogy, so it is rarely provided.”

(Laurillard, 1994:1)

Thus technology-pedagogy imbalance may be a major factor in determining the success of learning technology implementation experiments by the higher education sector. Indeed it is a problem that is returned to continually throughout this thesis, and the concept of *Learning Technology-Practice* developed in this thesis offers at least part of a potential solution. However, more fundamentally a closer inspection of the nature of technology and technology implementation in chapter four indicates that the so-called 'slow' adaptation to technological change in education (Mayes, 1995; Van Lieshout *et al.*, 2001) is actually a characteristic of major innovations, particularly those requiring significant organisational change (Freeman, 1997): technology implementation is a complex and uncertain socio-technical practice (Pollock & Cornford, 2003; Williams, 1996; Williams & Edge 1996).

1.2 Management learning technology implementation in HE

As with all other disciplines in higher education, management teaching has not been untouched by the opportunities for learning technology implementation experiments.

At the start of this thesis study, attempts to incorporate learning technology into management teaching were fairly sporadic, and described by McClelland (1995), as 'woefully inadequate'. In contrast, at the close of this thesis the position has changed to one of more widespread innovation, but concerns remain about the challenges this sets for HE business schools:

The use of information and communication technologies (ICT) in the delivery of education and management training has major implications for lecturers, learners and institutions. Whilst there is potential for major benefits for all concerned, it also continues to set a challenge for providers to develop new strategies for teaching and learning and raises fundamental challenges about the learning process."

(Meredith & Newton, 2003:43)

According to Burgoyne (1998), good management development helps managers "think globally and act locally" by training managers for particular roles and encouraging them to reflect critically on the broader social system in which they perform their roles. Mintzberg (1989) articulated similar views in setting out his guidelines for the ideal management programme. These are for an equal emphasis to be given to: the importance of skills training or experiential education; teaching techniques that have proven through time to be broadly successful such as those in the marketing and finance subject domains; and giving managers the concepts and descriptive insights to inform them of how their world works.

The use of the case study is probably the most distinctive feature of management education compared to other subjects, and it is this method that allows for the provision of Mintzberg's (1989) 'descriptive insights'. Gallagher (1997) makes the following claim about the use of case studies in management teaching:

"Since the turn of the century business situations have been explored through the use of case studies as a means of demonstrating a link between theory and practice and as a way of testing the student's ability to apply the knowledge and understanding acquired in class to a real situation. Often a guest speaker from the company studied is invited to address the class, thereby increasing the value of the case study as a learning tool."

(Gallagher, 1997:4)

The case study is thus a major candidate for conversion to electronic presentation. However, Gallagher (1997) provides the following warning about such conversions:

“...multimedia case studies should not be viewed as a replacement for traditional paper-based case studies and the class discussions they generate. Rather, they are tools which support and augment good teaching practice. Good case study development and preparation will still remain within the domain of the good case writer. But, at the end of the day the customer, the student, will ultimately dictate what we deliver.”
(Gallagher, 1997:5)

Such issues are explored during the course of this thesis through the examination of the use of multimedia case studies (*Virtual Visit*) in management teaching at The University of Edinburgh (chapter seven).

1.3 Diffusion of management learning technology from HE to SMEs

The encouragement provided by the UK political environment to make university research and teaching more relevant to industry, coupled with European Union (EU) funding targeted at SMEs, has encouraged some attempts at reaching the SME sector with university-led training initiatives (Woods, 1998). In accordance with European Commission (EC) classification systems, an SME is defined in this thesis as a business employing less than two-hundred-and-fifty salaried employees for medium firms, less than fifty for small firms, and less than ten for micro firms (Gray and Lawless, 2000).

Gray and Lawless (2000) report that although much of the teaching and research in business schools is targeted at large companies, small and micro firms account for 99% of all businesses in Europe: three million in the UK and eighteen million in the EU. This realisation of the significance of the SME sector has raised expectations about the role of SMEs in European competitive and industrial policy (Gray and Lawless, 2000), but closer examination of European SME statistics reveal that there may be some flaws in this thinking:

“Although small firms account for some 99 per cent of the EU’s enterprises, they account for less than half of the employment and less than half of sales (DTI, 1996; ENSR, 1997). According to Eurostat, the statistical office of the EC, some 90 per cent of firms are microfirms and they account for one third of all jobs (with wide variations between Member States), roughly half of employment in SMEs as a whole. Indeed, the vast bulk of SMEs are the single self-employed without employees.”

(Gray and Lawless, 2000:2)

Chittenden & Wildgust (1999) note that the fundamental characteristics of SMEs as a group are heterogeneity and transience. Thus the term SME, as applied to a variety of differently sized firms at different stages of growth, with different organisational structures and low survival rates (Cressey & Storey, 1995) may not be the most useful classification for SME sector policy-makers to consider. This makes the SME sector particularly difficult to reach with management development initiatives.

The TEC National Council (in Evans, 1999) identifies that while the UK SME sector has grown significantly over the past two decades, productivity is generally lower in smaller firms owing to lower survival rates and lack of creation of a sufficient volume of fast growing companies. The DTI (in Evans, 1999), claims that UK SMEs are underperforming in comparison with their European counterparts, in the following areas:

- “share of turnover is over a third lower than the European average of 65%;
- they provide a smaller share of total employment - 58% compared to 66% in Europe; and
- their productivity is 25-30% lower than French and German counterparts.”

(DTI, in Evans, 1999:5)

Furthermore, compared to European countries, the UK has a higher proportion of small and very small firms and few medium sized ones (Evans, 1999).

Given the significance of the SME sector and problems with its performance, the limited training carried out by many SMEs is seen as both an important national and European issue (Woods, 1998, Gray and Lawless, 2000):

“...the lack of development of sustainable, modern management techniques in the sector [SME] still concerns many policy-makers. Surprisingly little is known about how to overcome the widespread reluctance of SME owners and managers to engage in initiatives designed to develop their own management abilities, skills and professionalism. There have been even fewer studies on how new information and communication technologies (ICTs) may provide innovative approaches in this field.”

(Gray and Lawless, 2000:5)

One proposed UK solution to increasing SME training levels is to develop management learning technology in the higher and further education sectors which can then be transferred to SMEs (Woods, 1998). It is hoped that an organised government training support programme, incorporating the education sector and private sector partners, will effectively promote, distribute and manage such innovative training more effectively than current separate approaches in both the education and private sectors (Woods, 1998). Evidence of such moves in the UK are provided by the development of the University for Industry¹ and, more recently, the Small Business Service (SBS)², both falling under the more general Lifelong Learning initiative³ umbrella. However, much debate remains about how to engage the SME sector effectively with learning technology solutions (O'Brien & Hall, 2004; The Guardian, 2002).

This thesis explores the issues associated with the diffusion of management learning technology from higher education to SMEs. Firstly, a preliminary study of management learning technology implementation (*Virtual Visit*) for HE learners at the University of Edinburgh serves to highlight issues likely to impact on the success of such experiments. Secondly, a lengthier study of management learning technology implementation for SME learners (the *EuroPILOT* programme) at the University of East London expands on these issues with particular regard to the SME learning context. Then the nature of SME learning is investigated further through a survey (*SME Learning Survey*) of key informants familiar with attempts to reach the SME sector with management development learning technology initiatives.

1.4 The research questions and their origins

This thesis is primarily a qualitative exploration of the diffusion of management learning technology from the higher education sector into SMEs. As described above, this exploration takes place in two different learning contexts:

- a. the higher education learning context; and
- b. the small and medium-sized enterprise (SME) learning context.

¹ <http://www.ufi.com/>

² <http://www.sbs.gov.uk/>

³ <http://www.lifelonglearning.co.uk>

As a result of the literature reviewed in chapters three, four, five and six (supplemented with primary research findings in the case of chapter three), the following three main research questions are derived:

1. What factors shape learning technology implementation experiments in HE?
2. What are the differences between HE and SME learning?
3. In view of these differences, how can expertise gained by HEIs in the implementation of learning technology be adapted for use in SMEs?

The initial motivation for this research stemmed from a CASE studentship research proposal to the Economic and Science Research Council (ESRC) to investigate the potential for the diffusion of management learning technology from the higher education sector into SMEs. The proposal was put forward jointly by two departments at The University of Edinburgh, Cognitive Science and Business Studies. As a result, the nature of this study thus posed a significant methodological challenge, that is the need to bridge between positivist cognitive science and interpretivist social science approaches. The sponsoring private sector partner for the CASE studentship was International Computers Limited (ICL). ICL were particularly interested in the development of management training materials both for their own internal use and also for marketing to the wider SME audience.

The focus of the original research proposal aimed at an examination of the design of the learning technology development process as well as an exploration of how learners used the material in a practical context. As the research progressed, the emphasis shifted to a concentration on the latter area for two main reasons. Firstly, gaining access to projects that would allow an examination of the design of the learning technology development process proved difficult, not least because they only started to become more commonplace some time after the start of the thesis research. Secondly, it emerged gradually that exploring how learners and facilitators use the material in a practical context was likely to be of greater importance in determining the success of implementation experiments. As a result, this thesis has less to say about learning technology design than it has to say about learning technology implementation and prospects for wider diffusion. However, there are implications to be drawn for learning technology design at a more general level stemming from the study of matching learning technologies with user needs in practical contexts.

1.5 Thesis overview

Before presenting the literature review, primary research and the main empirical work, chapter two explains and justifies the research approach and methods employed in the construction of this thesis. Then chapter three combines the analysis of a survey of 29 in the SME sector (*SME Survey*) with SME Management Development literature. This allows a comprehensive picture of the SME learning environment and the likely issues associated with technology-based training solutions to be painted. Chapter four reviews Social Shaping of Technology (SST) and Management of Technology (MoT) literature, in order to investigate the nature of technology and technology implementation. Chapter five reviews the literature relating to Learning Technology Implementation, primarily in higher education but with some reference to the schools sector where there is a longer history of learning technology implementation. The purpose of this chapter is to examine what is known about learning technology implementation in education, and also to draw some initial parallels between this area of literature and the SST and MoT literature. From this the *Learning Technology Practice Framework (LTPF)* is derived in chapter six (primarily drawing on the work of Pacey, 1983; Laurillard, 1993, 2002; Crook, 1994; Draper, 1997, 1998; Fleck, 1987 and the SST literature in general) and it is later applied in the analysis of two case studies (one in the higher education learning environment, the other in the SME learning environment).

Then the main empirical work is presented, comprised of the two case studies and a survey of SME key informants. The first case study, an analysis of learning technology implementation (*Virtual Visit*) among undergraduate business studies students at The University of Edinburgh and Heriot-Watt University, is described in chapter seven. As mentioned in section 1.3, this is a preliminary study of management learning technology for HE learners that serves to signpost the more general issues which are likely to impact on the success of learning technology experiments for SME learners. It explores the processes shaping the implementation of management learning technology materials for HE learners and provides a trial run of the analytical framework (*LTPF*) constructed in chapter six. The second case study, an analysis of a technology-based management development programme for SMEs at the University

of East London (*EuroPILOT*), is described in chapters eight, nine and ten. It explores the processes shaping the implementation of a management development programme incorporating management learning technology for SME learners. Chapter eight provides an introduction to the *EuroPILOT* programme and highlights learners' expectations of issues surrounding the use of learning technology. Chapters nine and ten employ the *LTPF* in the analysis of the *EuroPILOT* programme in use. Chapter eleven presents the results of the *SME Learning Survey*, which takes a closer look at the nature of SME learning (briefly discussed originally in chapter three) and the potential for learning technology to meet SME learner needs. Chapter twelve then presents the overall analysis and findings of this thesis, linking the main empirical work of chapters seven, eight, nine, ten and eleven with the literature review of chapters three, four, five and six and the primary research that forms a part of chapter three. Finally, chapter thirteen draws the thesis to a close by: summarising the main conclusions and their implications for HE educators, learning technology developers SME trainers and public funding bodies who are attempting to engage SME learners; identifying the limitations of the study; and suggesting areas for further research.

Chapter two

Research aims, methodology and research design

This chapter describes the research aims, methodology and research design process employed in this thesis. These are derived in the light of the literature reviewed in chapters three to six⁴, as claimed by Jupp and Norris (1993):

“Theory defines what is problematic and also provides prescriptions as to how such problems are to be conceptualised. In turn, this generates guidelines as to unit and level of analysis, the form of data to be generated, the questions to be asked of such data, the form of analysis and interpretation to be adopted.”
(Jupp and Norris, 1993:39)

They are also informed by the research questions presented at the close of chapter six:

1. What factors shape learning technology implementation experiments in HE?
2. What are the differences between HE and SME learning?
3. In view of these differences, what lessons can be carried over from HE learning technology experiments to the SME sector?

It has been noted (Buchanan *et al.*, 1988) that many academic research projects gain methodological coherence during their progress:

“Research accounts in academic journals depart considerably from the research practices of their authors. They offer instead a “reconstructed logic” (Silverman, 1985:4) which brings the illusion of order to what is usually a messy and untidy process.”
(Buchanan *et al.*, 1988:54)

Owing to the fact that aspects of the general research approach changed as the thesis progressed, this chapter thus represents a “reconstructed logic” of the research aims, methodology and research design process. However, the overall approach can be characterised as an attempt to take advantages of opportunities (Buchanan *et al.*, 1988) for examining the use of learning technology within overall teaching-learning processes. It is primarily a qualitative exploration, with the inclusion of quantitative episodes as a result of the need for compromise in certain instances and opportunities that arose as the thesis progressed.

The development of the research approach also owed much to the interdisciplinary nature of the research. While interdisciplinary research is undoubtedly a valuable undertaking, it presents the researcher with the difficulty of bridging across two disciplines, in this case the need to try to reconcile the positivist Cognitive Science view with the interpretivist SST and MoT perspectives. The result in this particular study is that the research approach developed has much more in common with the

⁴ Although the research aims, methodology and research design stem from literature reviewed in later chapters, they are presented here in order to provide the reader with an explanation of the methodological process at an early stage of the thesis.

interpretivist SST and MoT perspectives than the positivist Cognitive Science perspective, and the author cannot claim to have "squared the circle" between these two very different research disciplines. However, insights gained from knowledge of the Cognitive Science discipline, in as much as it led to the exploration of the learning technology implementation literature, provided valuable input to the research study. As a result the type of evaluation conducted in the two case studies examined may appear to offer rather crude measures of the learning process to cognitive scientists or observers from the field of education, who would perhaps be more concerned with a detailed tracking of students' progress through learning material. However, this type of approach is common in studies concerned with examining the broad implementation frame and the factors that shape technology experiments⁵, and wherever possible results are "triangulated" (Marshall and Rossman, 1989) in order to add weight to the analysis.

This chapter first explores the aims and methodological issues underlying the four components of the fieldwork. It then explores the subsequent research design adopted in each case, incorporating a consideration of social research methods literature as appropriate.

2.1 Research aims

The overall aims of the fieldwork correspond to the three main research questions presented above. The fieldwork research had four main components⁶:

1. *SME Survey*: a survey of key informants in the SME sector to examine SME learning needs and perceptions of the potential for learning technology solutions;
2. *Virtual Visit*: an analysis of the implementation of management learning technology within an established traditional course at The University of Edinburgh;
3. *EuroPILOT*: an analysis of the implementation of a technology-based SME management development programme at the University of East London; and

⁵ The word "analysis" has been substituted for the word "evaluation" where possible in order to distinguish between the different approaches, but inevitably there is some crossover between the two terms.

⁶ Italics are used in the thesis to identify these empirical components.

4. *SME Learning Survey*: a survey of key informants in the SME sector with familiar with learning technology interventions, to examine further the nature of SME learning and emerging issues concerning the provision of learning technology solutions.

The aims of each of these fieldwork components are now considered.

2.1.1 SME survey aims

The two main aims of the *SME Survey* (chapter three) were to explore the SME management development learning needs and perceptions of the potential for learning technology solutions provided by HEIs. This allowed a picture of the SME learning environment to be painted reflecting the views of various actors in the SME management development industry, and was achieved by posing questions about SME management development needs, barriers to meeting these needs, and technology-based solutions. Results of the survey were enhanced further through a review of relevant literature.

It was also hoped that the survey might lead to the chance to gain access to a suitable case study of a technology-based SME management development programme run by a HEI. Towards the end of the survey, such an opportunity presented itself following an interview conducted at the University of East London, which led to the subsequent *EuroPILOT* case study. The aims of the *SME Survey* were to: explore the perceptions of the likely effectiveness of SME management development learning technology provided by HEIs; paint a picture of the SME learning environment and SME management development industry; and gain access to an SME management development learning technology programme case study.

2.1.2 Virtual Visit aims

There were three main aims of the *Virtual Visit* analysis aspect of the fieldwork (chapter seven). The first aim was to allow firsthand experience of general lessons to be learned from the implementation of management learning technology in the higher education learning environment. These lessons could then be used as signposts for some of the issues that might face SME management learning technology programme developers and facilitators. They could also be compared with general lessons from experiences of learning technology implementation in schools and the higher

education context (chapter five). The second aim was to provide hands-on experience with tutoring "e-learners", thereby providing insights into new issues compared to more traditional teaching practices, some of which might also be faced by SME "e-tutors". The third aim was to trial the *LTPF* as an evaluative tool.

2.1.3 EuroPILOT aims

The *EuroPILOT* analysis had three main aims. Firstly, to learn lessons from the implementation of a technology-based SME management development programme run by a higher education institution. Secondly, the results could then be compared to the issues raised in the two other aspects of the fieldwork that preceded it (the *SME Survey* and *Virtual Visit* analysis). Thirdly, it offered the opportunity to trial the *LTPF* as an analytical tool in a different management teaching-learning context from that of the *Virtual Visit* analysis.

2.1.4 SME learning survey aims

The *SME Learning Survey* (chapter eleven) provided an opportunity to return to the themes emerging from the *SME Survey* (chapter three), the *Virtual Visit* analysis (chapter seven) and the *EuroPILOT* analysis (chapters eight, nine and ten), but with a more in-depth focus on the nature of SME learning. This was possible because the *SME Learning Survey* participants were drawn from learners, trainers and technology developers with more substantial experience of learning technology solutions aimed at the SME sector than was the case in the *EuroPILOT* analysis. The three main aims of the *SME Learning Survey* were: to build on the understanding of SME management development needs developed in the *SME Survey*; to explore the nature of SME learning in greater depth; and to consider the potential of learning technology for meeting SME learner needs and matching the nature of SME learning.

2.2 Methodological issues

In addition to suggesting the main research questions of this thesis, the literature review (chapters three to six) illustrates the lack of qualitative research in the areas of learning technology implementation in higher education and in the determination of

SME management development needs. Oliver (in Kewell *et al.*, 1999) describes the prevalence of quantitative approaches to evaluations of learning technologies in higher education:

“The evaluation of LTs [learning technologies] are most usually carried out using quantitative and experimental research methods. The analysis of pre-test and post-test questionnaires and numerically driven evaluations are also commonplace in the field. Statistical modelling is used, in particular, to provide a reliable method of authenticating the results of pilot experiments with new software and comparing their performance to other delivery methods, including paper-based alternatives.”

(Oliver, 1997, in Kewell *et al.*, 1999:9)

Reeves (1991, 1999, 2000) points to the futility of such comparative performance tests, the majority of which reveal "no significant difference". In addition, Oliver (in Kewell *et al.*, 1999) provides a comparison of quantitative versus qualitative techniques:

“Whereas quantitative research techniques can provide the hard data needed to ascertain the cost effectiveness and performance verifications of multimedia educational technologies, they are less effective as tools for illuminating the social connectivity which develops amongst users of C&IT or understanding the ‘virtual community’. Moreover, research indicates that users develop social support networks in order to facilitate peer group learning potential (Wegerif, 1998) and that it would be very difficult to explain the role of peer group support within the multimedia learning environment without using qualitative methodologies as the key frame of reference.”

(Oliver, 1997, in Kewell *et al.*, 1999:9)

Thus several commentators argue that there is a need to go beyond the input-output designs of much evaluation research in both schools and the higher education sector (e.g. Crook 1994; Laurillard 1993; Reeves 1991, 1999, 2000). They indicate that the inadequacy of current approaches is due to the fact that outcomes are not situated in a broader framework of the teaching-learning process. If this is not recognised, it is claimed that research into learning outcomes may encourage misguided conclusions:

“This demands consideration of how computer-based experiences are integrated into the broader framework of activities that define an organisational environment for teaching and learning. Across different settings, there may be significant variation in how radically the same technology serves to restructure the activity of learning. Thus, its influence will not always be neatly contained within events at the pupil-computer interface itself. Researchers may need to look further than this in defining the ‘place’ at which computers work their effects.”

(Crook, 1994:9)

In addition, the SME management development literature revealed the lack of practical impact of quantitative approaches in assessing SME management development needs. Gibb (1998, in Stockley 1999), for example, claims that the SME sector has suffered from quantitative approaches to surveying SME learning needs:

“There is frequently an absence of attempts to undertake detailed and insightful needs analysis. Surveys using broad checklists inviting ticks and generic needs such as marketing, finance, production and HRD are of very little value. Identifying true needs is resource intensive and companies are, in general, unwilling to pay for this.”

(Gibb, 1998, in Stockley, 1999:8)

Also, with regard to learning technology implementations for SMEs, Gray and Lawless (1999, 2000) point to a lack of general research in this area.

The lack of qualitative research in both these areas, coupled with the interpretivist perspectives prevalent in the SST and MoT literature, assisted with the decision to adopt an overall qualitative approach, where possible, to the research activities. Having identified the benefits of a qualitative approach to the research, the next stage involved identifying the most appropriate methods for each of the three research components.

2.2.1 SME Survey and SME Learning Survey methodologies

For the initial *SME Survey* (chapter three) and the later *SME Learning Survey* (chapter eleven) a modified grounded theory approach was chosen as the nature of the exploratory survey fitted with Glaser and Strauss' (1967) argument that theory (consisting of conceptual categories, their properties and relationships) should be derived from and illustrated by data. In addition to evidence from the literature review, given the exploratory nature of the research (particularly with regard to perceptions of technology-based solutions to SME management development needs) and a desire to understand how practitioners “define the situation” (Thomas, in Marshall and Rossman 1989:46), a qualitative approach seemed more suitable than a quantitative one. Furthermore, qualitative methods, for example unstructured or semi-structured interviews, are response - rather than question – oriented (Dickens 1987). Thus the flow of the interview is at least partly determined by respondents; it is not dictated by the format of a questionnaire (Dickens, 1987). Similarly, Walker (1985) notes that qualitative methods are flexible and opportunistic, obtaining a great deal of data from a limited number of individuals. In addition, as McQuarrie and McIntyre (1988) claim, while focus groups may be best for researching common ideas, or those held by segments of the population, individual interview may be useful for eliciting idiosyncratic ideas.

The grounded theory approach has several distinctive characteristics. Firstly, joint collection, coding and analysis of data are the underlying operations (Glaser and Strauss, 1967). The generation of theory, coupled with the notion of theory as process, requires that all these operations be completed together as much as possible (Glaser and Strauss, 1967). Secondly, grounded theory emerges from constant comparisons of instances from the data, so that tentative categories and their properties can be identified (Glaser and Strauss, 1967). The emergent elements of the theory are modified and developed by comparison with instances from subsequent fieldwork, and further categories and properties emerge (Glaser and Strauss, 1967). Throughout this process the researcher writes analytic memos, which serve to guide and record the emergent theory (Glaser and Strauss, 1967). Eventually, when fresh instances fail to indicate new aspects, categories are reduced to a smaller number of higher-order concepts (Glaser and Strauss, 1967).

In this case, while grounded theory provided a model for analysis, it was not possible to adhere completely to its purest form, not least because themes emerging from the literature reviewed were also employed in the final analysis. This is described further in the data analysis section of 2.3.1.

2.2.2 Case study evaluation methodology

For the other two aspects of the fieldwork, both of which concern the evaluation of learning technology implementations, attention was turned to the learning technology evaluation literature.

Draper (1996) considers various methodologies involved with evaluating the implementation of learning technology courseware. He classifies four types of evaluation, differentiated by aim (figure 1):

Figure 1: Evaluation methodology classification

- Formative evaluation: to help improve the design of the learning technology.
- Summative evaluation: to help users choose which piece of learning technology to use and what for.
- Illuminative integration: to uncover the important factors latent in a particular situation of use.
- Integrative evaluation: to help users make the most of a given piece of learning technology.

Source: adapted from Draper (1996:61)

The research design for the two case study evaluations (*Virtual Visit* and *EuroPILOT*) encompassed these four types of classification to varying degrees. In the *Virtual Visit* evaluation, it was formative (according to Draper's definition in figure 1 above) in that design problems arising through user feedback were fed back to the learning technology developers, although at this stage the *Virtual Visit* courseware design was relatively fixed. This limited the effectiveness of the formative evaluation, as claimed by Draper (1996):

“...the key constraint is planning to do the testing early enough that changes can be made. The reward is a significant improvement in quality of the end product. Thus the main added result will not be a report, but the modifications to the design actually done.”

(Draper, 1996:61)

In the *EuroPILOT* evaluation there was no opportunity to be formative in this sense as the learning technology courseware had been bought in by the University of East London. However, both the *Virtual Visit* and *EuroPILOT* case study evaluations were formative in the sense of looking at the overall teaching-learning process, as discussed below in the section concerned with illuminative evaluation.

For both case studies, the research design was summative, in that various reports and papers were produced summarising the overall evaluation⁷. This is slightly different to Draper's definition of summative evaluation in figure sixteen above, which is more analogous to consumer reports ‘and how we encounter most of the things we buy, which we are offered without being consulted about how we would like them designed’ (Draper, 1996:61).

⁷ Appendix 42 provides a list of papers related to the *SME Survey* and the *Virtual Visit* case study, and appendices 34, 35, 36, 37, 38 and 41 provide reports related to the *EuroPILOT*

The research design for both case study evaluations was also illuminative. Draper compares illuminative evaluation loosely to ethnography:

“The basic idea is for the investigator to hang out with the participants (students, teachers etc.) to pick up how they think and feel about the situation, and what the important underlying issues are.....In effect a systematic focus on discovering the unexpected, using approaches inspired by anthropology rather than psychology.”

(Draper, 1996:61)

In conducting the research, the researcher did indeed ‘hang out with the participants’, although in the *Virtual Visit* study the researcher was also the course tutor. However, attempts were made to remove tutor bias by trying to be as open as possible to both the students’ and the tutor’s own feelings about the use of the learning technology. In the *EuroPILOT* study, chances to ‘hang out’ with the participants as they used the various learning technologies on offer were limited owing to the open and distance learning format of this aspect of the programme. However, the researcher did attend various face-to-face programme events, and surveyed and interviewed participants and facilitators. This allowed data about the role and use of the learning technologies within the overall *EuroPILOT* programme to be gathered.

Overall, the two evaluation studies carried out (*Virtual Visit* and *EuroPILOT*) were most strongly related to integrative evaluation as proposed by Draper (1996):

“...a major use of classroom evaluations in practice is to be formative, not of the CAL [Computer Assisted Learning] itself, but of the overall teaching and learning situation. This of course can be and is responsive to local variations in how the CAL is used, and for whom. It can be a significant help in integrating CAL material into varying local situations and courses.”

(Draper, 1996:62)

In the *Virtual Visit* study, as mentioned above, the author discussed integration of the learning technology with the course co-ordinator. This resulted in a series of jointly authored papers on the subject, allowing for another form of “triangulation” of the research findings (Jick, 1979; Denzin, 1988; Marshall and Rossman, 1989). Partly as a result of this, continuing refinements to the use of the learning technology, and introductions of other learning technologies have occurred, in order to help users make the most of the resource. In the *EuroPILOT* study, various meetings with, and reports to, the programme managers based on participant feedback (albeit indirect) addressed the issue of integrating the learning technologies more effectively into the

case study.

overall teaching-programme. This also allowed for further “triangulation” of research results (Jick, 1979, Denzin, 1988, Marshall and Rossman, 1989). The vehicle for carrying out this integrative evaluation, the *Learning Technology-Practice Framework (LTPF)*, is developed in chapter six. The framework was developed as a result of the literature reviewed in chapters three to six and during the *Virtual Visit* and *EuroPILOT* evaluations in the course of “sense-making” of the analytical data.

Having considered methodological issues and more specific methodologies for each of the three fieldwork research components, the next section recounts the research design adopted in each case.

2.3 Research design

This section recounts the initial research design process, and then focuses on data collection methods and data analysis for each of the three components of the fieldwork. Since the focus of the research was an exploration of how computers can support management learning higher education and SME learners, it was appropriate that the unit of analysis should examine both these groups as closely as possible to the level of the learner. This was not applicable to the *SME Survey*, which used key informants’ to generate perceptions about technology-based learning, but in the case of the *Virtual Visit* and *EuroPILOT* evaluations, feedback from actual learners was obtained.

Fieldwork was carried out over a total period of 22 months. The *SME Survey* was carried out over a period of 18 months (July 1997 - January 1999), the *Virtual Visit* evaluation over a period of 6 months⁸, the *EuroPILOT* evaluation over a period of fourteen months (January 1999 - April 2000), and the *SME Learning Survey* was conducted over a period of 5 months (May - September 2002). The latter was comprised of several intensive visits of between three to five days duration between March - July 1999 and other one or two day visits to attend certain key events (SME workshops, conferences and dissemination events⁹). Contact with the project then tailed off between July 1999 - April 2000, consisting of attendance at similar key

⁸ Corresponding to the *Operations Management in a Strategic Context* teaching programme which ran from April to June in each of the years 1998 and 1999

events (between 1-3 days) as agreed with the *EuroPILOT* project manager. In between visits, the time was used for transcription and analysis of interview tapes and planning for subsequent visits.

2.3.1 SME Survey

This section explains the initial research design, data collection methods and data analysis adopted for the *SME survey*.

Initial research design

Initial interview contacts were made through contacting colleagues in the Business Studies Department at The University of Edinburgh for possible interviewee suggestions. This provided contacts with several SME management development training providers. This category of key informants in the *SME Survey*, and others added over time, are illustrated in figure 2:

Figure 2: *SME survey* key informants

- SME managers;
- SME management development training providers;
- SME and general management learning technology developers/providers;
- HE SME management development learning technology training researchers, developers and providers;
- HE SME management researchers;
- HE/SME liaison specialists;
- HE management learning technology developers;
- Further Education (FE) SME management development learning technology providers; and
- Management learning technology implementation project managers.

Further selection occurred largely through “snowballing”¹⁰ (Jorgensen, 1989), personal contacts and Internet searches, but guided by the need to try to obtain a representative viewpoint from each of the groups outlined above (appendix 1 provides the list of interviewees). This included groups not involved in the SME sector but active in the area of general management learning technology development (HE management

⁹ Chapters eight, nine and ten provide a detailed account of the events attended.

¹⁰ The “snowball effect” refers to other contacts suggested by interviewees and surfaced from reviewing material provided by interviewees. Snowballing is often deemed the most suitable

learning technology developers and management learning technology implementation project managers). The interviewees were used as key informants or “elite” respondents (Marshall and Rossman, 1989). Marshall and Rossman (1989) describe elites as influential, prominent, and well-informed people in an organisation or community, who are selected for interview on the basis of their expertise in areas relevant to the research. Most interviewees were eager to share their knowledge, perhaps owing to the fact that the idea of technology-based management development programmes for SMEs was just coming to the fore at the time. It was hoped that this process would also lead to access to one or more technology-based SME management development programmes. In time it did lead to access to one programme (*EuroPILOT*), but there was a considerable delay owing to the fact that few such programmes were actually underway. The research design adopted semi-structured interview schedules as the most appropriate method of interviewing (this is reported on in more detail in the section below concerned with data collection methods). The three main parts of the semi-structured interview schedule were related to SME management development needs, barriers to meeting these needs and perceptions of technology-based solutions. The first two are widely reported in the literature, but in a pilot trial of the semi-structured interview schedule with four interviewees, asking these two questions proved useful as a “warm-up” to the interviewees’ perceptions of technology-based solutions to the problems identified. It also allowed the researcher to paint a picture of the SME learning environment, which was also supplemented with evidence from the literature and as such represented a form of “triangulation”, which it is claimed lends authenticity to research findings (Marshall and Rossman, 1989). In the pilot trial, interviewees were invited to view the *Virtual Visit* courseware at the University of Edinburgh as an example of a technology-based management development solution, albeit not one designed for SMEs. This also proved useful in stimulating conversation about technology-based management development solutions. However, as other interviews were held outwith The University of Edinburgh, the *Virtual Visit* courseware was not used as a prompt unless the interviewee had web access and/or was unfamiliar with technology-based management development solutions. In the event, the *Virtual Visit* courseware was only demonstrated to one other interviewee.

technique for sampling hidden or hard to reach populations (Jorgensen, 1989).

Data collection methods

The method of data collection involved semi-structured interviews (appendix 2). Initial interviews were conducted in Edinburgh and other parts of Scotland, but as the survey gathered momentum further contacts were made in London and other parts of the South-East of England. The survey consisted of 29 interviews (appendix 1), each generally lasting between one to two hours, and took place between July 1997 - January 1998. The first three interviews took place in the researcher's office at The University of Edinburgh and were part of a pilot trial of the semi-structured interview schedule design. The majority of the remaining interviews took place in the place of work of the interviewees, with one occurring in a restaurant.

According to Marshall and Rossman (1989), researchers conducting in-depth interviews typically have a few general topics, or "grand tour" questions (Spradley, 1979). The *SME Survey* "grand tour" questions concerned SME learners' management development needs, barriers to meeting these needs and perceptions of technology-based solutions. It was explained to each interviewee in the pilot survey that the author lacked direct experience with the SME sector, but had been involved with developing multimedia management courseware for business students and was interested in how this sort of technology might be used by SME learners. This allowed the asking of "naive" questions to encourage interviewees to expand on their views and experience. Non-directive probes and follow-up questions were used in order to clarify or expand upon issues. Examples were also sought whenever possible, with assurances that the details would remain confidential (although in the event only one interviewee was actually concerned about confidentiality).

Marshall and Rossman (1989) claim that elites respond well to inquiries related to broad areas of content, and to a high proportion of intelligent, provocative, open-ended questions that allow them the freedom to use their knowledge and imagination. Attempts were made to reflect this in the design of the semi-structured interview schedule. The initial contacts (i.e. those suggested by colleagues and through the researcher's own personal contacts) provided the basis for a pilot study with five interviewees which allowed for a trial run of the semi-structured interview schedule.

Marshall and Rossman (1989) advise that researchers conducting in-depth interviews respect the way in which participants frame and structure their responses. The pilot survey proved valuable in that it provided experience with these sort of issues, and also with the practicalities and sensitivities associated with recording interviews on audiotape.

Data analysis

Marshall and Rossman (1989) claim that data analysis brings order, structure and meaning to the material collected. They describe this process as:

“... a messy, ambiguous, time-consuming, creative and fascinating process. It does not proceed in a linear fashion; it is not neat. Qualitative data analysis is a search for general statements about relationships among categories of data; it builds grounded theory.”

(Marshall and Rossman, 1989:112)

This certainly proved to be an accurate description. Ideally, the Glaser and Strauss (1967) approach of joint collection, coding and analysis of data would have been strictly followed. Due to time constraints, transcribing and detailed analysis took place once the interviews were completed. Between interviews however, tapes were listened to and the themes and ideas noted were fed into subsequent interviews.

Following Thompson *et al.* (1989), a part-to-whole mode of interpretation was used in analysing the transcripts. Each transcript was first examined as a distinct entity for emergent themes and patterns. Separate transcripts were then related to each other in order to identify common themes. In generating themes, a balance was sought between “lived” and “conceptually abstract” concepts (Thompson *et al.*, 1989). As Glaser and Strauss (1967) observe:

“To make theoretical sense of so much diversity in his data, the analyst is forced to develop ideas of generality higher in conceptual abstraction than the qualitative material being analysed.”

(Glaser and Strauss, 1967:114)

Qualitative research, focusing on the informant’s perspective, requires the researcher to “bracket” preconceived ideas and theories and refrain from imposing them on the data. Nonetheless, Glaser and Strauss (1967) argue that some categories may be usefully borrowed from existing theory, although they may need to be adapted in

some way to fit the data. In this case, as reported in chapter three, themes relating to SMEs' management development needs, barriers to meeting these needs and the possibilities for technology-based solutions were developed in tandem with themes identified in the literature. There was considerable agreement between the literature and interview data in terms of SME development needs and barriers to meeting these needs, as discussed in chapter three. However, as reported earlier, these two questions acted as important "warm-up" questions prior to questions about technology-based solutions, and also allowed the researcher to paint a picture of the management development industry based on firsthand interviews. Themes that emerged with regard to this latter question were, not surprisingly, covered sparsely in the literature.

When all the material from the interviews was coded, the transcripts were examined and compared in relation to particular themes. During this process of constant comparative analysis, the researcher also considered his own experience with the use of learning technology, albeit for undergraduate students in a higher education setting. Glaser and Strauss (1967) refer to such "anecdotal comparisons" as a form of "triangulation":

"Through his own experiences, general knowledge, or reading, and the stories of others, the sociologist can gain data on other groups that offer useful comparisons."

(Glaser and Strauss, 1967:67)

From the broad categories, more detailed concepts emerged at this stage. As suggested by Glaser and Strauss, lower-level concepts emerged more quickly while higher level or integrating concepts took longer. As "theoretical saturation" set in (Glaser and Strauss, 1967), few new insights into conceptual categories were obtained and the theory began to cohere. When data relating to each broad category had been analysed in this way, the notes or "analytic memos" written while coding were used to construct the analysis. The original transcripts were returned to frequently at this stage, to allow for checking of direct quotations or the clarification of the context of comments. The findings of this process were also published in the *Educational Technology and Society* journal (appendix 42) and the blind referee reviews obtained coupled with subsequent additional editing further helped to cohere the theory and provided another means of "triangulation" (Jick, 1979; Denzin, 1988; Marshall and Rossman, 1989) of research results.

The survey essentially offered second-hand accounts of SME learners' experiences and likely reactions to learning technology, filtered through the interviewees' professional interest (Anderson, 1983) in the management development industry, apart from the three interviews that were conducted with SME managers. However, this provided the starting point for the development of a rich account of the issues associated with SME learners' use of learning technology, achieved through further "triangulation" with the literature reviewed and the two case study evaluations.

2.3.2 Virtual Visit

This section explains the initial research design, data collection methods and data analysis adopted for the *Virtual Visit* evaluation.

Initial research design

The selection of the *Virtual Visit* case study¹¹ stemmed from the researcher's role as tutor on a business studies course, *Operations Management in a Strategic Context*, which was introducing learning technology for the first time in 1997 at The University of Edinburgh. In addition, the researcher had also been employed prior to beginning the thesis in the closing stages of the development of the learning technology to be used (*Virtual Visit*), so was familiar with the technology, its design and navigational properties. The research design encompassed a questionnaire survey of learners, participant observation and formal and informal discussions with the course co-ordinator (who had also been the *Virtual Visit* courseware development project manager). These aspects are considered in more detail later in the section concerned with data collection methods. What follows in this section is an account of how they were arrived at as the main elements of the research design for the *Virtual Visit* evaluation.

¹¹ The use of the term "case study" here refers to the analysis of the use of the *Virtual Visit* courseware rather than the organisational case studies that make up the *Virtual Visit* courseware.

In order to achieve as authentic an analysis as possible, the importance of continually reviewing the main research question being addressed and the value of observing real students was placed high on the agenda:

“...you must continue to ask whether your question is the right one and to make open-ended observations that may alert you to unforeseen issues, and that estimates no matter how expert are not going to be as accurate as actual measurements i.e. observing real students learning will always be more informative than consulting teachers and other experts, although it is usually more difficult and expensive.”
(Draper, 1996:58)

Draper (1996) also recognises that there are many possible ways of carrying out evaluations, but identifies two aspects likely to be the most important: opinion, memory and observation; and systematic surveys vs. surprise detection. For the first of these aspects, Draper (1996) claims:

“...although costs and opportunities may not often allow optimal methods, it is in general best to base evaluation on actual learning by representative students who really want to learn (not the opinions of onlookers or the performance of special subjects bought in for a trial); to test what they actually did learn, rather than asking whether they felt they learned; and if possible to observe them as they try to learn, and pick up as many observations from them as possible..... Personal observation and interviewing gives better information than questionnaires, but on the other hand realistic classroom trials usually have all students learning at the same time, so questionnaires may be a sensible compromise in order to get data from the whole class with only one or two investigators.”
(Draper, 1996:60)

As a result attempts were made to address these points. The analysis was based on ‘actual learning by representative students who really want to learn’ (Draper, 1996:60). As students were learning at the same time in their respective tutor groups, questionnaires (appendices 3 and 4) were used as a ‘sensible compromise’ (Draper, 1996:60) to interviews, and the results of these were coupled with personal observation and formal and informal discussions with the course co-ordinator. Although Draper advises against including opinions of onlookers, in this case it seemed sensible to discuss issues with the course co-ordinator and designer of *Virtual Visit* owing to his knowledge of both the learning technology and the student cohort.

For the second of these aspects, that is the need for both systematisation of survey results and the allowance for surprise detection, the questionnaire provided fixed questions with the opportunity for further comment in certain instances. This, coupled

with observation, thus generated comparative results while addressing the surprise detection issue:

“Methods such as exam-type questionnaires with fixed response categories will never warn you that something you did not anticipate is in fact important in the situation you are studying. Hence it is vital always to have some open-ended questions and preferably personal observation by the evaluator. Open-ended questions and observations are not a substitute for fixed questions: only by putting the same questions or task to each learner and requiring the answers to be expressed using the same categories can you get comparative results that allow you to discover and report results such as what proportion of learners are affected by an issue.”

(Draper, 1996:60)

Data collection methods

The data collection methods employed in the analysis of the *Virtual Visit* implementation were a mixture of questionnaire survey, participant observation, and discussion with the course lecturer. Each of these was used within an overarching action research approach to data collection.

Action research

“Action research means intervention in a world where everything can be happening at once and it is impossible to be sure what arises from what, where there is no ethical way of controlling (or measuring) the ‘intervening variables’ because those ‘intervening variables’ are actually people with their emotional responses, their conceptualisations, their needs, their defence mechanisms etc.”

(Taylor, in Armstead, 1999:23)

The overall data collection method employed to analyse the *Virtual Visit* implementation was one of action research. Taylor (in Armstead, 1999) claims that positivist models of research (laboratory driven) do not always travel well into the realm of the practitioner. This may be due to the focus of attention being directed towards the intervening variable, at the expense of other processes ongoing within any hypothetical construct (Taylor, in Armstead, 1999). Action research is a method more often found within education, where practitioners reflect on their current practice and seek ways to progress pedagogy through “praxiology” (Taylor, in Armstead, 1999). “Praxiology” can be defined as:

“... a set of principles to guide teachers in translating educational aims into concrete pedagogical practices.”

(Elliot, in Armstead, 1999:23)

Action research is a convenient way of overcoming the problems associated with removing the action of practising education from the research into education (Taylor, in Armstead, 1999). It is convenient because it allows researchers to pose questions about contemporary issues affecting their practice, but does not require them to reduce potential operational difficulties to an atomistic level (Taylor, in Armstead, 1999). Armstead (1999) claims that this offers advantages for the action researcher compared to the positivist researcher - whilst the positivist has completed one research cycle, the action researcher will have completed several in the same time-scale, formulating and reformulating hypotheses, gathering data and evaluating progress along the way. Armstead (1999) also makes claims about other aspects of the pragmatic nature of action research:

“Action research is a methodology that would, for example, enable hypermedia to be sidelined in favour of something as low key and pedagogically appropriate as the teaching process as the research progresses. Lecturing styles which impress at the expense of learning can be identified; criticisms of researcher bias in carrying out evaluations can be countered. Provided the evaluator states their impact on the process and is reflexive in their reporting, the verifiers (people to whom the evaluation is disseminated), can attend to the relevant sources of bias and proceed accordingly.”
(Armstead, 1999:23)

Within this overall action research method, the data collection methods employed in the evaluation consisted of student questionnaires, participant observation by the tutor, and formal and informal discussions with the course co-ordinator. Each of these methods is now examined in turn.

Questionnaire survey

The questionnaire survey (appendices 3 and 4) was administered to the students in the last of the four multimedia tutorials the students encountered in the final week of their course, in each of the years 1998 and 1999. It may have been preferable to administer a questionnaire at the end of each multimedia tutorial but this was judged to be an undue interference given the amount of work the students had to get through in class. The questionnaire was designed collaboratively with the course lecturer. Figure 3 presents some of the advantages and disadvantages of questionnaires (Milne, 1998:52):

Figure 3: Some advantages of questionnaires.

- Responses are gathered in a standardised way, so questions are more objective, certainly more so than interviews.
- Generally it is relatively quick to collect information using a questionnaire.
- Potentially information can be collected from a large portion of a group. This potential is not often realised, as returns from questionnaires are usually low. However return rates can be dramatically improved if the questionnaire is delivered and responded to in class time.

Source: adapted from Milne (1998:52)

These advantages were evident, particularly since the questionnaire was delivered and completed in class time. However, Milne (1998) also highlights some possible disadvantages associated with the use of questionnaires, as illustrated in figure 4:

Figure 4: Some disadvantages of questionnaires

- Questionnaires, like many evaluation methods occur after the event, so participants may forget important issues.
- Questionnaires are standardised so it is not possible to explain any points in the question that participants might misinterpret. This could be partially solved by piloting the questions on a small group of students or at least friends and colleagues.
- Open-ended questions can generate large amounts of data that can take a long time to process and analyse. One way of limiting this would be to limit the space available to students so that their responses are concise or to sample the students and survey only a portion of them.
- Respondents may answer superficially especially if the questionnaire takes a long time to complete. The common mistake of asking too many questions should be avoided.
- Students may not be willing to answer the questions. They might not wish to reveal the information or they might think that they will not benefit from responding perhaps even be penalised by giving their real opinions. Students should be told why the information is being collected and how the results will be beneficial. They should be asked to reply honestly and told that if their response is negative this is just as useful as a more positive opinion. If possible the questionnaire should be anonymous.

Source: adapted from Milne (1998:52)

Thus possible disadvantages of questionnaires were identified and attempts made to tackle these issues. The questionnaires were administered at the end of one of the multimedia tutorials rather than after the event in order to capture issues that would be fresh in the minds of the interviewees. A pilot survey (Evans, 1997) had been used as a trial with one tutorial group the previous year and as a result the survey design was reappraised and adjusted as necessary. Although open-ended questions were included

space for completing answers was limited in order to encourage conciseness in replies. Attempts were made to keep the questionnaire as short as possible and to the point. The researcher's position as tutor, coupled with the anonymous nature of the questionnaires, hopefully eased the process of encouraging the students to be open and honest in their answers, and also allowed for the purpose of the survey to be clearly indicated.

Participant observation

As the researcher was the *Virtual Visit* tutor, he was a member of the group studied. This allowed for a form of participant observation, as Becker and Geer (1982) claim:

“The term ‘participant observation’ covers several kinds of research activity. The researcher may be a member of the group he studies; he may pose as a member of the group, though in fact he is not; or he may join the group in the role of one who is there to observe.... In general, the participant observer gathers data by participating in the daily life of the group or organisation that he studies. He watches the people he is studying to see what situations they ordinarily meet and how they behave in them. he talks with the other participants and discovers their interpretations of the events he has observed.”

(Becker and Geer, 1982:239)

In this case the observer, in his role as tutor, was also taking an active, and to some extent directive, part in the process being observed. Although this hindered the observation process at times, it also helped it in that responses to student queries developed the researcher's awareness of any difficulties they were facing and allowed the opportunity for classroom conversations about the courseware. Also, as the researcher was most actively involved in the tutorials only at the beginnings and ends of each session, this allowed time for observation note taking. However, the researcher did not disturb the students during this time in order to minimise disruption of the learning objectives of the tutorials.

Discussion with the course co-ordinator

Issues arising in the multimedia tutorials were discussed with the course coordinator/course lecturer both formally and informally and via telephone and email, as well as face-to-face. This allowed the researcher to continually discuss

observations made in the computing laboratory, and helped to shape changes in the role of the tutor during the multimedia tutorials.

Data analysis

The results of the questionnaire survey formed the main basis for initial data analysis. Results from 1998 and 1999 were presented as tabled percentages, allowing comparisons of changes between the two years. Statistical analysis of the data was not attempted as the objective was not to “prove” different trends between the two years. Rather, it was to “triangulate” (Jick, 1979; Denzin, 1988; Marshall and Rossman, 1989) the questionnaire survey results with participant observation and discussions with the course co-ordinator in order to form an overall evaluation of issues concerning the effective integration of learning technology into the existing course. This “triangulation” process was further enhanced by the inclusion of the results of a survey from Heriot-Watt University, where the *Virtual Visit* courseware was also being used for the first time. Finally all the data gathered was aligned within the *LTPF* in order to provide a coherent structure to the analysis and to highlight those areas of most importance.

2.3.3 EuroPILOT

This section explains the initial research design, data collection methods and data analysis adopted for the *EuroPILOT* evaluation.

Initial research design

Gaining access to a technology-based SME management development programme proved difficult: very few established projects were in existence when the thesis research started, and access to those that were proved difficult. The eventual access to the *EuroPILOT* case study in January 1999 resulted from contacts made through the *SME survey*. The initial contact at the University of East London arose from a posting to a web-based SME learning discussion group. This was answered by the director of the business development centre at the university and, although he declined an initial request for an interview, the researcher persuaded him to meet for half an hour when

in London completing another interview. Part of the persuasive technique involved an appeal to spare some time for a researcher originally “born and bred” in the locality. Another was to send a working paper based on the *SME survey* to the director prior to the first meeting. Thus, to some extent at least, the advice of Buchanan *et al.* (1988), who suggest an “opportunistic” but ethical and rigorous approach employing “devious strategies” in seeking out sites for field research, was followed. Following this initial rushed meeting in the staff canteen, an invitation was received to meet with both the director and the *EuroPILOT* project manager. At this second meeting, the director and project manager were very open about the fact that they were “learning-by-doing” in the *EuroPILOT* programme and welcomed further input to the project. The researcher recorded the conversations at both meetings, which seemed to lend a certain gravitas and professional air to the proceedings. Following the second meeting it was agreed that the researcher could act as a participant observer at learning events, conduct interviews with both the facilitators and the learners, and gain access to relevant *EuroPILOT* documentation.

Data collection methods

The data collection methods employed in the evaluation of the *EuroPILOT* implementation were a mixture of unstructured interviews, semi-structured interviews, questionnaire surveys, participant observation, email discussions and telephone calls, and the gathering of secondary data. Each of these was used within an over-riding action research approach to data collection.

Action research

Unlike the *Virtual Visit* evaluation the researcher was not involved as a facilitator on the programme, but the evaluation activities were fed back into the way the *EuroPILOT* programme was run on an action research basis.

Once the case study had been selected, data collection methods had to be decided in order to gather data with which to answer the research questions, bearing in mind what was possible at the fieldwork site. As the focus was on integrative evaluation, as

for the *Virtual Visit* case study, any data that could throw light on the overall teaching-learning process was collected. This led to a "scattergun" and opportunistic technique of data collection, which offered flexibility to both the researcher and the *EuroPILOT* facilitators. It also allowed for the "triangulation" of data (Jick, 1979; Denzin, 1988; Marshall and Rossman, 1989) to lend greater authenticity to the findings. This entailed using a variety of methods, including questionnaire surveys, participant observation, semi-structured interviews and many formal and informal discussions with both facilitators and learners.

Data was collected from January 1999 until March 2000. This started with an interview with the director of the business development centre as mentioned above, which then led to contact with the project manager and access to the *EuroPILOT* programme. Following these initial discussions the researcher was invited to attend an orientation workshop with participants of the programme. A questionnaire survey was prepared for this through liaison with the project manager. Following this event the researcher began to visit the project on a frequent basis until July 1999, and more infrequently until March 2000. The most intensive period of data collection occurred between March - July 1999.

The structure and location of interviews varied. Initial interviews with the director of the business development centre and the *EuroPILOT* project manager were sometimes semi-structured and sometimes unstructured. The former tended to occur in various offices and meeting rooms at the University of East London. The latter tended to occur over meals with the project manager in a local Chinese restaurant. As clearer themes and issues emerged, semi-structured interviews were carried out with each facilitator. The location of these interviews ranged from the canteen to the open learning centre to a public house, depending on the choice of the interviewee. The latter interview schedule was drawn up through liaison with the project manager and one of the facilitators. Interviews with facilitators lasted between 30 minutes to three hours.

There was a significant interplay between interview and observation methods of data collection. This meant that specific issues raised in both facilitator and learner interviews could then be directly related to other facilitators and learners in

subsequent interviews. Similarly, points raised in interviews could be followed up in more informal contexts with both learners and facilitators. In some cases, interviews provided the opportunity to discuss events previously witnessed as examples of particular points. As involvement with the project increased, the richness and cyclical nature of the interview and observation methods also increased.

With the consent of interviewees, all semi-structured interviews were recorded on audio-tape. It became something of a standing joke that the researcher might be recording things at any time, but generally interviewees appeared to appreciate the fact that their opinions were being taken seriously in this way. However, initially it appeared that the facilitators were suspicious of the researcher's role in the project. They perhaps felt that they personally were under scrutiny, as a teacher subjected to the visit of a school inspector might. Upon reflection, in some respects they were, as the researcher was interested in the overall teaching-learning process and the integration of the technology within this. Attempts were made to minimise such fears by outlining the purpose of the interviews and participant observation.

The researcher was introduced to the facilitators and learners as an evaluator from The University of Edinburgh, although his connections with the local area were also highlighted. Some of the learners seemed bemused and amused by the researcher's presence (one was antagonistic as he thought the evaluator should be from London) while some of the facilitators seemed suspicious. The researcher tried to maintain a discreet distance at all learning events in order to minimise disruption, but sometimes was called upon to say something about the nature of the research, contribute to a discussion, or distribute a questionnaire. Fieldnotes of observations were made at the time of a learning event or as soon afterwards as possible: at lunchtime, during the proceedings and breaks in the proceedings, or in the evenings, and were subsequently transcribed. They consisted of details about the learning events, how they were integrated with the learning technology on offer, conversations entered into or overheard, and anything else interesting or potentially useful: all typical features of social situations that can be observed (Spradley, 1980).

Negotiations to run another user survey were made but the appointment of another evaluator with a different research agenda (issues faced by small family businesses)

and a vested interest in the *EuroPILOT* programme eventually ruled this out. This vested interest was mentioned by the initial *EuroPILOT* project manager who explained that the University of East London was undertaking some work with the family business evaluator's university in a type of exchange deal. Access to the other evaluator's results also proved unavailable despite initial promises. As a result the researcher was gradually phased out of the project from September 1999 until the final contact in March 2000, apart from attendance at key events in the meantime as outlined above. The final contact in March 2000 represented a chance to attend a *Business E-effective* workshop and to meet with the other evaluator, who was running the workshop. This provided insight into how the workshops are run and in gaining access to feedback from the two SME learners who attended, but there was little opportunity for discussion with the other evaluator or the new project manager. In later email correspondence with the project manager the researcher was asked to suggest ways of assisting the other evaluator in the evaluation process. A questionnaire survey, followed by selective telephone and/or face-to face interviews with individuals or small groups was proposed, but the *EuroPILOT* project manager did not eventually accept this offer.

Unstructured interviews

Several unstructured interviews were conducted with the initial project manager as mentioned above. Unstructured interviews 'maximise the possibility of coming upon unexpected data' (Becker and Geer, 1982:239). These were usually opportunistic in nature - for example the project manager would suggest a discussion in the boardroom - and therefore often provided some form of 'unexpected data' (Becker and Geer, 1982). Sometimes these were recorded and sometimes not, depending on judgements made by the researcher about the appropriateness of the situation in which the interview occurred.

Semi-structured interviews

Four semi-structured interviews were conducted with the project manager, Martyn Laycock, and the three facilitators (one of whom, Julie Taylor, later became the new

project manager). The design of the interview schedules (appendix 5) and interview process was similar to the points outlined in the *SME survey* section above.

Semi-structured interviews were also conducted with 27 learners between 5th - 6th July 1999 (appendix 6: *EuroPILOT Learners' Survey*)¹². The telephone survey attempted to contact at least one person from each of the forty SME companies registered on the *EuroPILOT* programme at this time. It proved difficult to contact *EuroPILOT* participants in fourteen of the registered companies, but two learners were interviewed in one of the other 26 companies, bringing the total number of interviewees to 27. The reason for conducting this survey was to obtain feedback about *EuroPILOT* from its SME participants, following Draper's (1996) claims about the value of contacting real learners as discussed in section 2.3.2 above. The survey had a particular focus on learning technology use and experiences with the supported self-directed learning model on which *EuroPILOT* was loosely based. All interviewees agreed to their interviews being recorded.

Initially visits to learners in the workplace were envisaged, but this was not very practical owing to the nature of the SME work environment: it would have been more intrusive to visit the SME learners in the workplace given the pressures that SME managers and employees face, as discussed in chapter two. Although the telephone survey was not as satisfactory as face-to-face interviews, most participants were willing to spend between 5 - 30 minutes and were very honest and open in their opinions. They had been prepared for the interview through a letter distributed to all *EuroPILOT* learners in the week prior to the telephone survey. Many seemed to appreciate the fact that someone connected to the programme had taken the trouble to contact them and ask them how they were feeling about their learning experiences.

Participant observation

“Observation is not always a feasible alternative and is considerably more expensive and time-consuming than is interviewing. It provides, however, firsthand reports of events and actions and much fuller coverage of an

¹² The time-scale for the telephone survey was short so as to minimise disruption to the interviewees, and to keep to the schedule of a notification letter sent to each of them prior to the survey taking place.

organisations' activities, giving direct knowledge of matters that, from interviewing, we could know about only by hearsay. Whether or not one should use observation in any particular study, depends on the resources available and the character of the problem one is attempting to solve.”
(Becker and Geer, 1982:239)

Participant observation occurred at a variety of learning events: initial contact seminars, workshops, conferences and a project-monitoring meeting. This allowed the researcher to immerse himself in the *EuroPILOT* programme experience and develop a much fuller coverage of *EuroPILOT* activities than would have been the case through relying on interviews alone (Becker and Geer, 1982). Also, the nature of the problem that was being addressed (Becker and Geer, 1982) required this sort of immersion to allow access to learners' and facilitators' interpretations of events (Becker and Geer, 1982).

Questionnaire surveys

As reported above, a questionnaire survey (the *Initial Reactions Survey*, appendix 7) was distributed to learners in initial orientation seminars. This was designed through liaison with the project manager and its aim was to elicit the initial reactions of learners to the programme they were about to undertake. Design was also influenced by issues addressed in the *Virtual Visit* questionnaire design process through a consideration of Milne's (1998) review of the advantages and disadvantages of questionnaires (section 2.3.2 above). On-line questionnaire surveys focusing on the *EuroPILOT* website, the *BEE* website and the *Decision Support System* (appendices 8, 9 and 10 respectively) were also employed but not responded to by the learners. The design of these questionnaires was based on a user evaluation checklist developed by the Open University¹³.

Email discussions and telephone calls

Throughout the time of contact with the *EuroPILOT* programme, the researcher sent and received a vast amount of emails, mainly to the two project managers, and made and received a smaller number of telephone calls. This perhaps represented a type of

¹³ <http://iet.open.ac.uk/PLUM/evaluation/UserEval/Check.html>

“virtual participant observation”, in that it served to immerse the researcher further into the activities of part of the group being observed (Becker and Geer, 1982).

Secondary data

When visiting the University of East London or attending key events at other locations, the researcher took every opportunity to gather literature about the *EuroPILOT* programme, the *BEE* open learning centre, and anything to do with SME learning in general. This helped to build up a picture of what the *EuroPILOT* programme, and other SME learning programmes, were trying to achieve.

Data analysis

The questionnaire survey results were analysed and presented along with the telephone survey analysis in a report to the *EuroPILOT* project manager. The telephone survey of learners provided the main building block for the evaluation. The transcripts were analysed in a similar fashion to that described for the *SME Survey* (section 2.3.1 above). Thus the analysis of interviews attempted to follow a "grounded theory" approach, although some preconceived themes were emerging as a result of completing the *SME Survey*. The interview data was then “triangulated” with the other data collection methods: participant observation, unstructured and semi-structured interviews with facilitators, email correspondence, telephone calls and the secondary data gathered. Finally (as for the *Virtual Visit* evaluation), all the data analysed was aligned within the *LTPF* in order to provide a coherent structure to the analysis and to highlight those areas of most importance.

2.3.4 SME Learning Survey

This section explains the initial research design, data collection methods and data analysis adopted for the *SME Learning Survey*.

Initial research design

The *SME Learning Survey* is comprised of 10 interviews with key SME stakeholders familiar with learning technology solutions for SME management development. Seven participants for the *SME Learning Survey* were drawn from contact with an SME management development programme, the *Management Development Programme for Women (MDPW)* at the University of Prince Edward Island, Canada. The researcher had been involved in the evaluation of this programme's introduction of learning technology into its campus-based course for the first time in 2001/02. The international aspect of the study provided the opportunity for adding an extra dimension to the UK-based nature of the *SME Survey* and *EuroPILOT analysis*, as well as the chance to further "triangulate" findings. The *SME Learning Survey* also included 3 UK-based participants: the owner-manager of a UK-based learning technology company with knowledge of the *EuroPILOT* programme and experience as a project partner in a HE programme to deliver technology-based learning solutions to SME learners; a former project manager of the *EuroPILOT* programme; and the Finance Director of a UK-based e-business.

The interviewees were used as key informants or "elite" respondents (Marshall and Rossman, 1989). All the participants were selected on the basis of being involved in or aware of attempts to meet the management development needs of SME learners through technology as either learners, SME owner-managers, HE or private sector trainer providers, learning technology developers, evaluators, or combinations of these categories (appendix 11). They were also drawn from the three SME employee size categories of micro (1 - 9), small (10 - 50) and medium (50 - 249).

Data collection methods

The data collection methods employed in the *SME Learning Survey* were a mixture of semi-structured and unstructured interviews, and email or telephone "follow-ups" based on interview content. All interviews took place between May - September 2002. The unstructured interviews were employed in *ad hoc* meetings with the three UK-based interviewees. Semi-structured recorded telephone interviews (appendices 12, 13

and 14) were used to interview the *MDPW* contacts, with interviews generally lasting between 30 minutes to one hour (in one case the interview lasted for two hours). Owing to the author's involvement as an evaluator of the *MDPW* programme, it was also possible to follow-up on points raised by the use of email and further telephone calls. The author was also invited to present evaluation results via teleconference to a workshop in Prince Edward Island aimed at developing and disseminating the *MDPW* programme. Results were further "triangulated" through the joint authoring of a programme evaluation report commissioned by the University of Prince Edward Island.

Data analysis

The interview transcripts were analysed in a similar fashion to that described for the *SME Survey* (section 2.3.1 above). The analysis of interviews followed an even more modified grounded theory approach, as preconceived themes had emerged as a result of completing the *SME Survey and EuroPILOT analysis*. The interview data was then "triangulated" with the other data collection methods: email correspondence, follow-up telephone calls and the *MDPW* workshop teleconference presentation by the author.

2.4 Discussion

The methodological difficulties of bridging across the SST/MoT and Cognitive Science disciplines led to the adoption of a range of approaches to maximise information and insights that could be gleaned from the diversity of data and opportunities available in such an interdisciplinary study. Through this amalgam of approaches and techniques, the main aim was to understand as much as possible about what was going on. Thus the methodological approaches were essentially qualitative in nature and oriented to understanding the whole of the situation rather than focusing in on trying to identify key variables or testing specific development hypotheses, which would be a more usual approach in the Cognitive Science discipline. As a result the overall methodological approach, particularly the emphasis on the use of semi-

structured interviews, is much more in keeping with the Sociology of Technology discipline than the Cognitive Science discipline.

The following four chapters provide commentaries on various literatures and areas of research (illuminated by primary research in the case of chapter three). These lead to the development of the *LTPF* at the close of chapter six, which is used in making sense of the empirical materials collected (chapters seven to eleven) and in drawing lessons for future application and research.

Chapter three

Learning technology implementation in the SME learning environment

This chapter examines the potential for learning technology to meet the management development needs of SMEs. Although technology-based SME management development programmes are being advocated under the auspices of the government's lifelong learning initiatives, there is a lack of direct empirical research in the area of SME management development learning technology implementation. For this reason, this chapter is a hybrid between literature review and primary empirical research. The primary empirical research consists of a survey of SME key informants (*SME Survey*) in order to: paint a picture of the SME learning environment; and to identify possible barriers to technology-based SME management development programmes run by university business schools.

The *SME Survey* consists of semi-structured interviews (appendix 2) with 29 key informants (appendix 1) in the SME sector and the more general management learning technology field. The key informants are categorised as illustrated in figure 5:

Figure 5: *SME Survey* key informants

- SME managers;
- SME management development training providers;
- SME and general management learning technology developers/providers;
- HE SME management development learning technology training researchers, developers and providers;
- HE SME management researchers;
- HE/SME liaison specialists;
- HE management learning technology developers;
- Further Education (FE) SME management development learning technology providers; and
- Management learning technology implementation project managers.

Three main themes, reflecting the three main questions employed in the semi-structured interview schedule, emerge from the analysis of interview data:

1. Identification of generic SME management development needs;
2. Barriers to common SME management development needs; and
3. Perceptions of how technology-based SME management development solutions can overcome barriers to meeting common SME management development needs.

The first theme, generic SME management development needs, is widely reported in the literature, but its inclusion in the survey allowed the interviewer to gain a first-

hand appreciation and familiarisation with the main issues. It also allowed the interviewees to become more comfortable with answering subsequent questions about barriers and perceptions of technology-based solutions. The second theme, barriers to common SME management development needs, is also widely reported in the literature, but the aim here is to provide a comprehensive overview of barriers to the uptake of SME management development opportunities. Coverage of the third theme, perceptions of learning technology-based management development solutions, is lacking in the literature. A consideration of all three themes also allows a comprehensive picture of the SME learning environment to be painted.

The chapter begins by first examining current policy issues facing the SME management development industry. It then considers general management development needs, and follows this with an economic analysis of the management development industry to identify drivers of demand for SME management development. This leads to an examination of demand and supply-side barriers to SME management development uptake, in order to illustrate issues affecting the uptake of management development opportunities. Then perceptions of the suitability of new learning technologies as a solution to demand/supply imbalances are investigated. Finally, the overall discussion in this chapter is used to add to, and refine, the research questions of this thesis as presented at the close of chapter two.

In summary the main aim of this chapter is to paint an overall picture of the SME learning environment by considering:

- the current issues in the SME management development industry;
- common management development needs of SMEs;
- drivers of demand for common SME management development opportunities;
- demand and supply-side barriers to meeting these needs;
- perceptions of learning technology-based solutions to common SME management development needs.

3.1 Current issues in the SME management development industry

Although there is widespread acknowledgement of the need for management development for SMEs, there is less clarity about how this should be achieved. Storey (1994) claims that the issues concerning management development for SMEs has been informed as much by received wisdom as by facts derived from rigorous empirical research. Stockley (1999) argues that the SME management development industry is facing the same issues today as it did ten years ago, and paraphrases Nelder (Nelder in Stockley, 1999) to support this viewpoint:

“What makes us think that any of the talking we are doing now is going to make any difference? It needs real innovation, it needs real new thinking, and maybe we have to start examining ourselves very hard, because we have failed so far.. .”
(Nelder in Stockley, 1999:1)

This uncertainty is not helped by the application of the umbrella term “SME” to firms which differ widely in terms of factors such as size, organisational structure and stage of growth, as mentioned in chapter 1, section 1.3. As a result, the policy environment relating to small firm learning support in the UK is undergoing radical restructuring. Two key initiatives are the Small Business Service (SBS)¹⁴ and the University for Industry (Ufi)¹⁵.

The Small Business Service, established in April 2000, has two main responsibilities: to act as a strong voice for small businesses at the heart of government; and to improve the quality and coherence of Government’s support programmes for small businesses and ensure that they address their needs (Townley and McKenzie, 2000). It is particularly stressed that one of the main objectives of SBS will aim at improving the understanding of small business needs (Townley and McKenzie, 2000). According to the green paper, “The Learning Age: a Renaissance for a New Britain” (1998), Ufi will ‘make it easier for firms and individuals to learn’¹⁶. It will have strong links with the National Grid for Learning¹⁷ (an architecture of interconnecting networks and education services based on the Internet to support all areas of learning), and with

¹⁴ <http://www.sbs.gov.uk/>

¹⁵ <http://www.ufi.com/>

¹⁶ <http://www.lifelonglearning.co.uk/greenpaper/index.htm>

¹⁷ <http://www.ngfl.gov.uk/>

other initiatives that promote the effective use of information and communications technologies such as the Information Society Initiative (ISI) Programme for Business¹⁸, and The Enterprise Zone¹⁹ (Townley and McKenzie, 2000). As such, Ufi has the greatest relevance to the subject matter of this thesis, but there will undoubtedly be overlap with the SBS, ISI, The Enterprise Zone and other similar initiatives in providing for the management development needs of SMEs. In the “Learning Age” green paper (1998), Ufi is placed at the centre of the government’s lifelong learning policies, thus heralding an era of change for SME management development providers (including higher education) with an emphasis on the use of learning technology:

“The Ufi will make a unique contribution to the learning revolution. Just as the Open University helped transform attitudes to higher education in the 1970s, so the University for Industry will help change attitudes to learning and acquiring skills in the new century²⁰....We want to help change the culture in small firms by linking learning more closely with business performance and by lifting obstacles to learning. This will be a major role for the University for Industry²¹”.
(The Learning Age green paper, ch. 1, section 3 and ch. 3, section 4)

This type of rhetoric may be common owing to the high expectations surrounding the introduction of new technologies. Harnessing the potential of new technologies for learning in SMEs may be a more difficult task than at first appreciated owing to two main inter-related issues. Firstly, it is likely to require a closer understanding of the nature of the SME learning environment, that is of SME management development needs, drivers of demand for SME management development, and the existing barriers to meeting these needs. Secondly, there may be a lack of knowledge about how to implement effective management learning technology solutions for the SME sector (let alone the HE sector), and HEIs in particular do not have a strong history of meeting SME learning needs. This second issue is examined in the empirical work of chapters seven, eight, nine, ten and eleven. This chapter examines the first of these issues by painting a picture of the SME learning environment, before closing with a consideration of perceptions about how technology-based solutions might work in practice.

¹⁸ <http://www.isi.gov.uk/>

¹⁹ <http://www.enterprisezone.org.uk>

²⁰ <http://www.lifelonglearning.co.uk/greenpaper/ch1003.htm>

²¹ <http://www.lifelonglearning.co.uk/greenpaper/ch3004.htm>

3.2 SME management development needs

Gray and Lawless (1999, 2000) claim that there is an abundance of research into the management development needs of SMEs:

“Despite the widespread aversion to training and other forms of systematic management development (indeed, most forms of general staff and skills development) among most SMEs, their training and development weaknesses have been quite thoroughly researched and documented.”
(Gray and Lawless, 1999:4)

However, Stockley (1999:9) claims that the SME sector has suffered from ‘an absence of attempts to undertake detailed and insightful needs analysis.’ He claims that surveys comprised of broad checklists inviting ticks against generic needs such as marketing, finance, production and HRD are of very limited use (Stockley, 1999). This may represent a dilemma for training providers and policy-makers in that identifying true needs is resource intensive and companies are generally unwilling to meet the cost of this (Stockley, 1999).

The “Bolton Report” (1971) classifies the main general management development needs of SME management and it is claimed that its findings still apply today both in the UK and across Europe (Stanworth and Gray, 1991, Storey 1994, Gray and Lawless, 1999, 2000). These management development needs, as set out in the Bolton Report, are: raising and using finance; costing and control information; organisation and delegation; marketing; personnel management; information use and retrieval; technological change; and production scheduling and purchase control. This section reports on the main management development needs identified in the *SME survey*, and later compares these with those illustrated in the “Bolton Report”. The survey did not attempt to undertake a detailed needs analysis of individual SMEs owing to problems with gaining access to SMEs and the scope of the study, but it did collect qualitative, rather than perhaps less useful quantitative, information about the main management development needs of SMEs (Stockley, 1999).

3.2.1 SME Survey

Some of the initial responses in the *SME Survey* indicated that pinpointing training needs for SMEs may at first be a difficult task because they represent such a diverse

and fragmented group, ranging from “low-tech” cottage industries to rapidly growing “high-tech” businesses:

“SME training needs are wide and various.....”
(Bill Steel, Bell College of Technology, *SME Survey*)

However, as interviewees considered the issue further, ideas about common training needs within the SME sector began to emerge:

“I would argue that many of the needs are common within small businesses. Yes, a multitude of different products but the reality is that somebody who starts a small business almost invariably knows his product inside out there are an awful lot of common issues in fact in small businesses and they’re not product related.”

(Eric Denton, Edinburgh Chamber of Commerce, *SME Survey*)

“...the whole range of management business planning, financial planning, customer care, there’s certainly a big demand for that. All the IT [Information Technology]... how to use the Internet, email, word processing etc.. .”

(Anne Gibb, Lauder College, *SME Survey*)

This illustrates that SMEs may have needs across a broad spectrum of management development and also have, in some ways, more immediate needs related to skills training in Information and Communication Technology (ICT)²². This perhaps reveals a possibility for combining management development training coupled with new ICT skills development as a way of promoting technology-based solutions. It also reveals something of a paradox - although there are common needs, the diversity of SMEs often requires more bespoke training solutions, or at least bespoke adaptations of generic training to suit each different context of use. Thus although the survey revealed common areas of management training needs, this may not offer ready-made solutions as Stockley (1999) claims.

The main management development needs identified in the *SME Survey* are: Finance; Marketing and Sales; ICT; Human resources; Exporting; and Strategic Planning. Each of these needs is now reviewed in turn before comparing them to the findings of the “Bolton Report”.

²² “ICT” is an “umbrella” term applied to a range of information and communication technologies, including learning technology.

Finance

A lack of understanding of finance is seen as a key issue for all companies, not just SMEs, pervading through to the highest levels in the largest companies:

“I did an analysis about twelve months ago, over a twelve month period of the sort of enquiries I was getting within the business development area and probably sixty percent of those initial enquiries related to finance. It typically starts, “I’ve got a cash flow problem”..... I don’t believe many managers are very well trained or understand finance as a subject. Most small businessmen, if you talk to them about finance would think about their bank overdraft. They don’t think about how finance should be structured. They don’t think about the various sources of financing that there are. They don’t understand about financial analysis and management within a company and what an impact that can have on the management and the decision making within a company”.

(Eric Denton, Edinburgh Chamber of Commerce, *SME Survey*).

Marketing and sales

This interviewee (Eric Denton) went on to explain how finance is intertwined with marketing and sales issues, but was careful to outline the differences between marketing and sales:

“...this question of, “I’ve got a cash flow problem”, invariably links back to lack of sales and that in turn links back to a lack of understanding of marketing principles which can then include whether somebody has got the ability to sell or not, separating the marketing issue from the sales issue.....My view there is I think it’s a real hands-on problem or issue and I would actually argue that on the survey that I did, if you could answer the financial questions and if you could provide marketing support, you’d probably answer eighty percent of your enquiries.”

(Eric Denton, Edinburgh Chamber of Commerce, *SME Survey*)

This is reinforced in the literature, for example as Gray and Lawless (1999, 2000) claim:

“Lack of financial skills and a tendency to be product-driven rather than customer-driven are two of the most frequently cited reasons for small firm failure.”

(Gray and Lawless, 1999:27)

This perhaps has implications for the content of SME learning technology development, suggesting that a concentration on finance and marketing and sales by funding providers may make the best economic sense.

Information and communication technology

Another area identified in the *SME Survey* is the inappropriate use of information and communication technology owing to a lack of ICT training:

“I don’t believe small businesses properly understand technology or the use of information technology and the benefits it can bring. Some businessmen have no idea what they [computers] can do for them.....they’re putting in these systems and they’re not training people on them. Or they are assuming that people know how to use them. I suspect that what’s going on is that if they have got as far as putting computers in they are being used at a very basic level, as word processors....”

(Jackie Pillinger, Lothian and Edinburgh Enterprise, *SME Survey*)

This interviewee also thought that a more efficient use of ICT could go some way to closing the skills gaps identified in the areas of finance and marketing by the use of accounting packages and client databases.

Human resources

Interviewees indicated that human resources (HR) management skills may be lacking depending on the background of the SME manager. If the manager has come from a background of working within a larger organisation it is likely that some training dealing with such issues as team building, motivation and leadership have been undertaken. But if this is not the case it is likely that these skills issues have not been formally addressed. Gray and Lawless (1999, 2000) report that human resource problems (organisation, delegation and personnel management) still feature as major problems since they were outlined in the *Bolton Report*. Another issue to emerge in the *SME survey* relates to the type of SME:

“... depends on whether it is a traditional family firm or a rapidly growing new business whose managers have a definite plan for where they wanted to be in ten years time.”

(Jackie Pillinger, Lothian and Edinburgh Enterprises, *SME Survey*)

This interviewee thought that in the latter case managers are more likely to set higher human resource management quality standards and focus on hiring multi-skilled employees who can adapt to a fast changing business environment.

Exporting

Lack of training in exporting was also perceived as a common training need among SMEs trying to compete in a fast-changing global marketplace:

“Exporting products is not a suitable option for every SME, but this does represent a definite training gap overall.”

(Jackie Pillinger, Lothian and Edinburgh Enterprises, *SME Survey*)

The interviewee had examined some multimedia courseware packages designed to train companies in how to export but felt that none of them were adequate at present as they were pitched at a level too general to be of significant use. This may serve to underline the difficulty of providing generic solutions to the diverse SME market, a very different prospect from that of developing a higher education course.

Strategic planning

Strategic planning also emerged as a training gap for SMEs who may lack the vision to respond to changes in market conditions:

“What tends to happen is they tie into a particular area that they’re dealing with and have difficulty in getting expertise to see outside that area... they then trap themselves into that niche and when the conditions change they have great difficulty in changing with it”

(Bill Steel, Bell College of Technology, *SME Survey*)

3.2.2 Comparison with the Bolton Report

Table 1 below compares the common management development needs raised in the *SME Survey* with the main categories found in the “Bolton Report”²³. Not surprisingly there is a close match, with one or two exceptions. Exporting is perhaps now an issue of greater relevance owing to the pressures of increased competition and globalisation, and ICT use is emerging as a major consideration, corresponding to the “Bolton Report” category of technological change:

²³ Items common to each side of the table have been matched to allow easier comparison.

<i>Bolton Report</i>	<i>SME survey</i>
Raising and using finance	Finance
Costing and control information	Exporting
Organisation and delegation	
Marketing	Marketing and Sales
Personnel management	Human Resources
Information use and retrieval	Strategic Planning
Technological change	Information and communication technology
Production scheduling and purchase control	

Table 1: Common management development needs: *Bolton Report* and *SME Survey* comparison

Overall the more extensive “Bolton Report” and the less extensive *SME Survey* indicate the existence of common SME management development needs. This is not a surprising finding, but the qualitative data provided by the survey helps to paint an initial picture of the SME learning environment, one which may be characterised by a lack of training in basic management subjects, lack of strategic vision and planning, and lack of provision of training for staff. Businesses may also vary immensely, from small family businesses to rapidly growing technology companies. Given that there are a number of common SME management development needs across a broad spectrum, it is likely to be important to consider what actually drives demand to meet these needs, or to put it another way, what causes SMEs to seek out formal learning opportunities (Gibb, 1998, in Stockley, 1999).

3.3 Drivers of demand for SME management development

Smaller firms usually participate in management development activities based on the recognition of an immediate need rather than as part of a planned process of development (Gibb, 1998, in Stockley, 1999, Evans, 1999, Marlow, 1998, Pettigrew *et al.*, 1990, Smith & Whittaker, 1998, Vyakarnam & Adams, in Stockley, 1999). Figure 6 illustrates ten common drivers of demand identified in Gibb’s (1998, in Stockley, 1999:4) research:

Figure 6: Common drivers of demand for management development

- The existence of a problem or opportunity to be overcome or grasped;
- Pressure from competitors to improve performance;
- Pressure to copy from peers or competitors;
- Major environmental changes that provide threats or opportunities;
- Stakeholder pressure for change and development (demands for change from customers, suppliers, bankers, accountants, regulatory authorities, staff and others);
- Pressure from succession within the family business;
- Pressure from powerful influences other than external commercial stakeholders, for example from the board of the company or from 'advisers';
- Pressures from within the management team to cope with their ambition and/or personal goal achievement;
- Pressures from the community in terms of the status and image of the business; and
- A search for resources which is reflective of an 'open to change' situation.

Source: Gibb, 1998, in Stockley (1999:4)

Townley and McKenzie (2000) argue that managers and employees need to be able to perceive the benefits of training in order to invest the necessary time and resources required to undertake training. This ties in with recommendations in Gibb's (1998) report (in Stockley 1999:5) that the supply-side build upon the natural stimuli outlined in figure five above by 'bringing them forward firmly into the SME's vision'.

Despite the presence of common SME training needs and a number of drivers of demand for training, lack of demand for management development services is evident as revealed in the *SME Survey*:

"Based on our...experience in East London, less than 10% "self select" or approach with modest stimulation. Another 10% maximum show any real interest in moving to new ways of getting training"

(Martyn Laycock, University of East London, *SME Survey*)

Hyland and Matlay (1997) refer to this situation as a paradox of training, that is an inverse correlation between attitudes to training (mainly positive) and actual (largely insignificant) take up and involvement in training. Gray and Lawless (1999, 2000) offer an explanation for this apparent paradox:

"Most small firm owners have been unresponsive to the wide range of training programmes developed in order to help them survive, manage themselves more professionally, grow successfully, market their products and a whole host of other worthy objectives because they are not entrepreneurial (few wish to do anything other than earn a living)."

(Gray and Lawless, 1999:31)

They claim that it is therefore ‘a mistake for policy-makers and training providers to assume that all small firms actually want to expand or are keen to improve their management skills’ (Gray and Lawless, 1999:31). This is further evidenced by claims that the most common small business ambition is for independence and autonomy rather than profits and growth (Bolton, 1971, Stanworth and Gray, 1991, Gray, 1998, Gray and Lawless, 1999, 2000). This represents the first, and perhaps most important, demand-side barrier, to be considered in the next section.

3.4 Barriers to management development uptake by SMEs

The *SME survey* and the literature identify a number of barriers that may help to explain the low demand for management development opportunities exhibited by SMEs. These barriers can be split into demand-side (SMEs’) barriers and supply-side (training providers’) barriers.

3.4.1 Demand-side barriers

Figure 7 illustrates the seven main demand-side barriers identified from the available literature and the *SME Survey*:

Figure 7: SME management development demand-side barriers

- Firm culture and attitude of key decision makers(s);
- Lack of time;
- Lack of cover;
- Lack of purchasing power, transaction costs and opportunity costs;
- Focus on short-term survival;
- Lack of expertise and ability to identify training needs; and
- Fear of poaching.

Source: *SME Survey* and literature review

Each of these barriers is now examined in turn.

Firm culture and attitude of key decision maker(s)

Marlow (1998) reports that the attitude of the key decision-maker (frequently the owner-manager) towards management development is fundamental to the undertaking of such opportunities. Similar findings are reported in Hyland and Matlay (1997) and Bosworth and Jacobs (1989). Several sources of negative attitudes towards management development by key decision-makers can be identified in the literature. For example: contentment with the status quo (Lawless and Gray, 1999, 2000, Marlow, 1998); fear of management development training as a sign of weakness (Stockley, 1999); fear of the 'classroom' setting (Stockley, 1999); fear of other managers (Stockley, 1999); and lack of previous education and training experiences (Hyland and Matlay, 1997).

Stockley (1999:5) claims that such barriers 'reflect the underlying cognitive and affective profiles of managers and if ingrained into the organisation's culture over time may be difficult to shake.' Also resistance to change by employees is an important aspect of culture in both small and large firms; this can go hand in hand with an unwillingness to see possible benefits of training and may represent another source of negativity (Evans, 1999). Gray and Lawless (1999, 2000) identify contentment with the status quo as the most important constraint on small business growth:

"If an owner wants to earn no more than a living as an individual or as a household then growth past a certain point or even any real growth at all will not be on the agenda. Furthermore, if the mode of earning a living is also bound up with a certain lifestyle (informal, anti-bureaucratic, alternative, loose, individualistic, etc.) many decisions will be based on non-business criteria."

(Gray and Lawless, 1999:30)

Gray and Lawless (1999:30) claim that that this particularly applies to 'the individual self-employed and many small family businesses where even minimal growth beyond a personal earning capacity will involve employing another person and the taking on of responsibility for providing wages for that person'. As these types of business are typical of the SME sector, especially in the UK, this may have important implications for policy-makers, particularly if they also take on board evidence that many SME managers' management practices are hostile to business development (Gray, 1993, Gray and Lawless, 1999, 2000).

Lack of time

Hyland and Matlay (1997) claim that there is a lack of time for training within SMEs, and Bosworth and Jacobs (1989) cite the scarcity of time facing SME managers as a barrier to growth. Findings from the *SME Survey* allow the “lack of time” barrier to be split into: lack of time to train; lack of time to reflect on training needs; and lack of just-in-time training.

Lack of time to train

There is a lack of time for undertaking training, particularly for the smallest firms:

“The managers wish the workers would use their common sense and get on with things, but don’t have the time to train them.....”
(HR manager, SME, *SME Survey*)

This also assumes that the managers know how to train their staff, which may not be the case (this is identified as another barrier under the heading “lack of expertise” below).

Lack of time to reflect on training needs

Owing to the time pressure facing SME managers, they may also lack sufficient time to reflect on what they, their staff and their business may need in the way of training:

“They don’t have time and the other problem is that they don’t have vision. Now, some of them will never have vision other than the four walls that they sit in, others don’t have time to develop vision...”
(Eric Denton, Edinburgh Chamber of Commerce, *SME Survey*)

Lack of availability of just-in-time training

The time barrier emphasises the SME need for just-in-time training. This is difficult for higher and further education institutions to provide using traditional methods:

“They’ve got a job just now, they’ve come across a problem, can you train this guy for tomorrow.”
(Bill Steel, Bell College of Technology, *SME Survey*)

Jennings and Hawley (in Stockley, 1999) report a similar finding, calling it an issue of ‘pace’ - the inflexibility of training and development courses may not coincide with the unpredictable demands placed by the business on an individual’s time.

Lack of cover

Vickerstaff (1992) claims that small firms cannot readily find cover to release people for learning off-the-job in working hours (Vickerstaff, 1992). The following extract illustrates this point based on the experiences of an SME training provider in the further education sector:

“The number of students that come from SMEs is limited...they’re willing to pay the fees but to lose that person out of their workforce during the day is a major problem for them. They are working to their limits, they have hired enough people to do the amount of work that they have got available. They don’t have the flexibility to hire additional staff in order to allow training.”

(Bill Steel, Bell College of Technology, *SME Survey*)

The organisational structure of SMEs may not allow them the flexibility to send staff away on training courses, unlike larger companies. Finding cover, or flexibility, is therefore likely to be a key obstacle to training provision, and ‘off the job’ training (Searles *et. al.*, in Stockley 1999) may be difficult to achieve in practice.

Cost

The cost of training may be another important barrier to SMEs, most fundamentally because the money simply is not available to spend:

“The managers don’t have a major budget for training.”

(HR manager, SME, *SME Survey*)

“[SMEs], especially micro businesses [1-10 employees], haven’t got the money.”

(Anne Gibb, Lauder College, *SME Survey*)

Also, Woods (1998) claims that the smaller the firm the higher the percentage of turnover that has to be committed to finding out about what training is needed, who will provide the training and where the training will take place. He also claims that while the cost of training is a key factor in “buying” training, finding out, or to put it more formally, the transaction costs involved, are also important barriers to SMEs. Vickerstaff (1992) claims that there may be significant opportunity costs associated with absence from the workplace and that this situation may be exacerbated by lack of supervision and control in the absence of owner-managers. Vickerstaff (1992) and Hyland and Matlay (1997) also claim that many companies do not have an accurate method of assessing the costs or benefits of their training activities.

Focus on short-term survival

The SME training budget is likely to be the first to suffer when the business climate is unfavourable or during times of recovery or growth:

“Funds - there is always pressure on funds and the first thing to go when times are hard is the training budget.”

(Jim Gordon, Nimmo's Colour Printers, *SME Survey*)

The smaller the firm the less it will be buffered against the external environment and the more external uncertainty it faces (Woods 1998, Westhead and Storey, 1995, Finegold, 1992). This may provide a strong incentive to manage for short-term survival; training is viewed suspiciously as a long term investment and distraction that may actually cause the firm's demise in the short term. This realisation indicates how difficult it may be for training providers attempting to enter the SME training market.

Lack of expertise and ability to identify training needs

Buyers of managerial training in small firms may be frequently confused not only over the amount of what is on offer, the various agencies that “regulate” the market, and the providers, but also about the quality of training in relation to its price (Woods, 1998). Many may also simply not know what they and their employees do not know (Stanworth & Gray, 1991, Gray and Lawless, 1999, 2000):

“SME managers have their heads down 90% of the time.”

(Colin Reith, British Telecom, *SME Survey*)

In addition, Stockley (1999) claims that the difficulties in identifying training needs that relate to the objectives of the business, which may themselves be poorly defined, cannot be overestimated. Managers may also be reluctant to make decisions about training for fear of making a mistake, and may lack expertise in managing training activities; Hyland and Matley (1997) claim that one barrier to the uptake of management development opportunities relates to previous education and training experience.

Fear of poaching

Smaller firms may often fear that any investment they make in training will be wasted as their rivals step in to tempt the newly trained employees away. This was explained by one SME manager in the *SME Survey*. He was in the process of being hired by a competitor and complained that he was being treated as if he had betrayed the both the company and the company's owner on a personnel level. This would not perhaps be taken as personally in a larger organisation. Small firms may thus tend to poach from one another rather than to shoulder development costs that will then be put to use elsewhere. Under a similar theme, Wynarczyk *et al.* (1993) propose that the lack of an internal labour market in smaller firms acts as a barrier to the training and development of the non-owner manager. Frequently the next job obtained by a middle manager in a small firm is outside the organisation rather than as a result of internal promotion, owing simply to a lack of headroom (Wynarczyk *et al.*, 1993).

In addition to these demand-side barriers (firm culture and attitude of key decision makers; lack of time; cost; focus on short-term survival; lack of expertise and ability to identify training needs; and fear of poaching) there are also a number of supply-side barriers to consider.

3.4.2 Supply-side barriers

The barriers reported in this section refer to all providers of SME training, including higher education institutions. However, it may be important to note that the further and higher education sectors might not be perceived widely as offering learning for businesses, particularly for SMEs (Woods, 1988). Woods (1998) reports that SMEs are generally uncomplimentary about the value of educational institutions, either as providers of graduates or as sources of training and consultancy. Additionally he claims that larger companies make more use of providers in the education sector (and in particular further education colleges) than do small companies (Woods, 1998).

Five main supply-side barriers are identified from the available literature and the *SME Survey* (figure 8):

Figure 8: SME management development supply-side barriers

- Lack of understanding of the nature of SME learning;
- Lack of tangible business benefits;
- Lack of information;
- Quality of advisors and providers; and
- Bureaucracy.

Source: SME survey and literature review

Each of these barriers is now examined in turn.

Lack of understanding of the nature of SME learning

Townley and McKenzie (2000) claim that most studies of training in SMEs focus on formal activities and ignore the high incidence of informal learning occurring in many SMEs. The resulting picture of training levels may be misleading (Townley and McKenzie, 2000). This becomes apparent through consideration of the demand-side barriers examined in the previous section - we can start to imagine the nature of the SME learning environment by considering what it would be like to work in an organisation where there may be limited encouragement for training uptake, little time for anything else but day-to-day tasks, limited cover for attendance at training events, and so on. In this type of environment it is likely that informal learning will have a key part to play and be of more value to the SME context (Evans, 1999). For example, benefits that can result from informal learning include: better relationships between employees and managers; learning related to real situations; the development of a learning culture through the sub-conscious transfer of learning between individuals; and growth in employee confidence (ECOTEC, in Evans 1999). Thus for SME learners in particular, formal education and training may provide only a small part of what is learned at work:

“Much learning derives out of the demands and challenges of work-solving problems, improving quality and/or productivity, or coping with change. Such learning derives from thinking, trying things out and talking to other people. Learning from other people is sometimes facilitated by organised learning support, which comes in many forms from teamwork, coaching or mentoring, through to seeking information from customers, suppliers or professional networks. Researchers draw from this the need to create a group climate for learning, characterised by ownership and sustained through deliberate action. This in turn requires people having an appropriate degree of challenge in their

jobs, on how they are managed and the micro climate of their immediate work environment.”

(Evans, 1999:6)

The importance of informal learning to the SME context is now being recognised in the literature but is little researched, not least because it is difficult to find anything that is readily measurable (Evans, 1999). For training providers in the SME sector, a useful starting point to examine how their training matches SME learner needs may be to consider definitions of management development. One definition of management development (Gibb, 1998, in Stockley, 1999) is:

“Not formal training per se, but ... the process by which managers within the business learn and embed this learning within the potential of the business to ‘do something’.”

(Gibb, 1998, in Stockley, 1999:2)

Although this definition makes explicit the diversity of the concept, Mumford’s ‘three type’ model (figure 9) provides a deeper understanding as it distinguishes between different management development types (Mumford, in Stockley, 1999):

Figure 9: Mumford’s Management Development ‘Types’

Type 1 - ‘Informal Managerial’ (accidental processes): Learning occurs within managerial activities but the focus is on task performance and there are no clear development objectives. Activities are not planned in advance and are unstructured in development terms. Learning is real, direct, unconscious and frequently insufficient.

Type 2 - ‘Integrated Managerial’ (opportunistic processes): Learning occurs within managerial activities with a focus on task performance and achieving clear (management) development objectives. The activity may be planned beforehand or learning experiences may be subsequently reviewed. Learning is real, direct, conscious and more substantial than under type 1 activity.

Type 3 - ‘Formal Management Development’ (planned process): often occurs away from normal managerial activities with development as a specific intention. Development objectives are clear and the approach is planned beforehand. Learning may be real (through a job) or detached (through a course), is more likely to be conscious and to occur relatively infrequently.

Source: Mumford, in Stockley 1999:2

Stockley (1999) claims that the traditional focus of policymakers and many providers has been on the development, funding and delivery of “type 3” activities. Conversely, activities of “type 1” and “type 2” have largely been ignored, despite the fact that they may more accurately reflect the learning processes actually employed within smaller

businesses (Stockley, 1999). Therefore Stockley (1999) concludes that some of the principal barriers to participation in management development relate to the inappropriate application of prevailing “type 3” approaches in the context of small firms.

Existing research indicates that the likelihood of participation in formal (“type 3”) management development increases with the age of the firm, its size and the educational attainment of decision-makers (Stockley, 1999). Overall, manufacturing companies are more likely to participate than those in the service sector and professionally managed businesses are more likely to participate than their owner managed counterparts (Stockley, 1999). For a variety of reasons, however, very little is known about participation in “type one” or “type two” activities (Stockley, 1999).

Stockley (1999) also addresses problems with segmenting the market for management development:

“The issue of how best to segment the market for management development is far from straightforward. SMEs are not a homogenous group - the behaviours of managers and the needs of their firms are frequently idiosyncratic and difficult to predict with any degree of reliability (Levie & Hay 1998). That is not to say, of course, that common needs do not exist across groups of firms, clearly they do. Suitable foci might include development poles (e.g. an airport), clusters, supply chains and finely segmented sectoral groups - to name only a few.”
(Stockley, 1999:3)

Stockley (1999:3) claims that Burgoyne’s ‘developmental maturity’ classification (table 2) can be used to offer ‘much needed insight’ into such segmentation issues. This grades the maturity of processes from one (no systematic management development, reliance on laissez-faire processes) to six (management development fully integrated with corporate strategy making processes).

Category	Description of Management Development Processes
1. <i>No systematic management development</i>	No systematic or deliberate management development in a structural or developmental sense, total reliance on natural, laissez-faire processes.
2. <i>Isolated tactical management development</i>	Isolated and ad hoc tactical management development activities in response to local problems, crises or sporadically identified general problems.
3. <i>Integrated and co-ordinated development tactics</i>	The specific management development tactics that impinge directly on the individual manager are integrated and co-ordinated.
4. <i>A management development strategy to implement corporate policy</i>	A management development strategy plays its part in implementing corporate policies through managerial human resource planning.
5. <i>Management development strategy input to corporate policy formation</i>	Management development processes feed information into strategic decision making processes.
6. <i>Strategic development of the management corporate policy</i>	Management development processes enhance the nature and quality of corporate strategy making processes, which they also inform and help implement.

Table 2: Burgoyne’s “Developmental Maturity” Classification
Source: Burgoyne, in Stockley 1999:3

Stockley (1999:3) claims that ‘the majority of smaller firms would be classified as category one or possibly two’. Current examples of good practice, such as Investors in People (IiP), would score four on this scale (Stockley, 1999).

The essential claim Stockley (1999) makes is that there is a mismatch between demand and supply in the SME management development industry. He claims that the supply-side has largely defined management development in terms of Mumford’s formal “type 3” learning activities, more suitable for “category 3” and “category 4” businesses under Burgoyne’s classification (Stockley, 1999). However, Stockley (1999) claims that the demand side consists mainly of “category 1” firms in terms of Burgoyne’s “developmental maturity” classification, who learn using “type 1” and “type 2” activities. He proposes that this demand/supply mismatch is at the heart of the difficulties faced by the management development industry (Stockley, 1999). The implications for management development learning technology solutions for the SME sector (which are likely to be generic and formal in nature owing to the uneconomic costs of developing and marketing more tailored and informal material) are that they will also suffer from this mismatch between supply and demand.

Perhaps not surprisingly therefore, Westhead & Storey (1995) claim that inappropriate training is often cited as a reason for non-participation in management development opportunities by SMEs. Vickerstaff (1992) and Evans (1999) raise similar points. The main specific points relating to inappropriate training are that training is too general, training formats are inappropriate, the media used is inappropriate, and that locations and times are inconvenient (Vickerstaff, 1992, Evans, 1999, Stockley 1999).

Training for qualifications and not for knowledge, or more focused learning, is an interesting point raised by Evans (1999). The small firm case study discussed by Evans (1999) indicates that although SMEs often want new knowledge but are not necessarily concerned with obtaining qualifications, they often cannot obtain one without the other. There are also complaints of too much theory and not enough practice, inflexibility on the part of the providers (providers are either unwilling or unable to provide learning opportunities required by the company), misleading promises regarding type of training provision, and problems with ensuring what is learnt is actually brought back and used in the company (Evans, 1999).

The timing of delivery may also represent a significant barrier to the acceptance of publicly funded and university based management development provision (Binks & Otter, 1998). The available evidence, as presented in the previous section on demand-side barriers, suggests that the primary trigger for small firm participation in management development activities is the recognition of an immediate need. Stockley (1999) points out the need to access a limited 'window of opportunity':

“Resource scarcity implies that once a need has been identified, time may be of the essence. The practical implication is that (in the absence of a planned approach such as IiP) a window of opportunity exists during which structured management development solutions may be adopted by small firms. Reconciling the need for responsiveness with a requirement to fill courses (to lower unit costs) is a significant challenge for the supply-side.”
(Stockley, 1999:6)

Lack of tangible business benefits

The “Learning Age” green paper (1998) sets out the following demand-side barriers to training for SMEs:

“A recent study of small and medium sized firms found that 20 per cent of the firms surveyed in the UK saw no need to raise their levels of training compared

with just 4 per cent in France and 6 per cent in Germany. There are a number of reasons for this. Small firms say they cannot readily find cover to release people for learning off-the-job in working hours. They lack the time and expertise to organise the right opportunities. Individually they cannot influence private or further education sector providers to offer the right education and training. They do not have the purchasing power to keep down the costs of training. Too often training and development takes second place to short-term survival, and yet the business benefits to small firms are tangible.”

(“The Learning Age” green paper, 1998, ch.3, section 4²⁴)

Whilst the existence of the demand-side barriers of lack of cover, time, expertise and purchasing power, coupled with a focus on short-term survival, appear not to be in question, the existence of tangible business benefits may be. Woods (1998) reports that the assumption regarding tangible business benefits for the SME through training largely ignores the empirical evidence, at least as far as management training is concerned. He provides several examples. Firstly Westhead and Storey’s (1995) research on business start-ups found little evidence that businesses where the founder received training demonstrated increased performance compared to those businesses that did not. Secondly Marshall *et al.* (1993, 1995), in two studies, looked at the link between business performance and management training in SMEs. As Westhead and Storey (1995) report, the provision of a training subsidy led to a significant one-off rise in the quantity of training undertaken by small firms and once the subsidy had been exhausted to continue with a higher level of management training than had previously been the case. However, Marshall *et al.* (1993, 1995) were unable to show a clear link between training and firm performance. Stockley (1999) reports similar findings:

“It is frequently difficult to demonstrate what impact a management development intervention will have on the financial performance of the firm. In possibly the most comprehensive review of this topic to date, Westhead & Storey (1995) conclude that the most technically sophisticated studies (Stanworth *et al.* 1992; Marshall *et al.* 1995; Wynarczyk *et al.*, 1993 and CSBC, 1992) have failed to demonstrate a significant relationship between management training and performance. As Smith & Whittaker (1998:184) indicate, management development and training is a single aspect within a complex web of factors that may contribute to the overall growth of the SME sector and individual firms within it.”

(Stockley, 1999:6-7)

However, Woods (1998) does report that strategy training may be one area where management training results in business benefits. Similarly, Joyce *et al.* (1996) found that long term planning leads to superior business performance. Based on results from

²⁴ <http://www.lifelonglearning.co.uk/greenpaper/ch3004.htm>

just over 300 independent private sector firms employing fewer than twenty-five people the conclusions were:

“Small businesses should plan formally and should plan long term. However, as others have said, it is likely that strategic planning in small businesses may be very different from that found in large businesses. Strategic thinking and thinking longer term is probably what matters in the small firm.”

(Joyce *et al.*, 1996:56)

Stockley (1999:7) also points to links between competence and performance from the work of Chandler & Hanks (1994), claiming that ‘since training and development are (hopefully) associated with increasing competence, a theoretical link to performance does exist’. However, he does acknowledge that the difficulty in proving such a relationship is clear, pointing to the claims made by Herron & Robinson (1993) in this area.

Lack of information

Westhead and Storey (1995) claim that small firm owners may be less well informed about available management development opportunities compared to the HR managers in larger firms. Their explanation is that this stems partly from the fact that providers of management development are more likely to contact larger firms in person, and partly from an over reliance on ‘mailshots’ as a mechanism for informing smaller firms about management development opportunities.

Quality of advisors and providers

Concerns exist about the quality of some advisors currently used to identify development needs within SMEs. The most common complaint appears to be that advisors ‘do not understand the business’ (Gibb, 1998, in Stockley 1999, Westhead and Storey, 1995).

Bureaucracy

The bureaucratic requirements of publicly funded management development activities are claimed to be a significant barrier to participation once managers have made the decision to undertake them (Kerr & McDougall, 1998). Thus SME learners, who

already face the “lack of time” barrier to the uptake of management development for example, are likely to lose motivation if bureaucratic requirements are excessive.

3.4.3 Summary of demand and supply-side barriers

The foregoing discussion has identified seven main demand-side and five main supply-side barriers to the uptake of management development and training by SMEs. There may be others in existence, but those identified from the literature examined and the *SME Survey* are summarised in table 3:

Demand-side barriers	Supply-side barriers
Firm culture and attitudes	Lack of understanding of SME learning
Lack of time	Lack of tangible business benefits
Lack of cover	Lack of information
Cost	Poor quality of advisors and providers
Focus on short-term survival	Bureaucracy
Lack of expertise	
Fear of poaching	

Table 3: Demand and supply-side barriers to SME management development uptake

This helps to illustrate the major challenge that is likely to be faced by policy-makers and training providers attempting to provide relevant learning opportunities to the small business sector. This may be even more difficult in the case of higher education institutions, few of which have a track record to boast of in the SME sector and many of whom are regarded with suspicion by the small business sector (Stockley, 1999). The existence of these barriers may also have considerable implications for moves towards “e-learning” solutions for the SME sector. The next section examines what technology-based learning solutions may offer to the demand/supply imbalances discussed, and also which new barriers to learning they may create.

3.5 Learning technology and SME management development barriers

A useful starting point for considering technology-based solutions to SME management development needs may be to examine what learning technology has to offer in terms of overcoming the demand and supply-side barriers discussed in section

3.4 above. The main proposed benefits of learning technology for SME learners revolve around its flexibility in terms of time and location, the opportunities it provides for self-paced learning and just-in time training, and its cost effectiveness. These proposed benefits are now examined in relation to the various demand and supply-side barriers identified in table four of section 3.4.3.

3.5.1 Learning technology and demand-side barriers

The demand-side barriers to SME management development needs identified in table four are: firm culture and attitude; lack of time; lack of cover; cost; focus on short-term survival; lack of expertise and fear of poaching. This section examines how each of these barriers may be impacted on by the introduction of technology-based SME management development solutions. It first examines related issues emerging from the *SME survey*, and then discusses the likely impact of learning technology on the remaining demand-side barriers in the light of the discussion presented in this chapter so far.

Learning technology and the time and cover barriers

Learning technology implementation is seen as a way of overcoming the time barrier faced by SME managers in that the training provided is immediate and on-site. However, a busy SME manager who has not undertaken formal learning activities for some time might struggle to see such time-saving possibilities:

“I think that’s one of the biggest problems not so much with the medium. I’m not arguing about the message that can be contained, it’s this as far as SMEs are concerned is getting the time. Its really critical ... no matter how good the product is, if the guy doesn’t have time to use it...It’s got nothing to do with the product as such as to how effective it is. It’s getting somebody in front of your machine to use it. There may then be another issue as to how effective it is then to somebody who isn’t a student. At least students if you’ve got them sat down, or somebody who has taken the conscious effort to go into an MBA course who recognises that that’s going to take time has obviously allocated it. What we’re talking about is to try to attract the attention of the busy businessman and say, “We think this might be of interest to you” and he’s saying, “Well yeah”.”

(Eric Denton, Edinburgh Chamber of Commerce, *SME Survey*)

Learning technology is seen to offer a more flexible form of learning as it can be accessed when and wherever is suitable by the learner, i.e. they can in theory learn at their own pace:

“They don’t have the flexibility to hire additional staff in order to allow training. ... So by going onto open learning and flexible learning and delivery over the Internet, we’re basically freeing up the system ... to attract these students.”
(Bill Steel, Bell College of Technology, *SME Survey*)

This may therefore offer the chance for on-site, and indeed off-site, training, a form of flexibility which is likely to be very important for SMEs who cannot spare the time to send their staff away on courses:

“Obviously one of the great bonuses of this method of delivery is you can say to people, ‘you can do it in your own workplace so there’s no travel, you can do it at home in your own time’ and that certainly is a big attraction and that is one of the huge selling points of an on line delivery system.”
(Soren Jensen, Scottish Prison Service, *SME Survey*)

However, this interviewee was reflecting on a learning technology implementation project in a large organisation. In smaller organisations, demand-side barriers such as “lack of time” and “lack of cover” may over-ride the possibility for utilising such flexibility. Also, interviewees that are involved with producing SME learning material are in the development stage, so short-term solutions to the time and cover barriers are unlikely.

Learning technology and the cost barrier

At present learning technology is not a cost-effective medium for individual providers attempting to reach the fragmented SME market:

“...there’s the cost of producing even generic, let alone bespoke, materials for SME use. Frighteningly expensive and no wonder there are no commercial operators rushing yet to develop it. There’s no proven market, no obvious pay-back route. Only serious government intervention and stimulation can overcome these two fundamental aspects.”
(Martyn Laycock, University of East London, *SME Survey*)

However costs are falling and there is currently the opportunity of subsidisation through government and European initiatives:

“I think it [learning technology] may become cost effective...It’s the staffing costs that we are finding are running away with things but we’re bringing that down.... The costs of licenses of software, again those are coming down.... It is improving all the time....”
(Anne Gibb, Lauder College, *SME Survey*)

This interviewee felt that in the meantime the issue of access to technology is likely to be an important factor since “many SMEs may not have the necessary ICT to even start thinking about multimedia management training solutions.”

Learning technology and demand-side barriers summary

Thus perceptions about technology-based SME management development solutions arising from the *SME Survey* point to longer-term possibilities for overcoming the lack of time, cover and cost demand-side barriers. However, this may depend on whether the busy businessman can be persuaded to spare the time to use the technology in the first place, which may also be related to the attitudes and firm culture and the focus on short-term survival demand-side barriers. Thus other barriers may over-ride the potential impact of learning technology on the lack of time, cover and cost barriers. For example, if learning technology is not used because of the lack of time barrier, this makes any potential impact on the lack of cover and cost barriers irrelevant. Although perceptions of the relation between technology-based solutions and the other demand-side barriers did not emerge in the *SME Survey*, some speculation may perhaps be made based on the nature of these different barriers as explored in section 3.4. The development of self-diagnostic software, for example, may help to overcome the lack of expertise barrier, but this is likely to be a difficult task owing to the extreme diversity of the SME sector. Similarly, the impact of learning technology on the fear of poaching barrier is also likely to be negligible, as this barrier is likely to exist irrespective of how management development training is delivered.

3.5.2 Learning technology and supply-side barriers

Perceptions of the effect of learning technology on supply-side barriers did not emerge in the *SME Survey*, but some suggestions are offered here based on the nature of supply-side barriers as explored in section 3.4.2. The proposed benefits of learning technologies, namely its flexibility in terms of time and location, the opportunities it provides for self-paced learning and just-in time training, and its cost effectiveness, may have the most obvious impact on the lack of information supply-side barrier (although this assumes SME access to learning technology, the appropriateness of the information supplied to a diverse SME sector, and the dangers of “information overload”). However, the proposed benefits of learning technologies are unlikely to impact on the lack of understanding of the SME learning environment, the lack of

tangible business benefits, bureaucracy (at least in the short term), or to provide high quality advisors and providers. Indeed, in the case of the latter, there is likely to be a need for retraining existing advisors and providers.

In addition to a consideration of the likely impact of learning technology on demand-side and supply-side barriers to SME management development uptake, the issue of “new” barriers specific to learning technology itself is likely to be a further important consideration. This is discussed in the following section.

3.6 Learning technology and technology-specific barriers

Certain possible barriers to SME management specific to learning technology are identified in the *SME Survey* and the literature reviewed. These are: lack of social interaction; lack of ICT skills; negative attitudes towards ICT; and the need for bespoke training. Each of these is now examined in turn.

3.6.1 Lack of social interaction

The problem of how to “socialise” multimedia effectively is ongoing. Some see the problem as one of self-motivation:

“I think it is where it comes down to the self motivated individual that doesn’t need the group contact and the face to face contact ... they’re trying to encourage the social aspect through discussion forums and chat lines. Some people take to that and some don’t. They’re more likely to be mature individuals, or those aspiring to be managers.”

(Anne Gibb, Lauder College, *SME Survey*)

However SME learners, who tend to be used to face-to-face communication, may have different ideas (CEC, 1998):

“Support ... is not so much necessary in technical terms but with a view to the persons involved. Learning-by-doing in workshops or working groups would be important; only then do newsgroups and chats on the Internet make sense.”

(Hartmann & Nagel, CEC, 1998:64)

Another interviewee expressed similar issues, particularly with regard to the nature of management teaching-learning, and the problems this may present for management development technology-based learning solutions. This illustrates likely reasons for the current bias towards the distribution of Information Technology (IT) training

rather than management development training in the commercial learning technology industry:

“Management training using multimedia courseware is limited by virtue of the commitment to full motion video. You train managers as a peer group or you train them using simulations. You don’t train them really any other way. You can’t say that we have courses that do this. What I’m really saying is that the management side of multimedia has been slow to develop. It is very easy to download IT skills. In fact it’s probably the most effective way of training anybody. Management skills is a dodgy area. What that has meant is that it is terribly easy for us to deliver just 3,300 courses on IT which is our main resource and therefore the market ... is biased in that direction. I would think over the next five years that unless there are major technical advances that are not immediately apparent, that situation will continue. If you look at the psychology of the courses that you are talking about, I don’t see how you could work a management course without that social interaction effectively.

(Tony Myhill, Netg, *SME Survey*)

This interviewee also pointed to the likely difficulties of using “stand-alone” multimedia management development courseware, even in larger companies:

“If you are a fairly large company what you can say is, ‘I’ll get these guys to take this training course and then I will have a workshop because by that time they’ve got all the correct messages, or ‘I will introduce this multimedia into the course’ but you won’t let it stand alone. You could do it but it wouldn’t be effective. You’ve got to be able to say, ‘well look boys here’s the before and after’, but what you don’t do is say, ‘there’s the screen, get on with it’.”

(Tony Myhill, Netg, *SME Survey*)

3.6.2 Lack of ICT Skills

In the UK only 33% of companies give their employees training frequently or quite often and 43% of managers suggest that lack of skills is a major barrier to their uptake of ICT²⁵ (DTI, 1998). A lack of ICT-related skills could thus form another barrier to the successful implementation of technology-based SME management development solutions (DTI, 1998). This is reinforced in the *SME Survey* as reported in section 3.2.1:

“I don’t believe small businesses properly understand technology or the use of information technology and the benefits it can bring. Some businessmen have no idea what they [computers] can do for them..... they’re putting in these systems and they’re not training people on them. Or they are assuming that people know how to use them. I suspect that what’s going on is that if they have got as far as putting computers in they are being used at a very basic level, as word processors....”

(Jackie Pillinger, Lothian and Edinburgh Enterprise, *SME Survey*)

²⁵ “ICT” is an “umbrella” term applied to a range of information and communication technologies, including learning technology.

3.6.3 Negative attitudes towards technology

86% of UK businesses see ICTs as being important for business competitiveness. However, negative attitudes may still exist: the image of the “anorak” IT user has continued to hold back development in some areas such as the Internet (DTI, 1998). Age is also seen by some as having an impact on attitudes, as does firm size: while all large companies in the UK have at least one computer, the uptake in very small companies is much lower (DTI, 1998).

3.6.4 The need for bespoke training

With the establishment of the UfI the hope is that costs can be reduced by creating a mass market for SME learning products, sharing resources across industrial sectors and particular skills. There are undoubtedly specific training areas common across the SME sector but opinions on the extent to which these gaps can be filled with generic solutions varies:

“I mean some guys are working from their back bedroom, some guys are working in small factories or small offices, some are renting office accommodation. I think the issues in all those places are identical. They’re not looking far enough ahead, they’re not planning properly, they don’t understand in many cases the marketing issues, the finance issues, technology.... So they [SMEs] are many and varied but I think the problems they have got are very common. I don’t think you have to write a separate plan out for each individual SME.”

(Eric Denton, Edinburgh Chamber of Commerce, *SME Survey*)

“When you go to talk to them and you tell them about the sort of generalised courses that we tend to run in an institution like that, they will actually tie down to particular PC’s or outcomes and say, ‘we want that but we don’t want that, we don’t do that..’ rather than taking a more generalised view of it. We would tend to say if they have a wider knowledge then you get more leeway if the market changes whereas they tend to be far more specific in what they’re looking for. They’ve got a job just now, they’ve come across a problem, can you train this guy for tomorrow.”

(Bill Steel, Bell College of Technology, *SME Survey*)

Thus generic solutions to common training needs may be difficult to apply effectively across the fragmented and diverse SME market. In particular, the smallest companies are likely to require training solutions geared towards their own particular niche market; this has implications for the cost of providing such training and raises the issue of the need for bespoke training as another possible barrier to the effective introduction of SME management development learning technology.

3.7 Likely impact of technology-based solutions

Table 3 in section 3.4.3 presented a summary of the demand-side and supply-side barriers to SME management development uptake discussed in this chapter. Table five over page illustrates the likely impact of technology-based solutions to overcoming these barriers to meeting SME management development. The discussion presented in sections 3.5 above indicates that the only barrier which learning technology may help to reduce in the short-term (denoted in bold typeface in table 4) is likely to be the supply-side barrier of “lack of information”. The last column in table 4 reveals the possible emergence of technology-specific barriers as discussed in section 3.6 above, thus adding possible additional barriers for training providers, learning technology developers, and policy-makers to consider:

Demand-side barriers	Supply-side barriers	Technology-related barriers
Attitudes and firm culture	Lack of understanding of the nature of the SME learning environment	Lack of social interaction
Lack of time	Lack of tangible business benefits	Lack of technology skills
Lack of cover	Lack of information	Negative attitudes towards technology
Cost	Bureaucracy	The need for bespoke training
Focus on short-term survival	Poor quality of advisors and providers	
Lack of expertise		
Fear of poaching		

Table 4: Likely impact of learning technology on barriers to SME management development uptake

Thus the main potential for learning technology in the short-term may be related purely to increasing information. It is unlikely to impact on the other barriers unless a thorough consideration of these barriers, and of “new” technology-specific barriers, is built into the design, content and provision of technology-based SME management development solutions.

3.8 Discussion

The main aim of this chapter was to paint an overall picture of the SME learning environment by considering:

- the current issues in the SME management development industry;
- common management development needs of SMEs;
- drivers of demand for common SME management development opportunities;
- demand and supply-side barriers to meeting these needs;
- perceptions of learning technology-based solutions to common SME management development needs.

The *SME Survey* and associated literature review indicate that the nature of the SME learning environment is very different from that of the higher education learning environment. The former is a work-based environment characterised by learning that tends to be informal in nature, whereas the latter is an education-based environment where formal learning is the norm. This is likely to make the provision of effective computer-based learning technology interventions even more difficult than in the higher education learning environment.

Although there is widespread acknowledgement of the need for management development for SMEs, there is less clarity about how this should be achieved. SMEs have common management development needs across a broad spectrum of management development areas. The two most common areas found in the literature and the *SME Survey* are finance and marketing - this may have implications for policy-makers and providers considering relevant content of training initiatives designed to target this sector. Another important issue relates to the existence of a number of drivers of demand for management development by SMEs. However, despite the identification of common management development needs and a number of demand-side drivers, uptake of management development opportunities remains low.

This situation may be referred to as a “paradox of training”, that is an inverse correlation between attitudes to training (mainly positive) and actual (largely insignificant) take up and involvement in training. One proposal is for policy-makers

and providers trying to reach the SME sector to emphasise these drivers to SMEs who may not be fully aware of their existence. However, another explanation for this apparent paradox may be that not all small firms actually want to expand or are keen to improve their management skills; most common small business ambition is for independence and autonomy rather than profits and growth (Gray and Lawless, 1999, 2000).

The low demand for management development by SMEs can be explained by the existence of several demand and supply-side barriers. The most important demand-side barrier may relate to the negative attitudes of key decision-makers in SMEs towards management development. One of the main supply-side barriers may relate to a lack of understanding of the nature of the SME learning environment and how SMEs learn. These and other barriers discussed in this chapter have important implications for the chances of success of “blanket” generic approaches to SME management development provision.

Learning technology solutions are being seen by some as a panacea to the problems of meeting SME learning needs. However there is a danger that the warnings implied by the identified demand and supply-side barriers will once again be neglected in the hype that tends to surround the introduction of learning technology. In the short-term, it appears that learning technology may only offer the potential to remove the lack of information barrier. Furthermore, it may also bring some “new” barriers of its own such as: the issue of how to “socialise” multimedia; a lack of ICT skills; negative attitudes towards ICT; and the need for bespoke training.

Overall chapter three illustrates the major challenge that is likely to be faced by policy-makers, learning technology developers and training providers attempting to provide relevant learning opportunities (both traditional and technology-based) to the small business sector. The just-in-time flexible learning “chunks” enabled by technology and served up to a hungry SME sector is an appetising vision but the level of hunger in the SME marketplace may be somewhat overstated. Serving up a menu of easily digestible e-learning courses to the SME sector may not be an easy transition to make, particularly for higher education institutions more used to delivering inflexible

generic courses to a captive audience and lacking, on the whole, a track record in a suspicious SME sector.

The implication for policy-makers, learning technology developers and providers of learning technology solutions for the SME sector is that a simple transfer of existing materials is unlikely to prove successful. The main potential for learning technology at the present time may be related purely to increasing information: technology may provide the facility for interacting with potential learners who cannot otherwise be reached, but if they are reached with inappropriate material then opportunities for engaging them will be lost. It is unlikely to impact on the other barriers to meeting SME management development needs, unless a consideration of these barriers, and the emergence of “new” technology-specific barriers, is built into the design, content and provision of learning technology management development solutions for SME learners. In particular, learning technology solutions will need to match the predominantly informal nature of learning in SMEs.

This thesis is particularly concerned with the potential for effective SME training provision by the higher education sector, a sector with a reputation for expertise in knowledge and learning. However, as this chapter has indicated, the SME sector is a difficult sector to deliver effective training to even for training providers more familiar with SME learning needs. Coupled with this are the further complications that are likely to arise due to the introduction of learning technology. For these reasons, a useful starting point is to examine both the nature of technology and technology implementation (chapter four) and what we know about learning and learning technology implementation in higher education (chapter five). This leads to the development of a framework (chapter six) for the analysis and planning of learning technology programme implementation by universities (*LTPF*), which is then applied in the fieldwork chapters of seven, nine and ten.

Chapter four

The nature of technology and technology implementation

“It [technology] includes activities as well as a body of knowledge, structures as well as the art of structuring. Our language itself is poorly suited to describe the complexity of technological interactions. The interconnectedness of many of these processes, the fact that they are so complexly interrelated, defies our normal push-me-pull-you, cause-and-consequence metaphors. How does one speak about something that is both fish and water, means as well as end?”
Fox and Herrman (2000:75)

Chapter three provided an initial review of the potential for the effective delivery of SME management development learning technology programmes by the HE sector. It painted a picture of the SME learning environment, which revealed that a transfer of existing materials is unlikely to meet the predominantly informal learning needs of SME learners. The initial implications are that the presumed pedagogical and technological expertise HEIs' have to offer to the SME sector will suffer the same fate as existing SME management development interventions by other organisations, that is there will continue to be a mismatch between supply and demand.

Optimism surrounding the introduction of technology is found to be commonplace in both education and industry technology implementation, stemming at least in part from a lack of appreciation of the nature of technology and technology implementation. In order to gain a deeper understanding of the issues involved, this chapter takes a step back to consider the nature of technology and technology implementation, through an overview of two relevant area of technology and science literature: Social Shaping of Technology (SST) and Management of Technology (MoT). The aim of this review is to discover what general lessons may be learned and then applied to learning technology implementation in the higher education context. First, to provide background to the thesis topic, current debates surrounding the introduction of learning technology in higher education are considered. Then the SST literature is explored to provide a general overview of sociology of technology issues. Finally, this chapter examines the more pragmatic MoT literature in order to consider useful frameworks for analysing technology implementation. As a result it suggests that Pacey's (1983) *technology-practice* framework might prove a useful general tool to be applied to the analysis of learning technology implementation.

In summary the aims of this chapter are to:

- consider current debates surrounding the introduction of learning technology in higher education;
- gain a deeper understanding of the nature of technology and technology implementation by reviewing some SST and MoT approaches to this area; and
- consider technology implementation analytical frameworks, particularly Pacey's (1983) *technology-practice* framework, which may be applied usefully to learning technology implementation issues

4.1 Current debates in higher education

Mayes (1993, 1995) considers two main issues that are currently setting the agenda in the learning technology debate in higher education. The first is the need to reduce the cost of education and training while simultaneously increasing provision to a growing customer base:

“There are strong forces for change which have nothing to do with technology. As we move towards mass higher education the methods which served to educate an elite are being stretched to breaking point. Small group teaching methods are increasingly seen as an unaffordable luxury. Learners themselves are changing, with a shifting socio-economic profile, often older and with work-experience, seeking different outcomes from the educational experience. Even school leavers are changing as we recruit from a wider ability range, and as fundamental patterns of dealing with information evolve in response to the wider experience of media. Distance learning is being seen as an increasingly viable alternative to traditional campus-based education.”

(Mayes, 1995:1)

The second is that the quality of education must not only be maintained, but improved, and the relevance of content to industry increased (Mayes 1993, 1995). This improvement in quality is seen to require moves towards more learner-centred approaches (e.g. Laurillard 1993, Brahler *et al.* 1999, Mayes 1993, 1995, Kewell *et al.*, 1999) and away from the more traditional teacher-centred ‘imparting knowledge’ approaches. As a result of these forces for change and the conclusions of the Dearing Report (1997), government-sponsored and EU funding initiatives have encouraged universities to invest in learning technologies (Kewell *et al.*, 1999). However, although there may be high expectations of learning technologies as a solution to the crisis in education, they are seen by some commentators as part of the ongoing problem:

“The broad features of these changes [in education] will be recognizable to anyone working in higher education across the globe: the pressing needs to provide a greater proportion of young people with higher education in order to build social and economic development; the promotion of lifelong learning, including retraining and updating for all, as a feature of future economic prosperity; the growing globalization of commerce and of knowledge itself; and the need to address all these issues with greater cost efficiency. Discussion of these issues is accompanied by the expectation that ICT is at the same time both a potential solution and part of the problem. We see an exponential increase in the uptake of ICT, and particularly online technologies, harnessed to solving the problems that higher education and training seek to address.”

(Jackson and Anagnostopoulou, 2001:54)

Learning technology is thus emerging as a possible solution to current issues faced in higher education, but the view that it may also be part of an ongoing problem may owe much to a 'long history of failed promises' (Mayes 1995:1). Commentators on learning technology implementation in schools (e.g. Crook, 1994), which has an even longer history to draw on, acknowledge that progress has also been 'slow' in this sector. The 'slow' implementation process is attributed by some to a concentration on technology issues (the supply-side) rather than learner needs (the demand-side), as suggested by Laurillard (1994) for example:

"What students are most likely to need is not access to more information. Where understanding is difficult they need more guidance, practice and supervision. The technology does not easily offer that, however, and technology leads, not pedagogy, so it is rarely provided."
(Laurillard, 1994:1)

Carr (1999) underlines the importance of appropriate pedagogy for student learning, without which technology-driven projects are unlikely to provide improvements in student learning:

"Without appropriate pedagogy, use of high capacity communication services cannot provide significant improvements in learning outcomes. In general it is the pedagogy that provides for learning, not the technology or the software alone."

Carr (1999, in Jackson and Anagnostopoulou, 2001:53)

Hase and Ellis (2001) believe that the expectations of new technologies tied to economic imperatives may take precedence over pedagogical concerns:

"... the headlong rush to deliver educational programmes online seems to be underpinned by three factors: *economics, fascination with technology and pedagogy*²⁶. Which of these is the primary incentive is unclear. One receives the impression that the desire to access a global marketplace and not be left behind the competition is ahead of the capacity to understand and exploit any possible pedagogical advantages that online learning might have. Several commentators have noted, for example, that there is a gap between our understanding of how people can best learn online and the design of courses."
(Hase and Ellis, 2001:28)

However, in a recent overview of the theoretical underpinnings of student-centred learning environments, Jonassen and Land (2000) remark that never before has there been so much agreement about pedagogical fundamentals. They see the shared theoretical assumptions as those of constructivism, resulting from two distinct shifts of emphasis. First, there has been a shift from a representational view of learning in which an acquisition metaphor guided design to a constructivist or constructionist view in which learning is primarily developed through activity (Papert, 1990). A

²⁶ Author's emphasis.

second shift²⁷ has been away from a focus on the individual, towards a new emphasis on social contexts for learning (Jonassen and Land, 2000). Mayes (2001) claims that this theoretical convergence at the pedagogic level seems to be paralleled by a separate and rather contradictory convergence in policy:

“While the pedagogical view is based on collaborative learning, authentic tasks, reflection and dialogue, the language of e-learning policy making seems to describe a world in which there is accreditation of smaller and smaller 'bites of learning' gained from 'learning packages' delivered online to the desk or at home or in the workplace. The latter view places much less emphasis on contact with tutors, and the importance of individual feedback.”

(Mayes, 2001:18)

Mayes believes that e-learning policy is partly motivated by the anticipated cost benefits of dispensing with conventional, expensive educational structures, and partly by a genuine desire to bring the benefits of advanced education to new classes of learners. However, Mayes warns about setting pedagogic and policy trends in opposition to each other, as both are open to criticism:

“We should be wary of positioning these two approaches against each other. While the organizational or management approach can be criticized for failing to take sufficient account of pedagogical theory, which in the end drives the whole enterprise, so the pedagogues fail to show how the methods on which the constructivist approach is based will be widely accessible and cost effective. One aim of the present chapter is to argue for the design of learning environments that would not only support the modern pedagogical consensus but would also be scalable.”

(Mayes, 2001:18)

Thus at a general level on one side of the current debate in higher education learning technology is seen as a possible solution to a crisis situation, while on the other side it is seen as part of the ongoing problem. Within this debate it appears that for various reasons there tends to be an emphasis on technology over pedagogy, particularly at the policy level. One reason for this fascination with technology and the high expectations that surround its use may be related to a lack of understanding of the processes of technological change and the predominance of technological determinist viewpoints, that is the belief that the technology will provide ready-made solutions. Another reason is a lack of understanding of how to implement technology effectively in the real world of education. The next section therefore reviews relevant literature to examine what this may have to offer to closing such theoretical and practical gaps. Two areas of relevant literature, SST and MoT, are examined in particular. The SST

²⁷ There has been a parallel shift in the Sociology of Technology literature, with a movement away from a focus on individual interactions with technology towards sociotechnical contexts.

review provides insights to the fallacy of technological determinist viewpoints from a more theoretical perspective, whilst the MoT review examines practical tools that can assist with effective technology implementation.

4.2 The nature of technology

“Traditional innovation and diffusion theories are too much focused on a macro-view and do not pay sufficient attention to the practice of “technology-in-the-making”, the permanent process of negotiations that accompany the reshaping of educational practices. A more satisfying approach is rendered by theories under the heading of social shaping of technology. This approach presupposes the heterogeneity of technology and society. Technology and society form a seamless web in which it is impossible to differentiate *a priori* between technical and social elements. The process of change is a *socio-technical* process of change. Technology is open to analysis as a social practice.”

(Van Lieshout *et al.* 2001:58)

In order to begin to understand the nature of technology, several different definitions of technology are examined. Technology comes in different shapes (i.e. artefacts, applications, processes) and different forms (i.e. domestic or industrial or educational) (Fleck *et al.*, 2001). This is one of the reasons why defining technology is a difficult task:

“Technology: Science or industrial art; literally, the science of technique, i.e. systematic knowledge of technique. Technique: the interaction of people/tools with machines/objects which defines a “way of doing” a particular task..”

Oxford English Dictionary

“Technology may be regarded as simply the way things are done.”

(MacDonald, 1983:22)

Whilst there is a wide variety in such definitions of technology, they all share a common premise: they all go well beyond the concept of technology as consisting only of machinery or other tangible objects. For some commentators, technology implies the means for progress, enabling us to accomplish more than we could in its absence. For example, Schon (1967) defined technology as any tool or technique; any product or process, any physical equipment or method of doing or making, by which human capability is extended. Definitions of technology from a business perspective, at the level of the firm or industry, provide some clues as to what is meant by ‘managing technology’²⁸:

²⁸ Section 4.3 examines some available tools for use in managing technology.

"In the first place technology ... embraces all forms of productive technique, including hand work, which may not involve the physical use of mechanical implements. Secondly, it embraces the physical organisation of production, the way in which the hardware of production has been laid out in a factory or other place of work. The term therefore implies the division of labour and work organisation which is built into or required for efficient operation by the productive technique."

Hill (1981:86)

This definition includes technique, machinery, layout, division of labour, and work organisation and gives some idea of the complexity of the management of technology task. Another way of looking at technology within industry is from a knowledge perspective, which provides one way of understanding the current business emphasis on 'knowledge management' (Fleck *et al.*, 2001: unit 6):

"To sum up, the technology of a particular process or industry is the assemblage of all the craft, empirical and rational knowledge by which the techniques of that process or industry are understood and operated."

Green and Morphet (1977:21)

Not surprisingly, defining learning technology is just as complex an undertaking. Rist and Hewer (1996) provide one definition of learning technology:

"The application of technology for the enhancement of teaching, learning and assessment."

(Rist and Hewer, 1996:3)

Learning technology, by its very nature, tends to encompass a variety of different technologies. This includes computer-based learning, multimedia materials and the use of networks and communication systems to support learning (Rist and Hewer, 1996). The term multimedia (itself a combination of technologies) was originally used by distance learning organisations to describe their courses delivered via text, television, radio, telephone, and so on (Laurillard, 1993). The more up-to-date use of the term multimedia refers to systems that support the use of text, audio, still images, animations, video and graphics, for example a combination of text, graphics and audio-visual material available on a CD-ROM or via the WorldWideWeb (WWW). The following is an example of a definition of the term multimedia:

"... the integration of two or more of: audio (speech/music), still images, video, text/numbers, graphics & animations to a coherent, manageable mix at the user interface."

(Wallis 1995:1)

Whilst exploring various definitions of technology provides some initial insights into the nature of technology, deeper insights can be found in another area of the Sociology of Technology literature, SST. Recent shifts in social and economic

research on technology have explored and analysed both the content of technologies and the detailed processes of innovation (MacKenzie & Wajcman 1985, Bijker & Law 1992). Williams and Edge's (1996) and Williams (1996) review articles provide a useful overview of this SST field. They describe SST as a 'broad church' encompassing a variety of scholars, with differing concerns and intellectual traditions, including for example, industrial sociology, evolutionary economics, economic history, and sociology of science. They also describe the concept of 'choices' (though not necessarily conscious choices) in the design of artefacts and technological systems as central to SST. By this they mean the availability of different technological routes, potentially leading to different outcomes in terms of the form of technology, that is the content of technological artefacts and practices. Williams & Edge claim that the significance of this is that these choices can have differing implications for society and for particular social groups. MacKenzie and Wajcman (1985) propose that SST goes beyond traditional approaches, which are merely concerned with assessing the 'social impacts' of technology, to examine what shapes the technology which is having these 'impacts', and the way in which these impacts are achieved:

“In this way SST broadens the policy agenda; it allows people to get inside science and technology, offering the prospects of moving beyond defensive and reactive responses to technology, towards a more pro-active role.”
(Williams, 1996)

SST approaches attempt to grasp the complexity of the socio-economic processes involved in technological innovation. (Williams, 1996). He claims that such approaches offer a more realistic understanding of the process of technological change than the mainstream technocentric or 'linear models' of innovation. The 'linear model' of technological innovation was that technology supply would generate solutions that corresponded to user requirements, that could then be simply diffused through the market to fulfil society's needs (Williams, 1996). This led to the realisation that the traditional approach of supporting technological supply was not, by itself, sufficient to achieve technological advance, let alone its application to achieve improvements in economic performance and social well-being. SST emerged through a critique of the 'technological determinism' inherent in this tradition, which viewed particular paths of technological change as both inevitable (perhaps reflecting an inner technical logic or economic rationality) and requiring particular kinds of 'social' change (Williams 1996). Rather SST studies claim to show that technology is a social product, patterned by the conditions of its creation and use (Williams and

Edge, 1996). A variety of technical options is available at every stage in both the generation and implementation of new technologies, and furthermore the option selected cannot be reduced to simple 'technical' considerations, but is shaped by a range of broader social, economic, cultural and political factors.

Thus in contrast to the certainties held out by images of social and technological progress, technological change is revealed to be a highly uncertain and unpredictable process (Williams, 1996). In particular, social needs, and the means by which they may be fulfilled are not fixed but evolving entities, partly in the face of new technical capabilities:

“These problems are particularly acute in relation to radical innovation (as opposed to the incremental enhancement of existing devices with well-established uses), since the potential uses and usefulness of an emerging technology are often not well understood by suppliers let alone by potential users.”

(Williams, 1996)

Innovation is thus not restricted to technology supply, but continues through its implementation, consumption and use (Williams and Edge, 1996, Williams 1996). An important insight in this area is seen to arise from Fleck's (1989) coining of the term *innofusion* to highlight the important innovative effort as (industrial automation) suppliers and users adapt supplier offerings to their particular work circumstances. As a result of this process, new user needs and requirements are discovered and further innovation occurs (Fleck, 1989). The potential uses and usefulness of a technology are difficult to fully appreciate at the outset of a process of innovation owing to this importance of innovation around the application and use of technologies, that is the outcome of the protracted learning processes involving both suppliers and users as technologies are applied and used (Fleck, 1989).

The consideration of intermediate and final users draws attention to the range of players involved in innovation (Fleck, 1989). Each has a different relationship to the technology and varying commitments in terms of past experience and expertise. Pinch and Bijker (1984) claim that such players (for example technical specialists from supplier organisations, suppliers of complementary as well as competing products, consultants, policymakers, existing and potential users) may have very different understandings of technology and its utility. Thus for SST commentators, a key aspect of technologies is their negotiability: artefacts emerge through a complex process of

action and interaction between heterogeneous players, rather than being determined by any one player (Williams, 1996). Such considerations draw attention to potential problems of communication and collaboration between the different players:

“Technological development often involves the combination of diverse bodies of expertise - knowledge of different technical fields, as well as expertise in non-technical areas such as marketing and finance. In this context there is considerable scope for failures of communication between groups. The complexity of these interactions is one of the reasons why the development and application of technology involves deep uncertainties. Technological innovations often fail altogether; they usually develop far slower than suppliers and promoters predict and may follow rather different trajectories than was initially anticipated.” (Williams, 1996)

Two aspects of these social processes in technological innovation are of particular interest to Williams:

1. Processes by which technologies become stabilised, or may become destabilised, reflected in the interplay between entrenchment or dynamism of technological innovation.
2. Tensions that may arise in matching the generic potential of new technologies to current and emerging user requirements.

This thesis focuses on the latter, by examining tensions between learning technology use and user requirements during the implementation process. This can be informed by literature from a particular area of SST, that is the social shaping of Information and Communication Technologies (ICTs). Learning technologies are a prime example of ICTs, but their study is currently underdeveloped in the SST literature. Williams (1997) comments on the social shaping of ICTs, indicating the high expectations associated with their rapid diffusion and usability:

“The installation of Information Superhighways, coupled with advances in processing power and usability of information technology, have led to widespread expectations of the rapid adoption of a new cluster of technologies under the rubric of multimedia. Applications based upon these technologies are, moreover, expected to be widely diffused in many areas of working and social life, and to have profound social and economic implications. In short, these technologies are expected to underpin the transition to an information society.” (Williams, 1996)

However, beyond this global vision, there is a great deal of uncertainty about the kinds of applications that can be expected to emerge. It is difficult to assess the prospects and societal implications of new ICTs, when experience is extremely limited and initial applications may, anyway, be far from typical of future offerings. Williams (1996) also claims that much contemporary discussion is based upon future visions, driven predominantly by technology and informed by supplier perspectives. In common with Bruce (1988) and Dutton (1995) he suggests that the lessons from earlier technologies indicate that these visions may be deeply misleading, and that insights may be provided from the past even though they may be resolved differently in different periods and contexts. A number of recurring general and interlinked issues with ICT innovation have tended to shape technological development (Williams, 1996):

1. Local and global
2. Formalisation and ambiguity
3. Expectation and experience
4. Interpreting artefacts and user requirements
5. Suppliers and users

The first issue (local and global’) concerns the problems of how to reconcile the specificity of the social contexts of application and use of ICT with the claims to universality of ICT, particularly given the enormous price advantage of mass-produced standard offerings. In light of the requirement for bespoke solutions expressed by managers of SMEs (chapter three, section 3.4.2) this is likely to be a particularly important issue in management development learning technology implementation for SME learners. The second issue (‘formalisation and ambiguity’) relates to the difficulty with applying ICTs to human communication and decision-making processes compared to earlier commercial applications that focused on routine and simplified information processing activities, such as payroll and account-keeping. The complex judgements and interpretation in HE e-learning contexts that are typically characterised by ambiguity and uncertainty, will be inherently more difficult

to describe in formal mathematical terms. The situation is likely to be even more complex in non-educational fields, such as SME learning. The third issue ('expectations and experience') describes how users actual experiences with new technologies are at odds with their expectations. In order to attract new investment (such as funding in the HE context) it is necessary to create expectations about the performance and utility of future technologies. In a similar vein, Williams refers to supplier product announcements as 'vapourware', and that this may also act to shape the behaviour of competitors and collaborators. He warns that expectations must not become too far removed from emerging capabilities:

“Technical specialists have tended to underestimate the complexity of application areas, and the consequent difficulties of applying ICTs, which has contributed to the repeated experience that ICTs fail to meet the expectations generated by technology-driven visions.”

(Williams, 1996)

The fourth issue ('interpreting artefacts and user requirements') refers to how technology-driven views typically start by taking the utility of the artefact for granted, assuming that new functionalities offered will somehow automatically suit user requirements. In reality, needs and requirements evolve and are constructed during the process of complex ICT implementation. Williams claims that this is one of the reasons why various players (suppliers and current and future intermediate and final users) may have quite different perceptions of artefacts and their utility. This is closely linked to the fifth issue ('suppliers and users'), which concerns the mismatch between what suppliers offer and what users actually need. He believes that matching supplier offerings to user need is likely to prove to be a problematic process, particularly in the case of novel technologies with few established models of the application or its use:

“The relationship between suppliers and users may be particularly difficult given the uneven distribution between them of technical and other pertinent knowledge (for example of the application domain). This is reflected, for example in the 'difficulties in communication' frequently experienced between technical specialist suppliers and non-expert users.”

(Williams, 1996)

Users have a vital part to play in the implementation/innovation process (von Hippel, 1988, Swanson, 1988, Fleck, 1998, Williams, 1997, Williams and Edge, 1996). Therefore paying adequate attention to the context of use plays a crucial role in the likely success of any technology implementation:

“In all cases, technology implementation depends largely on the context of application. For instance, the implementation of a technology for use within an organisation is bound to affect (and be affected by) the organisation itself.”

(Fleck *et al.*, 2001:unit 6)

Williams returns to Fleck’s (1988) concept of *innofusion* to denote the kind of ‘learning by struggling’ that is involved in the diffusion of novel ICTs. Implementation provides a test ground, where suppliers learn about user requirements, and both parties learn about the utility of (and problems in using) technological products: hence it is an important, though often overlooked, site of innovation, yielding knowledge that can inform further innovations (Williams, 1996). The importance of such supplier-user interactions is evident in a range of ICTs, including robotics (Fleck, 1988), computer systems in the finance service sector (Fincham *et al.*, 1995) and computer-aided production management systems in manufacturing (Clark & Newell, 1993, Webster & Williams, 1993). It has also been reported with other technologies, for example, Von Hippel’s (1988) study of technology manufacture in the university scientific research electronics sectors. Von Hippel’s study contradicts the conventional theory that innovation is performed by suppliers of technology. He discovered that in both sectors only commercial development rather than innovation appears to be carried out by the manufacturer. Instead Von Hippel found that research and development departments most often devote their time to converting a user prototype into a commercial product rather than developing “first of types”. One explanation for the idea that manufacturers are the main innovators is that there is more publicity attached to manufacturer’s innovations than to user innovations. Fleck *et al.* (2001) claim that the findings of this study can be carried over to other industries, where often users develop a different type of knowledge (tacit knowledge) to that gained by its suppliers:

“Through daily experience of operating a system, users explore the range of its normal functions and discover many of its quirks and intricacies. They thus acquire knowledge that is more detailed and hands-on than that carried by the supplier and its installation and maintenance engineers.”

(Fleck *et al.*, 2001: unit 6)

Fleck *et al.* (2001) argue that this kind of knowledge is vital for making a technology work in context and that this has important implications for the effective management of technology implementation and innovation:

“It is likely that often users will be the most fully informed about the qualities and deficiencies of a new technology (that is they have local process knowledge). For successful implementation to occur managers should tap into this local process knowledge to see how the technology can be used more effectively. User knowledge is also extremely useful to suppliers, since it provides them with insights into the system’s actual performance under real working conditions (as

opposed to test runs or simulations), and into their customers' opinions of the product's functionality in practice."

(Fleck *et al.*, 2001: unit 6)

Thus this local process knowledge can help technology suppliers identify modifications needed to existing products, or new features that could be incorporated into future system designs. Similarly, it can be argued that the local process knowledge held by users in educational contexts (teachers and students) will have a vital part to play in the success of learning technology experiments. Here the supplier will not tend to have close contact with the student end user (apart from users in trials as proxies), but may have more contact with the intermediate user (the lecturer or tutor). In any case, the development of learning technologies that successfully meet user's requirements is likely to be a complex process and one that varies in different contexts of use. Indeed, a recent Europe-wide study of the development, application and diffusion of educational multimedia diffusion, Van Lieshout *et al.* (2001) reinforces the importance of the role of the user and the process of *innofusion*:

"Multimedia innofusion proceeds along the lines of use and production. Teachers play a pivotal role as intermediary multimedia users *and* as producers of multimedia practices. At present, innofusion in formal education depends on the intrinsic drive of such intermediaries to use and localise multimedia."

(Van Lieshout *et al.* 2001:280)

A further reinforcement of the importance of the *innofusion* concept (and the SST literature more generally) at an even wider level can be found in the Sociology of Science literature, most notably in the work of Gibbons *et al.* (1994). This excited a wide debate in science policy circles about knowledge generation as it clearly challenged the traditional linear model of knowledge production (mode 1 knowledge) by pointing to the emergence of new forms of knowledge production in the context of application (mode 2 knowledge) and the importance of tacit knowledge:

"The prevalence of tacit over proprietary knowledge brings the culture of technologically advanced firms much closer to academic cultures than is usually assumed. The isomorphism between these structures allows frequent interactions which lie at the root of the perception that science, technology and industry are moving closer together, and support our contention that interactions are increasingly taking place in the context of application ... the context of use is increasingly one where the best scientists and technologists meet and where they develop novel theoretical ideas and practical procedures."

Gibbons *et al.* (1994:26)

Whilst the above review of relevant SST literature provides the important overall insight that technology development and implementation should be seen as a

sociotechnical practice, it currently takes a somewhat detached position with respect to practical application: the idea of contributing to the development of good practice is not placed in the foreground (Van Lieshout *et al.*, 2001). The next section introduces more specific literature from the technology implementation area in order to identify an initial practical model for analysing learning technology implementation.

4.3 The Management of Technology

One of the key tasks facing all managers is how to manage technology effectively, both within the organisation, and in its external links with customers, competitors, suppliers and other organisations (Fleck *et al.*, 2001). Technology implementation is the process in which technology or innovations are actually put to work, as part of an effective operating system (Fincham *et al.*, 1994; Voss, 1998; Swanson, 1998). It is not installation, a one-off event or linear, rather it is an iterative process requiring mutual adaptation of the technology and the organisation (Leonard-Barton and Kraus, 1985). Similar ideas are expressed by Fleck's (1998) concept of *innofusion* (as reported above in section 4.2) is also relevant to the implementation of learning technologies:

"...[innofusion is] the process of technological design, trial and exploration, in which user needs and requirements are discovered and incorporated in the course of the struggle to get the technology to work in useful ways, at the point of application."

(Fleck, 1998:3)

Such realisations are emerging in the learning technology literature, though arguably less explicitly. For example, Mayes (2001) argues that changes in education need not be driven by new technologies, or even by new pedagogies:

"Rather it depends on developing novel forms of organizational processes and structures while carefully *maintaining* and *enhancing* the pedagogical principles that remain fundamental to almost all forms of learning."

(Mayes, 2001:17)

Hase and Ellis (2001) argue a similar point, claiming that there is a need to challenge teacher-centred approaches to learning and to align the needs of all stakeholders in the design and delivery of courses:

"...it is interesting to note that the two key issues that affect the development of online learning are the same problems that confront any institutional delivery of education. The first of these is the dominance of teacher-centred approaches that needs to be challenged if the best of what technology offers is to be realized. The second of these is the requirement for the alignment of the needs of all stakeholders in the design and delivery of courses. Progress in both these areas

falls short of the potential for learner managed learning that online technology offers. The challenge is to change existing educational paradigms currently used in universities.”

(Hase and Ellis, 2001:34)

Jackson and Anagnostopoulou (2001) describe reflective teachers developing particular interventions that make learning technologies work more effectively, and warn against the dangers of attributing pedagogical improvements to the employment of the technology itself:

“Improvements in learning through online approaches, when observed, are generally the product of reflective teachers who have conceptions that encourage them to develop effective teaching interventions regardless of technology rather than features of the particular online pedagogy such as discussion groups or interactive exercises or hyperlinked resources. Conversely, arguments claiming that pedagogical improvements inherently follow from the use of online technologies are dangerously misleading.”

(Jackson and Anagnostopoulou, 2001:61)

They claim that many authors find it difficult to divorce pedagogical improvement from the application of technology, and attribute at least part of the explanation to the fact that much of the learning technology implementation literature has its origins in computing research rather than in educational development or learning research:

“As a consequence many authors have limited knowledge of what research tells us about learning. Where authors have little understanding of how pedagogical change can bring about improvements in learning, regardless of technology, it is easy for them to mis-ascribe the role of the technology itself.”

(Jackson and Anagnostopoulou, 2001:61)

This focus on technology is also a common in industry, despite the fact that a technology requires both human/social elements and a technical, artefactual element for its effective operation:

“It is common for implementers to view artefactual components as more important than, or separable from, the specific operating context that also forms part of a technology. The artefact is then often identified 'as' technology. This is understandable because machines are frequently the most visible and durable component of a technology. However, one may liken such a focus on the artefact alone to an X-ray view of an animal that sees only the skeleton and misses out the soft tissues - in reality the two are inseparable.”

(Fleck *et al.*, 2001: unit 6)

In an overview of the management of technology field, Fleck *et al.* (2001) claim that this narrow view of technology contributes to failures in technology implementation. They point to firms with a successful implementation record usually engage in lengthy pre-installation planning periods, which allow them to learn to anticipate some of the organisational and social changes that are inseparable from new technology implementation.

Implementation involves the development of new ways of doing things under the conditions that the new technology creates. In short, implementation *is* innovation (Fincham *et al.*, 1994, Leonard-Barton and Kraus, 1985). The innovative aspect of implementation is evident from the fact that many innovations (especially process innovations) occur during efforts to implement new technologies (Fleck *et al.*, 2001). Technology implementation covers a whole range of activities, including information-gathering, decision-making, purchasing, installation, customisation, testing and training (Fleck *et al.*, 2001). As a result there is a whole range of emergent issues to consider: the amount of time required for completion of a technology implementation project (Brooks, 1982, Freeman, 1997, Schroeder, 1993); the organisation's strategy for technology implementation (Freeman, 1997, Kodama, 1992, Porter and Millar, 1985); the cost and benefits associated with the technology implementation project (Freeman, 1997, Hayes and Garvin, 1982, Primrose, 1991, Hirst, 1988, Kaplan, 1990); effects on work and job design (Braverman, 1974, Rosenbrock, 1983, Zuboff, 1988,); the role of outside agents, including users (DTI 1991, Fleck and White, 1987, Freeman, 1997, Von Hippel, 1988, Voss 1988); and the resulting uncertainty and political manoeuvring that characterises many technology implementation projects (Freeman,1982, Williams, 1997,):

“The general uncertainty means that different views may be held and the situation is typically one of advocacy and political debate in which project estimates are used by interest groups to buttress a particular point of view. Evaluation techniques and technological forecasting, like tribal war dances, play a very important part in mobilising, energising and organising.”
(Freeman, 1982:67)

It is likely that anyone who has been involved with managing a learning technology implementation project in the HE sector will have had to deal with many, if not all, of the factors described above. For example: the university's particular stance on e-learning strategy will have had an impact on the type of project implemented; debates with colleagues and line managers about the costs and benefits of the programme will have taken place (such as whether it will release staff time to concentrate more on research activities and/or lead to the demise of the traditional lecturer); and the implementer will have become an expert in the art of Freeman's 'tribal war dancing'.

Overcoming implementation difficulties is thus seen to be a complex and multi-dimensional task that requires efficient time and money management, and interfaces with all aspects of an organisation (Fleck *et al.*, 2001). The uncertainty associated

with the implementation process means that there is no single recipe for successful technology implementation (uncertainty refers to both unpredictable pitfalls and unpredictable benefits):

“Implementing an automated production process for example may take very long time (a lot more than the firm would estimate) and far exceed the allocated budget, all because of unpredictable technical glitches, workforce resistance or short supply in components. However, it may also bring about gains in areas that it was not intended to, such as innovations emerging during the firm's attempt to implement the system.”

(Fleck *et al.*, 2001: unit 6)

Fleck *et al.* (2001) claim that ‘any attempt to implement a specific technology in an organisation always aims at improving the firm's operations (for example a company may apply Office Automation technologies to achieve cost savings, better resource planning and allocation, or time efficiency). They believe that organisations often define success in implementation by technical success (i.e. the effective installation of the technology so that it becomes operational according to technical specifications) and business success (i.e. the effective application of the technology to achieve the desired results). These are two very different outcomes, which make it difficult to categorise instances of technological failure from which recipes for successful implementation can be derived:

“Implementation is rarely a complete success or a complete failure. Even in almost identical cases of implementation, the same things rarely go wrong. Since the organisational environment differs from firm to firm, there are different contingencies driving the process in each case. Implementation is uncertain: you can rarely anticipate all the potential problems that may influence the cost, time schedule or functionality of the technology. Implementation is a complex process or combination of processes whereby technical, economic, social and political factors interact to create an operating system. Implementation can be lengthy, costly, and complex. In the case of large-scale IT systems for business, it can take several years for a system to be fully implemented, by which time it may be necessary to consider upgrading or replacing the original. The process can also be partially or wholly unsuccessful. Many technologies fail to deliver all their intended benefits because they cannot be made to function effectively in the context for which they were intended. Some may not be workable at all.”

(Fleck *et al.*, 2001: unit 6)

Although the existence of multiple levels of complexity and uncertainty, usually specific to the implementing organisation and the particular environment, make the management of implementation process difficult, there are analytical tools available that can assist with this task. The next section briefly explores such tools and chooses one suitable for use in an educational context.

4.4 Analysing implementation issues

Consideration of the nature of technology and technology implementation reveals the complex nature of both, and the lack of simple recipes for successful implementation. However, a number of analytical frameworks can be employed to assist with conceptualising and analysing the most important elements to consider for effective implementation in any particular context (Fleck *et al.* 2001). Whilst there are several ways to conceptualise technology implementation (Fleck *et al.*, 2001), it is a complex process, contingent to the environment where it is applied, and therefore implementation needs to be addressed in a specific organisational context.

4.4.1 Tools for analysing technology

There are a number of more specific technology implementation analytical tools such as: Boddy and Buchanan's (1987) technical change audit (also known as RAP-3 (Results through Action on Purpose, People and Process)); the value chain (Porter, 1985, Porter and Millar, 1985); and business process flowcharts (e.g. Harrington, 1991, 1997). However, these can be applied more readily to business use than to other implementation environments such as education and other parts of the public sector. More general analytical tools might prove to be more useful for analysing technology in a non-commercial context. General technology implementation analytical tools include Swanson's (1998) *implementation puzzle*; the *technology complex* (Fleck & Howell, 2001); and Pacey's (1983) *technology-practice* framework. The latter can be seen as early example of an implementation framework, although not strictly intended as such. It illustrates primarily the difference between narrow and broad definitions of technology. It is also arguably the most general framework available and its central tenet, that successful technology implementation requires a synthesis between technical, organisational and cultural issues for effective *practice*, provides the foundation for subsequent technology implementation frameworks. For these reasons it is selected as a tool on which to build an analytical tool more suited to the education context.

4.4.2 The *technology-practice* framework

Pacey's (1983) *technology-practice framework* (figure 10) illustrates the difference between the broad versus restricted definitions of technology:

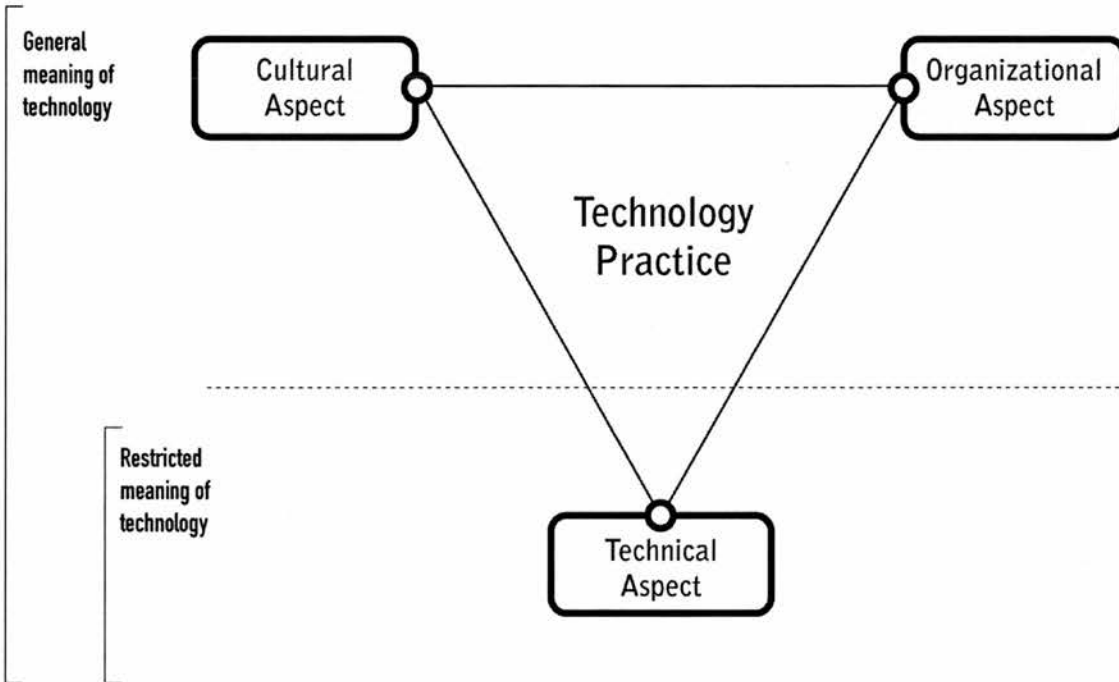


Figure 10: Technology and technology practice (adapted from Pacey, 1983:6)

Technology-practice is 'the application of scientific and other knowledge to practical tasks by ordered systems that involve people and organisations, living things and machines' (Pacey, 1983:6). The broad definition of technology contains the technical, or restricted definition of technology, as one of its aspects. *Technology-practice* is illustrated in figure one above as follows; the triangle represents the concept of *technology-practice* and the corners represent its organisational, technical and cultural aspects. This illustrates how beneath any overt technical difficulties there may also be questions to be asked about the organisational and cultural aspects of technology that arise during the process of technology implementation (Pacey, 1983). Pacey's framework provides a broad overview of the firm's technology, organisation and culture, but the more important insight for implementation studies is its focus on *practice*, i.e. the effective integration of these three components for successful implementation. More specifically, Pacey's framework can be employed to evaluate current technology implementations or to direct future technology implementations (Fleck *et al.*, 2001).

Evaluating current technology implementations

Users of this framework can evaluate whether their organisation's current overall technology-practice is balanced, and whether all three aspects of the triangle are well aligned with each other:

“One example of unbalanced 'technology-practice' might be found in a firm wishing to create a safety-conscious culture (culture), but without its management and workforce having sufficient knowledge about operational safety (technical), in an organisational structure where responsibilities for day-to-day operations and safety are unclear (organisation). Clearly, such a situation would give rise to problems.”

(Fleck *et al.*, 2001)

Fleck *et al.* (2001) contrast this with a firm in which workers already have health and safety knowledge, and where there are clear lines of responsibility for operational safety. In such a case it should be much easier to institute an explicit 'safety culture' as two of the three aspects are in place and in balance with each other, and the cultural aspect is to some extent already implicit.

The *technology-practice* framework can also be useful for analysing more fundamental aspects of technology and the firm:

“For example, a manufacturing firm which does not have in-house all the production technologies (technical aspect) it needs to produce a finished product will usually need to subcontract out that part of its operations to another firm. Is the industry structured so that there are other firms able to undertake the missing process (organisational aspect), and is there a tradition of subcontracting in the industry, or a willingness to subcontract (cultural aspect)? If not, the manufacturing firm will need to make a special effort to find suitable firms to work with, and to create good relations with potential subcontractors.”

(Fleck *et al.*, 2001)

Planning future changes in technology

Fleck *et al.* (2001) claim that Pacey's framework model can also be used as a very general tool to assist with planning future changes in technology, so that the three aspects of the new technology remain balanced:

“In your firm, you will already have some idea about problem areas and where improvements could be made. This framework may help you better understand these, and suggest scope for change where the fit between technical, organisational and cultural aspects of the business is perhaps not as good as it might be.”

(Fleck *et al.*, 2001: unit 6)

Thus if an organisation alters one element in the *technology-practice* triangle, it needs to make sure that the other two aspects of technology will also support this change.

This does not only apply when new technical aspects are introduced. For example, changes in company culture may also require a rethink in organisational and technical aspects of operations, as with the 'safety culture' example above.. Similarly, Fleck *et al.* (2001) claim that changes in industry or firm structure may lead to the need to make cultural and technical adjustments:

“For example, IT and Internet technologies have the capacity to change the way firms relate to their suppliers and their customers, including reducing the role of intermediate agents. A manufacturing firm might therefore find itself in a position of dealing directly with many customers, instead of through just a few wholesalers. This would probably require a change in culture towards a greater focus on the customer or end user of the product, and an investment in technologies for dealing with increased customer interactions (such as a new phone system and customer service staff; and/or an interactive internet website capable of supporting secure on-line transactions; different methods of production and inventory control to cope with different demand patterns; and many others).”
(Fleck *et al.* 2001: unit 6)

Thus Fleck *et al.* (2001) claim that Pacey's *technology-practice* framework can be a useful tool in the planning stages of bringing a new technology into an organisation, as it helps sensitise the organisation not just to technical issues, but also the organisational and cultural factors that are sometimes considered unimportant or even neglected completely. However, Fleck *et al.* (2001) also point to a particular weakness of the framework: although it helps to build an overview, it does not enable the planning of innovation or implementation in specific detail. For this reason it is used in this research as an initial analytical tool applied to the higher education context and as a building block for the development of a more specific analytical tool in chapters four and five.

4.5 Discussion

“The reasoning pursued in policy documents is that, once the information infrastructure is universally accessible and multimedia use common practice, everyone will learn from whoever they like, at any time, any place... but despite high hopes, the promise of multimedia has not been met. The innofusion of multimedia uses and practices is limited. It depends almost solely on the intrinsic motivation of individual teachers. Furthermore ... multimedia projects are generally regarded as successful, but rarely so in terms of educational objectives. It is not yet evident in what manner multimedia do support new pedagogical approaches. Pilot projects are carried out to develop new multimedia uses. But ... these focus on the control and verification of multimedia uses rather than on experimentation and the diversification of uses.”
(Van Lieshout *et al.*, 2001:314)

The current central debate in higher education surrounds the difficulty of reducing costs while increasing provision to a growing and increasingly diversified learner population and maintaining quality standards. Learning technology may provide part of the answer to current problems but may also have potential for becoming part of the ongoing problem. While complaints that technology and economics drive the implementation of learning technology at the expense of pedagogy may be well founded, there is perhaps also a danger in placing pedagogical concerns above other considerations, such as the need to provide courseware that can reach a wider customer base economically.

The high expectations often surrounding novel technologies and the complaints about the 'slow' pace of change that often follows their introduction are found to be common in industry as well as in the education setting. To unravel this 'mystery', there may be valuable lessons to be gained from research in the SST and MoT as well as from the Learning Technology Implementation literature. SST commentators argue that the diffusion of technology is not a linear process, but is a complex and uncertain process affected by an array of social, organisational, political and economic factors. SST research can thus offer important insights and points to the need for continued scepticism (Williams, 1997). For example, matching user requirements to new technical possibilities is likely to be a complex process and it is not clear whether the biggest contribution will come from building more societal knowledge into the design of new applications or from the design of generic offerings with final users learning how to adapt supplier offerings to their purposes (Williams, 1996).

An understanding of the nature of technology requires a broad and dynamic definition rather than a restricted narrow view if technology implementers are to begin to get to grips with the task at hand. Technology implementation is also a difficult concept to define and is a highly complex and uncertain process, with a lack of simple recipes for success owing to the likelihood of different effects in different contexts of use. Implementation is seen to be the site for innovation as users 'struggle' to make technologies work in their particular organisational context. In the case of ICT implementation, SST commentators argue that the promotion of 'vapourware' by suppliers who have little knowledge of the end users' needs serves to add further difficulties to the chances of successful implementation outcomes. Of particular

interest to the subject matter of this thesis is this importance of the role of the user in the implementation process.

Despite the complex and uncertain nature of technology implementation, there are a number of tools available to assist implementers. Since this thesis looks at learning technology implementation experiments in an educational setting, specific business-oriented tools have been rejected in favour of more general tools. Arguably the most general of these, Pacey's *technology-practice* framework, which stresses the complex nature of technology implementation and the need for a synthesis between technical, cultural and organisational aspects, is a useful starting point for thinking about the technology implementation process. The next chapter puts this framework into practice to provide an analytical overview of learning technology implementation issues in the higher education setting, and also uses it as a building block for the development of an analytical tool suitable for use in the higher education context.

Chapter five

Learning technology implementation in Higher Education

“University teachers who, in spite of all obvious difficulties, continue to insist that the university is ‘basically healthy’... will tend to speak in favour of a gradual adaptation of traditional forms of studying to new situations. Futurologists, who have analysed the problems we are likely to face in the information society, are of a different opinion. They believe that the university will have to take on a completely different shape in the next century ... The present situation of the university is ... serious. There is no doubt that it is an acute ‘modernization crisis’. In fact, the only treatment available is a bold wave of modernization such as never before ...”

(Peters, 2000:11)

Chapter four began by examining the current debate in higher education and emerging issues surrounding the introduction of learning technologies to this sector. It then turned to the SST and MoT literature to see what useful lessons there may be to transfer to the educational context. Important lessons identified include: the need to view technology in a broad and dynamic sense; to realise that the success of technology implementation varies greatly in different social contexts of use; and that paying adequate attention to user needs is of vital importance to successful technology implementation experiments. Finally chapter three identified a number of analytical tools that can be used to assist technology implementers, and selected one of these (Pacey's *technology-practice* framework) as a useful general-purpose tool for evaluating existing technology implementation and guiding future technology implementation.

This chapter first employs Pacey's *technology-practice* framework to provide an overview of the main issues or barriers associated with learning technology implementation in educational organisations, divided into technical, cultural and organisational categories. Since there is a longer history and hence larger body of evidence surrounding the issues affecting the implementation of technology in schools, this area of research is drawn on in addition to research in the higher education context. Cultural and related organisational issues (the role of the lecturer/tutor, the role of the student, the role of evaluation, and the role of learning technology) emerge as major issues in learning technology implementation. The main aim of this chapter is thus to present an analytical overview of the main issues associated with learning technology in education through the use of Pacey's *technology-practice* framework.

5.1 Issues in learning technology implementation

As there has been a less than seamless integration of learning technology into educational settings, this has led many writers to comment on the barriers to implementing learning technology effectively (e.g. Bliss *et al.*, 1986; Crook 1994; Cuban 1986; Boyle, 1997; Hanson, 1985; McCormick, 1992; Laurillard 1993, 2000, Kewell *et al.*, 1999, Mayes 1993, 1995, Berge, 2000). Actual classroom usage remains limited in both schools (Crook 1994, Cuban, 2000) and higher education

(Laurillard 1993, Carswell and Murphy, in Brahler *et al.*, 1999) compared to the high investment levels in both sectors. This points to a need to consider barriers to such implementations, with the hope that recognising these barriers, and considering ways to overcome them, could go some way towards speeding up the implementation process. Following the outline of Pacey's (1983) *technology-practice framework* in the chapter four, this section is divided into technical, cultural and organisational barriers, but it should be born in mind that the most important overarching issue is the need to achieve an effective working integration between these three areas in order for implementation to occur successfully.

5.1.1 Technical issues

According to recent estimates, 70% of Higher Education Institutions (HEIs) are involved in large-scale programmes of innovative development of experimental IT-based approaches to learning in many areas of the undergraduate curriculum (Kewell *et al.*, 1999). Furthermore, UK initiatives, such as the Teaching and Learning Technology Programme (TLTP), have encouraged HEIs to develop a variety of technical and pedagogic tools designed to support the increased use of learning technologies (Harrison, 1994, Conole and Oliver, 1997, Kewell *et al.*, 1999).

Mayes (1995:1) claims that the technology employed in such developments is 'unquestionably more powerful, both in its functionality and in its impact on almost all other areas of organised work' than in the past. In addition, he believes that there has never before been a development to compare with the speed of take-up of the Internet and World-Wide-Web (Mayes, 1995). Mayes (1995:1) points to the fact that 'previous expectations of educational impact have also been based on the emergence of a powerful new technology', but identifies a difference in the new generation of learning technologies:

"This time the technology is general-purpose. The conjunction of multimedia, hypermedia, networks and telecommunications is not dependent on a single idea, or even a particular approach - like teaching machines depended on the validity of programmed instruction - but provides a framework within which a whole range of possibilities can be implemented. This is both a strength and a weakness. It is a strength because it is not associated with a particular approach that may be discredited, and a weakness because it needs some kind of strong validating principle to justify its expense."

(Mayes, 1995:1)

Cost

The economic journalist Frances Cairncross (1995) writes about the 'death of distance' due to the influence of ICT. She argues that this occurs as a consequence of the rapidly decreasing relative costs of ICT that will probably amount to the most important economic force in the next half century. Jegede (2000:47) takes the view that in universities this 'will further unleash changes in the practice and conception of education':

"... it is conceivable that the divide between open and distance education institutions and traditional face-to-face higher institutions will be abolished as the use of information and communications technology becomes more pervasive. Teaching may become more collaborative and technologically facilitated, and more responsive to the needs of an emerging population requiring flexible, interactive and lifelong learning."
(Jegede, 2000:47)

The increased interest in the implementation of ICT in education and training primarily stems from this potential for significant cost savings via the achievement of economies of scale, through the envisaged lowering of variable costs such as staff resources:

"Economies of scale originate because the costs of production do not increase proportionately with output. The reason for this is that some costs are fixed, or relatively fixed – that is, they do not vary directly with the number of units produced – whereas other costs are variable and do increase in the proportion to the number of items produced. Economies of scale are therefore economies that accrue as a result of the fixed costs being spread over a greater number of units."
(Inglis *et al.*, 2002:56)

Economies of scale can be achieved in education and training by increasing the number of students taught (Inglis *et al.*, 2002). Twigg (1994), in outlining the case for a national infrastructure for online education in the United States, argued that because of changes in the types of students undertaking higher education and changes in where students were undertaking their learning, the existing means of delivery would be incapable of meeting the educational needs of the country in the 21st century at reasonable cost. To contain costs while at the same time expanding access, she argues, institutions needed to embrace the new learning technologies.

Inglis *et al.* (2002) argue that pedagogical approach is one of the most important factors to influence the costs of delivery of courses, i.e. whether delivery is resource-based or classroom-based:

“Resource-based and classroom teaching approaches exhibit quite different cost structures. In classroom delivery, most of the cost of delivery is accounted for by variable costs – the costs of staff time, the costs of the resources used by students, the costs of maintenance of classrooms. Resource-based delivery, on the other hand, involves a substantial component of fixed costs. The largest fixed cost is usually the staff time involved in the initial development of the learning packages from which the students learn. This is the reason that moving from classroom delivery to resource-based delivery greatly increases the potential for obtaining economies of scale.”

(Inglis *et al.*, 2002:56-57)

However, they warn that it is a common misconception to believe that it is possible to continue to reap economies of scale indefinitely with increasing student intakes, and the possibility of incurring diseconomies of scale:

“Fixed costs such as the costs of teaching staff time required for the design and development of the learning materials represents a substantial proportion of the total cost per student of offering the course. As the size of the intake increases, the scope for obtaining further economies of scale declines. Variable costs such as the costs of tutoring, examining students and provision of administrative support make up an increasing proportion of the total cost per student ... Eventually the point is reached that the additional savings resulting from the increasing the number of students are scarcely worth pursuing. There is even the possibility of diseconomies of scale if some of the variable costs rise with increased scale (for example if scarce labour had to be purchased at penalty rates or if market costs rise) or if a further fixed cost arose when the scale passed a certain point (for example, if new infrastructure or administrative systems are needed).”

(Inglis *et al.*, 2002:58)

Inglis *et al.* (2002) also discuss the trade-off between efficiency and effectiveness. They claim that the aim in education and training ‘is to deliver in ways that are both efficient and effective’ (Inglis *et al.*, 2002:60), but illustrate that these can be competing goals:

“Increasing efficiency does not imply improving effectiveness. While the concept of efficiency implies having the desired effect, it does not imply maximising effectiveness. The pursuit of efficiency can compromise effectiveness and effectiveness can be compromised at the expense of efficiency. For example, increasing the extent of tutor-student interaction can increase the cost per student of delivering the course. The aim is therefore to strike an appropriate balance within the limits of available resources.”

(Inglis *et al.*, 2002:60)

Inglis *et al.* (2002:68) conclude from their analysis is that ‘the decision to shift to online delivery ought to be made as much on the basis of the educational and marketing advantages to be gained from such a move as on the expectation of savings’ and warn about the difficulty of predicting outcomes for institutions not experienced in distance education:

“For universities that have not previously been involved in resources-based learning, such a shift offers the possibility of achieving considerable economies of scale just as the shift from face-to-face delivery to print-based distance

education offered in the past. The costs of establishing communication infrastructure can be offset against the cost of buildings that would be required to increase on-campus enrolments to a similar extent. For institutions other than the major national distance education providers, the outcome is difficult to predict. It will depend on a host of factors, including the experience of the staff, the size and location of target markets, the nature of the courses offered and the precise manner in which a programme is to be delivered.”

(Inglis *et al.*, 2002:68)

Inglis *et al.* (2002) also raise the issue of the high costs likely to be associated with the development of multimedia materials as opposed to Web-based delivery:

“... the cost of development of multimedia materials is typically very much higher than the cost of development of textual materials. A rule of thumb that is often used in making rough estimates of the costs of multimedia materials is that 100 hours of development time are required to generate one hour of instruction.”

(Inglis *et al.*, 2002:63)

This issue of the cost of development of learning technology content has been investigated by a number of authors, including Carswell and Murphy (in Brahler *et al.*, 1999), Golas (1993), Hutchings *et al.*, (1994), Marshall *et al.* (1994, in Brahler *et al.*, 1999), Marshall *et al.* (1995), and Siviter *et al.* (1994). Table 5 provides an account of development time required to produce one hour of instructional training material based on technical complexity and learning goal (Golas, in Brahler *et al.*, 1999):

Learning Goal of Materials				
Development time in hours	Technical Complexity of Materials	Knowledge	Skill	Attitude
30-200	Basic	30	75	200
75-250	Intermediate	75	125	250
200-600	High	200	400	600

Table 5: Instructional material development time

Source: Golas, in Brahler *et al.*, 1999:2

As illustrated in table 5, development time tends to increase as the learning goals for the materials ascend Bloom’s learning taxonomy (Bloom, in Brahler *et al.*, 1999) from knowledge²⁹ to skills³⁰ to attitude³¹, and as the technical complexity of the computer work increases from basic, to intermediate, to high (Brahler *et al.*, 1999).

²⁹ “A knowledge objective involves the use of mental processes which enable a person to recall facts, identify concepts, and apply rules or principles”, e.g. knowing how fuel flows through an aircraft system (Golas, 1993:2).

Brahler *et al.* (1999) identify several trends in a review of the development time estimates of various commentators:

“Development time decreases with increasing developer experience; There is a wide range of time estimates; Development time increases as the learning goals ascend Bloom’s learning taxonomy...”
(Brahler *et al.*, 1999:47)

Such estimates raise the issue of cost in terms of time, people and equipment, and the redirection of resources away from other areas (Brahler *et al.*, 1999). This may lead to political friction within and between academic departments depending on their view of the value of learning technology (Brahler *et al.*, 1999). Brahler *et al.* (1999) conclude from this evidence that:

“Therefore, maximising the effective use of resources and minimising the cost of developing CAI [computer assisted instruction], while still achieving instructional objectives, is crucial.”
(Brahler *et al.*, 1999:47)

Inglis *et al.* (2002) propose that in order to supply expensive multimedia materials at a cost per student that is comparable to the cost per student of print materials, the cost must be spread over a very much larger student intake. This may have knock-on effects however, in that obtaining and administering a large student intake can incur other costs more than proportionally. They believe that the solution is to apply multimedia only to particularly appropriate subject/context areas:

“... it is misleading to suggest that simply by using interactive media the quality of teaching is enhanced. The most important benefits that interactive media can offer are related to the quality of teaching, arising from the capacity of students to grasp new concepts, to understand processes and procedures – particularly where these involve motion. However, many interactive multimedia products do little more than present text and graphics on screen. In these cases, the multimedia presentation is doing little more than ‘page turning’.”
(Inglis *et al.*, 2002:66)

While cost of learning technology innovation is a possible barrier to implementation, currently there appears to be no shortage of attempts at technology innovations across the higher education sector owing to various funding initiatives, as discussed at the start of this section. Mayes (1995:1), in agreement with Jegede (2000), believes that

³⁰ “Skill objectives are commonly described in terms of hard skills and soft skills. Hard skills involve physical or manipulative activities, such as operating a piece of equipment. Soft skills often require interpersonal activities”, e.g. conducting an interview or making a sales call (Golas, 1993:2).

³¹ “An attitude is a persisting state that influences or modifies an individual's choices or decisions to act under certain circumstances” e.g. choosing to wear a seatbelt (Golas, 1993:2).

‘there are good reasons for supposing that today’s learning technology will this time lead to radical changes in education.’ However, the real test is likely to be that of implementation which embeds learning technologies effectively in the curriculum (for example Laurillard 1993, 2000, Garrison and Anderson, 2000, Kewell *et al.*, 1999), and currently the picture appears to be less than convincing:

“...in spite of playing host to major innovations in learning, it is less certain that British HEIs [Higher Education Institutions] possess the organisational capability to sustain the process of integrating LTs [learning technologies] into the undergraduate curriculum beyond the current flurry of government and EU sponsorship. In contrast to the rapid technological and pedagogic development of LTs, the task of making them a normative feature of undergraduate tuition will be gradual and played out in the form of a shift in the epicentre of teaching from the Lecturer to the IT network.”
(Kewell *et al.*, 1999:3)

Despite Mayes (1995) initial optimism, he also acknowledges such doubts:

“For one thing education is a social and political system, and the checks and balances that keep the system working may not be shifted by any technology. Secondly, current learning technology may not be well-matched to real user needs. Here we ask, not how powerful is the technology, but where is the learning need?”
(Mayes, 1995:1)

He thus concludes that ‘all attempts to make sense of questions about learning technology lead inexorably back to the need for a theory of learning’ (Mayes, 1995:1). While the need for a theory of learning is undoubtedly an important issue, Mayes (1995) also draws interesting parallels with findings from the social shaping of technology literature discussed in chapter two (that is the acknowledgement of the importance of social and political systems and the need for a matching of technology with user needs). Thus a lack of technical infrastructure will undoubtedly serve to restrict the development of e-learning initiatives, but a more fundamental issue is the development of appropriate technological solutions to match user needs.

5.3.2 Cultural issues

Makin *et al.* (1996) and Kewell *et al.* (1999) comment on a psychological contract operating within most universities that is tightly bound up with the concept of delivery in which the role of the lecturer is key, and where “contact hours” is the unit of work reckoning (Garrison and Anderson, 2000). This, coupled with the existence of unstandardised evaluation measures of teaching impact, serves to exacerbate cultural barriers to learning technology implementation (Garrison and Anderson, 2000):

“A ... barrier is a reliance on input measures (e.g. class hours, size of syllabus etc.) and unstandardised evaluation criteria (instructor created and evaluated examinations) to measure teaching impact. Until we make the difficult effort to define and evaluate higher order thinking skills, it is unlikely that we will be able to use technology effectively to enhance their acquisition.”

(Garrison and Anderson, 2000:31)

Sova and Hacker (1998) provide evidence (from the Teaching and Learning Committee of the University of Western Australia) that the present climate of change in the university systems serve to highlight a culture of traditional, rigid teaching practices, which may not be well suited to emerging learner needs:

“The new world that is emerging values flexibility over rigidity, and process over content. Yet with our complex system of faculties and departments, courses and units, curricula and assessment, we offer students little control over their own learning. Our current model is predominantly didactic rather than negotiated, and we prefer to control learning resources, rather than offer them. Our school system is already adapting, restructuring and adopting technology to make the curricula more relevant to individual learners’ characteristics, to make learning more active, and to empower students to take responsibility for their own learning. Students will come to expect no less from their tertiary experiences.”

(Sova and Hacker, 1998:50)

Garrison and Anderson (2000) make a similar point, calling for a fundamental change to university approaches to teaching and learning rather than enhancements of traditional approaches:

“The question is will technologies be used in the strongest sense, to create quality learning environments and outcomes, or will they be used simply to enhance presentation quality and to access more fragmented and potentially meaningless information? There is little doubt that technology will influence university teaching; the important task is to use it to enable fundamental changes to our approach to teaching and learning. That is, to facilitate a teaching and learning transaction, that is collaborative and develops students who think critically and construct knowledge meaningfully. With the increasing influence of new, affordable technologies and the demands for relevant learning outcomes, even in the largest and most conservative universities, traditional presentational teaching practices and structures can no longer continue to dominate.”

(Garrison and Anderson, 2000:33)

New teaching practices

The main teaching strategy that has been used for centuries in higher education is lecturing, i.e. an expert telling groups of students what they should know (Alexander and Boud, 2000). Alexander and Boud (2000) report that some lecturers have attempted to open up two-way communication channels within the lecture format through the use of buzz-groups for example, which give students the opportunity to discuss and compare their understanding with others. However, they claim that on the whole students spend most of their time listening and writing notes. Bligh (2000)

claims that the lecturing technique is not as effective as might be assumed given its widespread use as a teaching technique. On the other hand, Alexander and Boud (2001) believe that lectures can be effective teaching-learning vehicles depending on the level of skill of the lecturer:

“The news about lectures is not all bad ... They can have an impact in stimulating and motivating student interest in a subject. A teacher’s enthusiasm for a subject can be transmitted through non-verbal behaviours such as eye contact with students, voice projection, body language and story telling. Students can be stimulated by seeing and hearing a person talking about what excites him or her, and provoked by observing an expert showing or demonstrating alternative ways of thinking about problems. The physical presence of the lecturer who uses a variety of communication strategies conveys to students that what they are learning is not something that is disembodied, but something that is humanized. Lecturers who rarely, if ever, use these techniques invariably receive poor feedback from students.”

(Alexander and Boud, 2001:6)

Laurillard (1993) provides a comprehensive critique of the nature of the teaching task in higher education, and of how it may need to adapt in order to integrate learning technologies effectively. She claims that what will be of practical help to lecturers trying to adapt to the ‘new world’ described above by Sova and Hacker (1998) depends on what the aim of teaching is considered to be (Laurillard, 1993:13). She quotes Ramsden to help with providing an answer to this question:

“The aim of teaching is simple: it is to make student learning possible.”

(Ramsden in Laurillard, 1993: 13)

Laurillard claims that this represents a move from the more traditional view that the aim of teaching in higher education is to deliver knowledge, where the only requirement of the lecturer is that they are a subject matter expert (Laurillard, 1993:13). She also claims ‘that “imparting knowledge” does not succeed as a teaching aim, as many essays and examination papers testify’ (Laurillard, 1993:13), and points to the lack of a professional practice requirement for lecturers in this regard:

“ ...we are still a long way from defining and requiring professional practice for university teachers.”

(Warren Piper, in Laurillard, 1993: 13-14)

Laurillard makes the link between Ramsden’s definition of the aim of university teaching and new definitions of this professional practice, pointing out that ‘making student learning possible’ places much more responsibility with the teacher, and requires that the ‘teacher must know something about student learning, and about what makes this possible’ (Laurillard, 1993:14). She concludes that teaching is ‘mediating learning’ (Laurillard, 1993:14). Laurillard (1993) does not dispute that

traditional teaching methods can be effective, and neither does she consider learning technologies to be a panacea to the problems facing higher education. However, she does believe there is room for improvement in traditional teaching methods, and that learning technologies do have something to offer in this regard (Laurillard, 1993). However, she pays less attention to other cultural constraints which are likely to undermine such changes in teaching practices, notably a reward structure in universities which concentrates primarily on individualistic research output rather than teaching quality:

“From the perspective of faculty members, the time necessary for the acquisition of new skills, plus the time needed to develop new teaching materials, represents an ‘opportunity cost’ that takes valuable time from more highly rewarded activities – notably discipline based research.”

(Garrison and Anderson, 2000:31)

Garrison and Anderson (2000) offer a possible solution to the time cost by proposing the extensive use of materials and content created by other universities. They acknowledge limitations of this collaborative approach owing to the craft tradition of instructor-created lecture notes and assignments coupled with the ‘not invented here’ syndrome. However, they claim that ‘the distributive and collaborative culture of networks such as the Internet tends to mitigate this provincial attitude – especially amongst active network users’ (Garrison and Anderson, 2000:31).

Garrison and Anderson (2000) also point to further resource constraint issues arising from the demands on universities for advances in professional development and lifelong learning:

“A final challenge to the university infrastructure is the demands for professional development and lifelong learning. Universities are finding it difficult to maintain their services at a high level of quality for traditional students who are able to attend classes on-campus. Asking traditional universities to divert resources towards students at home or workplace is a difficult challenge.”

(Garrison and Anderson, 2000: 31)

New learner needs

Laurillard (1993) follows her consideration of the nature of teaching in universities with a consideration of what students bring to learning. She points out that ‘the knowledge that students bring to a course will necessarily affect how they deal with the new knowledge being taught.’(Laurillard, 1993:30). For this reason each new

course a student takes builds on the assumption of prerequisite knowledge. For Laurillard, there are dangers associated with this approach:

“Mastery of the art of taking examinations designed to test knowledge is more prevalent than mastery of the knowledge itself. The teacher will often be building on sand.”

(Laurillard, 1993:30)

While acknowledging that improved teaching and assessment techniques might lessen this problem, she points to other changes in the education system (increased intake to university courses and modularity) that are likely to serve to exacerbate it (Laurillard, 1993). For these reasons Laurillard concludes that ‘it will continue to be necessary, therefore, for academics to understand not only where students should get to, but also where they are as they begin a course’ (Laurillard, 1993:31).

Laurillard (1993:48) claims that ‘an insight into the student’s view of the learning process would give us some basis for deciding on a teaching strategy’ for the effective introduction of various learning technologies and to develop a more learner-centred approach. The most fundamental claim to emerge here is that the teacher has to encourage ‘mathemagenic’ activities in the students (Laurillard, 1993:48). Laurillard borrows this term from Rothkopf who used it to refer to activities that ‘give birth to learning’, such as ‘systematic eye fixations’ while reading (Laurillard, 1993:48). The term defines ‘truly, a student-centred approach’ to instruction (Laurillard, 1993:48). Laurillard builds on Rothkopf’s more narrow description stating that it is a ‘shame to confine it to the realm of such minute behaviours as eye fixations’ (Laurillard, 1993:48). Her approach is to look at what happens during learning and relate this to the learning outcome. As a result of this investigation she identifies five interdependent mathemagenic activities (figure 11), all of which must be addressed if effective learning is to take place:

Figure 11: Mathemagenic activities required for successful learning

- “apprehend the structure of the discourse – e.g. focus on the signified, relate and distinguish evidence and argument, organise and structure the content into a coherent whole;
- integrate the sign with the signified - e.g. practice mapping between the two, practice the forms of representation of an idea, represent the discourse as a whole as well as its constituent parts;
- act on the world and on descriptions of the world - e.g. relating knowledge to experience, relating theory to practice, extending experience of the world, manipulating the various forms of representation of that experience;
- use feedback - e.g. both intrinsic and extrinsic feedback to adjust actions to fit the task goal, and descriptions to fit the topic goal;
- reflect on the goal-action-feedback cycle - e.g. relating this to the message of the discourse, the structure of the whole.”

Source: adapted from Laurillard (1993: 68)

Laurillard (1993) thus claims that encouraging mathemagenic activities is an appropriate student-centred way of thinking about the teacher’s task. She claims that this represents a radical shift from the more traditional “imparting knowledge” approach.

Thus the climate of change in the university system may require a radical culture change in the nature of teaching and learning. This is likely to require a move away from the more rigid traditional teaching practices towards more flexible learner-centred approaches that incorporate new learning technologies effectively. As Kewell *et al.* (1999) claim:

“By introducing learning technologies, universities are doing more than simply introducing a new way of learning, they are asking their key stakeholders (students and employees) to consider renegotiating the fundamental obligations of knowledge acquisition along with the codes of custom and practice which traditionally regulated the delivery of mass undergraduate teaching in higher education.”

(Kewell *et al.*, 1999:29)

However, cultural changes are difficult to achieve, particularly in large organisations, and some authors are recognising that this is the case in universities seeking to adopt learning technologies. Jegede (2000) points to the difficulty of achieving widespread cultural change, and also indicates the lack of co-ordination between ICT developers, educational practitioners and most importantly, learners:

“Since the marriage of open and distance education and ICT several things have changed. These include new pedagogical goals for instruction, new taxonomies of

learning applicable to interactive learning environments, a more organic and iterative approach to instructional systems design, and the need to empower the learner to own the process of the construction of knowledge. However, contemporary developments in education indicate that the more things change the more they remain the same. Educational practitioners and organizations are still not proactive in the development and use of ICT. Indeed, ICT companies rarely consult those within education while they develop equipment that could be used for teaching and learning, and educational practitioners wait to adopt and adapt technology to their teaching rather than dictate what should be developed for a particular instructional event, environment or task. The learners' views are hardly considered, and neither are their motivations to learn, or their socio-cultural environments, which may mediate or inhibit learning. Within these interacting cultural milieu (technology, learner's environments, etc.), borders must be crossed for learning to occur.”
(Jegede, 2000:45)

Such requirements for a change in culture are likely to have major impacts on organisational aspects of universities. The next section examines current organisational issues concerning the introduction of learning technologies in universities in the light of this likely need for cultural change in approaches to teaching and learning.

5.3.3 Organisational issues

The available literature indicates that the main organisational issues revolve around the role of the lecturer/tutor, the role of the learner, the role of the evaluation of learning technologies, and the role of learning technologies themselves. Each of these is now examined in turn.

The role of the lecturer/tutor

Learner-centred approaches to teaching are likely to require a shift in current teaching practices, as reported in section 5.3.2 above. This points to a likely need for appropriate training for lecturers and tutors in the university sector. Lessons from the experience of the schools sector, which has a longer history of learning technology implementation, may be informative. Research at the classroom level in schools focuses on the teachers' lack of self-assurance when using learning technology (Crook, 1994). As a result of such research, staff development financing has been provided in schools by government. However, some commentators (for example Fothergill, 1984 and Boyd-Barrett, 1990) challenge the appropriateness of this

response by policy-makers in the schools sector. The cascade model adopted, whereby those who underwent training on intensive short courses are supposed to pass on their expertise to their colleagues, was often not realised (Crook, 1994:4). Rhodes and Cox (1990) claim that there has also been disappointment with the in-service training itself, attributing any success related to overcoming problems with using technology rather than to the addressing of real educational issues. The recommendations of Rhodes and Cox concern the commitment of the head teacher to the use of computers and more effective experiences for preparing and supporting teachers in their use of an unfamiliar resource. Their views are similar to the findings of a more recent Office for Standards in Education (Ofsted) report concerning the use of ICT in primary schools:

“Where the use of NGfL funding and NOF-funded training is effective, it is almost exclusively due to the strong leadership of the headteacher and ICT co-ordinator. A strong lead from the headteacher is vital and in many cases, the ICT co-ordinator is the driving force behind improvements in the schools’ ICT teaching and learning.”
(Ofsted, 2002:8)

Davis (1992) believes that the strategy for training teachers in schools should have been one of focusing more on initial teacher training. Ryan (1991) agrees with Davis in a report of the effects of forty variables on the impact of computer-based learning experiences in schools. The only external variable to show any moderating effect of computer activity on pupil achievement was the extent of teacher pre-training on the activity under study (Ryan, 1991). Crook (1994) draws the following conclusions from such evidence:

“...effective preparation involves more than instilling the confidence to motivate implementation. The success of computer-supported learning also depends upon teacher contact with pedagogic ideas concerning good practice with this technology: the enthusiastic teacher needs to be prepared in this sense also.”
(Crook, 1994:5)

Similar findings are echoed in the Ofsted report:

“In far too many schools ... the training has disappointed teachers and has failed to meet their needs, whatever their level of ICT expertise. A common failing has been the lack of differentiation in the training programmes, to extend the highly competent ICT users, while also meeting the needs of those teachers who have limited confidence. In particular, many teachers have received too little help in how to use ICT to teach literacy, numeracy and other subjects of the curriculum. In half of the schools visited, training has not met the pedagogical need of teachers to apply ICT to lessons in other subjects.”
(Ofsted, 2002:8)

It appears that the higher education sector may have learnt little from such experiences in the schools sector. McAleese (in Kewell *et al.*, 1999), for example, reports:

“The workforce is under-skilled and sometimes untrained. Its ability to make the most of communication and information technology hangs on the initiatives that aim to disseminate best practice, and on painfully short induction courses to the complexities of teaching on the web and automatic assessments using self-marked tests.”

(McAleese, in Kewell *et al.*, 1999:6)

Similarly, Wills and Alexander (2000) report the need for significant staff development financing, which is likely to be even more crucial owing to changing strategic views of the role of learning technologies in universities in recent years:

“Clearly, the rationale for the use of information technologies in education has changed. Five years ago, CIT was viewed by university management as experimental seeding, on the edge of mainstream teaching, and as an expensive, if necessary, administrative resource. Now, the vice-chancellors speak of ‘mainstreaming the digital revolution’. For CIT to become mainstream, however, universities will need to put significant resources into staff development to equip staff to undertake the new roles required.”

(Wills and Alexander, 2000:57-58)

A further associated issue in the higher education sector relates to rewards for the uptake of new skills. Kewell *et al.* (1999) claim that this issue is of great sensitivity for both university employees and their employers given the current climate of resource constraint. They report that ‘university employers are thus more likely to offer other incentives than increased pay, including staff development opportunities’ (Kewell *et al.*, 1999:6), and point to potential problems with this approach related to university staffs’ lack of technology and pedagogy literacy:

“If this is to be the case, then the task is further hampered by the fact that a large proportion of teaching staff currently employed by British universities and colleges of HE have a low familiarity with the software technology (i.e. Web browsers, Web CT) and the pedagogy behind LTs.”

(Kewell *et al.*, 1999:6-7)

Widespread uptake of the use of learning technologies within UK universities is therefore likely to require an investment in appropriate in-house staff training (Conole and Oliver, 1997, Harrison, 1994, Kewell *et al.*, 1999). Kewell *et al.* make a similar point to Crook’s (1994) conclusions about experiences in the schools sector as reported above:

“There is a danger however that in-house training programme may concentrate almost exclusively on teaching staff how to navigate their way through the software, at the expense of pedagogy. It is sufficient to say that universities would do well by avoiding this scenario altogether and concentrate more fully on

educating professional teachers and lecturers in the pedagogical language of learning technologies.”
(Kewell *et al.*, 1999:7)

However, even if such staff development finance is put in place (which is likely to be difficult across all HEIs in the current climate of resource constraint), there remains the issue of the need to address the cultural psychological contracts as examined in the previous section, coupled with the need to provide appropriate pedagogical training:

“Many teachers ... are reluctant to take up the challenge to use the new online media. Some have deep-rooted concerns about changes in work practices, and others see the huge gap between the rhetoric surrounding technology and the realities of educational settings, while others boldly embrace new media with seemingly little pedagogical concern.”
(Fox and Herrman, 2000:73)

There are also issues associated with necessary changes in the structure of the workforce in universities required for the implementation of learning technology interventions:

“The structure of the university’s workforce will have to be altered by means of a previously unheard-of number of educational designers, graphic artists, media experts, Internet experts, project managers and the respective technicians. However, the structure of appropriate development institutions can only be justified financially with high numbers of students, such as those which, up until now, have generally been achieved by a few distance-teaching universities. Equipping traditional universities of average size with technology that is required for distance studying and for studying in digital learning environments only increases their costs in these times of chronic financial difficulty, instead of reducing them. The only reduction in costs with increasing student numbers at present is taking place in the distance teaching ‘mega-universities’”
(Peters, 2000: 18)

A further issue concerns the changing role of the lecturer, from ‘sage on the stage’ to ‘guide on the side’, which may result in increased workload for tutors, at least initially and the requirement for the development of a new set of skills:

“Distance learning brings new demands, and staff in traditional universities trying to incorporate an element of distance learning into their courses, find that their workload increases in the first instance, as the old continues: while they prepare to integrate the new Training for staff is vital, not only in the use of the technology, but in the uses to which they can be put, and in the changing role of the tutor. Moderating electronic conferences and discussion groups is an emerging set of skills.”
(Sellinger, 2000:96-97)

One facilitator’s testimony expresses the difficulties that may be encountered with accepting such new roles and new skills development:

“I have struggled with my changing role. Initially trained as physical scientist, I am quite at home lecturing and writing on the board, certainly more so than sitting on my hands reading learners’ perspectives on the research articles of the week and their applicability to their world at large. I overstate the case perhaps, but trying to move from an espoused theory of constructivism to acting upon this

theory is easier said than done. I did take heart as I read the following comedic but insightful comment, 'I think the most radical change in roles occurs for the classroom leader or *The Artist Formerly Known as Teacher*.'"
(Campbell-Gibson, 2000: 141)

The role of the learner

Garrison and Anderson (2000) point to the challenges that are also faced by students when learning technologies are introduced into higher education institutions, particularly with regard to the emphasis they may place on deeper learning. They also point to the dangers of learning technologies encouraging unethical practices and presenting an additional cost barrier to students:

"Students, too, face challenges when using technologies to support higher order thinking. Many students begin their university experience with a history of success through effective surface and instrumental learning activities. They are unskilled and often unwilling to make the efforts to use tools and techniques that require them to think deeply and to collaborate extensively with peers. It is ironic that the communication tools that we believe to have great potential for increasing meaningful learning also facilitate plagiarism, paper and project purchasing, and other unethical behaviour. Finally, rising tuition and debt loads created by government policies requiring student to pay a higher percentage of the costs of their education, make it increasingly difficult for students to afford the capital and operational costs of personal computers and communication devices."

(Garrison and Anderson, 2000:31-32)

Campbell-Gibson (2000) provides an interesting account of her and her learners' reactions to their new roles in an online teaching/learning conferencing environment. She acknowledges that it can be a difficult transformation for the teacher to make, an experience which is likely to be shared by the learner:

"On death and dying: a distance learner's reflections'- the title of a student's required reflective paper – certainly aroused my curiosity. What followed were one learner's reflections on learning online and her journey as a distance education student which, from her perspective, resembled Dr Kubler-Ross's (1969) stages of dying. These stages, as she reminded me in the paper, include denial, anger, bargaining, depression and acceptance."

(Campbell-Gibson, 2000: 133)

Similar, though somewhat less dramatic, reflections emerge from a group of online students made up of educators in HE on an online education and training course³² moderated by the author of this thesis:

"I originally qualified as a primary teacher but, having undertaken further study at postgraduate level, have only just left the safe boundaries of that profession as

³² Certificate in Online Education and Training, Institute of Education, University of London: <http://www.ioe.ac.uk/english/OET2.htm>. Extracts from online discussions reproduced with the kind permission of OET 2002/03 students.

recently as 6 months ago, to work in the whole area of learning technology and online learning with Dublin Institute of Technology. The last few months have been great but scary as everything is so new in this area and we are finding our feet as we go along too. Furthermore, I've never been a student on a completely online course before and so have no expectations. However, I do feel somewhat unnerved not knowing what will happen next and not having the security of a bricks and mortar classroom in which to meet you all. Does anyone else feel the same?!"

(Student A, OET 2002/03)

However, a reply from a fellow student in response to this email reveals one of the possible advantages provided by online communication:

"I know how you feel. I totally agree that it can be very intimidating if someone in the group seems to know more on the subject matter than you. I also agree that email, online discussions may remove this barrier as no one knows who you are, or what your knowledge of the subject matter may be. Therefore you may feel more confident on expressing your views when no one can see your face!"

(Student B, OET 2002/03)

Thus there are likely to be both possible advantages and disadvantages for the student taking an online course, but undoubtedly this will involve a change from traditional roles and a change in the psychological contract (e.g. Makin *et al.*, 1996) that exists between student and teacher.

The role of evaluation

Another issue arising from the available evidence from learning technology implementations concerns problems with evaluating learning outcomes (Crook, 1994). This may be interpreted as the need to identify the role of evaluation. Most computer-based implementation exercises in education result from technology-push and are not adequately planned (e.g. Crook, 1994, Laurillard, 1993). This, coupled with lack of staff training and support from heads of department, as identified in the previous section, may pose problems for evaluators:

"Thus, at present, there may be few sites where a culture of computer use is comfortably established - where the potential impact of particular computer-based activities can be evaluated in a convincing manner."

(Crook, 1994:5)

Crook (1994) identifies two broad questions that the evaluation of learning outcomes in schools attempts to answer. The first relates to learning to use computers, or computer literacy. The general answer to evaluating this learning outcome is that it has been broadly successful in schools, but questions remain about the extent of this literacy in terms of actual degrees of comfort and confidence with computers attained

by the learners (Crook, 1994). Also, evidence from early school (Hughes *et al.*, 1987) undermines this general answer. Meier (1985) argues that computers are capable of inducing 'phobic' responses in some, but in others they may induce 'addiction' (Shotton, 1989). Perhaps there are two extremes relating to learning to use computers, with most learners lying somewhere in the middle ground. However we may judge this issue, as computers become more commonplace in schools and in the home, this is likely to result in a greater degree of computer literacy among learners in general (Crook, 1994, Mayes, 1995).

A similar picture is emerging in the higher education sector. Whilst it may seem logical to assume that the next generation of university students is likely to be far more IT-literate than their predecessors, evidence to support this assumption is controversial (e.g. Crook, 1994, Harrison, 1994, Kewell *et al.*, 1999). It may perhaps at least be assumed that the introduction of learning technologies in the schools sector will raise expectations amongst future university learners:

"It is certainly the case that the use of IT to supplement teaching in secondary schools has created an expectation amongst a high proportion of students that university courses will be delivered using IT as key learning medium."
(Kewell *et al.*, 1999:8)

However, Crook (1994) claims that the question of computer literacy is the lesser one facing educationalists attempting to integrate learning technology in the class setting. He considers the more important issue to be the evaluation of how computers are used to learn (that is how computers can support the learning of different subjects). Crook (1994) claims that the evaluative picture with regard to how effective attempts at using computers to learn have been is not clear. Research in relevant settings and under the prevailing conditions of innovation is not easy to manage (Bork, 1991). True experiments are not easy to conduct in such environments and natural experiments are also problematic (Jamison *et al.*, 1974). In addition, Crook (1994) points to the futility of such experiments, even if they were trouble free, as it is unlikely that useful generalisations could be made given the extreme diversity of different educational settings.

Oliver (1997) describes similar issues in higher education evaluations of learning technologies:

“The evaluations of LTs [learning technologies] are more usually carried out using quantitative and experimental research methods. The analysis of pre-test and post-test questionnaires and numerically driven evaluations are also commonplace in the field. Statistical modelling is used, in particular, to provide a reliable method of authenticating the results of pilot experiments with new software and comparing their performance to other delivery methods, including paper-based alternatives.”

(Oliver, in Kewell *et al.*, 1999:9)

Reeves (1991, 1999, 2000) points to the futility of such comparative performance tests, the majority of which reveal “no significant difference”. In addition, Oliver (1997) provides a comparison of quantitative versus qualitative techniques:

“Whereas quantitative research techniques can provide the hard data needed to ascertain the cost effectiveness and performance verifications of multimedia educational technologies, they are less effective as tools for illuminating the social connectivity which develops amongst users of C&IT or understanding the ‘virtual community’. Moreover, research indicates that users develop social support networks in order to facilitate peer group learning potential (Wegerif, 1998) and that it would be very difficult to explain the role of peer group support within the multimedia learning environment without using qualitative methodologies as the key frame of reference.”

(Oliver, in Kewell *et al.*, 1999:9).

Overall the picture is one of a less than dramatic impact in relation to the amount of investment applied in education, in both the school and university sectors (e.g. Crook 1994, Brahler *et al.*, 1999). As a result several commentators argue that there is a need to go beyond the input-output designs of much evaluation research in both schools and the higher education sector (e.g. Crook 1994, Laurillard 1993, 2000, Reeves 1991, 1999, 2000). They indicate that the inadequacy of current approaches is due to the fact that outcomes are situated in a broader framework of the teaching-learning process. If this is not recognised, research into learning outcomes may encourage misguided conclusions:

“This demands consideration of how computer-based experiences are integrated into the broader framework of activities that define an organised environment for teaching and learning. Across different settings, there may be significant variation in how radically the same technology serves to restructure the activity of learning. Thus, its influence will not always be neatly contained within events at the pupil-computer interface itself. Researchers may need to look further than this in defining the ‘place’ at which computers work their effects.”

(Crook, 1994: 9)

This provides an interesting parallel with Pacey’s *technology-practice* framework, which argues for the need to look at broad and dynamic views of technology rather than narrow and static ones. Similarly, Phipps and Merisotis (1999) conclude that despite the large body of literature available, there is little useful research on the

effectiveness of online learning, and that where such research does exist it is generally of questionable quality. They also point to the 'irony' of much research returning to the importance of the art of teaching rather than the technology itself:

"...although the ostensible purpose of much of the research is to ascertain how technology affects student learning and student satisfaction, many of the results seem to indicate that technology is not nearly as important as other factors, such as learning tasks, learning characteristics, student motivation, and the instructor. The irony is that the bulk of the research on technology ends up addressing an activity that is fundamental to the academy, namely pedagogy - the art of teaching."
(Phipps and Merisotis, 1999)

Along with the barriers related to inadequate provision of pre-service preparation and in-service staff development, this recognition of the broader framework of the teaching-learning process leads to the consideration of another barrier to effective implementation of computer-based technology into educational practice - the role of learning technologies in relation to existing patterns of teaching (Crook, 1994).

The role of learning technologies

The role of learning technologies within the broad framework of the teaching-learning process is recognised as a major barrier to the effective implementation of learning technology in education (e.g. Crook 1994, Laurillard 1993, 2000, Mayes, 1993, 1995, Reeves 1991, 1999, 2000, Kewell *et al.*, 1999). Such commentators stress the essential role of dialogue in the social nature of the teaching-learning process in particular. A key work in this area is Laurillard's (1993) development of the *conversational framework*, a comprehensive account of the importance of dialogue in the teaching-learning process. The vicarious learning work of McKendree and Mayes (1997) and McKendree *et al.* (1999), and the pedagogic framework/toolkit developed by Oliver and Conole (Oliver, 1997, Conole and Oliver, 1997, Oliver and Conole 1998) for example, build on the *conversational framework*. For this reason, the main features of the framework and its application to various types of learning technology are reviewed below. However, as it leads to a classification of the pedagogic properties of various teaching media rather than an explicit explanation of the *role* of technology, it is then supplemented with a review of Crook's (1994) account of the role of computers.

The conversational framework

Laurillard (1993) claims that the *conversational framework* illustrates the essential elements of academic learning. This section sets out a description of the framework in the general context of the implementation of learning technologies. A closer examination and critique of the *conversational framework* is considered in the next chapter, as part of the foundation for developing a learning technology implementation framework that incorporates findings from the Social Shaping of Technology (SST) and Management of Technology (MoT) literature.

In figure 12, activities five and ten represent adaptation and activities eleven and twelve represent reflection (internal to both teacher and student). There are two levels of dialogue in the framework: activities one to four represent discursive dialogue (that is interactive at the level of descriptions), and activities six to nine represent interactive dialogue at the level of actions:

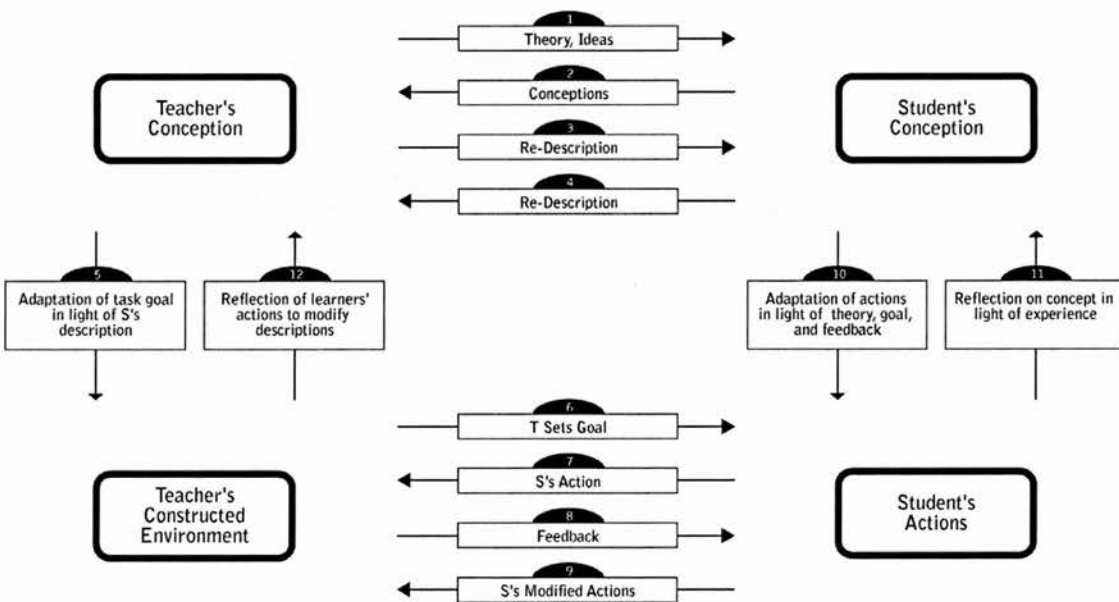


Figure 12: The *conversational framework* (adapted from Laurillard, 2002:87)

Laurillard (1993) proposes that this way of generating a teaching strategy can then be used in the design and implementation of teaching methods. Laurillard first examines what various teaching methods have to offer to the education process:

“The familiar methods of teaching in higher education are there to support learning as it is commonly understood to occur: through acquisition, so we offer lectures and readings; through practice, so we set exercises and problems;

through discussion, so we conduct seminars and tutorials; through discovery, so we arrange field trips and practicals.”
(Laurillard, 1993:97)

Laurillard (1993) acknowledges that offering these methods in combination satisfies most of the constraints imposed by the *conversational framework*. However she claims that ‘feedback on students’ actions is the weakest link’ (1993:97). She does not refute that traditional teaching methods can be effective, but believes that they can be improved and cites Ramsden to this effect:

“In short, a teacher faced with a series of classes with a large group of students should plan to do things that encourage deep approaches to learning; these things imply dialogue, structured goals, and activity...Teaching is a sort of conversation.”
(Ramsden, 1992: 167-8)

Laurillard (1993) makes the following distinction about the *conversational framework*:

“It is not normally applicable to learning through experience, nor to everyday learning, nor to those training programmes that focus on skills alone, all of which tend to occur at the experiential interactive level only...A critical perspective, necessary for academic understanding, is not a normal adjunct of learning at the level of experience. The two levels are also observably different - the one bring action on the world, the other being talk about those interactions with the world. In the context of education, the distinction is an important one.”
(Laurillard, 1993:102-103)

Laurillard (1993:104) also points out that the actual structure of the *conversational framework* may change in various situations, but for learning to take place its core structure ‘must remain intact in some form’:

“... the dialogue must take place somewhere, the actions must happen somewhere, even if it is all done inside the student’s head. That is where it has to be when learning is done by reflecting on lecture notes.”
(Laurillard, 1993:104-105)

Laurillard then explores how the use of media can fit with an epistemology that disagrees with the transmission model for education, that is ‘the idea that knowledge is an entity separable from knower and known’ (Laurillard, 1993:99). The first step Laurillard (1993) takes in this direction is to redefine the term media. She identifies a good classification system as one that can examine the ideal as well as the actuals, thereby highlighting where the actuals are lacking. She proposes that the categories defined in her generation of a teaching strategy (the *conversational framework*) should be the starting point for a classification of educational media rather than describing blindly the actuals of what is available (Laurillard, 1993:99).

Laurillard (1993:97-178) carries out this classification on 'most of the technological media likely to be used in the service of education':

- "audio-visual media (lecture, print, audio-vision, television, and video);
- hypermedia (hypertext and multimedia resources);
- interactive media (simulations, microworlds, and modelling);
- adaptive media (tutorial programmes, tutorial simulation and tutoring systems);
- discursive media (audio-conferencing, video-conferencing, computer-mediated conferencing, and collaboration)."

(Laurillard, 1993:176)

She analyses the extent to which each can support the learning process as defined by the *conversational framework*. The results indicate that only two media, tutorial simulations and tutoring systems, can lay any claim to addressing the entire learning process. Laurillard thus proposes that 'multiple media', rather than 'multimedia', is a more appropriate terminology for educationalists to employ:

"This kind of analysis does not determine the selection of media; it is not a prescriptive process. It should help to clarify where a particular medium fails to support the student, and to suggest which media it should be combined with. Stand-alone media-based packages will never be sufficient, because none of the media can adequately support the discursive activities that are essential for academic learning. However, the media comparison shows how to integrate a range of media in order to best exploit the strengths of each. Improvements in university teaching are less likely to come from 'multimedia' than from 'multiple media'."

(Laurillard, 1993:176)

The role of computers

Laurillard's (1993) *conversational framework* thus provides the basis for a teaching strategy that can then be applied to various types of media to analyse what they lack pedagogically. Crook (1994) develops another useful and more explicit approach to the role of technology. In this consideration of the role of computers, Crook (1994) stresses that he is not discussing all the relevant issues, but making a more important point that there are problems to be addressed which simple evaluation experiments cannot resolve. He tackles the question of the role of computers by addressing four main metaphors: the tutorial metaphor: *computer-as-tutor*; the construction metaphor: *computer-as-pupil*; simulations; and the toolbox metaphor: *computer-as-tool*.

Computer-as-tutor

The tutorial metaphor reproduces the traditional model of teaching and learning, in which the computer acts as a tutor for the learner. Although this model is disparaged by educational theorists, Crook (1994) claims that its continuing popularity is related to complex reasons that deserve more sympathy. There is a long history of implementing computers in educational contexts, dating back to the introduction of “teaching machines” (Cuban, 1986). This arose from a dominant theoretical paradigm within psychology at the time, that of behaviourism. “Teaching machines” proved neither successful nor popular (Crook, 1994, Skinner, 1984), but ‘the spirit of machine-as-tutor’ (Crook, 1994:11) has since been revived:

“So, when school micros began to appear in Britain, the education correspondent of *The Times* was able to headline his copy ‘A teacher on every desk’ (*The Times*, 1984).”
(Crook 1994:11)

Such headlines are still commonplace, with the main obstacle to learning technology implementation in education seen to be the lack of power of delivery systems. However, as noted by Crook (1994) and discussed in section 5.3.1, the power of delivery systems is now less of an issue.

“Teaching machines” provide very “technical” answers to the problems of applied psychology (Boyle, 1997). The emphasis is on a very clear, operational definition of the targets to be achieved - the first “teaching machines” presented material to learners in a carefully defined order (Boyle, 1997). By rigidly optimising the presentation of learning material, it was argued, you could optimise the process of learning (Boyle, 1997). Later the rigid paths of the early machines were replaced with branching systems allowing different paths to be followed, but the tradition of formal design of computer-based teaching systems remained very strong (Boyle, 1997). Gagne's book *The Conditions of Learning* (1965), provided a formal systemisation of learning theory and this laid the foundations for “instructional design”.

Using the computer as a tutor revolves around the dialogue that can be observed in real-life teaching situations, and has provided the basis for research into Intelligent Tutoring Systems (ITS) (Crook, 1994). The most extensive use of this type of technology has occurred in the main in military and industrial settings where the

necessary hardware is available (Crook, 1994). It is also more suited to skills training within fairly circumscribed domains of action and is presently unable to cope with broader educational goals (Crook, 1994). ITS enthusiasts however remain keen to individualise the curriculum, to provide a teaching technology sensitive to individual learner's needs (Crook, 1994). However this is a huge task:

“... even something as apparently straightforward as learning subtraction turns out to be a skill that supports a variety of pupil misunderstandings and procedural ‘bugs’.”

(Brown and Burton, in Crook, 1994;12)

One possible compromise may be to get students to make decisions regarding some of their problems themselves (Crook, 1994). However, this also has its own problems as there is no guarantee that learners will actually choose levels suited to their own abilities (Crook and Steele, 1987).

In spite of such difficulties, Crook (1994) claims that the *computer-as-tutor* is the type of computer-based implementation most readily adopted by teachers, particularly within early education and the most widely employed are those with the least pretensions to intelligence - drill and practice or drill and skill. Surveys of classroom practice claim to reveal a striking preference for these more didactic forms of software (Becker, 1991, Jackson *et al.*, 1986), particularly for children under 9 years old (DES, 1991, in Crook 1994). A similar preference for the adoption of the *computer-as-tutor* type of computer-based implementation may be emerging in higher education (Brahler *et al.*, 1999).

On the other hand, educational theorists tend to disparage the *computer-as-tutor* model (e.g. Papert, 1980, 1993, Self, 1985). The idea of the computer exerting control over the pupil angers Papert. In his view this offers poor approximations to what is itself a rather poor model of the teaching process in the first place. Cuban (1986) maintains that the *computer-as-tutor* style of implementation is popular because it allows computers to be assimilated to prevailing traditions of classroom practice, in this way maintaining the status quo. Others see it as a holding response in a difficult situation of imposed innovation (Heywood and Norman, 1988) where this strategy also reflects some degree of genuine commitment to that feature of the status quo. This point is elaborated further in the context of a psychological model describing the development of skilled expertise, identifying the value of the practice of skills

(Dreyfus and Dreyfus, 1984). So computers may offer an easy appeal in an area of teachers' work that is not the easiest or most rewarding (Crook, 1994). Cuban (1986) admits some sympathy with the use of computers for drills, arguing that this is what computers are actually very good at.

Thus instead of automatically disparaging the use of *computer-as-tutor*, Crook (1994) argues that we instead need to look at the local setting within which the innovation is taking place. He claims that this may not always be a favourable setting and that we also need to consider the legitimacy in establishing drill and skills type programmes:

“... in the face of temptation from interesting drill-based programs a tolerant attitude to the genre seems possible - especially if Dreyfus and Dreyfus' caution is respected: 'the only danger in the use of the computer for drill and practice and for diagnosis arises from the temptation to overemphasise the sort of training in which the computer works, precisely because it works so well' (1986, p.133). Coming to believe that domains of knowledge could be reduced only to packaged exercises is one possibility we should remain alert to.”
(Crook, 1994:15)

However, Crook (1994:15) warns that 'flirting' with computer activities may be a strategy with its own problems: the marginalisation of certain activities may undermine their impact. He claims that the real need is to integrate learning technology within the overall course/classroom learning situation (Crook, 1994). He sees the limit to *computers-as-tutors* as not just to do with problems of reproducing tutorial dialogue, but also because 'tutorial dialogues are embedded in more extensive contexts of shared classroom experience' (Crook, 1994:15). Overall Crook (1994) identifies two main areas for concern: a failure to integrate computers in a collaborative pattern; and the fact that the preferred use of computers may cause us to miss opportunities for real innovation.

Computer-as-pupil

In contrast to the *computer-as-tutor* metaphor, the *computer-as-pupil* metaphor is one where computers may act to change the status quo to a more pupil-centred approach, as proposed by Papert (1980, 1993). His 'microworlds' are founded on constructionism where learners, through discovery-based learning, act to construct their own learning (Crook, 1994). It incorporates Piaget's ideas of the active learner.

“Each time we prematurely teach a child something he would have discovered for himself, the child is kept from inventing it and consequently from understanding it completely.”
(Piaget, 1970:715)

In this case the computer must do interesting things and becomes the pupil, as with the Turtle Logo application which is programmable. This allows the cultivation of general problem-solving skills and also allows the learner to control the particular settings which act as vehicles for the programming (Boyle, 1997). Papert was particularly concerned with introducing children to mathematics and it was in the area of geometry that his ideas proved most successful, but they are also applicable to other subjects (Boyle, 1997). Many mathematical concepts seem too abstract, removed and alien for children to grasp (Boyle, 1997). The transitional object (the turtle) allows the children to make sense of tasks in terms of everyday familiar experience, but supports them in moving into the world of the abstract (Boyle, 1997). As a consequence of this approach one eight-year old boy argued with Papert that a circle is really a pentagon with many small sides, which in Boyle's (1997) view is quite a profound mathematical insight. It is indeed, as any mathematician would recognise!

Enthusiasm for microworlds has waned somewhat (Crook, 1994), but this may be partly because it attracted very focused evaluative research (Crook, 1994). However, a collection of works by Pea *et al.*, (1987) form a useful characterisation of the circumstances under which this kind of learning may and may not be effective. It appears to be less successful where premature teaching has been completely avoided, despite obvious engagement by the learners (Crook, 1994). This is claimed to go against the grain of constructivists who have a natural distrust of more teacher-controlled situations:

“Often it is even argued that direct teaching may do mischief by forcing the issue in an unmotivated and a contextual manner.”
(Perkins, in Crook, 1994:18)

It may be that there is common ground to be found between these two extreme views:

“In the ideal situation, involvement of teachers may need to be very much ‘indirect’ in manner, nevertheless their involvement is crucial. Around Logo-learning pupils, there are important things to be done (and said) by others who are themselves more confident with the relevant concepts. The challenge is to discover more of how this supportive function is to be defined; that, in turn, may require us to consider the ‘collaborations’ that computers-as-pupils afford.”
(Crook, 1994:18)

He offers a similar conclusion to that proposed for the *computer-as-tutor* metaphor:

“In each case, the implementation of the computer activity may too easily encourage a distancing of teacher involvement; or, more generally, a dislocation from the normally rich context of class-based activity and discussion. this is a threat to the collaborative quality of learning experiences... .”
(Crook, 1994:18-19)

Simulations

The main idea behind microworlds revolves around their open-ended nature, which provides learner control (perhaps too much as the above discussion proposed) (Crook, 1994). However more closed systems can also provide learner control, that is simulations of real-world systems that allow the system's characteristics to be explored through experimentation (Crook, 1994). The Cognition and Technology Group at Vanderbilt (in Crook, 1994:19) has made particular advances in this area based around “anchored instruction”, which is more in line with the apprenticeship model of learning.

Simulations are seen by some as a solution to the slow progress of *computer-as-tutor* implementations (Crook, 1994). Crook (1994) claims that the limitation of ITS owe much to the fact that they are derived from Artificial Intelligence, and as such are rule-based. Riesbeck and Schank (1991) argue that this is impractical for domains of any complexity, and that rule-based reasoning may not be a good model of everyday intelligence (Riesbeck and Schank, 1989), particularly those that are governed by significant human agency (Suchman, 1987). Hence the appearance of case-based reasoning (Schank, 1982). Crook (1994) claims that this could allow the *computer-as-tutor* and *computer-as-simulation* ideas to move closer together.

Simulations share the characteristics and hence attractions of microworlds - they offer a strong discovery-oriented experience and are engagingly interactive (Crook, 1994). However, in common with microworlds, the role of the teacher is unclear (Crook, 1994). Sheingold *et al.* (1983) show that such integration does not typically happen. Moreover, Laurillard (1992) has highlighted the poor performance of simulation software in situations where it is not carefully integrated into a broader context of socially organised teaching.

Computer-as-tool

Computers are viewed as being of 'general purpose', hence Crook (1994) claims we might classify them as a toolbox machine. He claims this provides one reason for encouraging their use in education (Crook, 1994). Teachers increasingly see the educational potential in this light (Becker, 1991). However, Crook (1994) believes this is too narrow a view for education. Fortunately the content of problems tackled with these powerful new tools can reflect interests nearer the world of childhood, undergraduate etc. (Crook, 1994). Thus Crook (1994) respects the widely accepted educational principle that problems posed for children should be authentic (drawn from their own experience and reflecting their own concerns), vivid, and allowing opportunities to develop more generic skills such as the organisation and communication of data.

However, he also sees some controversies (Crook, 1994). There are less direct encounters with the world now that the experience is mediated, undermining Piaget's (1970) ideas of discovery learning (Crook, 1994). Crook also believes there are more controversial issues relating to claims for effects on thinking: Salomon *et al.* (1991) make a useful distinction between effects achieved with computers (e.g. managing text) or higher level effects of computers (cognitive residue). Crook (1994) is less convinced about the latter.

As a result of his analysis of the various roles of computers, Crook (1994) concludes that whatever metaphor for the role of computers in education we examine, one common theme emerges: replication of the interaction that takes place in the social classroom setting is very difficult in computer-based learning. The implications for Crook (1994) are that any framework for evaluating learning outcomes of technology-based interventions in education must take account of the social context of the teaching-learning process, and the role of learning technology within this process. These are similar findings to those of Laurillard's (1993) analysis of various teaching media using the *conversational framework*, but Crook's account specifically provides an overview of the various roles of computers.

5.4 Discussion

This chapter employed Pacey's *technology-practice* framework to provide an overview of the main issues facing learning technology implementers in the higher education sector. There are a range of important issues in the technical, cultural and organisational categories that make up Pacey's framework, but it is found that cultural and related organisational issues are likely to be more important for the effective adoption and diffusion of learning technologies than purely technical barriers. Overall, implementers need to obtain a working integration between these three areas in order to achieve successful implementation. Many of the issues to emerge in this chapter would come as no surprise to commentators in the social shaping of technology field.

Issues in learning technology implementation bear many similarities to general technology implementation issues, such as the need to address cultural change, changes in organisation and work practices, strong leadership for effective technology implementation, and the importance of involving the user in the implementation process (in this case primarily the teacher and the student).

The impact of new technology on changes in organisational culture and work practices in higher education is viewed by Campbell-Gibson (2000) as the 'ultimate disorientating dilemma in higher education':

"Teaching and learning online represents, for many, the ultimate disorientating dilemma in higher education. Emerging new roles and responsibilities for members of these online learning communities call into question definitions of teachers, learners, what it means to learn both as an individual and as a group, and what it means to have learned. Past values, beliefs, and assumptions are all challenged. Some learners and teachers are changed by the experience forever and I would contend for the better. Others remain unchanged while yet others, I would contend, are left with self-doubt about their flexibility and capabilities as learners ...We may say that we want to create constructivist learning communities, but the question is, do we really? And does everyone have to be a constructivist? Perhaps, it is enough to give learners an opportunity to engage in a teaching and learning environment that may stretch them in some ways, but not necessarily change them. I do know that it has changed me!"
(Campbell-Gibson, 2000: 145)

Such sentiments could equally apply to the introduction of robotics or an Material Resources Planning (MRP) system to a manufacturing plant for example – there is a need for Fleck's (1989) concept of innofusion to occur, or be given time to develop. In

this case, the teachers and students have to adapt to their new roles and be allowed the opportunity, time, rewards and training to allow them to adapt the technology to meet their needs in their different and particular contexts of use. Peters (2000:11) recommendation for 'a bold wave of modernization such as never before' in the higher education sector as illustrated in the quote at the start of this chapter may well be necessary, but it is not something that will happen overnight and complaints about the slow adoption and diffusion of learning technology in higher education are likely to be more to do with the complex nature of technology implementation that is common across all sectors, be it industry or education.

The next chapter uses the analysis presented in this chapter as the groundwork for the development of a planning and analytical framework that will be useful to implementers engaged in the development of learning technology experiments in the higher education setting. Its focus is on the management of learning and as such it is very much a practical high-level tool rather than one that focuses at a more granular level on the development of the learning technology itself.

Chapter six

The Learning Technology-Practice Framework (LTPF)

Chapter five provided an overall evaluation of issues in the implementation of learning technology in the higher education sector through the use of Pacey's (1983) *technology-practice* framework. This analysis indicates the existence of technical, cultural and organisational issues in learning technology implementation, rather than the more conventional view of implementation as equating merely to technology installation. At a general level the use of Pacey's framework illustrates that for successful implementation to occur it is necessary to integrate technical, cultural and organisational issues effectively, i.e. Pacey's (1983) concept of *technology-practice*. Overall, chapter five indicated that the supposition that HEIs have the technological and pedagogical expertise to develop effective SME management development learning technology solutions may not be well founded. This owes much to the stark differences between the SME learning environment and HE learning environments as discussed in chapters three and five respectively.

The first aim of this chapter is to examine further the credentials of HEIs as suppliers of management development learning technology programmes to the SME sector. The focus in this chapter is on pedagogical credentials, and to this end Laurillard's model of HE learning (the *conversational framework*) is critiqued in order to investigate the extent of its application to SME learning.

The second aim of this chapter is to develop a framework for the analysis and planning of learning technology implementation in higher education settings that is more specific to this environment than Pacey's *technology-practice* framework, but also offers the scope for integrating technical, cultural and organisational issues of learning technologies in use. The foundations for such a framework stem particularly from: Pacey's *technology-practice* framework; Fleck's (1989) *innofusion* concept and the SST literature in general; Laurillard's (1993, 2002) *conversational framework* and associated implementation framework (*context of learning development, context of learning delivery* and *context of learning infrastructure*); Crook's (1994) discussion of the role of computers; and Draper's (1997, 1998) critiques of Laurillard, which stresses the importance of the concept of *learning management*. This chapter argues that Laurillard's implementation framework receives less attention than does her *conversational framework*, despite her proposal that it is vital to making learning technologies work in practice. This agrees with the views of many technology

analysts, such as Swanson (1988), who argue that the implementation process starts at conceptualisation and continues through to realization. The chapter begins by considering critiques of Laurillard's (1993) work, and then illustrates that it can be strengthened by a more explicit link between her *conversational framework* and associated implementation framework, and a consideration of Draper's (1998) notion of learning management, Fleck's (1989) concept of *innofusion* and the SST literature. The end result is the development of a framework to guide implementers in the development, planning and evaluation of learning technology experiments that has a focus on learning technology in use rather than design *per se*. This is called the *learning technology-practice framework (LTPF)*.

The final aim of this chapter is to distil the literature review and primary research into three main research questions that this thesis will explore in the subsequent empirical work of chapters seven to eleven.

6.1 *Conversational framework critique*

Hartley (1995) provides a general overview of Laurillard's 1993 book, *Rethinking University Teaching*, claiming that it is an ambitious view of the learning process in higher education that sets technology a difficult task, but recommending that her book be read by anyone with a concern for university education. Although he does not state this explicitly, he is perhaps indicating that it is an elitist model (based for example on the Oxford tutorial system) that may be out of kilter with the harsher realities of the current situation in most HEIs, a view that is also held by Michaelson (2002). A criticism of Laurillard raised by Hartley is that the majority of illustrations are taken somewhat narrowly from the sciences. However, Hartley sees the media appraisal as useful and fair, but argues that 'any computer-based system using pre-stored material and having a limited learner model constrains students' initiatives' (Hartley, 1995:221). Hartley also warns about the fast moving pace of advances in learning technology, such as multimedia and the lack of evaluation studies of systems in day-to-day use. Furthermore, Hartley points to the overall emphasis by Laurillard on specialist teams developing materials, with less acknowledgement of the software tools that enable explanatory text to be added to spreadsheet models, lecture notes to

be hyperised, and collaborative and interactive materials, for example electronic workbooks, to be produced via the WorldWideWeb and Internet:

"These cover low-level objectives, perhaps, with teachers having to provide more of the dialogue interchange, but they are current growth points and are less dependent on external resources; they emphasise, though, the need for institutional support in the broad terms outlined in the final chapter of the book...."

(Hartley, 1995:221)

Bostok's (1996) critique of Laurillard's 1993 book, *Rethinking University Teaching*, focuses narrowly, but in considerable detail, on the consistency and usefulness of Laurillard's classification of educational media, including the various uses of computers in education, into the four categories Discursive, Adaptive, Interactive and Reflective (DAIR). Bostok summarises Laurillard's development of a model of the teaching and learning processes in Higher Education and then examines the relationship of the classification to the model. First, he maps the classification to the twelve processes in the model. Then he correlates the described uses of various media for supporting these processes with their place in the classification. Bostok finds that in this test of consistency with the model the classification is only partly accurate. Bostok's main argument concerns the consistency of Laurillard's classification of media and the purpose of classification of media, although he does hint at the more difficult issue of empirical accuracy:

"What is described above is the development and justification of a model of learning in HE, a 'principled teaching strategy'. Leaving aside the difficult question of its empirical accuracy, it seems to be internally consistent, at least until a classification of media is introduced."

(Bostok, 1996:75)

6.1.1 Learning management

Draper's (1998, 1997) critiques of Laurillard's 1993 book, *Rethinking University Teaching*, are set at a generally broader level than Bostok's concentration on classification issues, and as such are more in keeping with the nature of the arguments developed in this thesis. As with Bostok's critique (1996), Draper (1998) focuses on the *conversational framework* aspect of Laurillard's work, claiming that it is the best single offering of an adequate theory of the teaching and learning process, particularly in higher education. Draper (1998) argues that this is of great importance in enabling descriptions of which factors are important to assist with the structure of learning technology observation, evaluation, design, and other research. This is based on his experience in evaluation studies where he found that in many cases the most

important findings were not measurements but discoveries of the importance in particular contexts of factors that had not been anticipated.

Draper (1998) does however identify a number of failings with the *conversational framework*, in particular the failure to address peer interaction (a failing also commented on by Michaelson, 2002) and something he calls 'learning management'. He observes that learning, particularly in the higher education context, depends on the time and effort the learner puts in, and whether they invest that time and effort in more or less productive activities. He contrasts this with many psychological theories, which he argues view learning as something that happens automatically, independently of the learner's intentions and motivation. His contention with regard to learning management is that because learning (in education) depends so heavily on the direction of the learner's effort, results will depend on the management of that effort.

Draper (1997) indicates that Laurillard's model, like other theories of learning and teaching, focuses on what the important activities are for promoting learning, that is mathemagenic activities. However, he stresses that the model is not without problems:

"To explain how learning occurs without overt support for and observation of some activities, I have to hypothesise that these may be internalised. This leads to further predictions that have not yet been properly tested e.g. that learners will report these internalised activities when interviewed, and that study skill training would equip learners to perform such activities internally without further support."

(Draper, 1997:3)

Draper (1997) also poses the question 'What defines a mathemagenic activity?'. He asks whether this is what a teacher does, what a learner does overtly, or tacit internal learner actions. He is thus raising the issue of the nature and limitations of the notion of mathemagenic activity, and develops his arguments around a number of sub-issues:

1. "Are M-acts to be chosen by the learner, or imposed by the teacher?"
2. Are M-acts those visible as overt behaviour (e.g. a tutorial), or invisible mental events (e.g. understanding)?"
3. Are M-acts necessary for learning?"
4. Are all 12 M-acts necessary for learning, or will any one do?"
5. Are M-acts sufficient to cause learning?"

(Draper, 1997:6)

Despite the limitations of the model based on such observations, Draper (1997) thinks that the *conversational framework* has real predictive power:

"That is, rather than studying the effects of media or of interactive modes on learning, I vote for studying these mathemagenic activities as primary factors determining learning."

(Draper, 1997:3)

Whatever the answer to questions 1-5 above may be, Draper (1998) believes (from observations of actual learning and teaching) that the management of these activities is itself of vital importance:

"If it goes wrong (e.g. if students do not know where a lecture is to take place, or if they do not take a deadline seriously, and so do not submit work in time to get feedback before an exam), learning outcomes suffer."

(Draper, 1998:2)

Furthermore, Draper (1997) argues that this applies particularly strongly to the use of IT in learning and teaching. He believes that many learning technology applications have failed because the package is delivered and applied with only the learning/conceptual issues addressed and the management issues neglected. He provides examples of such management issues: when to use it; how much to expect to do at a time; where to get help; how it will be assessed; how to turn the computer on; how to get into the package:

"The fact that this is only obvious in hindsight to many people shows that we have a significant gap in our theories, whether they are conscious or not, of the learning and teaching process. We need to include the activity of learning management as a major process within the learning and teaching process."

(Draper, 1998:2)

6.1.2 Learning management solutions

Draper (1998) proposes two basic solutions to the need to include learning management in learning technology. The first, and easiest approach is for the human teacher to introduce the learning technology personally to the learners and to be physically present to support the learners. The drawbacks with this method are that there is little reduction in human work to offset the cost of the learning technology, and that it cannot be applied to distance learning situations. The second is to try to incorporate learning management in the learning technology and Draper claims that an explicit model of the learning management activities required would be a great help to the design process:

"As in many other areas, introducing a new technology exposes with a new clarity issues that have really always been there. When someone naively replaces a human activity by a machine one, then we see by the way it breaks down some of the less obvious things that were in fact being done by the human. This has proved true in office automation, and I have seen it in education."

(Draper, 1998:3)

Draper (1998) also observes that peer interaction is most likely a crucial component of learning management. He points out that 'research on peer interaction has almost all been studies of whether conceptual advances take place, and what the preconditions for this are' (Draper, 1998:4). Furthermore, he claims that one of the real lessons of such studies is that only careful manipulation by the experimenters leads to conceptual discussion taking place, and that we know very little about the amount or content of peer interaction in higher education. However, he does indicate that some studies that are beginning to shed some light on this:

"However there have been some studies of student email, which begin to lift the lid on this. A lot of the exchanges are "social" i.e. nothing to do with education, and much of the remainder is not about conceptual content, but about what I am calling "management" e.g. "when is that assignment due?", "what do they want for a 'critical review'?". If I am right in this sketch, this may seem depressing to researchers on peer interaction who have presupposed that conceptual gains are all there is to the learning and teaching process. However I suggest that actually learning management is crucial, though neglected by theorists, and peer interaction is probably a crucial support for it."
(Draper, 1998:4)

Draper (1998) also claims that a number of studies of email exchanges with teaching staff suggest a similar pattern: novel conceptual content is rare, checking up on definitions is slightly more common, but administrative and management content is the main use, including students verifying deadlines and other requirements, or asking for clarification on the content of assignment instructions. Draper (1998) believes that such studies are communicating the interactive importance of IT, of scaling up in numbers, and of the learning management component of the learning and teaching process. He believes that email or electronic bulletin boards may be one of the most important applications of IT to education for large class sizes, just because even though lectures scale up cheaply, management interactions (just like marking and tutorials) do not. He argues that they also show how management is an interactive, not a one-way, issue: when a student asks a question this tells the teacher something. But again, this does not scale up: the teacher does not learn ten things from ten repeats of a question.

"Any announcement (e.g. of an assignment) made with typical competence by a teacher may perhaps draw clarification questions from 5% of students the first year it is used, and 1% in later years (if the teacher uses the experience to edit the announcement). In a class of 30 that would be one or two students in the first year, and quite likely none in later years. In a class of 1000, that is 50 queries the first year, 10 in later years. A typical human teacher might be happy to answer

one query (it reassures them the message went across at all, lets them reconsider whether they expressed what they wanted), find it quicker to answer 2 or 3 personally, but after that starts to long for a broadcast mechanism such as making another announcement, (preferably not in a lecture which some students will miss)."

(Draper, 1998:4-5)

Draper (1998) discusses his involvement in a vicarious learning technology project (MANTCHI), based on Terry Mayes' ideas that students get value from eavesdropping (or "lurking" in net parlance) on discussions or at least questions and answers involving other students; and that it should be possible to develop computer assisted versions of this (he provides Ackerman and Malone's Answer Garden idea as an example). The MANTCHI project aimed to capture student tutorial interactions in one year for the benefit of students in future years. Draper indicates that the idealised version of this is that the resources would be like Plato's "The Symposium" (a reported discussion that conveys hugely valuable conceptual content). He proposes that the opposite version is that such things are and will be largely FAQ (Frequently Asked Questions) collections (replacements for hearing clarification question and answers in lectures or tutorials). Draper wonders that even if the latter view is correct, should this be regarded as a disappointing outcome? He believes that this illustrates the importance of the management component of real learning and teaching processes. Draper (1998) also believes that questions are positive feedback to a teacher, at least to a speaker or lecturer. He describes himself as caught between two views:

1. "that capturing FAQs can only be a measure of the failings of the original exposition, and should only be a stopgap before revising the material; and
2. that receiving questions is crucial to the teacher managing the course, and that mechanisms that do away with that will undermine the whole process"

(Draper, 1998:6)

Draper (1998:6) believes that 'such indications show us that the learning management process must be interactive in nature, even though a naive model might show it as a one-way process from teacher to learner (as in "setting homework")', and that this makes it fit with one of the three main generating principles of Laurillard's model (that of interaction or "conversation" between teacher and learner). He also claims that this illustrates why the basic Laurillard model cannot be complete:

"The Laurillard model by itself (unlike Pask's model from which it derives) tacitly implies that the mathemagenic activities are agreed without discussion, as if dictated by the teacher. In practice, at least in campus universities as opposed to distance learning courses, they in general are negotiated: When students decide not to come to my lectures they are consulting a higher level goal (learning outcomes) and deciding that that activity is not necessary or not as important as another. Students have alternative resources and decide between them."

(Draper, 1998:6)

Draper (1998) goes on to propose that student selection between resources is one of the questions of importance in the evaluation of both CAL and non-CAL teaching (Brown *et al.*; 1996), but is not discussed as a factor by most theoretical models. He also indicates that students can and do embark on learning activities not suggested by the teacher and that this particularly applies to "mature" students (e.g. peer study groups, the completion of extra exercises, and teachback). Such students take a more active role in managing their own learning, a skill that Draper proposes HEIs should perhaps be doing more to teach.

Thus, in addition to the tacit lack of inclusion of peer interaction in Laurillard's *conversational framework*, Draper's (1998) main criticism relates to the need for learning management to sit "above" the framework. That is, the management of deciding what the mathemagenic activities will be, together with the co-ordination necessary to make such activities actually work i.e. to organise teacher, learners, materials, and rooms together. Draper (1998) claims that interactive media such as email can support this type of activity as it generally concerns negotiation and iteration, but other media such as textbooks and fixed software may have difficulty.

Draper (1998) also claims that interactive management of learning is not just about administrative matters: students also need and should receive information on how well they have learned the material, how well they now understand it (after the extra feedback). Similarly he proposes that teachers also benefit from feedback, which allows them to learn how well the material has been received, which material has not been received well, and which activities have failed, and provides a warning in this regard:

"Any technology that failed to support this management information flow would endanger the course it was used on. Hence (as noted above) feedback that teachers get about how the course is going and what activities are failing and succeeding is as much part of this layer as administrative announcements to students about assignment deadlines."

(Draper, 1998:7)

Draper (1998) also points to the likely importance of the timeliness of such feedback:

"Furthermore, time round the feedback loop is important. Once a year feedback from course feedback questionnaires (never mind once per textbook/CD redesign) is thousands of times worse than the once an hour or minute to minute feedback obtained by lecturers successful at eliciting questions."

(Draper, 1998:7)

Draper (1997) argues that because learning technology implementations often fail owing to a lack of consideration of such issues, there is a real need to express practical know-how in theories of teaching and learning. He compares this to the issue of meeting costs and delivery deadlines in instructional design:

"Every practitioner "knows" these things are important, but most design methods do not mention cost, and still no-one likes to say that cost and timeliness are more important than learning quality: yet that is what designers' behaviour shows, and what customers need (better something adequate on time and budget, than something a bit better but too late to be used)."

(Draper, 1998:7)

Thus Draper (1998:7-8) suggests that 'theories of learning and teaching that incorporate learning management should be able to predict what skilled practitioners actually do and what everyone needs to do to make learning happen when we disrupt old practices by introducing new technology.' Draper refers to Petroski to illustrate how new technology can often cause design disasters because factors that were hitherto unimportant may become important before they are identified:

"One of the more famous bridge collapses of this century was the bridge over the Tacoma Narrows, which oscillated itself to destruction in a side wind. Romans building bridges in stone did not have to worry about side winds: even with hindsight we know they were right to ignore that, because by the time they had met the vertical forces, then the side forces were automatically dealt with. Modern steel changed that."

(Draper, 1998:8)

Draper claims that for the implementation of learning technology in higher education, current changes such as expanded numbers and moves towards distance learning may make old instructional design approximations invalid:

"With face to face teaching and a class size of 30 or 50, then unplanned interactions such as questions in lectures typically take care of the management function without any specially resourced and timetabled mechanism. This robustness is a virtue of the best designs, even if we didn't realise it at the time (as with stone bridges). But take away face to face (distance learning), or lectures (replace by CAL), or increase class sizes to 1000, and suddenly explicit provision will probably be needed."

(Draper, 1998:8)

He acknowledges that this doesn't tell us what to choose, that is whether traditional approaches are best 'with an inherent stability that we didn't appreciate until we tried to replace them' (Draper, 1998:8), or whether that to make any of those changes while maintaining quality will just require more careful design than enthusiasts realise. He believes that when a better understanding of what all the functions of traditional practices really are is reached, visions of how to replace them in other ways will become clearer:

"And then we may be able to abolish all campus learning, replacing it by a single world wide course in each subject delivered by wire, mail, and ether, and yet raise learning quality. If so, then perhaps we may look back on all those "social" interactions in classrooms and student accommodation and realise they were just fallbacks to compensate poor presentation and communication by teachers, and peer interaction can in future be exclusively about recreation. You'll have a brave new world, but I'll be out of a job -- unless of course this paper turns out to be really really important and makes my fortune as a consultant putting the rest of you out of a job. So you better start pointing out just how wrong it is ..."
(Draper, 1998:8)

6.1.3 SME learning and the *conversational framework*

In the context of this thesis, it is an important consideration that the critiques of the current most widely discussed and disseminated model of teaching and learning in HE examined in this chapter, Laurillard's (1993) *conversational framework*, were written by academics engaged in the HE sector, that is Hartley (1995), Bostok (1996) and Draper (1997, 1998). It is an even more important consideration that the *conversational framework* itself is focused on *academic* learning and as mentioned in chapter five, Laurillard (1993: 102-103) makes the distinction that:

"It is not normally applicable to learning through experience, nor to everyday learning, nor to those training programmes that focus on skills alone, all of which tend to occur at the experiential interactive level only...A critical perspective, necessary for academic understanding, is not a normal adjunct of learning at the level of experience. The two levels are also observably different - the one bring action on the world, the other being talk about those interactions with the world. In the context of education, the distinction is an important one."
(Laurillard, 1993:102-103)

For SME learners, the reverse tends to be the case, with the majority of what is learned in the workplace being informal in nature and stemming from "the demands and challenges of work-solving problems, improving quality and/or productivity, or coping with change" (Evans, 1999:6) rather than the more formal education processes familiar to HE learners which are driven by the need to fulfil the requirements of accredited course syllabuses and to pass exams. Evans (1999:6) claims that SME learning "derives from thinking, trying things out and talking to other people" and is sometimes facilitated by organised learning support of various forms, such as teamwork, coaching or mentoring, and liaison with customers, suppliers or professional networks. This is not to claim that informal learning does not occur in HE or that formal learning does not occur in the SME sector, rather that the main form of learning in each is opposite: in HEIs it is formal whereas in SMEs it is informal.

Thus attempts by HEIs to meet the learning needs of the SME sector are likely to fall into the same trap as other current supply-side provisions. As reported in chapter three, section 3.4.2 Stockley (1999:2) notes that the traditional focus of policymakers and many providers has been on the development, funding and delivery of Mumford's "type 3" activities ('Formal management Development'), at the expense of the two other types of management learning activities that more commonly occur in SMEs (Type 1: 'Informal Managerial' and 'Integrated Managerial').

Evans (1999) also raises the issue of training for qualifications and not for knowledge, or more focused learning, with SME learners often unable to obtain the new knowledge they require without having to strive for qualifications. Furthermore, Evans observes that SME learners complain about too much theory and not enough practice, inflexibility on the part of the providers (providers are either unwilling or unable to provide learning opportunities required by the company), misleading promises regarding type of training provision, and problems with ensuring what is learnt is actually brought back and used in the company (Evans, 1999). All of these issues are likely to continue if HEIs develop SME management development programmes based on existing models of teaching and learning in HE such as that denoted in Laurillard's *conversational framework*.

6.2 The development of a framework for analysing learning technology implementation

Draper's critique of Laurillard's work provides interesting parallels with the implementation of technology literature, in that his notions of learning management and peer learning revolve around recognising the vital role of user interactions in successful technology implementation. Laurillard's work does extend beyond the popularity of the *conversational framework*, and it is here that Draper's criticisms regarding learning management (although not of peer learning) are at least partly met, particularly in the chapters dealing with the notions of the *context of learning development*, the *context of learning delivery* and the *context of learning infrastructure*.

It is suspected that learning technology designers and at least some implementers will be more interested in the *conversational framework* than the other aspects of Laurillard's work as this sits more easily in their conceptual space. However, as reported in chapter four, successful technology implementation requires a broad and dynamic sociotechnical view of technology rather than the narrower, more static view represented by the *conversational framework*. This section develops a framework to guide designers and implementers in the development, planning and evaluation of learning technology that has a focus on learning technology *in use* rather than design *per se*. This framework brings together the *conversational framework* in conjunction with the other main aspects of Laurillard's (1993) work, that is the *context of learning development*, the *context of learning delivery* and the *context of learning infrastructure*. Having considered the underlying philosophy of academic education and the knowledge of how students learn in order to generate a principled approach to teaching strategy (the *conversational framework*) applied to different types of teaching media, Laurillard then derives a design methodology for the teaching-learning process. This tackles three main areas (Laurillard, 1993):

- a. Designing teaching materials (context of learning development);
- b. Setting up the learning context (context of learning delivery); and
- c. Designing an effective organisational infrastructure (context of learning infrastructure).

In essence Laurillard's design methodology, coupled with the *conversational framework*, can be regarded as an implementation framework bearing similarities to those reviewed in chapter four (section 4.4.1) made up of these three main parts. Each of these is now reviewed in turn.

6.2.1 The context of learning development

Laurillard's (1993) *context of learning development* is concerned with the design of learning materials and activities, that is the design of a teaching strategy. Key elements of Laurillard's *context of learning development* are illustrated in figure 13:

Figure 13: Elements of the *context of learning development*

- Definition of learning objectives;
- Identification of learner needs; and subsequently
- Design of the learning activities (including decisions about which media or combinations of media to use and how best to support them).

Source: adapted from Laurillard (1993:181-209)

The *conversational framework* can be used as a basis for analysing various learning technologies, as described in chapter five (section 5.3.3). In considering the *context of learning development*, Laurillard (1993) first puts these media capabilities to one side and reflects on what the learner needs:

“Then we bring the two [media and learner needs] together to see if they fit. The needs as defined will challenge the media, and clarify the extent to which they fail to deliver what pedagogy requires. We may as well know it.”
(Laurillard, 1993:181)

Laurillard (1993) acknowledges that this does not usually occur in practice:

“Funds are given for the development of materials using a particular medium, and the search is on for the learning objective that best fits it. While funding bodies persist in this nonsense, designers are condemned to find a *post hoc* rationalisation of what they do.”
(Laurillard, 1993:181)

Thus her consideration of the *context of learning development* illustrates what a *pre hoc* rationalisation looks like. She first points out that ‘the design of any learning medium should begin with the definition of objectives and analysis of students learning needs’ (Laurillard, 1993:181-182). Furthermore, given the economic constraints facing campus-based institutions for the development of learning media, Laurillard (1993:182) points to two key topic selection criteria. The first is that they must be taught widely, and the second is that they must be widely acknowledged to present difficulties for students (Laurillard, 1993).

In addition she indicates the need for inter-institutional collaboration, as campus-based institutions do not have sufficient numbers to justify in-house material production (Laurillard, 1993:182). In taking this approach Laurillard is stressing methodology rather than theory because the latter is found to be lacking for such purposes (Laurillard, 1993:183). Thus Laurillard believes there is a logical relation between where students are and where teachers wish them to be, but ‘the

psychological means of bridging that gap is not a simple logical problem, however' (Laurillard, 1993:183).

When defining learning objectives, Laurillard claims that it is not enough for academics to merely draw up a list of aims of their teaching (Laurillard, 1993:184). These miss a vital link in that they 'do not define precisely how the teacher would know whether the aim had been achieved' (Laurillard, 1993:184). She then points out that this analysis 'has not attempted to predict the illegitimate moves and prior misconceptions which a student may well bring to their study' (Laurillard, 1993:186). This leads into the further analytical step of identifying students' needs (Laurillard, 1993:186). Laurillard claims that good research into student needs is hard to come by and that academics 'have a poor record in educational fieldwork' (Laurillard, 1993:189). However, she points to two readily available sets of data: the students themselves and research literature. She suggests two main ways in which the teacher can access student data readily. One is to suggest to students that they engage in teacher-student role play, 'where one spends, say, five minutes trying to teach the other a particular theory or concept, and the one acting as student undertakes to ask whatever questions are necessary to clarify the explanation' (Laurillard, 1993:190). The other is for the teacher to analyse assessment scripts and assignments. This could then also feed into the design of examination questions based on a careful analysis of learning objectives. In this way misconceptions can be identified more clearly (Laurillard, 1993). Research literature offers another alternative, although Laurillard is at pains to point out that standards here vary widely and many do not focus on what learner needs actually are. However, some do offer reviews of the use of new media in teaching and Laurillard concludes that good pedagogic design requires some knowledge of where students are as well as where the designer wishes to take them:

"However the designer does it, whether through basic phenomenographic research, questions to students, teachback exercises, assignments or via the existing literature, some initial analysis is important to motivate the design of learning activities the student must undertake. Even if it is only guesswork based on experience of teaching, the students' supposed prior conceptual state should be articulated, as then it can be challenged and refined in the light of further experience."

(Laurillard, 1993:193)

She reviews her analysis of what students bring to their learning, emphasising the two main problems of 'alternative conceptions' and 'difficulties in generating and

interpreting representational forms' (Laurillard, 1993:193). Laurillard (1993:193) proposes that based on these two known sources of learning difficulty 'the lecturer can now augment their objectives-based analysis of what the teaching needs to address by asking, for example':

- "What technical terms have everyday meanings that could lead to their misinterpretation?"
 - What kinds of naïve conceptions might be prevalent in this topic?
 - In what ways might the internal logical structure of the main concept be distorted?
 - Which forms of representation (linguistic, notational, diagrammatic, graphical, symbolic, iconic, numeric) are difficult to handle?"
- (Laurillard, 1993:193)

However, the *context of learning development* is only one aspect of establishing a sound learning context for students:

"In reality the understanding of an idea or concept does not in reality occur in isolation from the other aspects of a student's university life. It takes place in the context of a course, a department, and an institution, and these contextual factors will have an effect on student learning, and must be attended to if the materials are to work. As well as the pedagogical issues ... the logistics of these different institutional contexts will also affect the teacher's judgement about which are the most appropriate media to use, and how to combine them in teaching their subject."

(Laurillard, 1993:209)

This therefore leads to a consideration of 'the institutional context that envelopes the student as they learn their subject', that is the *context of learning delivery* (Laurillard, 1993:209).

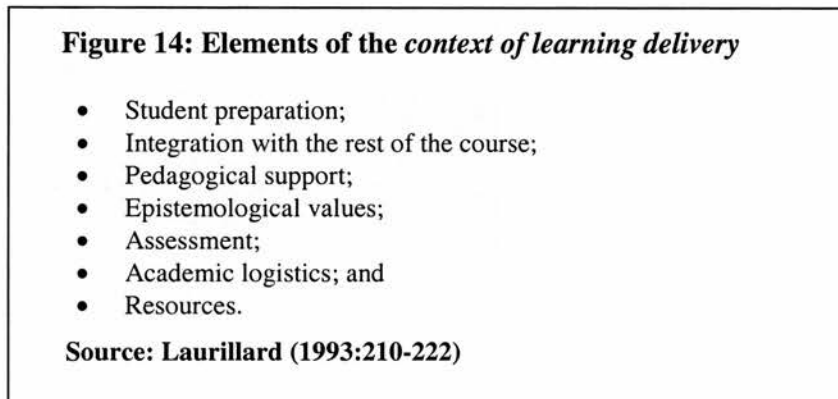
6.2.2 The context of learning delivery

Laurillard (1993) claims that the effectiveness of the learning experience encountered depends not only on the *context of learning development*, but also, and more importantly, on the *context of learning delivery*:

"The development of media-based materials is important, but delivery is paramount. The most stunning educational materials ever developed will fail to teach if the context of delivery fails. Conversely, good delivery can retrieve poor materials. The 'context of delivery' means more than a delivery system, such as lectures, or mail or broadcasting. It refers to the provision of whatever support it takes to enable students to achieve the maximum from their study... We cannot simply send out educational materials in the pious hope that students will benefit; we must ensure that they do so, by making suitable provision for the factors that will enhance their learning."

(Laurillard, 1993:220)

The key elements of the *context of learning delivery* described by Laurillard (1993) are illustrated in figure 14 below:



Each of these elements is now reviewed in turn.

Student preparation

Laurillard (1993) argues that lecturers should provide orientation in each new learning session, whether it be for learning technologies as part of a distance learning course or supplementary to face-to-face teaching:

“Learning, when it is done within a taught course, is not a voyage of discovery with the student in control. Academics never want to spoon-feed their students, but since they generally take control of what is to be learned, and when, and how it is to be judged, students are very much at their mercy. The voyage of discovery may be led by the teacher, but it does not have to be a mystery tour.”
(Laurillard, 1993:211)

Integration with the rest of the course

Laurillard (1993:213) claims that the employment of new learning materials is likely to change aspects of the existing teaching. As a result, this calls for a possible need to revise the teaching (Laurillard, 1993):

“For example, computer simulations, or compact disc resources, can give students access to far more sophisticated material for doing their own analysis than was possible before. In this case they may need additional teaching on analytical procedures if they are to make good use of the new material. Access to information databases gives students a wealth of material to work from, but this is of no value to them if they are not able to make selective judgements about what to use, and critical judgements about the content of what they find.”
(Laurillard, 1993:213)

Laurillard (1993:213) claims that ‘this makes it essential that academics taking on

new material be clear about the learning objectives it is meeting, and the prerequisite skills it entails'. In addition, Laurillard (1993:213) points to the need to integrate the learning technology with the rest of the teaching programme, to avoid isolation, or what Crook (1994:15) refers to as 'flirting' with computers, or 'bolted on' activities (Crook 1994:29):

“Unless students use what they learn on a package, it will soon be forgotten, no matter how good it is, or how well they learned it initially. It has to become embedded in the way they think, before retention can be expected, and that means repeated use, not just an isolated event, no matter how impressive it appears.”

(Laurillard, 1993:213)

Epistemological values

Students' epistemological values are their conceptions of how we come to know, and what learning is, and how it should be done (Laurillard, 1993). Laurillard argues that 'none of this features very much in course syllabuses, because they tend to be concerned with the content to be learned, rather than its epistemological status' (Laurillard, 1993:214). Increasing use of learning technology may lead to further neglect of this area:

“The use of educational technology presupposes a diminution of teacher-student contact, and it is there, in the interstices between content-related talk, that the academic can most easily stand back from the task in hand to encourage the student to look at the nature of the academic enterprise itself...when discussion time is reduced...then some treatment of this issue has to be consciously included in the course.”

(Laurillard, 1993:214)

Laurillard (1993:215) concludes that 'quality of learning is strongly related to the quality of the academic context provided.' This means 'deep approaches' to learning rather than clarity of lectures provided, such as:

- “teaching that addresses the nature of its subject and its relevance;
- the lecturer's personal commitment to the subject;
- opportunities for students to choose their methods of studying.”

(Ramsden, in Laurillard, 1993: 215)

Pedagogical support

Laurillard claims that providing pedagogical support when employing learning technology is necessary in order to ensure integration with the rest of the course. This

requires both student and lecturer/tutor preparation, for example the designers of learning technology may provide a guide for teachers:

“Research and evaluation studies of the implementations of programs in classrooms show that they are most successful when students are properly prepared, and know what to expect when they encounter a program, what they are expected to get from it, and what to do with it.”
(Laurillard, 1993:216)

Additionally, Laurillard (1993) claims that most learning technologies fail to provide feedback on students’ description of their conceptualisation of a topic, and support for the reflection required in order to conceptualise and describe their experiences in a learning session. As a result this may represent a further role for teacher-student discussion:

“The discussion may be mediated by networking; for example, it may involve only some students in discussion and most in observing the discussion, learning vicariously from those actively taking part. ...Without it, students have no opportunity to stand back from their experience, articulate the academic knowledge they are acquiring, and receive feedback on how they are expressing it. This is why misconceptions persist and remain resistant to the most concerted efforts of presentational teaching. Teaching has to be interactive to overcome misconceptions; the students need individualised responses to how they express what they know. The academic has to provide the learning environment in which this kind of interaction can take place: not just interaction with the world, but interaction also with the world of ideas and descriptions.... the whole point of new technology is to improve the quality of teaching and learning, not just open up access to new information and experiences. That is not sufficient.”
(Laurillard, 1993:216-217)

Assessment

Laurillard (1993:218) argues that part of the purpose of the use of learning technology in teaching is to change the nature of learning:

“The kind of work students do using learning materials is necessarily different from what they do in learning via other methods, so the teacher has to decide what counts as a good performance, and what counts as useful feedback to students on what they did. If they have used a database package to obtain information, for example, are they to be assessed on the basis of the results they obtained, or on the imaginativeness of their exploration of it?”
(Laurillard, 1993:218)

This then requires the rethinking of assessment, and clear communication of changes in assessment to the learners:

“Whatever changes are decided upon by the teacher, it is vital that these are communicated to students clearly. One of the greatest dissatisfactions with student performance, most commonly expressed in examiners’ meetings, is that

students did not appear to understand what was required of them. The greatest service teachers can do for themselves and their students is to take time to clarify assessment requirements, check that they are understood, and if not, to take steps to make them understood better. It is not unreasonable to maintain a continuing dialogue about this, so important is it for the success of any teaching method.” (Laurillard, 1993:218)

Academic logistics

Academic logistics include ‘the many decisions an academic makes that significantly affect the quality of learning the students can achieve’ (Laurillard, 1993:219). Laurillard (1993:219) makes the further distinction that these are ‘academic decisions acquiesced to by the academic’ rather than decisions actually made by the academic:

“They concern amount of material covered in a course, the sequence of courses, the time allocated for contact hours, the scheduling of contact hours, the means of access students have to relevant materials, or equipment, or activities, for their study, the timing of assessment, the form of assessment, the administrative and technical support given to students, etc..” (Laurillard, 1993:219)

Laurillard (1993) argues that although such factors are outside the academic’s direct control, they can all have a significant impact on the quality of the students’ learning experience. She provides a fuller discussion of such issues under the *context of learning infrastructure* heading, but its inclusion in the *context of learning delivery* is because ‘institutional changes can sometimes occur through the action of individual academics demanding better organisational conditions for their teaching’ (Laurillard, 1993:219).

Resources

The factors described above focus on the role of the lecturer/tutor in providing an effective *context of learning delivery*, that is one which properly supports the educational materials employed (Laurillard, 1993):

“The full checklist of delivery factors with resourcing implications will include all the support costs that enable materials to be used properly. Estimates of comparative costs are difficult, because local circumstances and economies of scale can have a considerable effect...” (Laurillard, 1993:219)

To resolve this issue, Laurillard (1993:220-221) employs Bates’s estimate for the ratio of 10:1:10-20, for production: delivery: support costs for distance teaching

universities, as an indication of the importance of support and the implications for the costing of support.

6.2.3 The context of learning infrastructure

The *context of learning infrastructure* is concerned with the changes required to organisational infrastructure in order to facilitate the effective use of new technologies in teaching. Laurillard (1993:256) acknowledges that this might read like a “blue skies” vision, but argues that this level of organisational change is of paramount importance:

“Our use of IT-based media over the last twenty years has been prodigious but is not matched by our understanding of it, because the emphasis has been on development and use rather than research and evaluation. This book has used what we do know from studies of student learning and from what few evaluation studies there are to develop a methodology for the design of multimedia teaching that both builds on what is known and enables that knowledge base to continue to be developed. This chapter takes that approach to its logical conclusion by applying the methodology to the whole academic system. The implementation of new technology methods cannot take place without the system around it adjusting to the intrusion of this new organism. ...This chapter postulates what the system must look like if we are to make the best use of what the new technologies can offer.”
(Laurillard, 1993:223)

The main points Laurillard makes with regard to the *context of learning infrastructure* echo five key recurrent themes (Laurillard, 1993):

- quality is best established through organisational infrastructure and collaboration;
- the organisational infrastructure must be cyclical to ensure improvement;
- implementation must address the context of learning and teaching;
- design must address the entire learning process; and
- academic knowledge is distinct from experiential knowledge.

(Laurillard, 1993:223-256)

Laurillard’s overall conclusion is that the system itself must therefore be reflective and adaptive (Laurillard, 1993)³³.

³³ In the second edition of *Rethinking University Teaching* (2002), Laurillard develops and expands the *context of learning infrastructure* section to include distinct sub-sections that discuss universities as learning organisations, knowledge, innovation, evaluation and validation.

6.3.3 The *Learning Technology-Practice Framework (LTPF)*

The analysis conducted in chapter four indicated that a good starting point for analysing technology implementation is to recognise the broad nature of technology, as illustrated by Pacey's (1983) *technology-practice framework*. This analysis reveals that cultural, organisational and technical issues are intimately related. With learning technology implementation in HE for example, to change the culture of teaching practice will require considerable organisational change, focusing on the role of the lecturer/tutor, the role of the student, the role of evaluation and the role of learning technologies, as discussed in chapter five. Overall this is a change towards more student-centred teaching and learning within and between universities, but the changes required to support SME learners, who lie outwith the HE community, will be much more demanding and uncomfortable to implement effectively.

The application of Pacey's (1983) *technology-practice* framework in chapter five provided a general overview of important issues in learning technology implementation, but it makes an arbitrary or conventional distinction between social and technical aspects. The SST literature reviewed in chapter four argues that it is impossible to distinguish between social and technical issues as they are richly integrated. Further, the separation of social elements into cultural aspects and organisational aspects in Pacey's framework is also arbitrary, not least because it is difficult to pin down the concept of "culture" and to separate it from institutional context; in effect, organisational and cultural aspects collapse into the same category. However, Pacey's overarching concept of *technology-practice* is useful for thinking about how to analyse learning technology implementation, and it links strongly with Fleck's concept of *innofusion*. Thus the core idea from Pacey's framework with regard to learning technology implementation lies in the interaction between the development of technology and the use of technology; technology in use is influenced by the organisational and cultural milieu in which it has been developed, which implies a potential gap between the design of technology and the complexity of people actually using technology. Thus the key question facing learning technology implementers is "How do I ensure a working integration between the socio-technical milieu in which learning technology is *developed* and the socio-technical milieu in which learning technology is *used*?"

The adaptation of Pacey's *technology-practice* framework also requires an explicit recognition of implementation within the context of the teaching-learning process, and to this end, Laurillard's work is drawn upon. Laurillard's *conversational framework* is seen as significant within the learning technology field, but less attention is paid to her analysis of the importance of the *context of learning design*, the *context of learning delivery* and the *context of learning infrastructure*. It has been argued above that the issues raised by Draper in his critique of Laurillard's *conversational framework* are answered to some extent in her discussion of these three learning contexts, apart from the peer interaction argument. However, they are not explicitly represented in the *conversational framework* itself, which leaves it open to such criticism. This may be because implementation is often taken to equate merely to technology installation, and indeed Laurillard (1993) in her discussions of the *context of learning infrastructure* separates implementation from other activities such as design and evaluation. However, many technology analysts, such as Swanson (1988), argue that the implementation process starts at conceptualisation and continues through to realisation. Thus a broader understanding of learning technology implementation requires at least a conflation of Laurillard's (1993) three learning context categories: the *context of learning design*; the *context of learning delivery*; and the *context of learning infrastructure*.

Thus the framework proposed for use in the analysis and planning of learning technology implementation experiments in this thesis draws on the literature reviewed in chapters four, five, and in this chapter. It synthesises, in particular, the work of Pacey (1983), Laurillard (1993, 2002), Crook (1994), Draper (1997, 1998), Fleck (1989) and the SST literature in general. This framework recognises:

- the broad nature of technology and technology implementation (Pacey, 1983) and the need for alignment between the technology development and use (Pacey, 1983, Fleck, 1989);
- the need for an overall design or implementation methodology which includes the recognition of learner-centred approaches to teaching (Laurillard, 1993) and the broad, social nature of the teaching-learning process (Crook, 1994);
- the role of technology (Laurillard, 1993, Crook, 1994) and how technical elements interact with social elements in the implementation mix;

- the importance of the role of dialogue as represented by the *conversational framework* (Laurillard, 1993);
- the validity of Draper's (1997, 1998) arguments for the inclusion of *learning management* in the *conversational framework*;
- the recognition that technology implementation is a complex dynamic socio-technical process stemming from the SST literature in general, and Fleck's (1989) concept of *innofusion* in particular.

The proposed structure is called the *Learning Technology-Practice Framework (LTPF)*, figure 15):

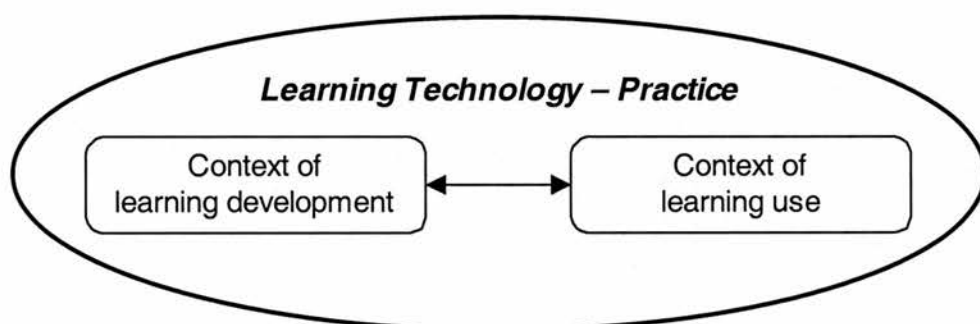


Figure 15: The Learning Technology Practice Framework (LTPF)

The *context of learning development* is the socio-technical milieu in which learning technology is developed. This includes such issues as: choice of media, design of media, media analysis, defining learning objectives, identifying student' needs, and designing the learning activities (adapted from Laurillard, 1993). The *context of learning use* is the socio-technical milieu in which learning technology is used. This includes issues such as Draper's (1997, 1998) notion of *learning management*, which encompasses elements of Laurillard's notion of the *context of learning delivery*: facilitator and learner preparation, integration with the course, pedagogic support, epistemological values, logistics, and assessment (Laurillard, 1993, 2002). Both the *context of learning development* and the *context of learning use* include the *conversational framework*, in the former as a means to analyse various forms of media, and in the latter as this is where the conversation, or dialogue, actually takes place. Similarly, Crook's (1994) notion of the role of learning technology can be assigned to each of the two learning contexts. Thus an overarching issue in the

framework is the need to consider the essential role of dialogue in the teaching-learning process. Dialogue in teaching-learning is related to *practice*, the core of technology development and the centre of Pacey's (1983) *technology-practice* framework. Thus in figure 13 the central and most important issue is denoted as *learning technology-practice*, i.e. the effective integration of the *context of learning development* and the *context of learning use* that is required for successful implementation to occur. This has strong links to Fleck's (1989) development of the concept of *innofusion*, that is the "struggle" to get technology to work in practice. Common to both the *context of learning development* and the *context of learning use* are issues drawn from Laurillard's notion of the *context of learning infrastructure*, such as evaluation, staff development, learning standards and the development of an appropriate organisational infrastructure for learning technology implementation. Both contexts should also include peer learning (Draper, 1997) as a design issue in the *context of learning development* and a management issue in the *context of learning use*. The two-way arrow connecting the *context of learning development* and the *context of learning use* indicates that a working integration between the two contexts is required for successful learning technology implementation to occur. It also indicates that each context will affect the other (for example, feedback from evaluation studies can be used to realign the *context of learning development*). The major distinction between the two contexts is that in the *context of learning development* the learners may be hypothetical representatives of future users, whereas the *context of learning use* concerns actual learners with diverse and more complex needs. This may not be such a major issue when the *context of learning development* and the *context of learning use* are co-located, for example when learning materials for HE students are developed and used within the HE environment by HE learners, provided adequate attention has been paid to managing the *context of learning use*. However, it is likely to become a major issue once materials are developed within the HE for use outside HE, for example in SME learning environments. In such a case the developers and users are no longer co-located and integration between the two contexts will be much more difficult to achieve, as tacit knowledge about how the potential users learn is no longer valid.

The uses of the *LTPF* are proposed to be in the analysis of existing learning technology implementations, and in the planning and development of new learning

technology implementations. In the case studies this thesis presents, the *LTPF* is applied primarily to the analysis of existing learning technology implementation experiments, but during this process its potential as an iterative planning and development tool also emerges.

Before turning to the main empirical work of this study, consideration of the literature review chapters (three, four, five and six) leads to a distillation of the discussions so far into three main research questions that this thesis will address:

1. What factors shape learning technology implementation experiments in HE?
2. What are the differences between HE and SME learning?
3. In view of these differences, how can expertise gained by HEIs in the implementation of learning technology be adapted for use in SMEs?

Chapter seven

Learning technology implementation in the HE learning environment

Virtual Visit case study: *LTPF* analysis

This chapter provides an analysis of the implementation of multimedia management case studies, called *Virtual Visit*, primarily in the Department of Business Studies at The University of Edinburgh. It examines data gathered over four³⁴ successive years in this department, and also draws on a trial of the same courseware in one year at Heriot-Watt University, also in Edinburgh.

The aims of this chapter are to:

- examine the factors that shape learning technology implementation in HE;
- achieve this by applying the *LTPF* to the overall analysis of the implementation process;
- from this derive the general learning technology implementation lessons with regard to the higher education learning environment; and
- consider how these general implementation lessons may inform computer-based learning technology implementation experiments in the SME learning environment.

The analysis draws on a study of the use of the multimedia case studies in supervised tutorials within an established taught undergraduate course in operations management, “Operations Management in a Strategic Context”, at The University of Edinburgh. The materials were incorporated into the existing course as supervised tutorials, representing 40% of the tutorial allocation time (4 out of a total of 10 tutorials). The analysis methods are made up of: the author’s first-hand observations of this learning technology implementation experiment as tutor³⁵ on the course; learner questionnaires (*Virtual Visit Learner Survey*); conversations with students; and formal and informal discussions with the course coordinator. These may appear to be rather crude measures of the learning process to observers from the field of education, who would perhaps be more concerned with a closer tracking of students’ progress through the learning material, for example by observing students as they worked through the material and recording their navigation paths. Whilst this is very useful from the perspective of learning technology design, the spirit of this exercise was to examine factors that shape learning technology implementation in HE, that is the broad

³⁴A pilot questionnaire survey was conducted in 1997 with a small group of students by an honours student (Evans, 1997) as part of her dissertation research. This was followed by full questionnaire surveys of the class in 1998 and 1999 by the researcher, and these form the basis of the analysis in this chapter. In 2000 a questionnaire survey was not conducted owing to logistical difficulties, but the tutor continued to gather data by observing the learners.

implementation frame rather than the more specific learning frame. To achieve this objective, the analysis employs the *LTPF* developed in chapter six, which stresses the need for a working integration between its two main components, the *context of learning development* with the *context of learning use*. The analysis draws on survey results from questionnaires (appendices 3 and 4) distributed in 1998 and 1999, coupled with observations of learners by the tutor (1997–2000).

The questionnaire surveys received responses from 48 students (class size 62) in 1998 and from 61 students (class size 66) in 1999. A pilot questionnaire survey delivered in 1997 received responses from 15 students (class size 55). The results of the 1997 pilot questionnaire are compared with results from another *Virtual Visit* implementation analysis at Heriot-Watt University³⁶ (also in 1997) in section 7.2.1 of the *context of learning use* analysis. The comparison of the 1997 surveys in these two different context of use is employed to highlight the importance of pedagogical support and integration to the success of learning technology implementation experiments³⁷. More importantly for the purposes of this chapter, the Heriot-Watt University evaluation results are also used to inform a wider discussion at the close of this chapter (section 7.3) about factors shaping learning technology implementation experiments in HE and the need for the achievement of a working integration between the *context of learning development* and the *context of learning use* if successful implementation is to occur.

To recapitulate, the *LTPF* (figure 16) is made up of two main elements, the *context of learning development* and the *context of learning use*, and its central premise is that a working integration between these two contexts if necessary if successful implementation is to occur:

³⁵ The researcher was the tutor for the course in each of the four years of the study.

³⁶ The Heriot-Watt University 1997 survey evaluation received responses from 33 students (class size 70).

³⁷ Otherwise the results from the 1997 *Virtual Visit* questionnaire surveys at the two universities are not presented here, owing to differences in survey design.

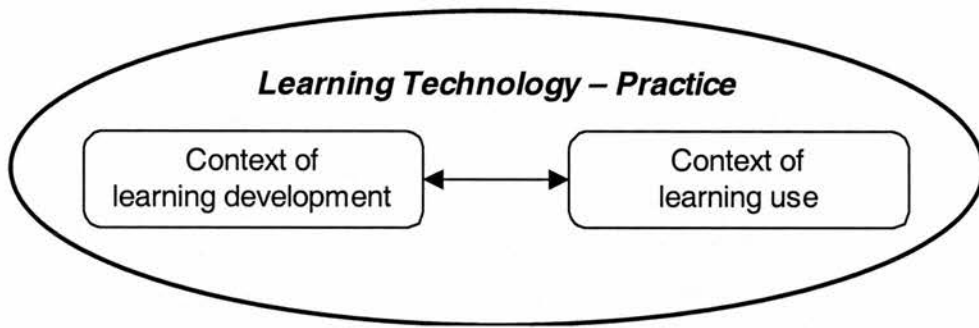


Figure 16: The *Learning Technology-Practice Framework (LTPF)*

The *context of learning development* is the socio-technical milieu in which learning technology is developed, and includes issues such as: choice and design of media, defining learning objectives, identifying student’ needs, and designing the learning activities. The *context of learning use* is the socio-technical milieu in which learning technology is used, and includes issues related to learning management, such as facilitator and learner preparation, changes in the role of facilitators and learners, integration with the course, pedagogic support, and logistics. Overarching issues in the framework concern the role of learning technology and the essential need for dialogue in the teaching-learning process. Dialogue in teaching-learning is related to *practice*, the core of technology development and the centre of Pacey’s (1983) *technology-practice* framework. Thus in figure 16 the central and most important issue is denoted as *learning technology-practice*, i.e. the working integration between the *context of learning development* and the *context of learning use* that is required for successful implementation to occur.

This chapter first discusses the most important issues to emerge in the *context of learning development* analysis of the *Virtual Visit* courseware implementation. It then examines the most important issues to emerge in the *context of learning use* analysis. The chapter closes with an overall discussion of the *LTPF* analysis, which considers how general learning technology implementation lessons from the HE learning environment may inform computer-based learning technology implementation experiments in the SME learning environment.

7.1 Context of learning development

The *context of learning development* is the socio-technical milieu in which learning technology is developed. The main aspects of the *context of learning development* to arise from the analysis are: the identification of learner needs; the choice and design of media; the extent to which learning objectives are defined; and the level of attention that has been paid to the design of learning activities.

7.1.1 Learner needs, choice and design of media

The multimedia management case study courseware, called *Virtual Visit*, was developed co-operatively by lecturers at The University of Edinburgh and Heriot-Watt University. The courseware was developed to support undergraduate courses in operations management within the partner universities. The equivalent courses in the two institutions operated with similar patterns: three hours of plenary lectures per week supported by weekly tutorials in groups of between ten to fifteen students to consider cases and exercises associated with the lectures. Structured course evaluations were carried out annually, including student questionnaires at the end of each course. One finding from these surveys was that undergraduate students generally had little industrial experience and this limited their ability to understand how the techniques covered in the courses could be applied in practice. Visiting speakers were invited to describe to the class the practical application of operations management techniques and visits were made to local companies to overcome this weakness. However, the resource and time requirements limited the use of industrial visits and guest speakers in the course. The lecturer responsible for the operations management course at The University of Edinburgh, Dr. Ian Graham, decided in 1995 that the nascent WWW technologies might provide a medium for allowing students access to examples of the practical use of the techniques covered in the operations management course. To test this he developed a prototype presentation of a United Distillers whisky bottling plant.

In 1996 the decision was taken to link the computer networks in the universities in the Edinburgh area using a one-hundred-and-fifty megabytes per second (Mb/s) metropolitan area network. This infrastructure investment was supported by funding

to develop applications that would use the newly available broadband communication between the institutions. The business studies departments at The University of Edinburgh, Heriot-Watt University and Napier University (also in Edinburgh) were jointly funded to establish a shared server, OMNI, connected by a fast Asynchronous Transfer Mode (ATM) link to the metropolitan area network. The server was intended to distribute applications of use to the three universities. Further funding was sought to develop the prototype operations management resource through a partnership between The University of Edinburgh and Heriot-Watt University, developing its functionality and collecting information from a wider range of organisations.

The objective of the project was to develop Web-based presentations which would emulate a visit to the firm described, but also including more detailed information about the management techniques in each firm than could be obtained from a one-day visit by students. Two developers were employed for seven months: one to undertake the design and programming and one to collect the information in the partner firms. The multimedia case studies involve information rich representations of six organisations. Each organisation, by the nature of its work practices, provides a particular focus on prominent Operations Management issues. A similar project specifically addressing quality management techniques has since been developed following the same model and has also been used in tutorials, since 1999³⁸. To support these Web-based resources at The University of Edinburgh a course website³⁹ was constructed which contains links to the multimedia tutorial materials, other useful Web resources and electronic copies of lecture notes.

Thus the main learner need is identified as a development of their ability to understand how the techniques covered in the courses could be applied in the workplace, that is to relate theory to practice. The philosophy behind the development of the *Virtual Visit* courseware therefore concentrated on how this need might be met through the advantages offered by a multimedia learning environment, given the logistical problems associated with real visits to organisations or arranging guest

³⁸ In the 1999 survey, students were asked for their views on the quality management courseware. However, owing to the lack of availability of this courseware in 1998, their responses are not represented here as the focus of this chapter is on a longitudinal study of the *Virtual Visit* courseware.

³⁹ <http://omni.bus.ed.ac.uk/opsman/virtual/>

speakers. This was translated into two general aims for the *Virtual Visit* courseware, as illustrated in figure 17:

Figure 17: *Virtual Visit* learning aims

- To relate the theory of Operations Management to its practice in order to bring the subject to life;
- To provide an understanding of the "messiness" of management, i.e. that management is much more complex and more interdisciplinary than sometimes appears in textbooks.

The main advantages of multimedia technology identified by the *Virtual Visit* project manager/course lecturer that could meet these aims are illustrated in figure 18:

Figure 18: Advantages of multimedia technology

- The provision of an appropriate medium to relate theory to practice through the use of video clips, graphics, documentation etc.;
- Its interactive and non-linear nature;
- The opportunity it provides to create structured educational exercises that can be followed at the student's own pace.

As discussed in chapter five (section 5.3.3), the pedagogic properties of different types of educational technology can be analysed. Laurillard (1993:163) cites tutorial simulations and intelligent tutoring systems as the only forms of teaching media, which, on their own, can come close to being effective alternatives to the one-to-one teacher-student dialogue. The first question to ask here is concerned with defining which type of educational technology the *Virtual Visit* courseware represents. A comparison with Laurillard's explanations of the various types of learning technology places it as a hybrid between a multimedia database and a multimedia tutorial programme. Laurillard's (1993) *conversational framework* proposes that learning technology can only carry out certain functions of effective teacher-student dialogue⁴⁰. Thus there are gaps in terms of the tutor-student dialogue that could be generated in a classroom setting with a human teacher. Figure 19 summarises the particular gaps in dialogue in the *Virtual Visit* courseware that the "computer teacher" is unable to provide:

⁴⁰ The use of the terms "teacher" and tutor" are interchangeable in this analysis.

Figure 19: “Computer teacher” dialogue gaps

- The teacher cannot redescribe in light of the student’s conception or action, apart from when the student is attempting multiple choice questions (mcqs);
- The teacher cannot adapt the task goal in the light of the student’s description or action;
- The student cannot adapt actions in light of teacher’s description or student’s redescription, apart from when the student is attempting multiple choice questions (mcqs);
- The teacher cannot reflect on the student’s action to modify redescription.

Also, in the case of mcqs, there is no guarantee that the “computer teacher” adequately informs the student why their original conception or action may have been incorrect (Laurillard, 1993). Thus there is also a dialogue gap to fill here. Although this is not a fine-grained analysis (Laurillard, 1993), it may offer some insight into likely gaps in dialogue that need to be addressed through the offer of further pedagogical support or the use of other forms of media. The course co-ordinator at The University of Edinburgh did not carry out such an explicit analysis, but had a “hunch” that the multimedia tutorials would require further support, and chose “live” tutor supervision to fulfil this function.

Furthermore, considering Crook’s (1994) account of the *role of computers* in education (chapter four), *Virtual Visit* can be seen as adopting the metaphor of *computer-as-tutor*⁴¹. As its implementation at The University of Edinburgh involved the support of a “live” tutor, it could perhaps also be described using an additional metaphor to the list provided by Crook (1994), that of *computer-as-tutor-with-tutor*. It may be well at this stage to heed the Crook’s warning about the *computer-as-tutor* role:

“The limit to computers as tutors is not just about problems of reproducing tutorial dialogue but also because tutorial dialogues are embedded in more extensive contexts of shared classroom experience.”
(Crook, 1994:15)

Overall, this illustrates that effective implementation of the *Virtual Visit* courseware as currently designed will rest on the input of a tutor to plug the gaps in dialogue identified. Using the courseware on a “stand-alone” basis is likely to lead to less

⁴¹ This is most explicitly the case in Heriot-Watt University’s 1997 “stand-alone” implementation of the courseware (section 7.2.1).

effective implementation owing to the limits of using computers as tutors (Crook, 1994) and current design limitations.

7.1.2 Learning activities

The design of learning activities represents a combination of the way the six *Virtual Visit* organisational case studies have been constructed in association with task-based learning and interaction with the computer, the tutor and other learners. Each multimedia case study is structured on two levels so as to provide:

1. An overview of the process using video, graphics and text;
2. Detailed background information, including examples of documentation.

In addition students have access to: a contextual help facility; a glossary of key terms; a search facility allowing them to search the full text in all the presentations; and an educational exercise comprising theory and exercises, with five multiple choice questions for each presentation. The courseware was designed to use Netscape or Internet Explorer browsers. JavaScript was used widely to aid the students' progress through the presentations in order to allow them to move between the questions, glossary and company-specific information seamlessly.

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Hard copy worksheets are handed out to students by the tutor at the start of the tutorial, and are also available on the course website (appendix 15 provides a worksheet example). They set out the learning objectives for the tutorial and have task boxes which students complete as they work their way through the case studies.

Table 6 indicates that students generally appreciate the worksheets, the basis for the task-based learning related to the case studies. In response to the question “Are the written worksheets a useful learning aid?” added to the 1999 questionnaire survey, just over 60% agreed that they are useful:

	1999 (%)
Yes	60.7
No	6.6
Possibly	31.1

Table 6: “Are the written worksheets a useful learning aid?”
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

Observations by the tutor point to a possible need for web-based worksheets that the students can complete on-line. While some students do complete the paper-based worksheets diligently, others do not as they appear to be engrossed in the computer environment. Also lack of space on the desk may make the task of completing worksheets more onerous and may serve to break the students’ engagement with the on-line environment. However, the inclusion of on-line worksheets will not guarantee that students complete them - a stronger guarantee is likely to be provided if the students know that they will be assessed on their answers to the worksheet questions.

Tasks are related to the specific content of each case study, which in turn are related to overall themes running throughout the course. The students can also attempt the five on-line multiple-choice questions at the end of each case study and interact informally with each other. In addition the tutor allows ten to fifteen minutes for discussion at the end of each tutorial and presents a summary on the whiteboard or overhead projector. This latter part of the overall learning activity has evolved through tutor observation of restlessness among the students and their voicing of concerns about not knowing what they should be achieving. “Skeleton” answers based on the discussion sessions are provided on the course website in the week following each

tutorial, once all groups have had a chance to complete that week's topic (an example of a worksheet with "skeleton" answers is provided in appendix 16).

Task-based learning was decided upon by the course co-ordinator in accordance with the claims of Mayes (1996):

"Learning must be active...If learners are required to think deeply about some material then they will remember it. The best way to get them to think deeply is to require them to perform a task, usually some kind of problem-solving. Learning therefore needs to be task-based, and it is most effective if the task is meaningful and relevant."
(Mayes, 1996:3)

In addition to task-based learning the interaction provided by learners working in pairs on a single computer was initially thought to be a good idea. In practice, as there were enough computers available and learners required the use of headphones at times, the tutor decided to assign one computer per student. However, informal interaction in pairs is encouraged and sometimes required prior to the discussion session, for example by asking students to compare answers with one or two other learners. The tutor observed that there is very little interaction in pairs unless "enforced" by the tutor - this is likely to relate to students concentrating on reading the information on the screen. Also, it may be difficult to get two students working together on one computer as their reading speeds may differ and any self-paced learning and learner control benefits may be lost.

Overall, the task-based learning approach motivated by worksheets appears to work well as a way to encourage students to explore individual case studies in one-hour tutorial sessions. However, it is difficult to envisage the effective use of the *Virtual Visit* courseware on a "stand-alone" basis at present as there is no motivational assessment requirement and any technical means to track students' progress. A further complicating factor is that the tutor-student and student-student dialogue elements of the tutorials would need to be reproduced online.

7.1.3 Learning objectives

Despite the indication of learning objectives on the worksheets and the presence of the tutor to answer any queries in the multimedia tutorials, students appear to be clearer

about the learning objectives of traditional tutorials compared to multimedia tutorials as illustrated in tables 7 and 8:

	1998 (%)	1999 (%)
1 Unclear	2.1	1.6
2	6.3	21.3
3	39.6	18.0
4	39.6	39.3
5 Clear	12.5	9.8

Table 7: Clarity of multimedia tutorial learning objectives
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

	1998 (%)	1999 (%)
1 Unclear	0	0
2	0	3.6
3	22.9	16.4
4	52.1	65.5
5 Clear	25.0	14.5

Table 8: Clarity of traditional tutorial learning objectives
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

Students also indicate a greater sense of reaching the learning objectives associated with traditional tutorials than with multimedia tutorials as illustrated in tables 9 and 10:

	1998 (%)	1999 (%)
1 Not at all	2.1	1.9
2	6.3	13.0
3	33.3	37.0
4	52.1	37.0
5 Fully	6.3	11.1

Table 9: Achieving learning objectives in multimedia tutorials
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

	1998 (%)	1999 (%)
1 Not at all	0	0
2	2.1	0
3	20.8	27.8
4	68.8	59.3
5 Fully	8.3	13.0

Table 10: Achieving learning objectives in traditional tutorials
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

This may provide evidence that it is difficult to reproduce the tutor-student dialogue generated in the classroom, which might allow for greater clarity of learning objectives and the provision of general guidance throughout the tutorial. Attempts

have been made to resolve this by the tutor spending time at the start of the multimedia tutorials emphasising, or displaying on the whiteboard or overhead projector, the learning objectives for the session. But it may also relate to other factors observed or reported in the questionnaire survey such as navigational problems and tiredness due to reading from a screen in a warm computer laboratory. It could also relate to the need for improvements in the design of learning objectives for the multimedia case studies, or inappropriate design of the multimedia case studies themselves.

7.1.4 Meeting learner needs: outcomes

The questionnaire survey of learners offers some insight into the extent to which the three perceived advantages of multimedia technology (figure 18, section 7.1.1) and hence meeting of learner needs, exist in practice. Each of these three supposed advantages of multimedia technology (relating theory to practice; interactivity and non-linearity; and structured educational exercises and self-paced learning) is now examined in turn in the light of the survey results.

Relating theory to practice

It is often claimed that one of the advantages of multimedia technology is that it is an appropriate medium to relate theory to practice. This claim is made at least partly on the basis that vivid presentations provide learners with the means to conceptualise more easily. However, there are arguments against this, most notably from Taylor and Thomson (1982), who claim that the seemingly self-evident proposition that vivid information aids learning conception requires further scrutiny. Taylor and Thomson (1982) claim that pictorially illustrated information is no more effective than information lacking illustrations and argue that vividness is more dependent on the interaction with user characteristics rather than the format or style of the presentation itself. They argue that a “vivid” experience is not necessarily more memorable if by vivid we mean some combination of characteristics of the presentation providing that experience (Taylor and Thomson, 1982). Thus vividness may only be useful as a learning tool if it increases understanding.

The survey asked students about the effectiveness of the multimedia technology in relating theory to practice through the following question: “Do you feel the material substitutes actual factory/site visits?” The distribution of results (table 11) leans slightly towards the positive end of the spectrum, but overall the results would appear to indicate that replacing real visits is, not surprisingly, a difficult task.

	1998 (%)	1999 (%)
1 Not at all	0	11.5
2	22.9	21.3
3	39.6	24.6
4	29.2	32.8
5 Very well	8.3	8.2

Table 11: “Do you feel the material substitutes actual factory/site visits?”
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

However, it would seem that the *Virtual Visit* courseware does go some way towards bringing the subject matter to life (although this may be related to other factors apart from vividness, such as increased information and context). As Laurillard claims (1993):

“...the addition of sound and vision allows observation of the real world, albeit a very restricted one, filtered through the selection process for the creation of the database.”
 Laurillard (1993:129)

The majority of students (77.1% in 1998 and 83.6% in 1999) prefer a mix of tutorials to either all traditional or all multimedia, as indicated in table 12:

	1998 (%)	1999 (%)
Multimedia	16.7	0
Traditional	6.3	16.4
Mixture	77.1	83.6

Table 12: “Which style of tutorial do you prefer? (please give reasons)”
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

This may be attributed to the students appreciating variety and a combination of the learning benefits of different tutorial styles.

Table 13 provides a categorised summary of answers to the open-ended part of the question “Which style of tutorial did you prefer? (please give reasons)”:

Reasons for preferring multimedia tutorials	Reasons for preferring traditional tutorials
Makes you think more/more information	Requires active thinking
More interesting	More interesting
Gain skills with the WWW	Learn more
Adds reality	Classroom allows interaction and discussion
Encourages motivation for overall course	More fun (provided the student is in a good group)
Can look at in own time and at own pace	

Table 13: “Which style of tutorial do you prefer? (please give reasons)
Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

Common reasons for preferring either multimedia or traditional tutorials fall into the categories “more interesting” and “makes you think more/active thinking”. The “adding reality” reason for preferring multimedia tutorials seems to tie in with the *Virtual Visit* courseware learning aim of relating theory to practice. The “can look at in own time and at own pace” reason matches the flexible learning advantage of multimedia identified by the course coordinator. Unexpected reasons/benefits relate to ICT skills training (“gain skills with the WWW”) and motivation (“encourages motivation for overall course”). Reasons for preferring traditional tutorials tend to point to the importance of dialogue between tutor-student and student-student (“classroom allows interaction and discussion”, “more fun provided the student is in a good group”, “learn more”). This, coupled with the absence of preferences related to interaction and discussion in the left-hand column of table 13, may indicate the difficulty of achieving adequate dialogue even in supervised multimedia tutorials that include built-in tutorial-student discussion time and encouragement of informal and formal student-student discussion. However, this could also be related to the limitations of the *Virtual Visit* courseware design and use, or individual learner preferences.

Interactivity and non-linearity

The interactivity provided by the use of multimedia in teaching is widely promoted as resulting in better learning, but the reasoning behind this is unclear. The *Virtual Visit* courseware may be defined as interactive in comparison to other software in that there is a rich variety of graphics, video, text and sound, all activated by the student “clicking” on appropriate icons and text hyperlinks. However, some authors claim that

whether this interactivity results in improved learning may lack empirical justification (Gayeski, in Lane, 1997, Heath, 1999, Mayes, 1996):

“Interactivity is what happens in people’s heads, not what buttons or touchscreens their fingers press or what devices are storing data. Truly interactive programs respond to individual’s needs, interests and previous knowledge and are modified as they are used.”

(Gayeski, in Lane, 1997:1)

Criticisms may also be directed at the supposed advantage of the non-linear nature of the courseware. The idea behind this is that it supports discovery learning through browsing - the *Virtual Visit* courseware encourages students to browse in order to find the answers to the tasks set. However, there is anecdotal evidence that discovery learning through browsing is most effective when the learner is already familiar with the domain in question. Norman (1982) relates this evidence by stating that browsing becomes enjoyable only when a certain level of familiarity, (or in cognitive terms, schemata) have become sufficiently well developed for browsing to represent a process of tuning. An example would be the apparent enjoyment observed when “learners” are engaged in browsing through magazines. In the case of *Virtual Visit* there will hopefully be some degree of familiarity as the multimedia courseware is used to support lecture content, but the extent of this is hard to gauge. In addition to these concerns, occasional comments by students indicating their frustration when they browsed between different pages and became “lost in cyberspace”, were noted by the tutor. Conklin (1987) and Plowman (1998) describe this feeling of disorientation in a non-linear information space as the cognitive overhead of the requirement to continually make choices.

Student responses to a question about the benefits of being able to navigate their own path (and tutor observations as noted above) perhaps reflect some of this lack of familiarity with the subject matter and the cognitive overhead of continually making choices and/or problems with courseware design (table 14):

	1998 (%)	1999 (%)
1 No	4.2	6.6
2	8.3	16.4
3	29.2	23.0
4	35.4	16.4
5 Yes	20.8	29.5

Table 14: “Do you find it beneficial navigating your own path (as opposed to working through a set framework)?”

Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

Structured educational exercises and self-paced learning

The idea that the structured educational exercises can be followed at the student’s own pace is an example of the concept of learner-control (Mayes, 1995, Boyle, 1997, Laurillard, 1993). However, this does not guarantee that the learner will choose information to see next in a way that leads to effective learning (Hammond, 1992, Crook, 1994, Laurillard, 1993), and is seen by some commentators as a form of “teaching heresy”:

“...beneath the rhetoric of ‘giving students control over their learning’ is a dereliction of duty.”
(Laurillard, 1993:206)

Also, the structured educational tasks are either based on multiple-choice questions or completing boxes on worksheets. The task design focus appears to be more on information retrieval and the development of navigational skills rather than the achievement of “deeper” learning experiences. The discussion sessions at the end of the tutorials try to incorporate the “deeper” learning experience that the multimedia courseware may not be able to reproduce. The multiple-choice exercises do provide explanations when students answer incorrectly, but these explanations may not adequately match the particular misconceptions of individuals that caused them to answer incorrectly in the first place. Multiple choice questions may therefore require cautious use in educational technology (Laurillard, 1993).

However, results of the survey (table 15) indicate that the majority of students appear to enjoy the opportunity for self-paced learning provided by the courseware:

	1998 (%)	1999 (%)
1 No	4.2	1.6
2	2.1	6.6
3	14.6	18.0
4	50	29.5
5 Yes	27.1	34.4

Table 15: “Do you feel you benefit from learning at your own pace in the multimedia tutorials?”

Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

This was also given as one of the reasons for preferring multimedia tutorials to traditional tutorials, as illustrated in table 13 in the section above concerned with “relating theory to practice”.

7.2 Context of learning use

The *context of learning use* is the socio-technical milieu in which learning technology is used. The main aspects of the *context of learning use to arise from the analysis* are: different contexts of use; integration; pedagogical support; learner and tutor preparation; changes in the role of the tutor and the learners; and logistics. Each of these elements is now examined in turn in the context of the *Virtual Visit* implementation.

7.2.1 Different contexts of use, integration and pedagogical support

This section begins with a summary of separate analyses of the introduction of *Virtual Visit* at The University of Edinburgh (Evans, 1997) and Heriot-Watt University (Tomes, 1997). This allows an examination of different outcomes in separate contexts of use with the same courseware, and underlines the importance of integration and pedagogical support to effective learning technology implementation. As recounted earlier, the decision was taken by the course lecturer at The University of Edinburgh to introduce the multimedia case studies as supervised tutorials. He suspected that students’ use of the courseware on a “stand-alone” basis with independent study might not prove to be effective, especially for students with little experience of the WorldWideWeb. Also, because tutorial attendance is compulsory, interleaving multimedia tutorials with traditional tutorials ensured the integration of the multimedia materials into the existing course structure. With hindsight, this

appears to have been the correct strategy: survey results from the supervised trials at the University of Edinburgh and from the “stand-alone” trials at Heriot-Watt University (both in 1997) reveal the need for careful introduction of new educational technology, *pedagogical* and technical support, and integration into the overall course structure.

At Heriot-Watt University the *Virtual Visit* case studies were used as “stand-alone” exercises designed to: replace traditional tutorials within an existing operations management course; meet the needs of larger classes; and to allow staff to re-deploy their time into other activities. This represented a radical change in the education process. At The University of Edinburgh the *Virtual Visit* case studies were incorporated as supervised tutorials within an existing course also employing traditional classroom-based tutorials, representing a more gentle change to the educational process.

The way the case studies were integrated in different ways into existing courses in the two universities reveals how the mechanisms for the development and use of the materials was shaped by the experiences and expectations of both lecturers and students. At The University of Edinburgh in 1997, fifteen students (out of the forty-eight students registered for the Operations Management course) completed a questionnaire about the *Virtual Visit* courseware. At Heriot-Watt University in 1997, thirty-three students (out of the seventy students registered for the production management module) completed a questionnaire. As the questionnaires were designed, distributed and analysed independently direct comparison is not possible, but some common areas can be examined. Table 16 presents a summary comparison of the survey results at the two universities:

University of Edinburgh (with tutor)	Heriot Watt University ("stand-alone")
Usage rate: 100%	Usage rate: 48%
No problems with access	Problems with access
Integrated into overall learning context	Viewed as a marginal activity by students

Table 16: A comparison of supervised versus non-supervised tutorials
 Source: *Virtual Visit* user surveys (Evans, 1997 (n=15) The University of Edinburgh, and Tomes, 1997, (n=33) Heriot-Watt University)

Just under half (48%) of the Heriot-Watt students had tried *Virtual Visit* compared to 100% at The University of Edinburgh. The 100% usage rate at The University of Edinburgh is not surprising as the courseware was integrated into a compulsory time-tabled tutorial in the presence of a tutor who recorded attendance. At Heriot-Watt University, students reported practical difficulties in accessing the courseware materials, either because of over-committed computing laboratories, a delivery environment which did not meet the basic specification for which the materials were developed, or simply because they were unable to locate the appropriate Universal Resource Locator (URL) reference. At The University of Edinburgh, the computing lab was booked for *Virtual Visit* sessions in the presence of a tutor who was able to direct the students to the URL reference if necessary, and the delivery environment had recently been updated to accommodate the requirements of the *Virtual Visit* courseware. Also a computer laboratory technician was on hand to deal with any “logging on” problems. The questionnaire revealed that the students were content with the delivery environment. At Heriot-Watt University the tutorials were not given priority by the students, who reported that they simply didn’t have time to complete the tutorials or preferred studying in other ways (none of the learners reported that they avoided the tutorials because they already knew the topic well). The relatively low uptake of the tutorials at Heriot-Watt University may also be explained by the fact that only a third of the respondents said that they were aware that the tutorial materials would be examined. One in five said they hadn’t done them because they didn’t get any credit for doing so, with one student suggesting that participation should be credited. The result was that the learners saw the on-line tutorial material as a marginal activity despite the course co-ordinator stating that it contained examinable material:

“...students tend to marginalise activities which they do not see as forming a central component of their course and a clearer indication of the purpose and importance of the tutorials would help them to prioritise these activities.”
(Tomes, 1997:3)

Thus the *Virtual Visit* courseware was generally less positively received at Heriot-Watt University than at The University of Edinburgh in 1997. At Heriot-Watt University the overall opinion seemed to be that they found the experience confusing: they could not find their way through (or to) the website and didn’t understand what they should be obtaining from the experience. At The University of Edinburgh, this was also a problem, at least for some of the students, but was helped by: having a

tutor and laboratory technician on hand; using structured worksheet exercises; and providing an introduction and a summary of key learning points in each tutorial. In addition the delivery environment seemed to be a real problem for many of the Heriot-Watt University students, as the materials require a higher specification operating system and browser capabilities than were available at that time. The Heriot-Watt University report concludes with the following statement:

“If only one recommendation were to come out of this evaluation, it would be that: courseware appropriate to the intended delivery environment be carefully embedded within the curriculum for this course, with students given clear orientation information to help them understand what educational outcomes they should be achieving, and performance feedback to indicate further study requirements.”

(Tomes, 1997:9)

This underlines the importance of the integration and pedagogical support elements of the *context of learning use* in the *LTPF*, and the need for alignment between the *context of learning development* and the *context of learning use* if learning technology implementation is to be successful.

Returning to a consideration of the survey results at The University of Edinburgh in 1998 and 1999 and observations made in 2000 indicates that the integration of the courseware into the overall course structure through tutor supervision appears to continue to work effectively. Supervision by the tutor and access to laboratory technicians provides both pedagogical support (discussion of learning outcomes) and technical support (skills development). The discussion time allows the students to reflect on the learning experience and obtain feedback. The tutor introduced this over time, as it appeared that this vital dialogue was missing from the learning activity (as discussed in section 5.3.3 above). Responses to a question added to the 1999 survey about the usefulness of the discussion time illustrates that the students generally appear to appreciate it (table 17):

	1999 (%)
Yes	90.2
No	0
Possibly	9.8

Table 17: Usefulness of discussion time
Source: *Virtual Visit* user survey (1999: n=61)

7.2.2 Learner and tutor preparation

Learners' preparation for this new type of learning activity occurs through its integration with the rest of the course, specifically the interleaving with other traditional tutorials. Learners are oriented towards the multimedia tutorials in the course literature, by the course lecturer and also by the course tutor in the first tutorial, which takes place in a traditional classroom setting⁴². They may also have been prepared indirectly through experiences with using the web in other contexts. Student experience with the web ranges from those who criticise the design of the courseware and believe they could do better to those who are encountering the Netscape icon for the first time.

The tutor had been employed as part of the *Virtual Visit* development team in 1996, and this provided an understanding of the structure of the courseware, the way it can be navigated and how the various associated functions work. The lecturer and tutor also discuss the format of the worksheets and any problems or issues that arise in tutorials. However, as this represents a new form of teaching and learning, facilitator and learner preparation has largely occurred through learning-by-doing, as the next section recounts.

7.2.3 Changes in role: tutor and learners

Tutoring using learning technology courseware proved to be a very different experience from tutoring in the more traditional classroom setting. Initially the tutor's role was to instruct the students on technical issues regarding how to navigate the courseware and make use of the various facilities on offer. As the students became more familiar with navigation this role reduced, a quite unsettling experience for the tutor that generated a feeling more akin to the loneliness of an invigilation exercise rather than a tutorial. The "lonely tutor" was then faced with rows of "lonely learners", sitting in front of their individual computer terminals connected to their new "computer teacher" through headphones, often in total silence. This may be good for class discipline, but the problem is trying to gauge what they are actually learning, and if facilitating is actually a form of teaching.

⁴² It may be unwise to hold the first tutorial in the laboratory as this might not allow time for

The first tutorial for each group of tutees was generally filled with an enthusiastic air and frequent compliments about the quality of video and graphics (the tutor experienced some initial concerns that this is all the students were interested in looking at). This “novelty” factor wore off after the first week or two - perhaps related to the fluctuating levels of interest arising from different organisational “visits”, or to a “Hawthorne effect”. Frustrations were most evident when the server “crashed”, but generally the main frustrations tended to arise from difficulties with navigating around the courseware. When learners struggled to locate the relevant information to complete a particular task, the tutor provided “clues” to help the students with the frustrations of searching for “hidden treasure”:

“Learning, when it is done within a taught course, is not a voyage of discovery with the student in control. Academics never want to spoon-feed their students, but since they generally take control of what is to be learned, and when, and how it is to be judged, students are very much at their mercy. The voyage of discovery may be led by the teacher, but it does not have to be a mystery tour.”
(Laurillard, 1993:211)

One student thought that a map of each “visit” would be a useful navigational addition to the courseware; the tutor’s advice in the meantime was to read each of the main pages first before clicking on the links within the body of the text. Another student complained that the tasks were too simple and felt that traditional tutorials were a more useful method for exam preparation. In the last tutorial there seemed to be a general feeling that more multiple-choice questions would have been useful. Overall however most students appeared to experience few navigational difficulties and succeeded in finding the appropriate information to complete the tasks set. The first three tutorials did not set the multiple choice questions incorporated into the courseware as the task for the tutorial, but were based around tasks on worksheets. In each case the tutor eventually decided to summarise the information required to complete the tasks (and its relationship to larger concepts or theories) using the whiteboard and discussion in a return to the more traditional tutorial format. In later tutorials, the tutor also split the students into small groups so that they could compare their answers and discuss them prior to the tutor-student discussion. However, the tutor felt that this interrupted some students who were happily browsing through the courseware, or annoyed those who had already completed the worksheets (and perhaps those who had not). It may also have disturbed those who had wandered off

orientation towards the new learning activity represented by the multimedia tutorial.

into other realms of cyberspace more appealing to them than operations management (for example email or music websites). However, in doing this the tutor did feel more fulfilled in his new role, perhaps owing to a lack of acceptance of the new facilitative role and displacement by a “mechanical teacher”, or a dislike of the “policing” role. Subsequent survey results (table 18, as reported earlier in section 7.2.1) relieved some of the tutor’s concerns in that over 90% of students appreciated the opportunity for discussion:

	1999 (%)
Yes	90.2
No	0
Possibly	9.8

Table 18: Usefulness of discussion time
 Source: *Virtual Visit Learner Survey (1999: n=61)*

Thus the tutor attempted something of a double act with the “computer teacher”, but without the dialogue that can be generated in team teaching situations. Aspects of traditional tutorials were introduced to the laboratory setting in a balancing act between old and new methods. This proved difficult to achieve effectively owing to the layout of the class, the noise from fans required to cool the ever-rising temperature levels, and competition with the “computer teacher” for the students attention.

In the last tutorial, a worksheet was not assigned and the students were only required to complete the multiple-choice questions. The tutor’s role now became one of “policeman”, encouraging the students to browse through the material first rather than going straight to the questions and “discovering” the answers by trial and error. Apart from this the tutor felt more or less redundant, although improvised by revising with each student their understanding of the navigation functions of the courseware in case they wished to use *Virtual Visit* in their own time.

These patterns have been repeated over the last three years and this gives rise to questions about the need for tutor support. The survey revealed (table 19) that none of the students require support often, a minority of students only occasionally require tutor support (39.6% in 1998 and 31.1% in 1999) and the majority of students never require tutor support (60.4% in 1998 and 68.9% in 1999). The tutor also shares these sentiments about support levels, apart from the likely need for orientation at the start

of tutorials (particularly in the first one or two tutorials) and discussions at the end of tutorials:

	1998 (%)	1999 (%)
Never	60.4	68.9
Occasionally	39.6	31.1
Often	0	0

Table 19: Frequency of tutor support
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

However, when questioned about the feasibility of “stand-alone” multimedia tutorials the picture is not as convincing (table 20):

	1998 (%)	1999 (%)
Yes	22.9	45.9
Possibly	56.3	37.7
No	20.8	16.4

Table 20: “Could the tutorial be carried out without the presence of a tutor?”
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

Although a larger percentage of students thought this is feasible in the 1999 survey compared to the 1998 survey, they still represent less than 50% of the class. However, improvements in courseware design, such as additional narrative, the development of learner progress tracking facilities and/or assessment requirements, could lead to the use of “stand-alone” tutorials in the future.

Upon reflection, the main difficulty in the tutor’s new role is acceptance of being replaced, at least to some extent, by a machine. The tutor is no longer the focus, and becomes the ‘guide on the side’ rather than the ‘sage on the stage’ (Hozl, 1999). However, the tutor fought back against his mechanic usurper and retrieved some discussion time, (perhaps to boost his status), albeit in a room not suited to group discussion. There was also an obvious problem with the ability to gauge (at least to a greater extent than the courseware could) the different levels of understanding and misconceptions of individual students. Much of the discussion in this section fits with the claims of Oliver (1999):

“Teachers of on-line learning become quite different to their contemporaries in terms of their roles and responsibilities. The differences appear in how they interact with their learners and how they manage and implement their learning settings.”

(Oliver, 1999:4)

One important part of the tutor’s role that remained unchanged was provision of an informal channel of communication with regard to questions about project work, administrative procedures and the course in general. This would most likely be difficult to replace in unsupervised tutorials, as would the general interaction, both academic and social, that occurs between students who are required to meet regularly as a small group in a tutorial setting.

This section has recounted the experiences of the tutor in this novel teaching situation and describes the adaptations required by both tutor and students. The tutor is required to adapt to a more facilitative role and, in this case at least, became mainly an observer of the student’s approach to their new role. From a tutor’s perspective the main problems facing at least some of the students relate to effective navigation. A minority of students appear to become very frustrated with this type of tutorial, but as table 21 illustrates, the majority of students surveyed are in favour of educational technology and feel that it has an important part to play in the future of higher education.

	1998 (%)	1999 (%)
1 Very important	56.3	44.3
2	33.3	31.1
3	6.3	4.9
4	4.2	8.2
5 Not important	0	1.6

Table 21: The importance of educational technology to the future of HE
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

7.2.4 Logistics

The supervised nature of the multimedia tutorials indicates that they are an important part of the course to the students (or at least as important as the traditional tutorials), so there is an implicit grading of the courseware to encourage depth of study. The tutorials are held in parallel with the course lectures and are spread evenly throughout the two terms in which the course runs, so that each works to reinforce the other, at least in theory. The courseware can be accessed effectively in all computer laboratories on the campus owing to its web-based nature. This also allows access off campus, but slower networks may lead to frustration on the part of the learner. Table

22 illustrates that the speed of the SuperJANET⁴³ network upon which *Virtual Visit* is distributed at the university appears to be appropriate:

	1998 (%)	1999 (%)
1 Too slow	0	1.6
2	2.1	3.3
3	14.6	11.5
4	43.8	31.1
5 Appropriate	37.5	42.6

Table 22: Courseware download time
 Source: *Virtual Visit* user survey (1998: n=48, 1999: n=61)

There is effective administrative support to allow students to sign up for the laboratory tutorial times and to locate students who do not attend. Technical support is also provided in the laboratory. This is provided during the tutorials by the tutor with the help of laboratory staff if necessary. Laboratories are staffed at all times so technical support (if not pedagogic support) on campus is also available outwith tutorial times.

7.3 LTPF analysis

The most important insights with regard to transferring learning technology developed in the HE sector to SMEs relate to the different outcomes that resulted from the implementation of the *Virtual Visit* in two different contexts of use (The University of Edinburgh and Heriot-Watt University). The comparison of the experiences at The University of Edinburgh and Heriot-Watt University serves to reinforce Crook’s (1994:9) claim that ‘across different settings, there may be significant variation in how radically the same technology serves to restructure the activity of learning’. The different outcomes owe much to how the experience has been shaped by institutional contexts, including the expectations of lecturers responsible for its implementation and the management of the learners’ expectations. At The University of Edinburgh the course lecturer integrated the *Virtual Visit* courseware more fully into the overall course by scheduling lab sessions in the presence of a tutor whose main role was to provide orientation for the students. The students then knew what was required of them and at least went through the material at hand. At Heriot-Watt University the

⁴³ The presentations make extensive use of images and video clips to take advantage of the broadband metropolitan area network, so may be very slow to download at locations not

expectations of the course organisers were that *Virtual Visit* would be a more radical “stand-alone” package that replaced traditional tutorials and allowed staff to redeploy their time away from teaching commitments. Indeed this was the original vision at The University of Edinburgh, but it was introduced more cautiously owing to suspicions about students’ abilities to cope with “stand-alone” exercises and the limitations of courseware design. The Heriot-Watt University experience with *Virtual Visit* was shaped by lecturers’ high expectations of what the courseware could achieve. It was then also shaped by the students’ low expectations when they became frustrated at trying to access the material and understand how it fitted into the overall course framework, particularly when the general learning-teaching model they are used to follows more traditional forms of delivery. The way *Virtual Visit* was embedded into the overall course framework at The University of Edinburgh meant that more students used it compared to the experiences recorded at Heriot-Watt University. Overall, the Heriot-Watt University *Virtual Visit* implementation may be seen as an approach that was too radical or disruptive for the existing course structure, which take the form of traditional face-to-face lectures and supporting tutorials. Such an approach was not helped by absence of adequate orientation, learning and technical support for the students (that is not enough attention was paid to the *context of learning use*). Improved courseware design and learning management may eventually lead to the use of the *Virtual Visit* courseware on a “stand-alone” basis, but particularly in the Heriot-Watt University context this will require a rethink of approaches to courseware implementation that integrates the *context of learning development* more closely with the *context of learning use* in order to achieve effective *learning technology-practice*. A common factor in both universities was that the need to fit into the existing educational contexts restricted the practicality of multimedia being used to change the educational process radically. The most important implication of this discussion for attempts by the HE sector to implement management learning technology solutions for SME learners are that the solutions developed will be shaped by institutional contexts focused mainly on the traditional delivery of educational courses. This does not match the informal learning needs of most SMEs (as discussed in chapter three).

More general insights arise from considering the other main issues arising from the *context of learning development* and *context of learning use* analyses presented in this chapter. Considering the *context of learning development* first, there are two general lessons for the implementation of learning technology in SME and other management learning contexts. Firstly, the analysis of the choice and design of media allows closer insight into gaps in dialogue likely to arise in computer-based learning technology implementation compared to traditional teaching-learning situations. This follows Laurillard's (1993) *conversational framework* and Crook's (1994) account of the role of computers. Applying the *conversational framework* to *Virtual Visit* indicated that it is something of a hybrid between a multimedia database and multimedia tutorial package. This allowed an analysis of likely gaps in tutorial dialogue to be identified, albeit crudely. Applying Crook's (1994:11) discussion of the role of computers indicated that the *computer-as-tutor* metaphor could be applied to the *Virtual Visit* case study examined, in which the computer acts as a tutor for the learner. This is most explicitly the case in the use of the technology at Heriot-Watt University. At the University of Edinburgh, the addition of a "live" tutor to the use of the technology can perhaps be expressed as a *computer-as-tutor-with-tutor* metaphor. Overall, this may serve to alert the teacher/facilitator to aspects of the teaching-learning process that are not met by the technology and may need further support. This may then be useful in deciding about which type(s) of technology to develop and implement, and how to support it/them in use.

Secondly, the *context of learning development* analysis provides some support for the proposed "self-paced learning" and "relating theory to practice" benefits of learning technology. However, there is some evidence, albeit crude in nature, that the supposed interactivity and non-linear advantages of multimedia technology may be overstated. This is not to say that they could not be achieved through improved courseware design, but provides a warning that proposed benefits of learning technology should not be taken for granted by courseware designers and implementers. Thus although claims for self-paced learning and relating theory to practice properties of multimedia applications may have some credence, facilitators should perhaps not be carried away by the "hype" surrounding so-called enhanced learning properties related to interactivity and non-linearity. Also, concerns about two of the "new barriers" to SME

learning raised in chapter three, that is how to “socialise” multimedia and a lack of ICT skills, may be justified given the evidence presented in this chapter.

The *context of learning use* also provides two general lessons for the implementation of learning technology in SME and other management learning contexts. Firstly, the comparison between the implementation of the *Virtual Visit* courseware in two different settings emphasises the importance of effective integration of learning technology within an overall course structure and adequate pedagogical support. This supports strongly Laurillard’s (1993) view that the delivery of learning materials is more important than their design - if the context of learning delivery⁴⁴ fails then even the best designed learning technology may fail to teach.

Secondly, observations recounted by the tutor reveal the very different nature of “teaching” in a computer laboratory setting compared to a more traditional classroom. The roles of both tutor and learner are changed and have been described above as the “lonely tutor” and “lonely learner”. This reflects the potential for the somewhat isolating nature of learning technology as its implementation disrupts the social process of traditional teaching and learning. The tutor has had to act to reintroduce some of the social aspects of traditional teaching -learning processes in order to support gaps in the “computer teacher’s” ability to handle dialogue. However, there is still some evidence that “lonely learners” may find it more difficult to achieve the learning objectives of multimedia tutorials compared to traditional tutorials. This may be exacerbated by navigational difficulties and are also not likely to be assisted by the physical nature of the computer laboratory learning environment. However, it could also be linked to problems with courseware design⁴⁵. Thus the likely occurrence of the “lonely tutor/lonely learner” syndrome points to the likely need for tutor training in “e-learning” support, inclusion of tutor instructions to accompany learning technology software, and/or inclusion of additional narrative in the design of the learning

⁴⁴ Laurillard’s notion of context of learning delivery forms part of the *context of learning use* of the *LTPF*, as described in chapter six.

⁴⁵ Solutions to this dilemma currently being adopted by the course lecturer at The University of Edinburgh are: the addition of a chronological contextualisation, or narrative (e.g. Czarniawska, 1997, 1998, Fisher, 1987, Laurillard, 1997, Plowman, 1996), of the case; a “thread” leading the student through an exercise associated with the case with defined learning objectives; and feedback to reassure them that they are moving towards achieving that objective. Also, layering the exercises is being considered in order to have different exercises with different learning objectives, possibly at different levels, striated through the case materials.

technology. It also points to a potential need to provide “e-learning” training for the learner and more explicit explanations of their role, particularly in courses which blend learning technology with traditional forms of teaching-learning.

Overall, the application of the *LTPF* has been found to be a useful way to analyse the broad implementation frame of learning technology experiments. The comparison of the Virtual Visit courseware implementation in two different settings illustrates that a weak integration between the *context of learning development* and the *context of learning use* results in poorer learning outcomes. In effect the *LTPF* picks up the challenge to learning technology researchers put forward by Crook (1994):

“...its [learning technology’s] influence will not always be neatly contained within events at the pupil-computer interface itself. Researchers may need to look further than this in defining the ‘place’ at which computers work their effects.”

(Crook, 1994:9).

It is proposed that this framework, owing to its consideration of the broad context of the teaching-learning process, will also be useful for analysing any type of learning technology implementation and indeed any type of teaching-learning process. For this reason, it is also adopted in chapters nine and ten to explore the effectiveness of the SME learning programme, *EuroPILOT*, at the University of East London. In order to set the scene for this case study evaluation, the next chapter introduces the *EuroPILOT* programme and presents the results of an initial survey designed to identify possible issues associated with SME management development learning technology implementation.

Chapter eight

Learning technology implementation in the SME learning environment

EuroPILOT case study, part one: Introduction and Initial Reactions survey

Chapter three provided a more specific exploration into some of the issues likely to face higher education institutions in the provision of management development opportunities to SMEs using new learning technologies. It was found that providing effective learning opportunities to individual SMEs is a difficult task owing to the peculiarities of their learning environment and the significant education and training barriers this creates:

“[SMEs] ... cannot readily find cover to release people for learning off-the-job in working hours. They lack the time and expertise to organise the right opportunities. Individually they cannot influence private or further education sector providers to offer the right education and training. They do not have the purchasing power to keep down the costs of training. Too often training and development takes second place to short-term survival.”
(The “Learning Age” green paper, 1998, ch.3, section 4⁴⁶)

Chapter three concluded that a simple transfer of existing materials is unlikely to prove successful. Furthermore, it was found that the nature of the SME learning environment is likely to exacerbate the problems with providing effective learning technology interventions experienced in the education sector, as explored in chapters five and six. Also, there is a need to increase SME awareness and demand for management development resources, be they based on learning technology, traditional means, or a combination of the two.

Chapters four, five and six provided an overview of the likely importance of the broader sociotechnical framework of teaching-learning programmes which incorporate learning technology. The *LTPF* developed in chapter six as a way of analysing the importance of this broader sociotechnical framework was then applied to a learning technology intervention in the HE learning environment (*Virtual Visit*). The *LTPF* is also used as an analytical tool in chapters nine and ten, which present parts two and three of the *EuroPILOT* case study. This chapter presents part one of the *EuroPILOT* case study, the main purpose of which is to provide an introduction to the *EuroPILOT* programme and to present the results of an initial learner questionnaire survey. This *Initial Reactions Survey* questionnaire was designed to signpost some of the attitudes, experience, expectations and possible issues to be faced by both participants and facilitators during the course of the *EuroPILOT* programme.

Thus this chapter and the following two chapters describe a case study of the issues faced by the University of East London in attempting to provide a combination of traditional and learning technology training to a group of fifty local SMEs through an ADAPT-funded⁴⁷ programme called *EuroPILOT*. The analysis presented in this and the following chapter (chapter nine) were gathered between March and July 1999 in an intensive period of exploration, which revealed insights into the nature of the *EuroPILOT* programme, its SME participants and learning facilitators. Much of the analysis results presented in this chapter and chapter nine were used to inform the relaunch of the second half of *EuroPILOT* in August 1999, which forms the main subject matter of chapter ten. Initial contacts with *EuroPILOT* were made in January 1999 and research began in earnest in March 1999.

8.1 Introduction to the EuroPILOT programme

The *EuroPILOT* programme (appendix 17) is a European Union (EU) ADAPT-funded programme for fifty local small and medium-sized enterprises (SMEs) in East London (appendix 18). The main aims of *EuroPILOT* are to help SMEs to improve their competitiveness and respond to change through the provision of management learning resources. This £1.4m project provides a mix of workshops, activities and programmes, Internet connectivity and access to National Vocational Qualifications (NVQs) in management topics for key managers and staff. The activities and programmes are a combination of traditional workshops and access to new web and CD-ROM-based learning technologies, accessible both on-line in the workplace and in an open learning centre at the university's business development centre. More detail of the ambitious *EuroPILOT* objectives and a consideration of the target learner group taken from the original *EuroPILOT* ADAPT application form appear in appendices 19 and 20 respectively. The main learning resources of the *EuroPILOT* programme are: the *EuroPILOT* programme workshops and associated *EuroPILOT* website, which includes diagnostic tools and a *Decision Support System*; the *Business Enterprise Exchange (BEE) open learning centre* and associated *BEE* website; and events run at the business development centre such as the *Connect for Better Business*

⁴⁶ <http://www.lifelonglearning.co.uk/greenpaper/ch0003.4.htm>

⁴⁷ Appendix 18 provides background information about the ADAPT initiative, retrieved from <http://www.adapt.ecotec.co.uk/>

workshops sponsored by the Department of Trade and Industry (DTI). Each of these is now described in turn.

8.1.1 The EuroPILOT programme and website

Companies who join the *EuroPILOT* programme are committing their chosen employees (up to five) to attend a series of workshops and other learning activities over a period of fifteen months, for a minimum of two hours per week. Each *EuroPILOT* participant must submit timesheets as proof of participation, and this represents the ADAPT match-funding evidence. Prior to July 1999⁴⁸, the *EuroPILOT* programme began with an initial *Start-up day*⁴⁹ (appendix 21) to orient the participants, fulfil a plethora of administrative requirements, show participants around the Business Development Centre and the *BEE open learning centre* in particular (appendix 22), and to distribute psychometric tests (appendix 23). The next workshop followed on from this by reviewing the results of the psychometric tests and providing further general guidance activity about the learning facilities (appendix 24). The three *EuroPILOT* “Co-pilots”, who are described as learning facilitators rather than business consultants, facilitate the workshops, with occasional input from the “Pilot” (the *EuroPILOT* project manager). Once they have completed the initial two workshops, the *EuroPILOT* participants are then free to make up their weekly two-hour time commitments by: attending Business Development Centre events such as the *Connect for Better Business* seminars (appendix 25); using the learning resources at the *BEE* Centre; and exploring the *EuroPILOT*⁵⁰ and/or *BEE*⁵¹ websites, perhaps downloading some of the learning resources. This may, or may not, be for the purposes of acquiring an NVQ (appendix 26) which is an option for, but not a firm commitment made, by the *EuroPILOT* participant. Using this variety of approaches to learning, *EuroPILOT* promotes itself as a facilitating programme to provide flexible “just-in-time” learning. The philosophy behind the programme is one of facilitated self-directed learning, enabling individuals to learn at their own pace and at times that suit them.

⁴⁸ In July 1999 the *EuroPILOT* programme was relaunched (further details appear in chapter ten).

⁴⁹ This may be preceded by an *Awareness* workshop if companies request further information about the *EuroPILOT* before committing to attend the *Start-up* workshop.

⁵⁰ <http://www.euroPILOT.com>.

The *EuroPILOT website* contains a variety of guidance information related to the *EuroPILOT* programme and some limited downloadable learning resources. Since October 1999 it has also provided links to the *Decision Support System* and a set of diagnostic tools.

8.1.2 BEE open learning centre and website

The *BEE open learning centre*, housed in the Business Development Centre at the University of East London, contains a wide range of over three hundred types of multimedia web and CD-ROM based management courseware (appendix 27) and *Business Briefs* (web-based learning modules available in PowerPoint™ and downloadable by its “Business Partners”, who include *EuroPILOT* participants; appendix 28 provides an example). It is advertised as ‘probably the most modern and well equipped Open-Learning/Internet Centre that you could find anywhere’. The *BEE open learning centre* can be used both for private study or directed study, and its IT training courses appear to be particularly well subscribed to. The *BEE open learning centre* is open from 0830 - 2100 hours Monday-Friday and 0900-1700 hours on Saturdays in order to achieve its flexible learning opportunity aims.

The *BEE website* holds a variety of informational items about events and courses on offer such as Internet and IT software training. It also has access to a wider range of downloadable learning resources than the *EuroPILOT* website and links to other small business related web resources.

8.1.3 Business Development Centre Events

The main events held in the Business Development Centre, at least in the early stages of the *EuroPILOT* programme, were *Connect for Better Business* seminars. *Connect for Better Business* is a series produced by the DTI and Business Link (appendix 29), which ‘offers a window on best practice in action’ and tackles main management topics such as finance and sales and marketing. The seminars take place in a traditional setting but employ multimedia resources aimed at making the seminar more interactive and entertaining for the audience.

⁵¹ <http://www.bee.co.uk>.

8.2 Initial reactions of EuroPILOT learners

The *EuroPILOT* project concept attempts to tackle SME learning barriers by providing access to a wealth of resources that are free of charge, that combine traditional and new approaches to learning, and are accessible at flexible times and places. The quality of the learning technology available is, at least on the surface, extremely high (the BEE open learning centre has been designated a DTI Centre of Excellence). This chapter presents the *Initial Reactions Survey* of 26 *EuroPILOT* SME participants. It was conducted during the introductory stages of the project (March - July 1999) by questionnaire distributed during either their first or second *EuroPILOT* workshop. The questionnaire (appendix 6) was designed collaboratively with the *EuroPILOT* project manager, Martyn Laycock. The aims of the survey were to signpost some of the attitudes, experience, expectations and possible issues to be faced by both learners and facilitators during the course of the *EuroPILOT* programme.

8.3 Survey Results

This section presents the main findings to emerge from the *Initial Reactions survey*. The questionnaire addressed the following issues: Information and Communications Technology (ICT)⁵² usage patterns; relationship and experience with ICT; perceived advantages and disadvantages of ICT; motivations and concerns; perceived personal and company gains; and intentions for NVQ uptake. Each of these issues is now examined in turn.

8.3.1 ICT usage

Table 23 illustrates that, perhaps not surprisingly, word processing packages are the most commonly used form of ICT, followed by spreadsheets:

⁵² The umbrella term "ICT" was employed in the survey rather than learning technology as much of the EuroPILOT publicity material featured this terminology. However, except where specified in table 23, its meaning was explained to survey respondents as including the use of technology for learning.

SCALE	Frequently	Occasionally	Sometimes	Never	What is it?
ICT	%	%	%	%	%
Word processing	65	19	8	8	0
Spreadsheets	31	15	27	27	0
Email	19	8	19	54	0
Internet	12	12	31	46	0
Video-conferencing	0	0	4	92	4
Multimedia CD-ROMS	8	8	35	42	8

Table 23: ICT usage (n=26)
Source: *Initial Reactions Survey*

Almost half the learners surveyed use email, just over half use multimedia CD-ROMs, over half use the Internet, and only 4% use video-conferencing⁵³. However, the majority of responses concerning these newer forms of ICT fall in the “sometimes” bracket. This may indicate possible problems with establishing the on-line learning culture seen by the *EuroPILOT* facilitators as necessary for the programme to have a chance of working effectively.

8.3.2 Relationship and experience with ICT

The responses to “interest in ICT” (table 24) indicate a high proportion of learners who are either very interested or interested in technology, with 15% of respondents stating that they are anxious about using technology.

Interest in ICT	%
Very interested : use it frequently	35
Interested : use it sometimes	50
Interested, but anxious about using it	15

Table 24: Interest in ICT (n=26)
Source: *Initial Reactions Survey*

Table 25 illustrates that 47% of the respondents had used multimedia CD-ROMS and 19% had used the Internet for training purposes. None of the participants had experienced video-conferencing as a training aid and 39% had not used any of these communication mediums for training purposes:

⁵³Although previous experience with the use of video-conferencing by *EuroPILOT* learners is limited, this type of technology does not feature in the *EuroPILOT* programme.

Experience with ICT training	%
Internet	13
Video-conferencing	0
Multimedia CD-ROMS	47
None of the above	39

Table 25: Experience with ICT training (n=26)
Source: *Initial Reactions Survey*

Such survey results may indicate that establishing an on-line learning culture and community may be hampered, in this case by fear of technology and lack of experience with ICT training.

8.3.3 Perceived advantages and disadvantages of ICT

Table 26 indicates high expectations and awareness of what ICT can offer for learning and development under the heading “perceived advantages of ICT.” The most common advantage reported related to flexibility⁵⁴, a particular issue for SME learners faced with the training barriers of lack of time and lack of staff cover:

⁵⁴ Other responses in table 26 do not appear in any particular order.

Perceived advantages of ICT	Perceived disadvantages of ICT
<p>Learning advantages: Flexibility: learn at own pace, allows choice of time, material, location and convenience (staff cover no longer a problem), a more “hands on” approach/just-in-time access. Provides bespoke training in terms of both needs and individual abilities/provides an individual training programme. Traditional seminars can be boring; ICT is more interesting and gets the facts across more clearly. Develops willingness to learn and self-confidence/self development. Can use either in conjunction with traditional training or separately. Reaches a wider audience. More concise/less fragmented.</p>	<p>Learning disadvantages: Lack of human contact/loneliness. Fear of technology. Lack of understanding. Important to select appropriate subjects for appropriate modes of delivery. Is it possible to obtain rapid answers to questions? May hamper interaction and discussion between learners. Requires self-discipline, motivation and organisation to use/prioritise. A supplement rather than a replacement of traditional methods.</p>
<p>Information/technical advantages: Speed of information transfer. Information is up-to-date and keeps trainees up-to-date with changes in technology. Can review knowledge again/repeatability. Easily altered and upgraded.</p>	<p>Information/technical disadvantages: Difficult to keep up with new developments. “Information overload”. Navigational confusions. Too technical. Perceived difficulties with understanding (and using) the technology causes anxiety. Technology failures (unreliable).</p>
<p>Competitive advantages: It is becoming a part of working life/it is the future. A way for keeping ahead of competitors. Cost effective.</p>	<p>Competitive disadvantages: Technology requirements for access are seen as a barrier.</p>

Table 26: Perceived advantages and disadvantages of ICT versus traditional learning

Source: *Initial Reactions Survey*

On the other hand, the respondents identified lack of human contact, fear of technology, and lack of understanding, as the main disadvantages⁵⁵. The expectation of the *EuroPILOT* participants in terms of perceived advantages and disadvantages of ICT represents a further expansion on the paradox represented by the development of new learning technologies for SMEs. There may indeed be potential for overcoming existing training barriers through, for example, the flexibility offered by new learning technologies. However, the learning technologies may bring with them other new barriers such as: lack of human contact and direction; the need for personal motivation; navigational confusion; fear of technology; and “information overload”. These may be seen as a further elaboration of the technology-specific barriers

⁵⁵ Other responses in table twenty-eight do not occur in any particular order.

reported in the *SME Survey* (chapter three) and the *Virtual Visit* analysis (chapter seven); problems with “socialising” multimedia, a lack of ICT skills, negative attitudes towards ICT and the need for bespoke training. It is also interesting to note that the survey respondents expect ICT to provide bespoke and individual training and to be cost effective, whereas the survey in chapter three pointed to the problems with providing bespoke ICT solutions in a cost-effective manner. This may be due to the “hype” that often surrounds the introduction of new technologies, leading to high, and possibly misguided, expectations (Maddux, 1989).

8.3.4 Motivations and concerns

Motivations for joining the *EuroPILOT* programme are many and varied (figure 20) but the most frequently mentioned are increasing managerial and technology skills, and networking:

Figure 20: *EuroPILOT* learner motivations

- Further and broader development of up-to-date managerial skills and understanding (e.g. people, sales/marketing, supply chain, customer service, IT, best practice).
- Networking for discussion of problems and answers to questions.
- Take advantage of knowledge available/training opportunity for staff.
- Participation in new technology solutions.
- Business development/improvement.
- Generate more customers.
- Improve market position.
- Goal: self-improvement.
- Change: expansion requires that the business be adapted.
- Gain an NVQ.
- Develop self-discipline.
- Confidence/proficiency in IT use.
- Personal/professional development.
- Increase efficiency.
- Become more successful.
- Keep up-to-date.
- Broaden/re-learn skills.
- A need to know.

Source: *Initial Reactions survey*

An analysis of the survey results coupled with discussions with learners and observations at various *EuroPILOT* events allows these motivations, or demand-side drivers as considered in chapter three, to be categorised. Figure 21 illustrates that they agree with six of the ten common demand-side drivers identified by Gibb (in

Stockley, 1999) in chapter three, section 3.3, and add an additional demand-side driver, that of seeking opportunities for networking:

Figure 21: Demand-side drivers identified by *EuroPILOT* participants

- The existence of a problem or opportunity to be overcome or grasped;
- Pressure to copy from peers or competitors;
- Major environmental changes that provide threats or opportunities (especially technology);
- Pressure from succession within the family business;
- Pressures from within the management team to cope with their ambition and/or personal goal achievement;
- A search for resources which is reflective of an 'open to change' situation;
- A search for networking opportunities.

Source: *Initial Reactions survey*

Over 50% of the responses stated that they do have concerns about participation in the *EuroPILOT* programme, with lack of time the most common (figure 22), followed by concerns about lack of staff cover, motivation, networking opportunities, and fear of technology, respectively.

Figure 22: Concerns about the *EuroPILOT* programme

1. Lack of time: interfering with day-to-day business, extra workload.
2. Problems with staff cover.
3. Maintaining level of motivation/putting in the effort to make it worthwhile.
4. Networking opportunities limited owing to diverse cross-sectoral nature of participants.
5. Fear of technology.

Source: *Initial Reactions survey*

Thus despite the possible flexibility offered by new learning technologies, there are still concerns about both old barriers to training (lack of time, staff cover, motivation), and new barriers to training (fear of technology). Also the concern about networking opportunities may indicate the SME learner's need for the demonstration of tangible business benefits if they are to engage in learning activities (Townley and McKenzie, 2000). This may require that the *EuroPILOT* facilitators give some consideration to the issue of organising participants into sectoral groups.

8.3.5 Perceived personal and company gains

In terms of the personal gains the respondents hope to realise from the *EuroPILOT* programme, the majority of survey responses (figure 23) can be related to the pursuit of education and knowledge for personal development purposes and for the business:

Figure 23: Personal gains sought by *EuroPILOT* learners

- Gaining up-to-date knowledge/education/self improvement/understanding/wider range of skills.
- Increase understanding of IT and the Internet.
- Networking opportunities: understand other people's problems/gain experiences outside own profession.
- Gain knowledge of best practice.
- Get questions answered.
- Become a better manager.
- Obtain NVQ award in management.
- Improve presentation skills.
- Manage people and change.
- A stronger business and more peace of mind that direction is right.
- Confidence and self-discipline.
- Personal/professional development.
- Support in my ambitions.
- More awareness, functionality.

Source: *Initial Reactions survey*

Figure 24 reveals that responses to the question about company gains not surprisingly emphasise business benefits for the company as a result of undertaking and applying the *EuroPILOT* learning experiences:

Figure 24: Company gains sought by EuroPILOT learners

- Benchmarking exercise
- Networking
- Expansion/growth/more clients
- Increase efficiency/effectiveness
- Better understanding of technology/Internet and how it can improve business.
- Increase profitability.
- Application of the learning experience.
- Improve management skills
- To update self and colleagues in new technology and best practices.
- Improve strategy
- Knowledge of other companies in area
- Increased professionalism and awareness
- “Visuals” contact between designers/clients.
- Use skills acquired to promote change.
- More awareness, functionality.

Source: *Initial Reactions survey*

8.3.6 NVQ participation

Table 27 illustrates that over half the participants are planning to study for an National Vocational Qualification (NVQ) while participating in *EuroPILOT* and 23% are still considering this option (one respondent mentioned the need to consider time constraints).

Learners planning to study for an NVQ	%
Yes	54
No	23
Possibly	23

Table 27: Number planning to study for an NVQ (n=26)

Source: *Initial Reactions survey*

This is likely to have implications for facilitators trying to meet the different needs of learners who may or may not be studying for a qualification, in addition to meeting the very diverse needs of individual SMEs as explored in chapter three.

8.4 Discussion

The *Initial Reactions Survey* reveals that the nature of the SME learning environment is likely to have a large impact on the effectiveness of the *EuroPILOT* programme. Although a number of demand-side drivers for management development are identified by the SME learners, concerns about lack of time, staff cover, motivation and lack of networking opportunities are also surfacing. In addition, the levels of usage, relationship to, and experience with ICT indicate that establishing the on-line learning culture and community necessary for the open and flexible/distance learning aspect of the *EuroPILOT* programme may not be an easy task. Learners are presented with a perhaps bewildering array of face-to-face and online resources which they may find difficult to relate to their immediate needs. Also, as revealed by the discussions in chapters five and six, even if the SME learners had more experience with learning technology, replicating the social nature of the teaching-learning process in computer interactions is not an easy undertaking.

The expectation of the *EuroPILOT* participants in terms of perceived advantages and disadvantages of ICT represents a further expansion on the paradox represented by the development of new learning technologies for SMEs. There may indeed be potential for overcoming existing training barriers through, for example, the flexibility offered by new learning technologies. On the other hand, these same learning technologies may bring with them other “new” barriers such as learner isolation, lack of direction and dialogue, the need for personal motivation, navigational confusion, fear of technology and “information overload”. These are similar perceptions of issues associated with technology-based solutions as discussed in chapter three: problems with “socialising” multimedia; a lack of ICT skills; negative attitudes towards ICT; and the need for bespoke training. They are also similar to issues raised in chapters five and seven. For example, the perceived disadvantages of learning technology as recorded in table 26, section 8.3.3 above, agree with the “lonely learner” syndrome (chapter seven, section 7.3) and concerns about lack of dialogue and interaction. In addition, it is interesting that SME learners perceive learning technology to be a supplement rather than a replacement of traditional methods, despite their need for flexible and rapid training access. It is also interesting to note that the survey

respondents expect ICT to provide bespoke and individual training and to be cost effective, whereas the *SME survey* in chapter three pointed to the problems with providing bespoke ICT solutions in a cost-effective manner. This high level of expectation may be due to the “hype” that often surrounds new technologies (Maddux, 1998).

Motivations for joining the *EuroPILOT* programme are many and varied, but the most frequently mentioned are increasing managerial and technology skills, and networking. Over 50% of the responses state that they do have concerns: lack of time (the most common concern); the difficulty with maintaining levels of motivation; limited networking opportunities owing to cross-sectoral nature of participants; and fear of technology. Concerns about maintaining levels of motivation are likely to be realised if the technology is not fully integrated into, and supported in, the overall *EuroPILOT* training programme (Laurillard, 1993). This is likely to be especially important when the nature of the SME learning environment is considered; lack of time is a major pressure and the SME learner is likely to place a heavy emphasis on using time away from work and/or the workplace in clear and relevant training. In addition fear of new technology should not be underestimated and adequate training and support is likely to be a necessity. Networking is viewed by the participating SMEs as both a business opportunity and an important part of the learning process. However, there are perceived doubts about the latter owing to the cross-sectoral nature of the companies. This may indicate that the provision of frequent and relevant networking opportunities may be an important motivational issue for *EuroPILOT* participants.

Overall, the *Initial Reactions Survey* results reinforce many of the issues presented in chapters three to six. It raises doubts about the ability of new learning technologies to provide the panacea to SME learning needs. A simple transfer of existing material is unlikely to prove effective (even if this is “state-of-the-art” material as the *BEE* open learning centre boasts) owing to the very individual needs of participant SME learners. There is no guarantee that “old” training barriers such as lack of time and staff cover will be removed, and indeed “new” barriers associated with the use of learning technology may emerge. The proposed flexibility of the *EuroPILOT* programme for the learners is in danger of leaving the learners at a loss as to what to

do with the range of resources that have been presented to them. It is likely that they will require a significant amount of guidance in linking the resources to their immediate business needs. The key challenges for EuroPILOT facilitators revolve around the issues of the informal nature of SME learning and the achievement of a working integration between the *context of learning development* and the *context of learning use* (chapter six, section 6.3.3). The following two chapters present what actually happened in practice through an application of the *LTPF* to the analysis of the *EuroPILOT* programme. This explores how the *EuroPILOT* facilitators attempted to manage the learners' needs as the programme developed.

Chapter nine

Learning technology implementation for SME learners

EuroPILOT case study, part two: LTPF analysis

The results of the *Initial Reactions Survey* presented in chapter eight signpost some of the attitudes, experience and expectations of *EuroPILOT* participants. They also serve to identify challenges to be faced by the *EuroPILOT* learners and learning facilitators. The survey revealed that SME participants signing up for the *EuroPILOT* programme are positive about the prospect of using new learning technologies, but also have doubts about it being a panacea to their learning needs. Reinforcing issues raised in the *SME Survey* (chapter three), there may be no guarantee that new learning technologies can remove “old” training barriers and indeed “new” technology-specific barriers may emerge.

This chapter examines what actually happened in practice through three other evaluation activities:

- Participant observation of *EuroPILOT* learning activities;
- Unstructured and semi-structured interviews with three facilitators;
- *EuroPILOT Learners’ Survey*: semi-structured telephone interviews with 27 learners.

The aims of this chapter are to:

- examine the factors that shape HE learning technology implementation for SME learners by HEIs;
- provide insights into the differences between HE and SME learning;
- achieve this by applying the *LTPF* to the overall analysis of the implementation process to derive the general implementation lessons for developing SME management learning technology solutions.

Participant observation allowed insights into the way learners are inducted into the *EuroPILOT* programme through two initial traditional workshops (appendices 18 and 21). It also provided the chance to attend *Connect for Better Business* workshops (appendix 25), which make up the other main form of more traditional workshop on the *EuroPILOT* programme at this time. It also provided the researcher with a source of informal feedback from the learners. Semi-structured interviews (appendix 5) with the three *EuroPILOT* “Co-pilots” and the *EuroPILOT* “Pilot” (project manager) provided feedback on facilitation and management issues. The *EuroPILOT Learners’ Survey* semi-structured interviews (appendix 6) with 27 *EuroPILOT* participants provided more structured learner feedback. The survey aimed to generate general

feedback about the effectiveness of the *EuroPILOT* supported self-directed learning model from the perspective of the learners.

The results of these three evaluation activities and the *Initial Reactions Survey* presented in the previous chapter were fed back into the *EuroPILOT* programme on an action research basis in July 1999. *EuroPILOT* was relaunched in July 1999 and its new structure was shaped by these formative evaluation results, through discussions between the researcher, the original project manager, Martyn Laycock, and his replacement, Julie Taylor about the implications of the evaluation for the *EuroPILOT* management process. It was also shaped by this appointment of the new project manager⁵⁶, who had previous experience of managing a *EuroPILOT* ADAPT partner project in Frankfurt Oder, Germany.

The chapter closes with a consideration of the implications of the *LTPF* analysis for the *EuroPILOT* learning model. Finally, the issues arising in chapter five for learners in a higher education learning environment are compared to the issues arising in this chapter for learners in an SME learning environment.

9.1 *LTPF* analysis

To recapitulate, the *LTPF* (figure 25) is made up of two main elements, the *context of learning development* and the *context of learning use*, and its central premise is that a working integration between these two contexts is necessary if successful implementation is to occur:

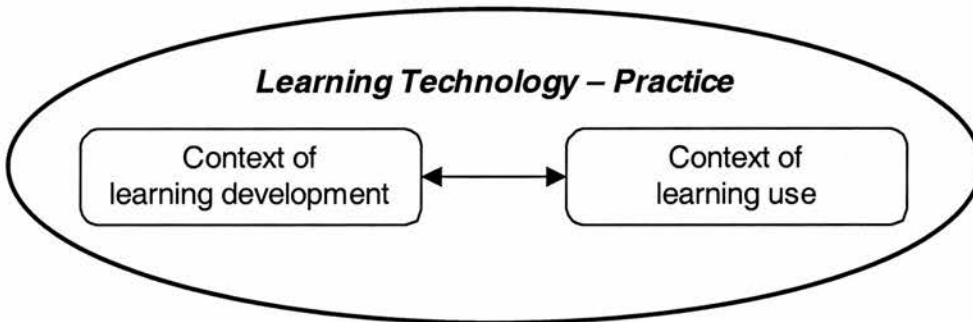


Figure 25: The *Learning Technology-Practice Framework (LTPF)*

⁵⁶ The existing project manager, Martyn Laycock, assumed a new position as project director.

The *context of learning development* is the socio-technical milieu in which learning technology is developed, and includes issues such as: choice and design of media, defining learning objectives, identifying student' needs, and designing the learning activities. The *context of learning use* is the socio-technical milieu in which learning technology is used, and includes issues related to learning management, such as facilitator and learner preparation, changes in the role of facilitators and learners, integration with the course, pedagogic support, and logistics. Overarching issues in the framework concern the role of learning technology and the essential need for dialogue in the teaching-learning process. Dialogue in teaching-learning is related to *practice*, the core of technology development and the centre of Pacey's (1983) *technology-practice* framework. Thus in figure 25 the central and most important issue is denoted as *learning technology-practice*, i.e. the working integration between the *context of learning development* and the *context of learning use* that is required for successful implementation to occur.

9.2 Context of learning development

The main aspects of the *context of learning development* (the socio-technical milieu in which learning technology is developed) arising from the analysis are: the identification of learner needs; the extent to which learning objectives are defined; and the level of attention that has been paid to the design of learning activities.

9.2.1 Learner needs

In the *EuroPILOT* programme, learner needs have been approached in a very general way through the recognition that SME learners require training in management development in order to increase their competitiveness and respond to change. It has been recognised that there will be both organisational and personal learning needs, but there is no adequate structure in place to deal effectively with drawing up plans for either.

Working closely with individual companies to establish precise individual needs will undoubtedly have benefits for the quality of learning that can be delivered, but facilitators recognise that this is not an easy task:

“I think it's difficult because everybody's needs are slightly different. They might have a common theme but micro businesses needs are going to be different from medium sized enterprise needs. Even the finance workshop that we had the other day, as good as it was everybody's needs are different.”

(Golding, *EuroPILOT* facilitator)

Benchmarking exercises carried out in conjunction with the local Business Link organisation are supposed to provide background information about the participant company and its stage of growth, but this has not occurred so far. There appear to be some political factors that are causing a delay to this activity. Another way of building up a picture of learner needs is to conduct company visits. Although these are part of the “Co-pilots” remit (appendix 30) there was only one reported instance of a company visit having taken place at the time of the evaluation. Interestingly, an informal conversation with an employee of the company in question indicated that he believed this to be a significant step forward in terms of the beginnings of organisational learning. Taking account of prior educational experience is another aspect of learner needs, but at present *EuroPILOT* effectively place this responsibility with the participant organisation.

Another important consideration is the relationship between content and the key issue of the appropriateness of generic versus tailored training resources for SME learning. Given the existing demand and supply-side barriers to SME learning (such as lack of time/cover and lack of appropriate training/tangible business benefits), learners will be very demanding in terms of what they view as appropriate learning content. SME learners, or at least SME managers, require prescriptive assistance with immediate problems owing to the traditional learning barriers they face. Although this short-termism may be treated with disdain by some academics, if this need is not met it may be difficult to generate any kind of useful dialogue between teacher and learner. One way to do this may be to design action learning activities that allow the learner to draw on resources within their own company or sector. This is also likely to provide a deeper learning experience: Laurillard (1993:215) notes Ramsden's list of the characteristics of the learning context associated with a ‘deep approach’ in a higher education setting. Among them is teaching that addresses the nature of the subject and its relevance; the more relevant the subject matter the more likely it is for a deeper learning experience to occur. This may be even more likely to occur in the SME learning context as one of the facilitators expressed:

“I think there is a lack of case studies maybe that are relevant to them. All this stuff that is being produced by the DTI and the *Connect for Better Business*... are tending to focus on manufacturing companies or very successful companies. That's not necessarily a good idea. I don't think they should just have success stories. The best thing I've seen so far from that whole series was the man standing next to his wife ... admitting why he went bankrupt.”
(Taylor, *EuroPILOT* facilitator)

The formative evaluation activities also suggested that content relevance requires attention in terms of: relevance to SMEs generally; relevance to function within the SME; and relevance to the particular SME sector.

9.2.2 Learning objectives

Laurillard (1993) claims that establishing learning objectives plays an important part in helping participants to prepare for what is expected of them and to help the teacher to see the results of their teaching. Chapter eight indicated that the *EuroPILOT* facilitators promote learning aims such as improving competitiveness and responding to change in the two introductory workshops (sometimes *ad nauseum* as one learner commented). However, these are not developed into more specific learning objectives related to each participant and organisation. The supported self-directed learning model places this responsibility with the learner, but this is unlikely to prove effective owing to the need for structured guidance and support to tackle immediate learning needs in each individual SME.

9.2.3 Learning activities

The main learning activities designed by the *EuroPILOT* project manager are two introductory traditional workshops in which:

- *EuroPILOT* aims are presented;
- learners meet each other in cohort groups; and
- learners complete and receive the results of individual psychometric tests.

The psychometric tests have proved popular but there is a lack of follow-up on how they could be used for personal and/or organisational development. During these workshops the participants are also introduced to the resources of the *BEE* Centre and the *BEE* and *EuroPILOT* websites (including the *Decision Support System*) and the DTI sponsored *Connect for Better Business* workshops held at the Business Development Centre. Responsibility for planning which learning activities to attend

and which learning resources to use is then passed to the learner. The idea is that participants will self direct their own learning, and call upon the *EuroPILOT* team as and when they need support. It is also hoped that the cohort groups will work together to provide mutual support, but there is little evidence of this occurring in practice, most likely due to the diverse needs of each individual SME and a lack of support for group-based learning.

The *EuroPILOT Learners' Survey* revealed that only a small minority of SME learners is content with this arrangement, as revealed in feedback about the *Connect for Better Business* workshops for example (deemed to be the least useful aspect of *EuroPILOT* by four respondents):

“Yes we’ve both attended some. Mixed feelings. There are quite a few of them. Odd ones have been interesting and others have not. So it depends very much on the subject and the people present on the day. I think the thing about these *Connect for Better Business* workshops, if you get a group of people together that have common thoughts, it tends to help you develop those but if you are all on sort of totally different levels it doesn’t seem to get anywhere.”

(*EuroPILOT* learner, *EuroPILOT Learners' Survey*)

EuroPILOT has not been established in connection with a clearly defined learning model apart from this notion of supported self-directed learning. There appears to be a general mix of approaches with no clear ideas about how the learning activities relate to the companies in question and to each other, and which ones may require more learner support than others. This is particularly the case with the learning technology resources, with the notable exception of the IT training resources, but these relate more to skills development than management development and as such are more suited to an independent stand-alone learning style.

Overall the learning activities do at least offer a variety of media to the participants - a mixture of face-to-face workshops and open and flexible learning materials (although the amount of flexible material is limited at present). As discussed in chapter five, section 5.3.3, employing a combination of several different media is likely to represent the best approach to the design of learning activities. However, the *LTPF* illustrates the need to integrate these into an overall teaching strategy, and to make decisions about which activities are likely to require more support than others. This is not evident in the *EuroPILOT* programme, particularly with regard to the open and

flexible learning resources, which have been deemed to be self-supporting. This is discussed further in section 9.2.3 below (pedagogical support).

9.3 Context of learning use

The *context of learning use* is the socio-technical milieu in which learning technology is used. The main aspects of the *context of learning use* arising from the analysis are: learner and facilitator preparation; integration of learning technology and traditional workshops in an overall learning framework; pedagogical support; and management issues. Also reported in this section is the analysis from the *EuroPILOT Learners' Survey*, categorised into: impact on the learner; impact on the organisation and learners' suggested improvements to the *EuroPILOT* programme.

9.3.1 Learner and facilitator preparation

Participant observation reveals that the two introductory workshops (appendices 21 and 24) provide an initial orientation to the *EuroPILOT* programme. However, there may be a lack of adequate orientation towards follow-on workshops or other learning activities, which facilitators attribute to the fact that the programme itself is evolving and competing with other university resources. This lack of guidance is likely to make it difficult for SME participants to prepare for the next stage in their learning experience, and has the potential for turning initial enthusiasm into frustration. This lack of guidance about learning activities is compounded by a lack of clarity about both the role of learning technology in the learning process and the role of the *EuroPILOT* facilitators:

“Are they [the facilitators] supposed to work closely with individual businesses? Not clear how it is to be done: know who, but don't know how; who approaches whom and how often?”
(*EuroPILOT* learner, *EuroPILOT Learner's Survey*)

The facilitators have not received specific training for their role in the *EuroPILOT* programme but the “Pilot” and “Co-pilots” are generally described in *EuroPILOT* promotional literature as having ‘a wealth of experience with SME training’. However, there appears to be a lack of clarity about the overall *EuroPILOT* objectives among the facilitators and they openly admit that they are “learning-by-doing” as the programme evolves. Also, none of the facilitators are experienced with facilitating

management development training for SMEs through the media of management learning technology, and there is a lack of provision for training in this area.

9.3.2 Integration

Integrating the *EuroPILOT* learning technologies with face-to-face workshops in an overall learning framework is a challenge for the *EuroPILOT* programme as each tends to be developed in isolation from the other. Indeed there is little evidence that the *Connect for Better Business* workshops follow any concrete teaching strategy in connection with the overall programme. The learning technology resources are provided through the *BEE* open learning centre, the *BEE* and *EuroPILOT* websites and the *Decision Support System*. Remote on-line training is limited at present, apart from selected downloads on the *EuroPILOT* and *BEE* websites. *EuroPILOT* facilitators are finding it difficult to persuade participant companies to use the management development learning technologies, which they initially hoped would play a major part in their supported self-directed learning. Technical problems have played a part here, but there is a growing feeling among *EuroPILOT* facilitators that an on-line learning culture is not going to happen overnight and is something that requires encouragement. One possible solution is to link the learning technologies to specific tasks that take place in the *BEE* Centre itself following attendance at a more general *EuroPILOT* traditional seminar or workshop:

“I think if we do some workshops (and I think this is another one of Julie's ideas) ... we should have people doing a specific task which actually encourages them to use the *BEE* centre while they are here so they have to go off and research something, use a programme and write a report about it. We need to make people more active and not passive. We can't just keep talking at people. We have to get them to do things so she wants to get them into the *BEE* centre.”
(Golding, *EuroPILOT* facilitator)

9.3.3 Pedagogical support

Claims about the importance of pedagogical support and feedback in the learning process were expressed in chapter two (Laurillard, 1993, 1994). One facilitator feels that many SME managers have little experience of learning (or at least not the type of learning that is more common in the HE sector) and that this calls into question the effectiveness of the workshops:

“They are being hit with this kind of “Wow!” kind of effect for example the *Connect for Better Business* Workshop. It's a perfect example that is so way beyond their experience that they can't identify with it ... I know from experience with small businesses, you can't rely on them taking notes. They don't have the training to be able to organise that information in a way that they can take it back and action it, they don't know how to do that. So they'll go away with a few sketchy ideas but for them it's really a bit like watching the telly... and then they go off and do exactly what they have always done on Monday morning.”

(Taylor, *EuroPILOT* facilitator)

The same facilitator believes that there is also a danger of “information overload” and that this also points to the need for more learner direction:

“... I think what needs to happen is a total rationalisation to say, 'these are the resources that are available... I think there is a big danger here of handing out lots of packs and stuff, not explaining clearly what is supposed to be happening and you are not addressing the problem which is an SME by definition doesn't have time etc. I think they just go back with a guilt trip and it's even worse when you know what you should be doing ... when you think 'I should be doing something', you can kind of make it go away as an SME because you think, 'well I'm busy then I'll just make more money'.”

(Taylor, *EuroPILOT* facilitator)

As mentioned earlier, company visits have not taken place to date owing to lack of time and staffing resources. One solution suggested by this facilitator could be the organisation of mini-workshops with SMEs of a similar size and at a similar stage of growth where issues for each individual company are tackled head on and action plans are drawn up⁵⁷. The encouragement of self-help groups stemming from these mini-workshops may also be an important support mechanism, although facilitators feel that it may still be necessary to carry out on-site visits for larger companies. Another possibility is hiring extra facilitators:

“When we first started two of us were enough but now more people are coming on board, I'm pulling out slowly, Julie is only half time, it could probably do with another full time person ... when we get our full complement [of SMEs] ... we'll be spending all our time visiting. You can't just go to a client for ten minutes, you end up there at least an hour if not longer.”

(Golding, *EuroPILOT* facilitator)

When asked for any additional comments in the *EuroPILOT Leaners' Survey*, replies focused on the general lull in activity that has occurred recently, a need for more tailored material and support, and support with direction and what to do next. All of these reiterate the extreme importance of support and feedback to the learning process. This is especially the case with the learning technologies, which were initially envisaged as requiring the least amount of facilitator support.

⁵⁷ Developments that occurred along these lines are considered in the next chapter.

BEE and EuroPILOT Websites

The learning technologies accessible to *EuroPILOT* learners are of two main types: the *BEE* and *EuroPILOT* websites, both giving access to downloadable “Business Briefs” (PowerPoint slides covering key management training issues)⁵⁸ and Microsoft IT training products, and the latter giving access to the *Decision Support System* (or electronic consultant); and the *BEE* Open learning centre, containing over three hundred management training titles and up-to-date IT training packages (appendix 24 provides an example).

The majority of interviewees had little experience with the websites. Any experience they had gained was limited largely to introductory sessions and when visiting the Business Development Centre to attend *Connect for Better Business* workshops. There is also a lack of evidence to be drawn from the on-line questionnaires (appendices 8, 9 and 10) as the only responses received to these were from the *EuroPILOT* facilitators. This in itself would appear to be a possible indication of lack of relevance of the websites to the SME participants, but on the other hand could be merely an aversion to completing questionnaires or the lack of development of an on-line culture, or technical problems. However, the *EuroPILOT Learners’ Survey* revealed that those familiar with the websites are generally complimentary, and two learners are using them fairly extensively and making use of the downloadable *Business Briefs* and Microsoft training products. The main reasons given for not making more use of the websites are illustrated in figure 26:

Figure 26: Reasons for lack of website use

- No need to use it at present;
- Lack of time;
- Problems with accessing the websites at work; and
- Lack of confidence, related to either inexperience with computers or age, coupled with inexperience with computers.

Source: *EuroPILOT Learners’ Survey*

⁵⁸ Appendix 25 provides a “Business Brief” example.

The *Decision Support System* (DSS) is something of an unknown quantity to most respondents, and some had never heard of it. Of those that have used it a certain amount of scepticism is evident. Figure 27 displays the main issues raised by learners:

Figure 27: Problems with the *Decision Support System*

- It does not understand the question asked;
- Not enough detail in the answers it provides;
- Not convinced it can replace human specialists;
- Lack of reliability of the answers; and
- “Not being able to get it to work”.

Source: *EuroPILOT Learners’ Survey*

However, others seem reasonably content with the answers provided, like the idea in principle and understand that the DSS is still in its infancy (it was not officially launched until July 1999).

BEE open learning centre

Use of the *BEE open learning centre* appears not to be very extensive among this survey of *EuroPILOT* participants at present. However those that have used the centre (five respondents) seem to use it fairly intensively and appreciate the wide range of facilities on offer. Barriers to using the open learning centre are illustrated in figure 28:

Figure 28: Barriers to use of the *BEE open learning centre*

- Not enough time/work pressure;
- Waiting for a workshop and will then look round the centre (waiting for notification so can plan ahead);
- Expected distance learning rather than an open learning centre;
- Problems with access (*BEE* centre access card has not been administered);
- Not aware of the *BEE* Centre;
- Does not match company needs.

Source: *EuroPILOT Learners’ Survey*

Two *EuroPILOT* participants expanded upon this last point in quite different ways. One thought the problem was because their company is larger and more developed than some of the other *EuroPILOT* participants:

“... haven’t really used any materials as there is no particular need. We are a slightly bigger company and have some of the resources ourselves. The material seems to be aimed at one-man bands or start-ups or smaller operations and partnerships. We are further down the track. We pick things out when we have a particular need, e.g. we recently sent one staff on an ‘Excel’ course.”
(*EuroPILOT* learner, *EuroPILOT Learner’s Survey*)

The other thought that the material was not relevant enough to smaller organisations:

“... having gone on the Venice trip, I spoke to Jules about this while we were out there and a number of us voiced this feeling that we are all busy people trying to make money and the things that bog us down are for example health and safety, contracts of employment, maternity leave, renewal of leases etc. ... I get the feeling the BEE Centre is so near to be able to give us that kind of information... I think the BEE Centre could help a lot more there if it was more defined.”
(*EuroPILOT* learner, *EuroPILOT Learner’s Survey*)

This illustrates the likely difficulties associated with providing generic management development content to diverse SME learners. Also, particularly in smaller businesses, it indicates that learners may tend to bypass management development material with a longer time horizon (e.g. strategic planning) in the face of more pressing day-to-day concerns such as meeting health and safety requirements, deciding which computer to buy, employment contracts, and so on.

Experienced users of the *BEE open learning centre* are very impressed with the quality of the facilities, training resources and trainers. One interviewee expressed a preference for using the *BEE open learning centre* compared to traditional workshops, but another preferred traditional resources to innovative learning materials, expressing a difficulty in maintaining concentration while staring at a screen. This may indicate the need to take different learning preferences into account when devising learning plans for each individual *EuroPILOT* participant. Overall observations of the *BEE open learning centre* and informal conversations with *EuroPILOT* SMEs appear to indicate that the *BEE open learning centre* is used mainly, and very effectively, for IT training purposes rather than for management development training. This perhaps falls foul of some of the original *EuroPILOT* project objectives. Although the *EuroPILOT* management learning technology resources are of a high quality, they are perhaps more suited to larger enterprises (although one SME learner thought the reverse), or

require tailoring to the SME environment, either through improved design (a long-term solution) or scope for input by tutors and/or mentors.

9.3.5 Management issues

Running a programme such as *EuroPILOT* within an academic setting raises its own particular management issues. One facilitator pointed to problems with administrative procedures:

“We can't organise dates very easily and room bookings so we can't be very spontaneous. We can't say at the end of a workshop, 'right the date for the next workshop is such and such'. You have to go through a whole bureaucratic process of organising dates and room bookings and things.”
(Golding, *EuroPILOT* facilitator)

Such problems are seen to be more connected to a lack of clear planning, bureaucracy and conflicts of interest within the university rather than a lack of administrative resources.

Julie Taylor, a recent addition to the *EuroPILOT* team with experience of running a similar project, provided her view of current managerial problems:

“There should be one project co-ordinator ... and there should be very clear objectives for everybody who is working with [*EuroPILOT*]. But the responsibilities must be delegated with authority. The hardest part of that then of course is working in a team so that you don't stifle creativity. But I think if the key objectives are there and distributed and clear and that once decisions are made they've got to be stuck to and they only change if there is a good reason to do it in a different way. [In a] European project ... you get bogged down with all the objectives of the project which have not necessarily been agreed in the interests of the client ... you tend to lose client focus. It [needs to be] integrated into a structure that is a commercial structure... What's more important, the profitability, the *BEE* Centre, running the European project, the university or whatever. It's their job to say, 'sorry *EuroPILOT* is not a priority, you are going to have to wait until June to use this database because the priority is going to be to attract more people to the MBA programme' or whatever ... ”
(Taylor, *EuroPILOT* facilitator)

Soon after her appointment as *EuroPILOT* facilitator Julie Taylor was promoted to project manager and some time after this two new members of the *EuroPILOT* team succeeded the two existing *EuroPILOT* facilitators. Her comments about losing client focus seem particularly valid - observations revealed that it may be all too easy to lose client focus in the bureaucratic procedures associated with EU ADAPT projects. Also, tensions between the university and the development of more commercial ventures such as *EuroPILOT* and the *BEE open learning centre* are much in evidence.

9.3.6 Impact on the learner

Problems with integrating the *context of learning development* with the *context of learning use* appear to have had a negative affect on the learners' motivations and expectations of the *EuroPILOT* programme. The *EuroPILOT Learner's Survey* indicates that their initial high level of motivation and expectations of the programme and its learning technology component have declined generally: 8 participants reported that *EuroPILOT* was meeting their expectations; 10 reported that it was meeting expectations but expressed some reservations; 4 reported that it was not meeting their expectations; and 5 thought it too early to express an informed opinion (table 28):

Meeting expectations	Number of respondents
Yes	8
Yes with reservations	10
No	4
Too early to say	5

Table 28: *EuroPILOT* and expectations (n=27)

Source: *EuroPILOT Learner's Survey*

A typical response from respondents who reported that *EuroPILOT* is meeting their expectations is:

"I think the seminars you are producing and the information we are getting from you is excellent. Giving us lots of feedback. We've only had one meeting up to now which we've been able to attend due to pressure of work but up to now its been excellent."

(*EuroPILOT* learner, *EuroPILOT Learner's Survey*)

Although this type of respondent has no complaints about the programme itself, the conflict with work commitments illustrated in the above quote was mentioned by five of these eight respondents, indicating that the time barrier flagged in the *Initial Reactions Survey* appears to be a real concern.

Ten respondents think that *EuroPILOT* is meeting their expectations but expressed some reservations, and four respondents stated that it was not meeting their expectations. The most common response related to uncertainty⁵⁹ about what to do next and about whose responsibility this is (five respondents):

⁵⁹ Some of the feelings expressed above may have been due in part to changes in personnel on the *EuroPILOT* programme. One of the newly hired facilitators, Julie Taylor, was promoted to project manager and this appeared to change the dynamics within the *EuroPILOT* team

“There seems to be a lull at the moment. I don’t know if I should take the initiative but perhaps our “Pilot” will contact us to have a one-to-one with me and the other person who is doing it, but nothing seems to have happened for a month or so.”

(*EuroPILOT learner, EuroPILOT Learner’s Survey*)

“... I’m doing an NVQ level in customer services and I just want to be told when to get on with it and where I need to collect my information from to do the modules because it’s left this big gap. I think the last time I went was the beginning of ... actually 17 June and I actually haven’t spoken to or been to see anybody or attended a workshop since then. So I’m just a bit worried that I might be left behind to do the work because we are only given 15 months to do the whole of the NVQ.”

(*EuroPILOT learner, EuroPILOT Learner’s Survey*)

This reinforces the need for increased levels of pedagogic support and feedback for learners participating in the *EuroPILOT* programme.

9.3.7 Impact on the organisation

In the *EuroPILOT Learners’ Survey*, respondents were asked to state what impact *EuroPILOT* has had on their organisation. It is too early to expect any impact on businesses in terms of growth and increased profits for example, and in any case it would be difficult to prove that such impacts were related to *EuroPILOT* alone, as discussed in chapter three. At this stage, the *EuroPILOT Learner’s Survey* indicates that a few businesses are using *EuroPILOT* learning resources (both traditional and new learning technologies) in their day-to-day business (either consciously or unconsciously as one respondent stated), to change the way they interact with others, to plan and prioritise, to restructure and to train staff. Several interviewees recognised the need to implement change (and allocate time for it) in their organisations and did not see this as the *EuroPILOT* facilitators’ role, but most others need more support and clarity about *EuroPILOT* before they begin to even think about implementing change. The major impact at present appears to be on increased knowledge, the generation of new ideas, and staff training (particularly IT training). Thus the learning technology resources proving most popular are not concerned directly with the management development objectives of *EuroPILOT*. This may serve to underline the difficulty with persuading companies to try material which might have longer term benefits, but lacks the more tangible (although arguably less important in a business sense) benefits of IT skills training for staff. It is perhaps also a reflection of a lack of

and started a period of project restructuring.

suitable SME management development learning technology content and the lack of learner support for the more ambitious *EuroPILOT* learning objectives related to management development. However, two respondents who reported that there is no impact on their business did state that *EuroPILOT* was good for reassurance that they are moving in the right direction.

9.3.8 Learners' suggested improvements to EuroPILOT

During the *EuroPILOT Learner's Survey*, respondents were asked to state what changes they would like to make to the *EuroPILOT* programme. The main categories for change are suggested by the learners are illustrated in figure 29:

Figure 29: Categories of learners' suggested *EuroPILOT* improvements

- Role of facilitators;
- Learner direction and support;
- Interaction;
- Remote on-line training access;
- Tailored training; and
- Timing/planning.

Source: *EuroPILOT Learner's Survey*

Table 29 illustrates learners' responses under these category headings in more detail:

Table 29: Changes recommended by EuroPILOT learners (n=27)

<p>Role of facilitators: Clarity about role of co-pilots; Company visits.</p> <p>Learner direction and support: Clarity about what companies are supposed to be getting and doing; More support in initial stages/individualised guidance/know what to do next; Need one-to-one guidance and support. More support, e.g. a mentor. Monthly summary sheets to provide motivation and direction; Qualifications would act as an incentive to increased use of facilities.</p> <p>Interaction: More opportunity for interaction, especially with computers; Less sitting and listening.</p> <p>Access to on-line training: Solve problems with modem connection; A crèche on Saturdays in the BEE Centre; More distance learning products over a network.</p>	<p>Tailored training: Tailored workshops etc. for specific problems; Make EuroPILOT more customer based; Ask companies what they are looking for - too many similar initiatives around; Good on IT but what use is it if core business is failing?; Need more help with what we need help with; Support of sales and how to push your staff forward to give them the confidence to sell your company; Mailshots about important issues e.g. health and safety; A course on managing IT systems Better prepared sessions/improve content e.g. Connect workshops too superficial; More relevant to each business/put in groups according to sector.</p> <p>Timing/planning: Hard to plan because EuroPILOT hasn't got a forward plan itself; Timing of courses could be improved.</p>
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Source: EuroPILOT Learner's Survey

Such changes confirm many of the potential disadvantages of learning technologies recorded by EuroPILOT learners in the *Initial Reactions Survey* of chapter eight (see section 8.3.3), which focused around problems adapting to this new style of learning and technical access difficulties. The suggested changes also reinforce many of the demand and supply-side barriers to SME training identified in chapter three (see sections 3.4.1 and 3.4.2), particularly lack of time, lack of expertise and ability to identify training needs, opportunity cost, focus on short-term survival, lack of understanding of the nature of SME learning, lack of tangible business benefits, the quality of training advisors and providers, and bureaucracy.

9.4 Discussion

Through the application of the *LTPF*, several implementation lessons can be derived from the analysis presented in this chapter.

The type of supported self-directed learning model adopted by *EuroPILOT* may have limited impact on learners and organisations. At present too much responsibility for learning may be being placed with the learner. The changes learners suggested and outlined above in figure 44 reiterate the main themes running through this chapter. The *EuroPILOT* learners generally require more learner direction, guidance and support on a one-to-one basis; they need clarity about the role of the *EuroPILOT* facilitators, their own role and the role of the learning technologies; they require tailored rather than generic training with content made as relevant as possible; they would appreciate more on-line training accessible in the workplace; they would appreciate more forward planning by *EuroPILOT* so they can try to attend more events; and they wish for more interaction with similar SMEs and with the computers. One respondent, who stated that *EuroPILOT* facilitators should perhaps study some of their own management learning technology material in order to become more customer-focused, perhaps best summed up the feelings of isolation which emerged in the *EuroPILOT Learner's Survey*.

EuroPILOT facilitators are finding it difficult to persuade participant companies to use the management development learning technologies which it was hoped would play a major part in their supported self-directed learning. One possible solution is to link the learning technologies to specific tasks. Of the two types of learning technology available, the *BEE open learning centre* appears to be used the most frequently, but mainly for IT training purposes rather than management development training. This is attributed to the fact that "business" benefits from IT training are more obvious and immediate. The websites have not come into widespread use and the *Decision Support System* is something of an unknown quantity as it has still to be officially launched. This may confirm the suspicion identified in the previous chapter that establishing an on-line SME learning culture and community is not an easy task. However, this appears to have been further hampered by the lack of learner guidance and resulted in feelings of isolation on the part of the learner. Thus the potential of the new learning technologies in terms of flexibility, just-in-time training and allowing the learners to proceed at their own pace do not appear to have been realised so far for the majority of *EuroPILOT* participants. This is largely due to a combination of lack of learner direction, lack of relevance of learning material and, perhaps to some degree, lack of on-site access. Most of the "old" barriers to training, and in particular

the lack of time barrier, are still much in evidence. Coupled with these “old” barriers, “new” technology-specific barriers to learning associated with the learning technologies themselves and highlighted in chapters three, five and six (lack of learner direction and human contact; the need for personal motivation; navigational confusion; fear of technology; “information overload”; lack of ICT skills; and the need for bespoke training) are all being encountered by *EuroPILOT* learners⁶⁰.

The results of the *LTPF* analysis points to the need to achieve a working integration between the *context of learning development* with the *context of learning use*. The current *EuroPILOT* learning model is technology-driven rather than being driven by learner needs. In addition, availability rather than the needs of the participant SMEs have perhaps driven the type of learning technology selected.

Paying more attention to learning objectives, learner needs and the design of relevant learning activities could strengthen the *context of learning development*. Learner needs regarding the content of learning material appears to be of particular importance, in terms of relevance to SMEs generally, relevance to function within the SME, and relevance to the particular SME sector. The *context of learning use* could be strengthened by preparing both participants and facilitators in advance of learning activities, developing an integrated learning process, and by providing whatever level of support and feedback is necessary to facilitate learning. In the view of the facilitators, this must take place within the constraints imposed by a European-funded project that is attempting to operate on a more “commercial” basis within an academic environment. All of this appears to confirm that the model of supported self-directed learning underpinning the *EuroPILOT* programme is likely to require some extensive revision. The over-riding need appears to be the provision of one-to-one support, at least in the initial stages of the programme, in order to help instigate the beginnings of learning individuals and organisations. Many of the problems described in this chapter may stem from a failure to understand the nature of the SME learning environment and to instead treat the learners’ as “normal” university students - that is students in a university learning environment who have time to study, who have adequate access to external support and structure, and who do not have other more pressing work

⁶⁰ The “negative attitude towards ICT” barrier reported in chapter three, section 3.6.3, was only commented on by one respondent in the telephone survey.

competing for their attention at the same time. Overall, paying adequate attention to the demand and supply-side barriers to SME learning presented in chapter three, as well as to the emergence of “new” technology-specific barriers, is likely to be of importance to the success of the *EuroPILOT* programme.

The results of the *LTPF* analysis presented in this chapter, coupled with the *Initial Reactions survey* presented in chapter eight, were reported to the *EuroPILOT* project manager, Martyn Laycock, who later distributed them to his successor, Julie Taylor. As mentioned in the introduction to this chapter, this helped to re-shape the *EuroPILOT* learning model prior to its relaunch in July 1999. The next chapter discusses the resulting changes made to the *EuroPILOT* programme and provides an analysis of their likely effectiveness.

Chapter ten

Learning technology implementation in the SME learning environment

EuroPILOT case study, part three: LTPF analysis of the new EuroPILOT learning model

“The net effect of multimedia policy innovation in the field of education is limited. The problem is not the lack of initiatives and projects. Indeed, the call-for-tenders procedure among and within institutions is an example of an effective means of triggering multimedia activity at all levels. It is one of the main extrinsic drivers for multimedia diffusion, second only to the fear of educational centres of lagging behind in multimedia developments and losing their ‘market share’ to competitors. But the criteria to sponsor these initiatives generally foster verification experiments, and not the diversification experiments which are needed to bring about innovative multimedia practices. The European Commission, for example, assesses project outcomes in terms of their transferability, a requirement that counteracts the urgent need to localise multimedia use and integrate it as part of a learning environment. Learning thrives on meaningful multimedia content, and not on the technical feasibility of the supportive infrastructure.”

(Van Lieshout *et al.*, 2001:79)

Chapter nine revealed that the model of supported self-directed learning underpinning the *EuroPILOT* programme requires extensive revision. There appears to be a lack of understanding of the SME learning environment and how this may exacerbate the difficult task of reproducing the social interaction of the teaching-learning process via computers. Even in higher education, where teaching and learning are principal objectives, reproducing this social interaction in computer use is a difficult undertaking, as explored in chapters five and six. The *EuroPILOT* project appears to have been driven initially by the technology, with little attention paid to either the *context of learning development* or the *context of learning use* aspects of the *LTPF*. This narrow technology-driven vision illustrates a lack of understanding of the dialogue restrictions of learning technologies as explored in chapters five and six.

To strengthen the *context of learning development* there is a particular need to build closer relations with the individual learners and their companies in order to gain a closer understanding of individual and organisational needs. This will then help with the design of appropriate and more tailored learning objectives and subsequent activities. Content is also likely to need attention, in terms of: relevance to SMEs generally; relevance to function within the SME; and relevance to SME sector. To strengthen the *context of learning use*, the grouping of participants according to common needs related to sector, company size or stage of growth may be appropriate. The overarching need in terms of aligning and integrating *context of learning development* with the *context of learning use* is the provision of missing relevant dialogue through the provision of appropriate task-based learning and one-to-one support, at least in the initial stages of the programme. This may help instigate the beginnings of both learning individuals and learning organisations.

As a result of these weaknesses in the *context of learning development* and the *context of learning use*, judgements about the potential of the new learning technologies in terms of flexibility, just-in-time training, and allowing the learners to proceed at their own pace are difficult to make. Little use has been made of them to date; a more fundamental issue may be the development of a learning model that encourages the participants to undertake learning using any form of media, or combinations of media. This is perhaps the most important innovation *EuroPILOT* can make, rather than making the likely misguided assumption that technology, rather than implementation,

equals innovation (Fincham *et al.*, 1994). Thus most of the “old” barriers to SME training (time, lack of staff cover etc.) are still much in evidence. Where the new learning technologies are being used, “new” technology-specific learning barriers (lack of learner direction and human contact; the need for personal motivation; navigational confusion; fear of technology; information overload; lack of ICT skills; and the need for bespoke training) are all being encountered by *EuroPILOT* learners and facilitators.

This chapter begins by describing the changes made to the *EuroPILOT* supported self-directed learning model since its first relaunch (July 1999) in response to these problems and issues. These changes were brought about under the direction of a new *EuroPILOT* project manager, Julie Taylor, following consideration of the analysis results reported in the last two chapters and also based on the project manager’s previous experience. The latter included responsibility for managing a similar ADAPT project in Germany, minus the learning technology component. The changes are aimed at strengthening both the *context of learning development* and the *context of learning use*, and integrating them effectively. In this way it is hoped that the potential for the use of management development learning technologies by SME learners can be explored more successfully within the framework of the *EuroPILOT* programme.

In the absence of access to another user survey, evidence for the changes made to the *EuroPILOT* learning model and their likely impact are presented through a discussion of observation at various events attended⁶¹, conversations with SME learners and facilitators, and secondary data gathered, following the relaunch of *EuroPILOT* in August 1999. The events attended were as follows:

- *EuroPILOT* 1999 relaunch events (July 1999).
- *E-commerce workshop* (October 1999).
- *Transnational conference* (November 29th - December 4th, 1999).
- *ADAPT (ECOTEC⁶²) monitoring visit* (December, 1999).
- *Business E-effective workshop* (March 2000).

⁶¹ This includes a transcription of the proceedings of the *ECOTEC monitoring visit*, which were recorded on audio-tape by the researcher.

⁶² ECOTEC (http://www.adapt.ecotec.co.uk/src/emp_su.htm) is the ADAPT support unit responsible for monitoring ADAPT-funded projects.

The secondary data gathered consists of: *EuroPILOT 2000* relaunch promotional literature; *New Connect for Better Business workshop* promotional literature; *Business E-effective workshop* promotional literature; *EuroPILOT* dissemination promotional literature; and an ECOTEC feedback report.

In common with chapter nine, the aims of this chapter are to:

- examine the factors that shape HE learning technology implementation for SME learners by HEIs;
- provide insights into the differences between HE and SME learning; and
- achieve this by applying the *LTPF* to the overall analysis of the implementation process to derive the general implementation lessons for developing SME management learning technology solutions.

10.1 The new EuroPILOT learning model

The analysis results presented in the last chapter reveal that the *context of learning development* and the *context of learning use* must be strengthened and integrated effectively in order to increase the chances of success of the *EuroPILOT* programme implementation. As the evaluation results were fed back to the EuroPILOT project director and manager on an action research basis, they helped to shape the new *EuroPILOT* learning model, which is now beginning to move away from a technology-driven vision to one that recognises the importance of a strong *context of learning development*, a strong *context of learning use* and efforts to effectively integrate the two.

To recapitulate, the *LTPF* (figure 30) is made up of two main elements, the *context of learning development* and the *context of learning use*, and its central premise is that alignment between these two contexts if necessary if successful implementation is to occur:

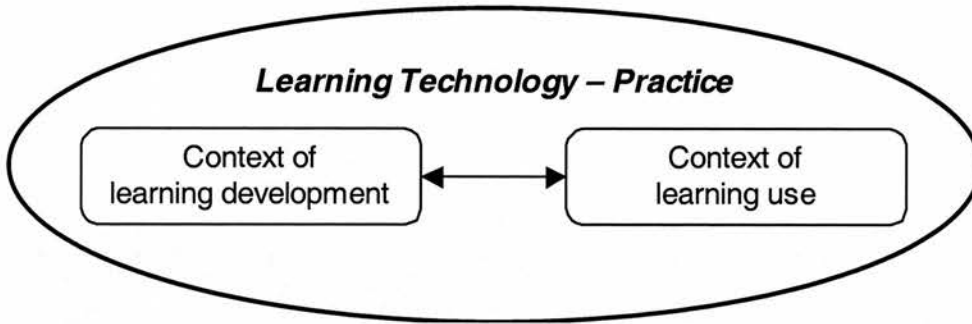


Figure 30: The *Learning Technology-Practice Framework (LTPF)*

The *context of learning development* is the socio-technical milieu in which learning technology is developed, and includes issues such as: choice and design of media, defining learning objectives, identifying student’ needs, and designing the learning activities. The *context of learning use* is the socio-technical milieu in which learning technology is used, and includes issues related to learning management, such as facilitator and learner preparation, changes in the role of facilitators and learners, integration with the course, pedagogic support, and logistics. Overarching issues in the framework concern the role of learning technology and the essential need for dialogue in the teaching-learning process. Dialogue in teaching-learning is related to *practice*, the core of technology development and the centre of Pacey’s (1983) *technology-practice* framework. Thus in figure 30 the central and most important issue is denoted as *learning technology-practice*, i.e. the working integration between the *context of learning development* and the *context of learning use* that is required for successful implementation to occur.

10.1.1 LTPF analysis

The new *EuroPILOT* project manager officially relaunched the *EuroPILOT* programme on two occasions at the Business Development Centre in July 1999. All *EuroPILOT* companies were invited and the event was also disseminated via the *EuroPILOT* website⁶³. The presentation was entitled *EuroPILOT Pathways* and represented the new *EuroPILOT* learning model. The thinking behind this new learning model for *EuroPILOT* is to split the 15-month programme into four different, but not mutually exclusive, sections, as illustrated in figure 31:

⁶³ <http://www.euroPILOT.com>

Figure 31: New *EuroPILOT* structure

- Diagnostics;
- Goal setting and priorities;
- Decision-making; and
- Implementation.

Source: *EuroPILOT Pathways* literature

Diagnostics are to take place in months one to three of the new fifteen month⁶⁴ *EuroPILOT* programme and are proposed to be mainly an external activity (i.e. external to the company and hence with a heavy reliance on the *EuroPILOT* programme and *EuroPILOT* facilitators). The resources to be used are: diagnostic work books (*Toolbook for Organisational Change*⁶⁵) and on-line diagnostic workbooks when available; CD-ROMS; *EuroPILOT* and *BEE* websites; *BEE open learning centre* materials and workshops, under the guidance of the *EuroPILOT* facilitators as necessary. At the end of this process the idea is that the company should have identified a list of their problems and challenges.

The setting of goals and priorities is to take place in months two to six and is proposed to be mainly an internal activity, consisting of discussions, meetings, use of the web sites, the *BEE open learning centre*, attending workshops and networking, under the guidance of the *EuroPILOT* facilitators as appropriate. The idea is that the end result should provide a quick business check and strategy development.

Decision-making is to occur in months six to eight and is proposed to be a mixture of internal and external activities. It could, for example, involve the formation of taskforces, learning champions, study for NVQs, and work-based learning. The idea is for learners, through liaison with facilitators, to make decisions about: how the learning is to take place; what suits the company best; which learning resources should be used; which NVQs should be studied for; who should undertake the

⁶⁴ The *EuroPILOT* programme lifespan is over two years (October 1998 – October 2000) and learners can start their fifteen-month programme at various stages within this time period. The relaunch of *EuroPILOT* in July 1997 thus represented the last opportunity for learners to join the programme. However, this was subsequently revised - a further relaunch of *EuroPILOT* in January 2000 offered a shortened ten-month programme to potential learners.

⁶⁵ This "toolbook" was later withdrawn from use (the *EuroPILOT* facilitators reported that it

learning; when this should be done; and the setting of realistic timescales for completion.

Finally, implementation⁶⁶ is to occur in months 8 to 15 and beyond the life of *EuroPILOT*. This is proposed to be mainly an internal activity, involving for example taskforces, project teams, *EuroPILOT* learning resources and networking, once again under the guidance of *EuroPILOT* facilitators as required during the lifetime of the *EuroPILOT* programme.

The EuroPILOT Pathways framework

The *EuroPILOT Pathways* framework appears to lend much needed structure to the *EuroPILOT* programme by illustrating what is expected of the companies over the fifteen-month time frame. Pedagogic support is emphasised throughout the four stages of the *EuroPILOT Pathways* framework and attempts are made to clarify the roles of the facilitators and participants. It is emphasised particularly in the first stage, *diagnostics*, indicating that more emphasis is now being placed on helping companies to gain momentum at an early stage in order to avoid feelings of isolation. These measures thus tackle identified weaknesses in the *context of learning use*. The diagnostics stage, coupled with the goal setting and priorities stage, addresses the need to define learning objectives. Attempts are also being made to pay more attention to learner needs with the formation of an “alpha user group” and focus groups⁶⁷ to allow input from, and give a feeling of ownership to, the participant SMEs. This is also reflected in changes made to the content of the workshops held in the Business Development Centre. *Connect for Better Business* workshops are still running but attempts have been made to make the content more relevant by including presentations from local business people, a move welcomed by the DTI who sponsor the workshops (appendix 31). However, the main focus in terms of workshops is the promotion of a new series of topical *Business E-effective* workshops (appendix 32) aimed at developing an “e-learning culture” for both learning and for taking

was too inflexible to meet SME learner needs).

⁶⁶ This is a more limited view of implementation as installation.

⁶⁷ Feedback from these groups was requested but not received.

advantage of “e-business” opportunities (section 10.2.4 below). Such measures thus tackle identified weaknesses in the *context of learning development*.

EuroPILOT 2000

A second relaunch of *EuroPILOT* occurred at the millennium, called *EuroPILOT 2000*. The aims of this relaunch appear to also concentrate on strengthening and integrating the *context of learning development* and the *context of learning use*.

More attention is being paid to the design of learning activities as illustrated by promotional literature for *EuroPILOT 2000* (appendix 33). This utilises the *EuroPILOT* Pathways approach, though perhaps not as explicitly as it might if confusion with the previous relaunch is to be avoided⁶⁸. For *EuroPILOT 2000*, participants are advised to complete a *Face-Off*⁶⁹ programme (figure 32):

Figure 32: The *EuroPILOT 2000 Face-Off* programme

- Workshop I: “Start-Up” workshop where companies are introduced to the facilities and resources of the project, including the Bee Centre, and guided on the process of work-based and open learning, especially the use of new technologies;
- Workshop II: this centres on personal development for business improvement and establishing a personal development plan. This workshop also advertises the chance for a one-to-one discussion to set personal development goals through the learning action plan (*EuroPILOT* logbook and development plan) and training needs to support the business;
- Workshop III: this provides the chance to “quickly and qualitatively assess the situation and to set business development goals where the project will be a key support mechanism;
- Follow-up on site visit to plan the way open learning and work-based learning can help the business and to provide support for implementation;
- Internet Driving Licence: all companies are advised to complete the “Business E-ffective” series of workshops in the BEE Centre. This is also an attempt to develop an e-culture “through courses, workshops and support” from co-pilots.

Source: *EuroPILOT 2000* promotional literature

⁶⁸ For companies who missed the *EuroPILOT* Pathways relaunch events, there is access to summary slides on the *EuroPILOT* website. However this requires a particular Internet browser facility and presumes that companies will:

1. act on their own initiative to do this;
2. understand the message from the slides out of context; and
3. relate this message to the rest of their organisation.

⁶⁹ The choice of terminology derives from links developed between *EuroPILOT* and a local ice

The promotional literature for the *Face-Off* programme makes a strong link between open and work-based learning, business success and efficient time-management for SMEs. It also emphasises setting goals and planning for both personal and business development so that progress can be tracked against time invested. This seems to be a considerable improvement over the previous somewhat disjointed and smaller series of introductory workshops with no real attempt to get participants to use learning technology. It reinforces the general movement towards recognition of the importance of defining learning objectives, gaining a close understanding of learner needs and thinking more deeply about the design of learning activities, that is key elements making up the *context of learning development*.

The *context of learning use* has also been thought about by attempting to integrate new learning technology with traditional workshops in an overall learning model, making promises to provide pedagogic support and clarifying the role of the facilitators and participants, at least on paper. Two new facilitators have been recruited as direct replacements of the two original facilitators⁷⁰ and they have been given a high profile in the *EuroPILOT* newsletter and their roles emphasised, along with that of the project manager. One was previously the Operations Director of the Docklands Business Club, and will 'support *EuroPILOT* companies in all areas, especially customer service improvement, public relations and networking'. The other will 'provide customer service and liaison support to *EuroPILOT* companies'. The project manager's experience in business development and marketing is also emphasised. However, it is unlikely that the two newly recruited facilitators have been provided with specific training for their posts and also unlikely that they will have experience with facilitating management training for SMEs through the use of management learning technology.

hockey team.

⁷⁰ One "co-pilot" resigned a few months after the appointment of the new *EuroPILOT* project manager and the second was appointed as business development manager of the *BEE* open learning centre. As such she still has contact with the *EuroPILOT* programme, but only indirectly through the *Business E-effective* series of workshops, which are free to *EuroPILOT* participants but run on a commercial basis for other learners. The project manager appeared to "gloss over" the loss of her "co-pilots", but one SME learner pointed to considerable tensions in the original *EuroPILOT* facilitation team.

The incorporation of the *Business E-effective* workshops as an essential learning activity is an attempt to integrate new learning technology with traditional elements of the *EuroPILOT* programme. This represents the implementation of an idea put forward by one facilitator as reported in chapter nine, section 9.2.2:

“I think if we do some workshops (and I think this is another one of Julie's ideas) ... we should have people doing a specific task which actually encourages them to use the BEE centre while they are here so they have to go off and research something, use a programme and write a report about it. We need to make people more active and not passive. We can't just keep talking at people. We have to get them to do things so she wants to get them into the BEE centre.”
(Golding, *EuroPILOT* facilitator)

It is hoped that this will also lead to the development of an “e-learning culture”, which will allow learners to take advantages of other learning technology facilities on offer in the *BEE open learning centre*, and via the *EuroPILOT* and *BEE* websites.

Management Issues

Given the changes in personnel mentioned above, one key management issue (and another aspect of the *context of learning use*) is the hiring of skilled facilitators. Tensions associated with the running of a “commercial” project within an academic environment are also likely to remain and are being exacerbated by pressure to compete with another, and larger, SME project emerging from the university located in the “Thames Technology Gateway Centre” at their newly developed “Docklands” campus. Much political manoeuvring appears to be taking place, for example negotiations to extend the life of *EuroPILOT*, a “high-profile” dissemination of the project (appendix 34), a relaunch of its image in the year 2000 as *EuroPILOT.com: Intelligent Services for SMEs* (appendix 35), and the project director, Martyn Laycock, leaving to take up a post with another SME “dot.com” company in the private sector.

On paper, analysis of the new *EuroPILOT* learning model indicates that changes have been put in place to strengthen and integrate both the *context of learning development* and the *context of learning use*. Evidence of changes made, or about to be made, to the *EuroPILOT* learning model were presented to the ADAPT monitoring body in December 1999. The next section discusses some of the key points to emerge from

this monitoring visit, contrasts them with the evaluation findings presented in the last chapter, and offers further observations.

10.2 Analysis of the new EuroPILOT learning model

Owing to the gradual phasing out of the author as *EuroPILOT* action researcher as reported in chapter two, section 2.3.3, access to another survey of SME learners was eventually ruled out. The analysis of the new *EuroPILOT* learner model in this section is therefore based on participant observation at four events attended by the researcher over the period between October 1999 – March 2000: an *e-commerce* workshop; a *transnational conference*; an ADAPT monitoring visit; and a *Business E-effective* workshop.

10.2.1 E-commerce workshop

This half-day event in October 1999 represented an opportunity for ten *EuroPILOT* SME learners to develop the e-commerce potential of their business, free of charge, in an initiative called Newham Online. This was a very interactive session compared to other traditional workshops observed. Those who attended appeared to have a real interest in the potential of e-commerce for their businesses. Overall the workshop appeared to be a successful way of engaging *EuroPILOT* participants in an interesting, wide-ranging discussion that began with e-commerce and e-commerce software and moved into the marketing function as applied to the whole business. This could be a key way to get participants to engage in thinking about wider management issues and to bring business benefits ‘firmly forward into the SME’s vision’ (Gibb in Stockley, 1999:5). At this event the *EuroPILOT* project manager reported that *EuroPILOT* facilitators would be undertaking SME e-commerce training in order to gain a close understanding of SME e-commerce needs⁷¹.

⁷¹ Appendix 36 provides the author’s report of the event e-commerce workshop to the *EuroPILOT* project manager.

10.2.2 Transnational conference

Praise for the strong transnational element of the project from the ADAPT monitors (section 10.2.3 below) appears to be based on just two exchange visits, although the latter does appear to have led to some ongoing links. The most striking point to emerge from participant observation at the second of these, the *Transnational Conference*⁷² with *EuroPILOT* and other SME learners from a partner programme in Germany, illustrated the effectiveness of working in a very “hands-on” way with SMEs in order to gain their motivation and commitment to learning. A team of seven facilitators was brought in to organise the conference and networking opportunities outwith the conference as required. Once possible business benefits were made transparent and a high level of guidance and support was put in place, there appeared to be more engagement in relevant learning and networking events and activities. While conference presentations were mainly attended by the German SME learners, a sectoral approach to mini-workshops hosted by *EuroPILOT* SMEs appeared to be popular with the learners and may demonstrate the possibility of pursuing this approach in the *EuroPILOT* programme itself.

One of the facilitators drafted in for the *Transnational Conference* remarked that SMEs are ‘unbelievably grateful for support and guidance if this is done in the right way’. He related that he had arranged a meeting between a *EuroPILOT* SME company with a possible business partner and, even though it was unsuccessful, the company in question was glad of the opportunity to be able to explore, and then rule out, one particular avenue for business development. He also thought that the language used on SME promotional material should be extremely clear and to the point, unlike some of the current *EuroPILOT* material in his view. In addition, he recommended that SME learners must be treated as customers once they have agreed to undertake management development and not ‘be kept waiting around for news of the next workshop’. Furthermore, he suggested that “people skills” are a vital asset for SME facilitators as SME managers and employees tend to be used to dealing with people face-to-face.

⁷² The Transnational Conference ran from 29th November - 4th December 1999 and was hosted by the University of East London. Appendix 37 provides the author's report of the

10.2.3 The ADAPT (ECOTEC) monitoring visit

A key part of the ADAPT monitoring of *EuroPILOT* involved a one day visit to the University of East London in December 1999 by two representatives from the ADAPT support unit, ECOTEC. The visit aims were to:

- see how the project is progressing;
- to provide support where possible; and
- to identify the main lessons from the project for dissemination at a national level.

During the monitoring visit two *EuroPILOT* learners were questioned about the benefits *EuroPILOT* currently provides and how it can be improved in the future⁷³. The ECOTEC representatives said they were pleasantly surprised at the chance to meet some “real” SME learners, relating that their monitoring visits do not usually provide contact with learners. However the “realness”, or representativeness, of these SME learners could be questioned: one participant had a long relationship of undertaking training with the university prior to the *EuroPILOT* programme and the other saw part of his role in *EuroPILOT* as passing on knowledge to other participants. Both had also been guest speakers at *EuroPILOT* events⁷⁴ and appeared to be highly motivated, educated and self-sufficient individuals. Not surprisingly, these “pet” SME learners provided an upbeat review of *EuroPILOT*, painting a very different picture from the feelings of isolation expressed by many SME learners as reported in the *EuroPILOT Learners’ Survey* of chapter nine. They stated that the flexible nature of *EuroPILOT* is likely to be of benefit to both managers and employees of SMEs, as are the opportunities it provides for guided and self-directed learning. They talked about transferring new skills actively to the workplace where they can lead to significant impacts on the business, for example through increased communication and team-building skills and an understanding of process chains. The “train the trainers” approach was suggested as one possible solution for companies who do not wish to release a large number of staff from the workplace, and it was suggested that this may work best through a ripple effect rather than a dictatorial approach. In their view small tasters of skills training and the examples of others

event to the *EuroPILOT* project manager.

⁷³ Appendix 38 provides the researcher’s report on this aspect of the event to the *EuroPILOT* project manager.

⁷⁴ The *viSible Results conference* (appendix 36) and the *Transnational Conference* (appendix

learning in the workplace may assist with the building of confidence in employees who may be contemplating a new learning experience. The human interface of *EuroPILOT* facilitators was also seen as an important factor, especially where it can lead to short-cut answers for busy SME managers.

The main suggestions about improvements to *EuroPILOT* related to the timing and relevance of seminars and workshops and the issue of content relevance generally. To meet this need the *EuroPILOT* project manager is planning to introduce sessions at more convenient times and to set up on-line SME communities. These will be driven by “forward-thinking SME managers” through the formation of an “alpha user group”. This would enable knowledge to be shared in “newsgroups” and following an “organic beginning”, experts could later step in to create relevant *Business Briefs* to be used by other SMEs. There are also plans to develop multimedia case studies based around some of the *EuroPILOT* SMEs, which it is hoped will provide relevant lessons for other SME managers.

Although hearing about benefits for these two particular learners and plans for the future are encouraging, overall participant observation at this event led to a feeling of frustration on the part of the researcher. The researcher perceived his role as a “token evaluator” thrown in for good measure, and many of the issues emerging from the evaluation of *EuroPILOT* presented in chapters eight and nine were not discussed. This was achieved by the use of the “pet” SME learners, an array of reports, newspaper clippings and photographs from dissemination events and the recent transnational conference, lack of opportunity for the evaluator/researcher to discuss key issues with the ECOTEC monitoring representatives, and a presentation by the company responsible for the *EuroPILOT* and *BEE* websites, *Business Briefs* and *Decision Support System*. This latter focus on a technology that had only just “gone live” and was viewed by its main creator as having been ‘developed for the wrong audience’ (i.e. he feels that it is more suited to “blue chip” company executives) was disappointing, but effective. It had also been used to positive effect previously at a major Information Society Initiative dissemination event, the “vISible Results conference” hosted by the University of East London (appendix 34). This appeared to

be an excellent public relations exercise (so much so that the *EuroPILOT* programme is being disseminated by ECOTEC as an example of best practice) but perhaps not so good as an exercise in disseminating the main implementation lessons learned, as highlighted in chapter nine. The evaluation reports were distributed to the ECOTEC representatives but there was no opportunity to discuss the implications of their content for the further development of the programme. During a lull in the proceedings the researcher attempted to describe some of the evaluation results to the ECOTEC representatives. However, the discussion was brought to a premature end by one of the *EuroPILOT* administrative staff present who stated firmly that actions were in place to remedy the evaluation issues raised. Despite having been advised by the project director that he could talk freely to the ECOTEC monitors, the researcher felt that he had perhaps broken Reeve's (1991) 'fifth commandment' of evaluation:

"Keep always before you the image of multiple publics, ready to eat you alive.
Evaluating is a political activity."
(Reeves, 1991:98).

ECOTEC feedback

Subsequent feedback from ECOTEC (appendix 39) about the *EuroPILOT* programme following their visit was generally very positive. While the ECOTEC feedback makes many relevant points, some of these points appear misleading when compared with the evaluation results presented in the last chapter. There seems to be a general acceptance that the *EuroPILOT* learning model has been implemented successfully, whereas the evaluation has raised many question marks about this and it is still not clear how effectively these are being addressed. They are being addressed on paper through the two relaunch events, but the only real way to assess the success of modifications is likely to be through another learner survey (Draper, 1999). Also, since the relaunch in July 1999 it is perhaps unlikely that many real changes were implemented - it seems that the following months saw a period of internal turmoil and preparations for events, culminating in: the promotion of the other "Co-pilot" to project manager and the previous project manager taking up the post of project director; the replacement of the two "Co-pilots"; the appointment of a new evaluator and phasing out of the existing evaluator; preparations for a transnational conference; and the *ECOTEC monitoring event*. The project manager commented at one stage

that she would like more time to work with the SME learners but the administrative and dissemination duties of her project role often prevented her from doing so. It is likely therefore that the further relaunch (*EuroPILOT 2000*) represented the real starting point of the revamped *EuroPILOT* learning model, coinciding as it did with the appointment of two new “Co-pilots” at this time.

The main issues to emerge from the *ECOTEC monitoring visit* and the researcher’s evaluation studies are the need for intensive support and guidance for SMEs. This was perhaps not brought out as strongly as it might have been in the ECOTEC feedback. While not surprising, since the feedback ECOTEC provided is largely based on a one-day visit, it may give some cause for concern. The ECOTEC project monitors have since put the *EuroPILOT* programme forward as a model of best practice but the real lessons to be gained from it may not be fully drawn out. There is no doubt, as the ECOTEC feedback points out, that the *EuroPILOT* programme has very ambitious objectives and has been successful at recruiting SMEs. However, it is less clear how many of these SMEs are actually learning about management development or are active in the programme in any way in the absence of another learner survey.

Particular points raised in the ECOTEC report that the author of this study perceives to be more strongly misleading are illustrated in table 30, through a comparison with the author’s reflections on these issues:

ECOTEC feedback	Reflections on ECOTEC feedback
<p>The assessment centres utilised by the project have been instrumental in delivering the required learning tools and techniques. The Business Enterprise Exchange has provided a focus for the delivery of diagnostic workshops, via the Internet-based BEE Briefs support service. A second assessment centre based at Docklands will be launched in January 2000.</p>	<p>Delivery is not the same as learning - more work is likely to be necessary to strengthen the <i>context of learning development</i> and the <i>context of learning use</i> in order to allow a greater chance for learning to take place.</p>
<p>The SME Support System developed by the project, in the form of access to advisers, learning modules and SME case studies has been developed and <i>EuroPILOT</i> has found that the telematic learning systems put in place are well suited to the creative industries target group where there is a general lack of demand for intensive consultancy and more of a 'self-help' focus.</p> <p>In particular, the website is acknowledged as being highly successful in providing on-line business support, with more than 50 business briefings having been transacted to date.</p>	<p>This could be viewed as a "get-out clause" by the facilitators with regard to the feelings of isolation expressed by other SME users who do not fall into the creative industries group.</p> <p>Again, delivery does not equal learning. This may not guarantee learning, but merely the technical ability to download material from a website.</p>
<p>The ICT components are viewed as the main innovation of the programme, but there is also a good balance between self-paced products and face-to-face networking/seminars.</p>	<p>It is more likely that the implementation of the overall learning model should be seen as the innovation, not the technology, and steps taken to integrate both technology and traditional elements within it.</p>
<p>Monitoring/evaluation and transnationality are viewed as very strong elements of the programme. Evaluation has been enhanced from the original objectives and formative evaluations have proven valuable in steering the direction of the project. It has been valued by the project as an indicator that SMEs generally need more guidance.</p> <p>The knowledge gained by the evaluators should provide an excellent final report</p>	<p>Providing that learner support and guidance supersedes other aspects of the programme, including learning technology resources, which should be viewed as just another form of learning media.</p> <p>The independent evaluator is currently being phased out of the programme and replaced by an "evaluator" with a vested interest and a different research agenda. This may prevent effective building on the formative evaluation results obtained.</p>
<p><i>EuroPILOT</i> is flexible and adaptable to the needs of beneficiaries.</p>	<p><i>EuroPILOT</i> is <i>starting</i> to be flexible and adaptable to the needs of beneficiaries.</p>

Table 30: Reflections on ECOTEC feedback
Source: ECOTEC feedback report, 2000 (appendix 36)

This is not to lay blame at the door of the ECOTEC representatives, or the *EuroPILOT team*, for what takes place in monitoring meetings; there are difficulties with exploring the full range of issues in a one-day monitoring meeting and there is an obvious need to relay positive messages to funding bodies. Indeed, *EuroPILOT* has been very successful at recruiting SMEs, most likely as a result of traditional links with industry, the hard work of the *EuroPILOT* project manager and director, the relaxed and welcoming atmosphere developed in the Business Development Centre, and the friendly and helpful nature of the facilitators. However, owing to the extreme difficulties likely to face SME facilitators and given the generally innovative and responsive nature of the *EuroPILOT* programme, it was disappointing that a perhaps more realistic dissemination picture did not emerge.

10.2.4 Business E-ffective workshop

Attendance at this event provided the chance to talk informally and at considerable length with the two SME learners who attended the workshop. To recapitulate, the *Business E-ffective* workshops (appendix 32) are held in the *BEE open learning centre*, are advertised as “totally flexible” and include a pre-course assessment to help companies utilise their time effectively. Feedback from the learners seemed to indicate that these goals might be more difficult to attain in practice. They felt that earlier workshops in the *Business E-ffective* series had been ‘a waste of time’ because they were quite highly skilled already compared to some of the other participants. They complained about the low tutor/student ratio in one of the sessions and expressed a feeling that outcomes from the workshops were not as advertised - one of the participants thought he would get a free website at the end of this workshop but instead received advice about how to design a website. Thus the learners were suspicious that the *BEE open learning centre* was more concerned with ‘getting numbers through the door’ than really meeting individual learner needs. One of the learners left before the end of the workshop as it had been advertised as a morning session but was actually an all-day session. He reported that Business Link (appendix 26) would have put him in touch with a website consultant straight away, but admitted that although the service is more professional it is also expensive (£4,000), whereas the *EuroPILOT* service is free. Overall, he felt disappointed with the level of service and lack of clarity in general about ‘what is going on with *EuroPILOT*’ and ‘what

EuroPILOT actually is⁷⁵. Both participants felt that they needed more hands-on guidance and support (both learning and technical) particularly at the start of the programme, and requested honesty in what is being provided:

“When making enquiries at the BEE Centre the answer was.... just... “Yes, yes, yes to everything and it wasn’t true.... They [*EuroPILOT* facilitators] are saying we can use the BEE Centre, but what for?”
(*EuroPILOT* SME learner)

This informal feedback, albeit from only two learners, echoes many of the evaluation results presented in chapter eight related to weaknesses in the *context of learning development* and the *context of learning use*. Likely continuing problems, revealed by the learners lack of clarity about the purposes of *EuroPILOT*, may be defining learning objectives adequately, providing relevant learning activities and materials, preparing tutors effectively, providing adequate support and guidance, and integrating the learning technology into the overall teaching-learning programme. It also surfaces some new issues related to misleading advertising of consultancy services (the *Business E-effective* workshop series), and the danger of duplicating training provision among providers. Thus there may be problems associated with trying to run what are perceived by SME learners as free consultancy services within the framework of a supported self-directed learning programme in a university setting. The result of such ventures may be an inadequate halfway house between consultancy and “supported” learning. Other concerns raised are: a lack of technical support available after the lifetime of *EuroPILOT*, or even during its lifetime; and the effectiveness of *EuroPILOT* monitoring questionnaires (appendix 40). The questionnaires are distributed at the end of learning events, but were not viewed by these two particular learners as the best way of collecting “the truth”- as the learner has to supply their name and address, this may cause worry about the implications of being honest in terms of future levels of service. Overall, both learners agreed that the timing and relevance of learning activities are the greatest issues for them with regard to effective participation in the *EuroPILOT* programme. This echoes the findings from the other events discussed in this chapter and the other evaluation activities reported in chapters eight and nine.

⁷⁵ Similar concerns were raised in a casual conversation with two new *EuroPILOT* learners at the *Transnational Conference*. They appeared very enthused about the programme but were asking for advice about what to do next following the introductory workshops, despite the new learning model having been launched five months previously.

10.3 Discussion

“Though success is more attractive than failure, the analysis of practices that are perceived to have failed, render useful insights for constructing guidelines of best practices. Accepting exploratory settings that may lead to failure guides the establishment of good practices.”

(Lieshout *et al.*: 281)

The main changes made to the *EuroPILOT* learning model since its relaunch in July 1999 have arisen through a closer consideration of the SME learning environment and the difficulties of replicating the social nature of the teaching-learning process in computer interactions. They have been aimed at strengthening and integrating the *context of learning development* and *context of learning use* aspects of the *LTPF*. These changes seek to tackle both “old” learning barriers inherent to the SME learning environment, for example lack of time and lack of content relevance, and “new” technology-specific barriers such as lack of learner direction and lack of an “e-culture”. In this way there may be a greater chance that the potential of new learning technologies in terms of flexibility, just-in-time training and allowing the learners to proceed at their own pace will start to be realised. However, there are suspicions that strengthening and integrating the *context of learning development* and the *context of learning use* are much easier to achieve on paper than in practice, particularly for short-term projects such as *EuroPILOT* - by the time vast amounts of energy have been spent on political manoeuvring, bureaucratic procedures and adjusting the facilitation team, the project may be entering its last phase⁷⁶.

Lessons from the *E-commerce workshop*, the *Transnational Conference* and the *Business E-effective* workshop appear to be that once SME learners can see possible business benefits (Gibb, 1998, in Stockley, 1999, Townley and McKenzie, 2000) they will engage in relevant learning and networking events and activities. In addition, the success of sectoral sessions at the *Transnational Conference* points towards the possible formation of sub-groups of SMEs in similar business sectors for collaborative learning purposes in more structured cohort groups (Stockley, 1999). As chapter eight also concluded, providing support, guidance and feedback to learners, as well as relevant content at flexible times, emerge as the most likely important factors for success of the programme implementation. This also agrees with the general

⁷⁶ The *EuroPILOT* programme ran from October 1998 until September 2000, and was

findings from an ADAPT research conference which the researcher was invited to attend by the EuroPILOT project manager⁷⁷.

Learning technology is just one part of the innovation represented by the *EuroPILOT* programme - it is likely to be just another form of learning media. There has been a tendency to view technology as the innovation rather than the overall process of developing and implementing a learning model suitable for the SME learning environment, one which integrates new learning technology and traditional learning events effectively to establish a sound *context of learning use*. This may also have led to the dissemination of technology-led messages about the project rather than ones that reflect on the issues faced with implementing an efficient learning programme for SMEs. There has also been the tendency to view the delivery of learning material (e.g. learners downloading *Business Briefs* from a website) as evidence of learning rather than merely evidence of the technical ability to download material from a website. Delivery in this sense is not the same as learning (Mayes, 2000) - more work is likely to be necessary to strengthen the *context of learning development* and the *context of learning use* in order to allow a greater chance for effective learning to take place.

The *LTPF* has been applied to both the *Virtual Visit* and *EuroPILOT* analyses, primarily to tease out the relevant elements of the *context of learning development* and *context of learning use* aspects that require most attention. The main similarity to emerge for both the higher education and SME learning environments is that establishing a sound *context of learning use* is likely to be the most crucial factor in the success of learning technology implementations. This highlights, in particular, the likely need to pay adequate attention to the role of the facilitator in bridging dialogue gaps left by the “computer teacher”, that is to provide pedagogical support, and the need to integrate the learning technology within the overall teaching-learning/training-learning programme. In terms of the *context of learning development*, the evidence from the two case study evaluations perhaps points to its greater importance in the case of the SME learning environment. As the priority of many SME learners is likely to relate to tangible business benefits (Gibb, 1998, in Stockley, 1999, Townley and McKenzie, 2000), material that does not immediately meet their learning needs are

perhaps only starting to find its feet in January 2000.

likely to be rejected. Although materials in the higher education learning environment may also sometimes not meet learner needs fully, the learners may not have this choice as they are in some respects obliged to use the materials, particularly if they are assessed or learning sessions are “policed” by a tutor.

This leads to initial considerations of the similarities and differences between the higher education and SME learning environments. The higher education learning environment, despite current problems with increasing student numbers and lower funding levels, is still an environment with learning as its main focus, with at least some of the facilities and trappings that requires. In contrast, as illustrated in this chapter and chapters three, eight and nine, the SME learning environment is dedicated, not surprisingly, to work, rather than formal learning. Even if visions of fully functioning “computer teachers/trainers” on every work desk were feasible, it is unlikely that the SME learner would have the time or inclination to employ their services, unless bespoke business benefits for each individual business could be readily demonstrated. The higher education sector is currently struggling to implement learning technology effectively in an environment dedicated to learning and is likely to only be able to provide generic management development solutions to SMEs. Thus trying to implement learning technology effectively in an environment where the opportunity for learning (or at least learning as academics may currently understand it) is much less than ideal, may be equivalent to trying to run before being able to walk.

The issues raised in this chapter are likely to have important implications for policy developers looking at “best practice” examples and also for bodies responsible for monitoring projects. Both groups may need to scratch beneath the surface “glitter” of the technology to find the real implementation lessons. However, even if these implementation lessons are surfaced, they are likely to be applicable to the particular contexts of use (Crook, 1994), making generalisable “best practice” dissemination difficult to justify. The employment of a learning process analysis framework (such as the *LTPF*) in the development and analysis of individual projects, coupled with the recognition of the broader meanings of technology and innovation, are likely to be

⁷⁷ Appendix 41 provides the report of this event to the *EuroPILOT* project manager.

more useful for dissemination purposes and the guidance of future policy developments in this area.

Chapter eleven

The nature of SME learning

Chapter ten reviewed the changes made to the *EuroPILOT* programme in the light of feedback from the SME learners. These changes aimed at strengthening and integrating the *context of learning development* and *context of learning use* components of the *LTPF*. They seek to tackle both “old” learning barriers inherent to the SME learning environment, for example lack of time and lack of content relevance, and “new” technology-specific barriers such as lack of learner direction and lack of an “e-culture”. In this way there may be a greater chance that the potential of new learning technologies in terms of, for example, flexibility, just-in-time training and allowing the learners to proceed at their own pace, will start to be realised. However, strengthening and integrating the *context of learning development* and the *context of learning use* are much easier to achieve on paper than in practice, particularly for short-term projects such as *EuroPILOT*. Chapter ten also concluded that there has been a tendency on the part of the *EuroPILOT* facilitators to view technology itself as an innovation, rather than the overall process of developing and implementing a learning framework which matches the needs of SME learners and integrates new learning technology and traditional learning events effectively to establish a sound *context of learning use*.

The empirical work of chapters seven, eight, nine and ten indicate that the key supply-side issues facing SME management development programmes such as *EuroPILOT* which seek to incorporate learning technology are likely to be twofold:

1. the requirement for a deep understanding of the needs and nature of SME learning and the key barriers to SME learning
2. tackling the difficulties of replicating the social nature of the teaching-learning process in computer interactions.

Thus the aims of this chapter are to:

- build on the understanding of SME management development needs and learning barriers developed in chapter three;
- further explore the nature of SME learning in greater depth; and
- consider the potential of learning technology for meeting SME learner needs and matching the nature of SME learning.

In order to achieve these aims, the analysis presented in this chapter draws on feedback from a further SME survey, the *SME Learning Survey*, which comprises 10 interviews: 7 semi-structured interviews (appendices 12, 13 and 14) and 3

unstructured interviews with key SME stakeholders familiar with attempts to use learning technology to meet the needs of SME learners⁷⁸. This is in their capacity as either learners, SME owner-managers, HE or private sector trainer providers, learning technology developers, evaluators, or combinations of these categories (appendix 11). The interviewees are also representative of the three SME employee size categories of micro (1 - 9), small (10 - 50) and medium (50 - 249).

11.1 SME management development learning needs and learning barriers

As reported in chapter three, section 3.2, SME learners have management development needs across a broad spectrum of management topics, such as finance, marketing and sales, human resources, strategic planning and the use of information and communication technology. Feedback from the *SME Learning Survey* confirms these findings, but also emphasises the growing need for “softer” and less tangible management skills:

“The main needs of SME learners are concerned with managing people and situations, personal organisation and prioritisation, decision-making and communication techniques.”

(Participant H, *MDPW* Evaluator and Owner-Manager, Small SME: learning technology business and education solutions)

Participant K emphasised the need to manage processes, particularly as the business grows, and the need to establish the necessary communication between managers responsible for different processes, which may often be lacking in smaller organisations:

“A key aspect of successful management is about managing processes. Good processes are essential to a successful organisation and become more crucial as the business expands. Therefore it is very important that managers and employees learn the processes within their part of the business and have a very good understanding of their importance ... Smaller organisations often lack senior management dedicated to staff communication. As a result this is a very important issue that is often missed, so an understanding of manager/staff communication is very valuable learning.”

(Participant J, Finance Director, Medium SME: document storage solutions)

Participant A also indicated the likely importance of communication skills as the business grows, and emphasised the continuing need for updating computer skills in line with rapid technological advances:

⁷⁸ The bulk of the interviewees in the *SME learning survey* were drawn from participants in the *Management Development Programme for Women (MDPW)* 2001/02 at the University of Prince Edward Island, Canada: <http://www.upei.ca/mdc/courses/courses.html>. The author was employed as an external evaluator of the *MDPW* programme in 2002.

“Communications skills ... because there are so many more people you need more communication skills it seems. Different computer programmes, a lot of the programmes change, you almost need to take apart a computer and put it back together. It seems that technology is changing so much that you have to know almost anything. Mainly it is computer and communication skills.”

(Participant A, *MDPW* Graduate and Human Resources Assistant, Medium SME: seafood processing)

There may also be other more basic subjects outside of management to be addressed, depending on the needs of individual organisations:

“It ranges here from computer literacy to reading and writing. ... So literacy, reading writing, a little bit of maths, computer skills; these are a lot of the different things.

(Participant A, *MDPW* Graduate and Human Resources Assistant, Medium SME: seafood processing)

Feedback from managers from micro-businesses (1-9 employees) tended to concentrate more on the need for training in all aspects of management, particularly finance and marketing, echoing the findings of the *SME Survey* presented in chapter three, section 3.2:

“Part of the problem with small companies is they have to be on top of everything. You have to understand who you’re invoicing, who you’re expecting invoices from, who you owe money to - you’re having to stay on top of the cash flow.”

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro SME: healthcare training and evaluation)

“There are many needs ... When I think about my own learning needs they relate to everything about running a small business, I mean everything from marketing, accounting, staffing.”

(Participant D, *MDPW* Evaluator and Owner-Manager, Micro SME: learning technology training solutions)

Participant F expressed the common concerns of people who set up a business but lack business training. There is knowledge of how to carry out the specific work required in their particular field owing to previous experience, but lack knowledge about how to run a business:

“I need help with everything ... when I started working in this field I didn't plan on running my own business ... and so we got into this business, all of us, with the skills to do the consulting, but we really don't have the skills to run a small business is what I'm finding in my own experience. I would love to have access to training on even just such things as how do you manage your taxes, definitely marketing, I mean, we have no idea how to market what we are doing. As far as even just general business skills, like how do you run a business, as far as your finances, as far as your book-keeping type of thing. I mean we have a book-keeper that does it for us but you know I'm just praying that she's doing what she's supposed to be doing because I have no idea. I know how to do my job but I don't know how to run a business because I don't have a business background. So any kind of training in business would be excellent.”

(Participant F, *MDPW* Evaluator and Owner-Manager, Micro SME: training and evaluation)

Participant E also expressed similar feelings, distinguishing between specific needs related to the nature of the business and generic business needs, with the former considered to be less problematic than the latter owing to the establishment of existing networks and resources:

“But there are some generic things about small business ... everybody has to invoice, everybody has to prospect, everybody has to market, everybody has to develop their business, everybody has to pay bills. The content area, that’s another whole thing, developing content expertise, how do I keep up to date with what’s going on in the health system, what’s new knowledge about health etc. So I’m constantly having to read about my content area, but that’s specific, I can find lots of ways to link and get knowledge about what’s going on in health, that’s where I came from so I have networks in health. Where the struggle is that so much is changing in positioning yourself as a competitive business .. it’s more around a lot of those generic functions.”

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro SME: healthcare training and evaluation)

This need for generic business training is common in SMEs (particularly micro SMEs) as they tend to lack the more detailed job analysis found in larger organisations and are thus likely to have a less formalised view of what they may need to know:

“... there is a lack of internal expertise and knowledge within a small organisation.”

(Participant H, Owner-Manager, Small SME: learning technology business and education solutions)

This lack of expertise demand-side training barrier was reported in chapter three, section 3.4.1. Another demand-side training to be emphasised in the *SME Learning Survey* is the common complaint of lack of time for business development training. It is a case of “all hands to the pump” when the company is under pressure to deliver on a particular project, so there is little time for further business development or prospecting, particularly in the face of the additional day-to-day pressures of keeping the business ticking over (e.g. taxation issues):

“Yeah, almost everyone I know is saying that the biggest problem they have is that they are so immersed in projects they are doing right now that they don’t have the time to develop their business and they don’t have the time to prospect and the only way that you can really start to do that is I think to start to become aware of where are the network opportunities ... and even though it is very hard to do, like some of these things are over the supper hour, they have nibbles and whatever, that probably works well for people in small businesses because you can go at the end of a work day and connect ... but then if you’ve got family then its tough. But the business development piece and the prospecting piece are two very, very difficult parts ... whether you have technology or not they are really difficult when you get really immersed in projects ... you need to be always at a certain level of profit to have staff to do the project work and have you freed up to think about the prospecting and the business development piece .. but when you are very small you are doing it all unless you’ve got enough money in a

project that you can hire ... oh, the other part of this, on top of all this, then you have to stand all the taxation, worker's "comp", all the policies, things you have to pay every year, income tax, you know like it's a true learning curve to take it on."

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro SME: healthcare training and evaluation)

Networking opportunities may provide part of the answer to this dilemma, but pressure of work and family may dictate otherwise and manager B indicates that technological networking solutions will not necessarily help the situation either, again owing to the lack of time demand-side barrier.

Coupled with demand-side barriers to learning are a number of supply-side barriers, as outlined in chapter three, section 3.4.2. One particularly important supply-side barriers to re-emerge in the *SME Learning Survey* concerns the problem with the provision of generic training solutions for SMEs, as they tend to vary immensely, in size, business type, stage of growth and organisational structure. Respondents emphasised that the term SME is itself somewhat of a misnomer as it attempts to categorise a very diverse range of businesses. Thus understanding SME learner needs is somewhat problematic because even though companies face generic issues they tend to have very individual training issues, and generic examples, often based on larger organisations, may be difficult for them to contextualise to their particular situation:

"I think that the examples that you use have to be more real to them [SMEs]. So if you talk about the big strategic plans that we do here with tons and tons of consultation, it's not going to mean anything to them. That's one of the challenges that really matters to them. I think they learn well by some examples that could apply."

(Participant C, *MDPW* Trainer and Owner-Manager, Small SME: accountancy solutions)

Another important supply-side barrier reported in the *SME Learning Survey* relates to the mismatch between the formal learning offered on traditional training courses and the type of learning that commonly takes place in SMEs (Evans, 1999):

"SMEs are seen as the learning laggards, though much research in this area underestimates the real extent of learning within SMEs, tending only to recognise and measure formal learning. Many SMEs choose rather to engage in informal learning. Indeed this may often be more appropriate to the needs of the SME and its employees."

(Evans, 1999:6)

As reported in the *SME Survey* of chapter three, the *SME Learning Survey* confirms that SME learners have management development needs across a broad spectrum of management topics, such as finance, marketing and sales, human resources, strategic

planning, and the use of information and communication technology. However, the *SME Learning Survey* also indicates an area that did not emerge in the *SME Survey* of chapter three: that is the growing need for “softer” and less tangible management skills such as managing people, situations and processes, personal organisation and prioritisation, decision-making and communication. An additional insight to emerge from the *SME Learning Survey* is that micro SMEs appear to report the need for training in finance and marketing in particular, as they often are owned by people who lack a business background. Also the smallest businesses lack the detailed job specifications that tend to be found in larger organisations so they are likely to have unclear ideas of what they may need to know. This represents one demand-side barrier to training, and another, and perhaps the most important one, is lack of time owing to a scarcity of resources in smaller organisations. On the supply-side, two particularly important barriers to training are the need for bespoke learning solutions that are uneconomic for suppliers to provide. Coupled with this, and probably the most important supply-side barrier, is the mismatch between the formal learning solutions offered by suppliers and the type of learning that most commonly occurs in SMEs, that is informal learning. The next section thus explores the nature of SME learning in greater depth.

11.1 The nature of SME learning

Evans (1999:6) reports that SMEs ‘are driven by market imperatives’ and ‘have little time or resource to train, in the formal sense ...’. Despite the lack of formal learning that SMEs may undertake, this is not to be misinterpreted as a lack of learning *per se* in SMEs (Townley and McKenzie, 2000, Stockley, 1999, Evans, 1999, ECOTEC (in Evans, 1999)), as reported in chapter five, section 5.4.2, and expressed by participant G in the *SME Learning Survey*:

“We don’t want to fall into the trap of thinking that all learning is formal learning.”

(Participant G, MDPW Course Co-ordinator)

11.1.1 SMEs and informal learning

The most common type of learning found in SMEs tends to be informal in nature, which may help to account for the disappointment they express with regard to any

learning services they do partake of (Evans, 1999). Although the prevalence of informal learning in SMEs is starting to be recognised, Evans reports that there is little research in this area and he goes on to describe the nature of this informal learning, as reported in chapter three:

“Much learning derives out of the demands and challenges of work-solving problems, improving quality and/or productivity, or coping with change. Such learning derives from thinking, trying things out and talking to other people. Learning from other people is sometimes facilitated by organised learning support, which comes in many forms from teamwork, coaching or mentoring, through to seeking information from customers, suppliers or professional networks.

(Evans, 1996:6)

Analysis of the *SME Learning Survey* builds further on Evans’ (1999) description of the nature of SME learning. Firstly, the feedback confirmed that informal learning is likely to be the most common type of learning occurring in SMEs, for example:

“Most of the learning happens informally – this is where most of the learning goes on ... it is learning by fire.”

(Participant B, *MDPW* Graduate and Management Trainee, Medium SME: software development)

Participant E expressed a similar view, denoting informal learning as learning by doing (trial and error):

“Learning in SMEs is not formal, it is learning by doing, by trial and error.”

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro SME: healthcare training and evaluation)

Participant B expressed the excitement that may be associated with “learning by fire”, and the need for the individual taking the initiative:

“I see informal learning as you taking the initiative and you are deciding what you need to know ... I think that informal learning is where most of the learning happens. For myself, being moved up to the business development area, most of my training when I came into this area of the company happened informally ... Sometimes it’s learning by fire which makes it exciting. But I think that is where in a smaller company most of the learning happens.”

(Participant B, *MDPW* Graduate and Management Trainee, Medium SME: software development)

Participant E described informal learning as something that is a rapid problem-based process carried out on a “need to know” basis with small “chunks” of information/knowledge and compared this with learning in a larger organisation:

“You learn on the fly. I learn around problems, I don’t bother learning/reading about things I don’t need to know. So for instance, when I worked in government, I would have taken time to go on a course to learn how to use the Internet – I’d never think of doing that now, it would be as I need to use the Internet for something or as I need to use the software. Like Simple Accounting, did I really know much about Simple Accounting? But now that I have had problems with it I know that package inside out. It’s on a “need to know” basis ... and that’s how I

learn and people will say how do you know so much about all this technology? It is problem-based learning using short chunks of learning, plus follow-up. I learn very quickly with small pieces of information ... I'd say it's informal. I learn really quickly with small bits of information."

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro SME: healthcare training and evaluation)

Participant F applied the term "just-in-time" to describe informal learning:

"Informal learning is very important, it's really all I have access to. For example, I may ring Bernadette about something, I do it as I need it – it is just-in-time learning."

(Participant F, *MDPW* Evaluator and Owner-Manager, Micro SME: training and evaluation)

Thus informal learning appears to involve the individual taking the responsibility for their own learning, which is reactive, just-in-time problem-solving based on small "chunks" of information. As reported in the previous section, the problems to be solved are to some extent generic, but also specific to the conditions of the individual business and are likely to change rapidly, as indicated by participant E:

"I mean people in small businesses, depending how you describe small, have to know how to do everything. So you're learning need is the most pressing thing at the moment and so generic topics, but otherwise it's for me once again it's just trying to keep on top of the changes in technology or learning and with an eye for where the opportunities for us as a business are. So it would vary from one week to another what our needs are. Like this week we are trying to plan an e-business learning project for our local Chamber of Commerce so I've been doing a lot of looking into what's available on e-business, what are the various learning tools out there that I would like to integrate. But next week it could be onto something else. You could be reading legislation, if you were dealing with a staff issue and wanted to know what your rights are. That could be your immediate learning need. I find it's very fast-moving. It's not the kind of thing you plan years out and it could vary. I couldn't say one key one."

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro SME: healthcare learning technology training solutions)

The more careful approach to spending money on training in smaller companies may also be exacerbated by the attitude of the managers and owners towards training, as reported in chapter five. This is in contrast to larger companies, where there tends to be a budget allocated to training, even if in some cases this may not be used effectively:

"They [SMEs] typically have less time, less budget and less encouragement from bosses to train/develop. In larger organisations many allocate a certain percentage of say salary budget - but then quite a lot waste it on irrelevant training - training for the sake of training."

(Participant I, Former *EuroPILOT* project manager)

Support for informal learning

The *SME Learning Survey* revealed that this is not to say that other types of learning do not occur in some SMEs. However, the more structured formal variety is likely to apply to medium-sized SMEs with more resources at their disposal, and informal learning is likely to still have a large part to play:

“I think they [larger companies] go more outside for the education, they send them on courses. Yes they do offer that here but ... for example, they had me working on our web site. I didn't know how to do it so they had the current employee that was doing it train me. To me that would be informal learning. It taught me what I needed to know to get started and then I learnt on my own after that. So if I wanted to learn how to do something I had the resources within the company to pull from. I think that's how most of it happens but in a big company I think they tend to go out more.”

(Participant B, *MDPW* Graduate and Management Trainee, Medium SME: software development)

Participant B expanded further on the types of informal support for informal learning that exist in SMEs:

“You learn from working with other people that have already been in that area, listening to them, watching them, almost shadowing.”

(Participant B, *MDPW* Graduate and Management Trainee, Medium SME: software development)

Participant B also described how mentoring can be employed for education and communication purposes in-house:

“We also have in-house training. There are a number of employees that are already in management level positions. We have mentoring so you have those managers or people they see as good mentors within the company and then you have a number of people under them. It is not only a good way to educate, it is also good communication wise if there are any issues within the company that it all gets channelled and there is less reaction time.”

(Participant B, *MDPW* Graduate and Management Trainee, Medium SME: software development)

Additionally, participant B also indicated a number of other training programmes offered in her particular SME, which appears to be particularly keen on employee education:

“We have computer based training that they offered, they allow correspondence training, we have had one employee that took a leave of absence to go back to school to take an e-commerce course. They are pretty open education wise in wanting to allow the employee to grow and learn.”

(Participant B, *MDPW* Graduate and Management Trainee, Medium SME: software development)

However, this is unlikely to be the case in most SMEs which are dominated by micro and small enterprise categories, and even in this medium-sized SME the interviewee made the distinction between the tendency to rely on informal learning rather than the

formal learning approaches adopted by larger companies. Thus informal learning appears to be the most commonly used method of learning across the three size categories of SME (micro, small and medium) and this is likely to contrast with larger companies where more formal learning appears to be the norm and the motivations for learning may differ; in larger companies, the motivation for training may stem from it being viewed as a “perk” of the job, whereas in smaller companies it is likely to relate more to business survival:

“I see big company people being very used to much more traditional learning. I think it's the nature of the work environment they are in that they are very accustomed to being a lot of time to go and take a course and I think that in the big companies still see that course as a perk and a trip away and their motivation for learning, I'm not sure, depending, it may be the same as mine, I don't think it is it's different. Whereas our motivation for learning is really our survival as a business and we are much more flexible in how we look at learning opportunities and look much more carefully at how we spend our money.”

(Participant D, *MDPW* Evaluator and Owner-Manager, Micro SME: learning technology training solutions)

Participant C indicated informal learning through a network of other business owners and research on the Internet. She also employs formal learning on short courses and encourages staff training and mentoring:

“I learn through other business owners who are in the same situation (self-employed/self-educated, specialising in different areas) and research on the Internet. It is informal learning. I also attend short courses/programmes and I encourage training in my staff. I also use mentoring in HR and for managerial staff.”

(Participant C, *MDPW* Trainer and Graduate)

Participant E illustrated how the process of learning through a network of other business owners can occur, again using short “chunks” of information for rapid problem-solving:

“I'll pick up the phone and say, ‘Bernadette, do you know anything about this, I'm going crazy with this right now,’ and she'll say, ‘Oh yeah, I've just talked to so and so and I think that would be a good contact for you.’ ‘OK, thanks very much, I'll have coffee with you next week once the fires are out.’ You know? That kind of thing. There are a number of us that went into business around the same time and that's who I pick up the phone, usually Bernadette because she's a little bit ahead of me, but she does the same for me, we've both going through similar phases and you can learn from each other and Nishka's business is about a year behind, and if you talk to Nishka I'm sure she'll tell you that they have been so busy trying to keep bread and butter on the table that they have done no work to build up new clients.”

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro business: healthcare training and evaluation)

Participant D indicated that her main point of learning is the Internet, which she uses to find resources and to make contact with “virtual colleagues.” This degree of

comfort with using the Internet is likely in this instance to relate to the nature of the business (learning technology healthcare solutions), but it does indicate the potential offered by technology for useful virtual communication:

“My number one point of contact is the Internet. Almost any learning need I have I can either get the actual information I want that wouldn't be available locally or I could find through the Internet where to locate something I want. For example I might through my Internet search find a particular book that I think is ideal to help me solve my problem, I might find a particular course I could take that meets my need. For all of those needs I go immediately to the Internet. Not just on the e-business one but one of the best places I find a lot of the e-news letters that come from the American Society of Training & Development for example ... any time I have a question, I go immediately to the Internet ... In a way those electronic means are very much interacting with other colleagues. I interact constantly with other colleagues. They aren't so much in-house here but some of our key partners that we work with, quite often if I have a learning need or a problem, I will consult my colleague. This happened to me last week, I had a big problem so I consulted my trusted partners. Quite often we plan and strategise together and they are virtual colleagues.”

(Participant D, *MDPW* Evaluator and Owner-Manager, Micro SME: learning technology training solutions)

Feedback from the *SME learning survey* thus indicates that informal learning tends to be the norm in SMEs, particularly the smallest organisations, and training provision by outside suppliers tends to be more formal in nature. The nature of informal learning tends to place much of the responsibility for learning with the individual, but various formal and informal support mechanisms may be available, such as teamwork, coaching, mentoring, job shadowing, networking, and the Internet. However, this may be somewhat limited, particularly in the smallest organisations, and is likely to vary according to the size, nature and maturity of the business. While SME learners may enjoy formal training on occasion, their needs are likely to require that training providers achieve a compromise between formal and informal training solutions. In the light of these findings, the next section examines the potential for the use of learning technology in SME management development training solutions.

11.2 Learning technology and SME learning

The supposed benefits surrounding learning technology solutions for the SME sector focus around its potential for increased flexibility, convenience, access to just-in-time “chunks” of informal learning, formal distance learning courses, the management of organisational learning and savings on time and cost. Following a consideration of

these potential benefits, this section then examines the development of appropriate content through detailed needs analysis, and the question of formal and informal learning support. Finally, the various issues surrounding the need to socialise learning technology in order to support informal learning effectively are considered.

11.2.1 Potential Benefits

Feedback from respondents in the *SME learning survey* reveals that computer-based learning may offer potential for matching the type of learning that commonly occurs in SMEs, i.e. informal learning:

“Computer-based tools make sense. They match the needs of informal learners very well.”

(Participant D, *MDPW* Evaluator and Owner-Manager director, Micro SME: learning technology training solutions)

Participant B expanded on the view of participant D, indicating that formal learning is more institutionalised with an instructor teaching the students what he/she thinks the students need to know. In contrast, with informal learning the student takes the initiative to learn, be this through the medium of a book, another individual or a computer. She believes that this can offer the advantage of learner control rather than instructor control in terms of what is learnt. In the case of informal learning through the medium of a computer, she sees support provision via built-in computer tutorials or human interaction:

“I see computer-based as more informal. I see formal as a licensed institution that you go out to and you have an instructor that teaches you what they think you need to know. Informal I see as something you are taking the initiative to learn whether it be through the computer, through a book, another individual and you are deciding what you need to know. So if it is an application, you are turning on the computer and there is usually a tutorial with almost every application. You are deciding whether you need to go through the tutorial or whether you are just going to explore the application yourself and try to learn how to use it. You would have the help files or other people to draw on to help you learn in that experience. I see computer based as more informal than formal.”

(Participant B, *MDPW* Graduate and Management Trainee, Medium SME: software development)

The survey respondents also see computer-based learning as having the potential for offering flexibility and convenience (provided access to computing facilities is not an issue). For example, participant A reflected on how the use of learning technology in a formal management development programme saved on travelling time and also provided the added benefit of experience with the use of learning technology:

“Yes I think it [the learning technology] was great. I was happy with it and I think with technology today you need to know and it helps you to work with it more and it did save me from travelling because I live in a remote area ... it is 2 hours away from where I went to my class. It really helped a lot.”

(Participant A, *MDPW* Graduate and Human Resources Assistant, Medium SME: seafood processing)

Participant B also expressed the convenience benefit (once again provided access is not an issue) which is particularly useful to those with other commitments such as work or family:

“I look at it as a convenience with the computer-based training, as long as you have a computer you can learn it right there, pick your time. I have a computer at home, so it is something I could do at home whether it is in the evenings or the weekends, there would be no travel. That was one of the things I liked about the management development course, that a lot of it was based on my own time, my schedule and I see that as very important especially when everything is fast paced, everybody has a life and has other commitments. So I thought it an ideal way to learn because it suited me. I wasn't going into something that was made for someone else and I had to do my schedule around it. It was there and I could work it into my own schedule. So I see it as becoming more and more of a necessity for people who have children or are married or have a full-time job commitment, that sort of thing because it is a very convenient way of learning.”

(Participant B, *MDPW* Graduate and Management Trainee, Medium SME: software development)

Participant H pointed to the scope offered by learning technology for the effective management of learning by the most critical resource of smaller organisations, its people (although the smallest organisations may be restricted by issues of access to technology). He also sees the accreditation of distance learning management development programmes providing another benefit to SMEs:

“There are huge benefits in terms of knowledge and easy and quick access to IT. Very small organisations may have technology constraints. My belief is that small businesses can control the learning and development of their people exceptionally effectively through e-learning. People are much more critical to SMEs. Organisations are therefore able to provide learning, and provide managers with a means of managing that learning, so necessary for the retention of people. Distance learning accredited management development programmes should be a huge benefit.”

(Participant H, Owner-Manager, Small SME: learning technology business and education solutions)

In addition, there is also the potential for organisational savings with regard to training costs and loss of work time:

“When you think about the number of employees that we have sent out for training, you look at the time commitment away from work if they are outside the office (if it is not something they can do in the evening and most courses would be offered through the day). If you look at someone who is going off on training, you look at the travel expenses involved. So I think they are saving themselves both time and money.”

(Participant B, *MDPW* Graduate and Management Trainee, Medium SME: software development)

Thus there are a number of potential benefits associated with the use of computer-based learning technology that are recognised by SME learners, but realising the full potential of these benefits is likely to raise a number of interesting challenges for training providers. The first of these requires a closer look at the need to develop appropriate content for SME learners.

11.2.2 Development of appropriate content

The development of appropriate content through thorough needs analysis is a considerable challenge as evidenced by the *EuroPILOT* case study of chapters eight, nine and ten. Generally, there may be a lack of appropriate content for SME learners:

“Our course provides a generic management overview, but its more corporate than it is small business – to further appeal we would have to make it more attractive to small businesses. Its not just about flexibility and cost but also about content.”

(Participant G, *MDPW* Course Co-ordinator)

There is also the issue of building on the desire for problem-based knowledge evident in SMEs by developing just-in-time “knowledge nuggets”. This might then be used as a platform from which to stimulate demand for deeper learning opportunities:

“SMEs and their employees often sought knowledge in order to problem solve and to develop. Supporting this desire for knowledge could in turn lead to a desire to learn. Yet often the tools do not exist to enable learners to identify and access the knowledge and learning that they need in the just-in-time fashion in which it is demanded.”

(Evans, 1999)

The development of appropriate content is likely to require a considerable market research effort and the authoring of small learning modules containing excellent content. The small business market is a difficult market to sell to however, not least because of the diverse nature of its individual constituents, so even with market research and the development of small business modules there are no guarantees of success:

“If I was thinking about getting into that business myself and I would think long and hard because small businesses don't have a lot of money and time, that is the problem. I would look at common areas which cause a great deal of challenge for small businesses and marketing might be one, certainly financial management is one, but it is difficult to make it useful enough to meet your need. So if you could come up with something that really suits your need, maybe for example, what you would do around financial management is that you might identify a series of issues that small businesses deal with and you create some small

learning modules around it. You would really have to research it to see what there is market for. Even though there is a need I see a challenge. I think that small business is a hard market to sell to. Maybe the answer is do generic titles, do it with a licensing fee so it is a very reasonable price but it has to be great content or you are not going to waste your time.”

(Participant D, *MDPW* Evaluator and Owner-manager, Micro business: learning technology training solutions)

In addition, owing to the diverse nature of SMEs, market research effort is likely to require a segmenting of the SME audience (for example by sector, supply chain, size etc.) and a rethinking of the way courses are structured to suit different target groups, all based on the foundation of mutual trust and ownership by the SME community:

“We found that the scope and variety of people who signed up for our course was massive – so there are problems with advertising and the curriculum, so we need to think about being more specific in future. Maybe we need to offer core services and then some speciality areas. It is important to involve the target groups at the front end and carry out needs assessment. You need an advisory committee, you need to involve the community and you mustn’t let these groups become politicised or this leads to scepticism and a lack of trust from the others.”

(Participant G: *MDPW* Course Co-ordinator)

Part of the challenge of providing appropriate content relates to the need to provide generic solutions, for economic reasons, to SMEs with very individual requirements despite their overall generic training needs. Providing adequate support to help SMEs make the links between generic solutions and their individual business needs thus seems a more likely solution:

“We need to think about the issues for the person who has the generic training available – what are the issues for the user that is stopping them from making the link between the generic material and their business? You need a generic resource and a coach or mentor to offer dialogue. On a training programme it is motivating to belong to a group and to test your mettle and to have ownership – we need to transfer this to the online environment.”

(Participant G: *MDPW* Course Co-ordinator)

However, participant G indicated that the cost of providing adequate levels of support also comes at a price and this would have to be built into the overall equation.

Thus there is not only the issue of developing appropriate content, but also the issue of how to bring a social aspect to the use of learning technology in order to assist with contextualising that content. As the previous section indicated, SME learners tend to operate through various networks, coaches and mentors, and this is something that training providers are likely to need to build into their use of learning technology if it is to prove effective. Before considering this further, it is first necessary to consider supporting the use of learning technology in formal and informal contexts.

11.2.3 Formal vs. informal learning support

With regard to the potential benefits of learning technology for SMEs, an important distinction is first to be made between the use of learning technology as a part of formal SME training programmes and the use of learning technology to support informal SME learning in the workplace. As reported in the previous section, the latter type of learning tends to be the norm in SMEs, and occurs outside of formal courses, primarily at work, but also perhaps when travelling and/or in the home.

The feedback presented in the section above (potential benefits) comes largely from SME learners, trainers and evaluators engaged in a formal programme (*MDPW*), which incorporated learning technology. It did this relatively successfully and thus the potential benefits of learning technology may be clear to the learners involved in the programme because: their learning needs had been assessed prior to then undertaking the programme; the students and tutors on the whole were well prepared; and the learning technology was carefully integrated into the overall teaching-learning context (i.e. adequate attention was paid to integrating the *context of learning development* with the *context of learning use*).

Even in the case of the *EuroPILOT* programme, which experienced problems with establishing a sound *context of learning use* and integrating this with the *context of learning development* as reported in chapters eight to ten, feedback from the learners did at least recognise the potential benefits of learning technology. However, they were once again taking part in a formal programme, albeit one that attempted to encourage informal (e.g. access to flexible and open learning resources) as well as formal learning (e.g. workshops and the NVQ option). Thus once adequate attention is paid to the *context of learning use*, the incorporation of learning technology into blended learning formal management development programmes such as *EuroPILOT* and the *MDPW* programme is likely to become less problematic. An arguably greater challenge concerns the question of how to support informal learning *in situ*, away from more formal training programmes. This potential for reaching a larger SME audience through addressing their informal learning needs is likely to require a rethinking of the way in which learning technology is employed:

“If you were trying to get them to take a course online ... that would take time from the work ... but if you work with the way businesses learn and created modules based on the usual problems in the workplace that might prove to be more successful.”

(Participant D, *MDPW* Evaluator and Owner-Manager, Micro SME: learning technology training solutions)

However, this may prove to be a difficult undertaking for many training providers, particularly higher education institutions grounded in more formal education programmes and lacking the necessary tools to assist self-diagnosis of training needs:

“Many higher and further education institutions seeking to serve the needs of SMEs recognise that they do not always understand the learning needs of SMEs, neither do they currently have the range of tools needed to aid self-diagnosis. Further, the provision of products and services is not structured in ways which best meet the needs of SMEs. SMEs often need just-in-time knowledge and bite sized chunks of learning. Individual diagnosis and bespoke product design and delivery, for many colleges and training providers are simply not economic.”

(Evans, 1999)

Higher education institutions also need to consider the question of running courses for credit versus running courses for just-in-time problem-based learning, which may be closer to the needs of SME managers:

“There is also the issue of people learning for credit versus people learning to manage the workspace ... if people want credit for a course e.g. to advance in their career, then that might be a different set of learning altogether... Whereas for me I don't care about credit at the moment, I just want to have a profitable business, satisfy my customers and all that kind of stuff.”

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro business: healthcare training and evaluation)

Thus it is likely for learning technology developers and training providers to be clear initially about which type(s) or combinations of learning are being supported through the use of learning technology. This is not to argue that one type is better than the other, just that reaching a larger SME audience may require a move towards engaging them in informal learning opportunities which are focused on real organisational development issues:

“Learning going on all the time [in SMEs] as everyone is talking to each other. If you can get e-learning in place that forces them to talk to each other in a focused way based on learning for say 10 minutes a month, then you will have achieved something significant - otherwise it won't even occur once a year. It needs to not take up very much time, but build on the informal learning that is going on all the time. The e-learning should be run by the people responsible for staff development - it should be pushed out from there and should be very focused on organisational development needs.”

(Participant H, Owner-Manager, Small SME: learning technology business and education solutions)

This may then be used as an incentive for SMEs to increase their uptake of more formal learning opportunities.

Supporting learning effectively (and in particular informal learning) then offers another challenge, that of how to socialise learning technology, i.e. that is how to make up for the lack of social interaction inherent to many computer-based training applications as discussed throughout this thesis.

Socialisation of learning technology

While learning technology can offer much needed flexibility and convenience to the SME learner, without peer and mentor dialogue it is likely to be of limited use, particularly since SMEs tend to suffer from an internal lack of expertise:

“SMEs suffer from less flexibility in time and workload. They must therefore be disciplined in how and when they learn. Loss from the business for periods on time is more critical. New technology is an answer to the flexibility issue. However they still need the interaction and feedback and experience gained from group involvement as there is a lack of internal expertise and knowledge within a small organisation.”

(Participant H, Owner-Manager, Small SME: learning technology business and education solutions)

One respondent in the *SME Learning Survey* expressed the need for blended learning solutions because of the rich interactions provided through actually meeting other people:

“I enjoyed that fact that I could just go there [to the university] – I wouldn’t just want to do it through the website, I like to have both. I really enjoyed the two of them because you learn a lot on the computer and how to interact on the computer but you got out and met people one on one in the classroom.”

(Participant A, MDPW Graduate and Human Resources Assistant, Medium SME: seafood processing)

Thus effective use of learning technology solutions, particularly those that are aimed at supporting informal learning in the workplace, are likely to require adequate attention to the need to socialise the technology, i.e. to build in opportunities for dialogue, both physical and virtual. Socialisation of learning technology is likely, in the case of the learning needs of SMEs, to require access to “real people”, such as peers, mentors, tutors/coaches and consultants and other learners, mirroring the way informal learning is supported in SMEs. Participant D expressed the importance of practical, rather than academic, tools for learning, and the idea of taking things to the next level through more structured opportunities for consultation than you might find on a CD-ROM, no matter how well presented it is:

“It wouldn't be unlikely that you might find a great CD-ROM on the marketing thing for example that has a great formula that you want to implement, the same as a book. I have got a great book that I really think is a great approach and I like that, so if that was available on-line I would purchase that because I think it would work for us. It is really good advice, it is practical, it's not too academic, it's backed up by some good results that other people have implemented and it's worked. I would go on-line and look at that. Although in that case it is one particular approach I have in mind I think. I think it would be great if you could combine these tools with some mentoring, some consultation, some guidance because there are certain things you can do yourself but there are other things which are more complex. But you do need to have the discussion with people. I suppose the Internet is great but if I was taking it to the next level I would love more structured opportunities for consultation.”

(Participant D, *MDPW* Evaluator and Owner-Manager, Micro SME: learning technology training solutions)

Manager A expressed similar ideas regarding access to a “hands-on” consultant, and provided a concrete example of ideas for a mentoring service for graduates of a small business management development programme run by a university. This would allow learners to post issues to a bulletin board, for example, without having to take much time out from immediate work:

“Access to a consultant would be useful, someone who says, ‘Lets get started on something, lets take a look at it, why don't you try that out and I'll be back next week to see how you're doing' .. or they could communicate with you on the Internet or however they want to connect with people. But the other part I think that could be useful, we're talking about this mentoring service for the graduates of the Management Development Programme for Women ... having a mentoring service for small businesses where they could go online, chat with other people about, ‘I'm having trouble with such and such, I've just got Software Accounting 9, does anyone else have trouble with it?’ And so without leaving my office or having to make a phone call and it doesn't have to be in real time, I can slow it into the mix of discussion, and have somebody respond back and say, ‘Oh, I had that problem or have you tried such and such.’”

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro SME: healthcare training and evaluation)

Participant E also identified the issue of trust as a major consideration when trying to engage SMEs in learning through such informal support networks, whether in a virtual environment or face-to-face:

“It wouldn’t have to be a physical presence, it could be by phone or on the Internet, but then in some instances you might need more contact ... here’s something I’m going to do with Simply Accounting which won’t require that ... I’m waiting for Jennifer, you know the student I had last year, to come back and she and I have started using NetMeeting so I will go, because I trust her to, into NetMeeting, and she can take control of my screen. I can open up my computer desktop to her, she can see it on her computer, and I can get her to look through it to see if there are any errors in the way the thing is set up before I go too ballistic. But that’s another possibility, if you had someone who had established a relationship with you and that you trusted, if you were running into issues around your computer you could use a technology like NetMeeting to allow somebody to enter your desktop and help you out that way.”

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro SME: healthcare training and evaluation)

Participant E went on to express feelings of connection to the outside world through the Internet in terms of the subject matter of her work, but isolation with regard to how to run a business. She suggested the need for networking functions added to existing business development websites, for example:

“I feel very connected to the world through the Internet but I don’t have anyone I can talk to generically, you know troubleshoot around ... we’re all out there doing business with the customers, we’re not talking to each other. I don’t think there’s anything on the business side. If there is I just don’t know about it. When I go looking for business plans there are all kinds of business development centres and that may be the place where someone who had this interest may want to sell their idea and actually get employment or get funding to set it up there are a lot of centres and they do have websites but they mostly draw you to real places or the websites themselves have some kind of interactive, like business plan development software or something like that which is also very helpful but it doesn’t give you the networking. If you think of the number of home businesses, how do people connect with each other around the whole area of the tools you need to run a business?”

(Participant E, *MDPW* Evaluator and Owner-Manager, Micro SME: healthcare training and evaluation)

Participant G also pointed to the important issues of isolation and trust when developing informal learning support networks. She also indicated that different mediums might be required to get messages across to different types of learners:

“Adult learning means that you learn what you need to learn at the time and language/conversation is the vehicle according to some learning theorists. You need a sounding board/network – this is what I did or this is what I saw in another course. So you need to transfer this to small business owners. In any kind of gathering they have, they are learning informally. Isolation for small business owners is one of the key challenges; they are tied to the store and might not have the trust to admit they are having a problem. But you also have to think about what’s the learner’s first or preferred mode of learning? It may be conversation, but in a rapidly growing technology company with young owners it maybe the computer, you may even develop a rap tune that gets the message across.”

(Participant G, *MDPW* Course Co-ordinator)

Participant H raised the issues of the need for a learning space in SMEs, lack of support for learning and the need to assess each organisation's developmental needs. He attributed part of the problems with university projects aimed at the SME market to these issues and indicated the need for the setting up of learning processes that almost force learners to use them:

“One university retail project I was involved in was a waste of time - the university was more interested in pushing the material out rather than seeing it used effectively. Millions of pounds are wasted on European projects. Part of the reason for this is that there is no designated learning space in the company and another is that the learning is not supported. So it doesn't matter how well produced the material is and how wonderful the technology is if learner doesn't use it. You need to look at each organisation's developmental needs and match the e-learning to these needs - it is more of a process, and you have to set up systems that almost force people to use them. I believe that technology can provide the necessary dialogue if set up correctly.”

(Participant H, Owner-Manager, Small SME: learning technology business and education solutions)

Participant J also warned that reaching SME learners with technology-based solutions is a difficult proposition, even for organisations with experience in this sector:

“The SME market is the most difficult nut to crack – you may as well forget it.”

(Participant H, Owner-Manager, Small SME: learning technology business and education solutions)

11.3 Discussion

As reported in chapter three, SME learners have management development needs across a broad spectrum of management topics, such as finance, marketing and sales, human resources, strategic planning, and the use of information and communication technology. There is also a growing need for “softer” and less tangible management skills such as managing people, situations and processes, personal organisation and prioritisation, decision-making and communication. Micro SMEs in particular appear to report the need for training in finance and marketing in particular, as they are often run by people who lack a business background. The smaller businesses in particular lack the detailed job specifications that tend to be found in larger organisations and are thus likely to have unclear ideas of what they need to know. This represents one demand-side barrier to training, and another very important one is lack of time owing to a scarcity of resources in smaller organisations. On the supply-side, one important barrier to training is the need for bespoke learning solutions, which are uneconomic for suppliers to provide. Coupled with this is the mismatch between the formal learning solutions offered by suppliers and the type of learning that most commonly occurs in SMEs, that is informal learning.

The nature of informal learning tends to place much of the responsibility for learning with the individual, but various support mechanisms may be available, such as teamwork, coaching, mentoring, job shadowing, networking, and the Internet. However, this may be somewhat limited, particularly in the smallest organisations, and is likely to vary according to the size, nature and maturity of the business. While SME learners may enjoy formal training on occasion, their needs are likely to require that a compromise be reached between formal and informal training solutions. Indeed the two are likely to be complementary as informal knowledge-based learning “chunks” may act as an incentive for SMEs to undertake more formal training solutions.

Thus the potential benefits of learning technology are unlikely to be realised unless learning technology developers and training providers take into account three main important factors: the requirement for appropriate content development through thorough needs analysis; the difference between formal and informal learning support; and issues surrounding the socialisation of learning technology. For the support of informal learning in SMEs, issues concerning the socialisation of learning technology are likely to centre around providing the types of support that SME learners normally draw on when learning informally, such as networks of others business owners, mentors, consultants and coaches, and providing some kind of learning space, be that virtual, physical or a combination of the two. These themes are explored in greater depth in the next chapter, which presents the overall analysis and findings of this thesis.

Chapter twelve

Analysis and findings

“During the evaluation work we have been conducting this year we have encountered scant recognition of the situated nature of learning, nor of its complexity. Much of the literature on online learning has no real grounding in theories of learning. Where reference is made to theories of learning this is often done in a superficial way. There is little evidence of familiarity with the research literature on learning, which makes it clear that the single most important factor shaping learning outcomes is the way in which students approach a learning task, and that the approach is conditioned by a complex of factors that are largely context specific. What this research tells us is that what works here may not work there, that all the conditions in a learning situation need to be understood and aligned if learning is to be effective ... This means that many of the assumptions underlying the development of online pedagogy are up for question.”

Jackson and Anagnostopoulpu (2001:54)

Chapter ten reviewed the changes made to the *EuroPILOT* programme in the light of feedback from the SME learners. These changes aimed at strengthening and integrating the *context of learning development* and *context of learning use* components of the *LTPF*. They seek to tackle both “old” learning barriers inherent to the SME learning environment, for example lack of time and lack of content relevance, and “new” technology-specific barriers such as lack of learner direction and lack of an “e-culture”. In this way there may be a greater chance that the potential of new learning technologies in terms of, for example, flexibility, just-in-time training and allowing the learners to proceed at their own pace, will start to be realised. However, strengthening and integrating the *context of learning development* and the *context of learning use* are much easier to achieve on paper than in practice, particularly for short-term projects such as *EuroPILOT*. Chapter ten also concluded that there has been a tendency on the part of the *EuroPILOT* facilitators to view technology itself as an innovation, rather than the overall process of developing and implementing a learning framework which matches the needs of SME learners and integrates new learning technology and traditional learning events effectively to establish a sound *context of learning use*. In other words, the facilitators failed, at least initially, to see technology implementation as a socio-technical practice. They also failed to appreciate the nature of learning in SMEs, which tends to be largely informal and is therefore very different from the more formal nature of learning in HE.

This led to further empirical work in chapter 11 to discover more about the nature of SME learning and to explore what this means for learning technology solutions aimed at the SME sector. It was found that the potential benefits of learning technology are unlikely to be realised unless learning technology developers and training providers take into account three main important factors: the requirement for appropriate content development through thorough needs analysis; the difference between formal and informal learning support; and issues surrounding the socialisation of learning technology. For the support of informal learning in SMEs, issues concerning the socialisation of learning technology are likely to centre around providing the types of support that SME learners normally draw on when learning informally, such as networks of others business owners, mentors, consultants and coaches, and providing some kind of learning space, be that virtual, physical or a combination of the two.

The aims of this chapter are to: present an overall analysis of the empirical work of chapters seven (*Virtual Visit* analysis), eight, nine and ten (*EuroPILOT* analysis) and eleven (*SME Learning Survey*); and to relate this to the literature review and primary research (*SME Survey*) explored in chapters three, four, five and six, and to the three main research questions this thesis addresses:

1. What factors shape learning technology implementation experiments in HE?
2. What are the differences between HE and SME learning?
3. In view of these differences, how can expertise gained by HEIs in the implementation of learning technology be adapted for use in SMEs?

In this way, the overall analysis and findings of this thesis can be determined. The chapter first uses the *LTPF* to consider the findings of the two main case studies examined in this thesis: *Virtual Visit* (chapter seven) and the *EuroPILOT* programme (chapters eight, nine and ten). This includes a comparison of the findings from the *LTPF framework* analysis in the HE and SME contexts. This leads into a consideration of the differences between HE and SME learning, which allows for a further development of the critique of Laurillard's *conversational framework* (chapter six) in terms of its potential for application to the SME learning context. The chapter closes with a discussion of how HE knowledge of learning technology implementation can be adapted for use in SME learning contexts, through a consideration of the implications for learning technology implementers and policy-makers attempting to initiate, develop and deliver suitable learning materials for the SME sector.

12.1 Case study findings: The social shaping of learning technology implementation in Higher Education

“In general, we see a neglect of the educational goals *per se* and accordingly a lack of attention to the potentially positive synergy between multimedia and innovative teaching. This lacuna can be traced down to the policies that intend to stimulate educational multimedia use, to the design of multimedia projects and to their results. A naïve technological determinist view is clear – if the technical infrastructure is in place, the rest will follow ...”

(Van Lieshout *et al.*, 2001: 316)

The application of Pacey's (1983) *technology-practice* framework (chapter five) is a useful way to provide a structured general overview of the main and often reported issues facing learning technology implementers in the higher education sector. There are a range of important issues in the technical, cultural and organisational categories

that make up Pacey's framework, but it is found that achieving a working integration (*technology-practice*) between these three areas is crucial to the effective adoption and diffusion of learning technologies. At a general level it is found that implementers should try to obtain a working integration between cultural, organisational and technical factors in order to smooth the implementation process and avoid a naïve technological determinist view (Williams 1997, Van Lieshout *et al.* 2001). It is also found that issues in learning technology implementation bear many similarities to the main general technology implementation issues, such as the need to address cultural change, changes in organisation and work practices, strong leadership for effective technology implementation, and the importance of involving the user in the implementation process (in this case primarily the teacher and the learner).

Organisational barriers revolve around the role of the lecturer/tutor, the role of the learner, the role of evaluation, and the role of technology. Learner-centred approaches to teaching, including the introduction of learning technologies, require a rethink of the role of both the learner and the lecturer/tutor, including reward structures for retraining in the case of the latter. Changes are also required in evaluation design, with a move away from input-output approaches towards approaches that account for the role of technology within the broader teaching-learning process. This thesis suggests and examines the practical application of one such approach, the *LTPF*.

The changes in the roles of lecturers/tutors and learners is particularly important in light of the disorientation faced by both these user groups as a result of changing organisational culture and work practices (Campbell-Gibson, 2000). There is a need for the importance of Fleck's (1989) concept of *innofusion* to be understood: for example, teachers and students have to adapt to their new roles and be allowed the opportunity, time, rewards and training to allow them to adapt the technology to meet their needs in their different and particular contexts of use. Peters (2000:11) recommendation for 'a bold wave of modernization such as never before' in the higher education sector may well be necessary in the current climate of educational change, but the adoption and diffusion of learning technology in higher education is likely to develop more slowly than imagined by some educational visionaries owing to the complex nature of technology implementation that is common across all sectors, be it industry or education. With this background in mind, the findings from

the two case studies examined in this thesis shed some further light on the process of adoption and diffusion of learning technology implementation experiments by HEIs. The first case study examined, *Virtual Visit*, served to highlight issues in implementing management learning technology for HE learners. The second and more in-depth case study, *EuroPILOT*, highlighted the issues facing HEIs attempting to develop programmes that incorporate learning technology for SME learners. The choice of the case studies allowed a comparison of issues facing learning technology implementers who are attempting to reach learners outwith the HE domain, in this instance SME learners, as well as an indication of the main differences between HE and SME learning.

In both the *Virtual Visit* and *EuroPILOT* case studies, the application of the *LTPF* (figure 33), derived in this thesis as an analytical tool for examining learning technology in use, allowed the researcher to ‘look further than the pupil-computer interface’ as recommended by Crook (1994:9) to examine the broad meaning of learning technology implementation:

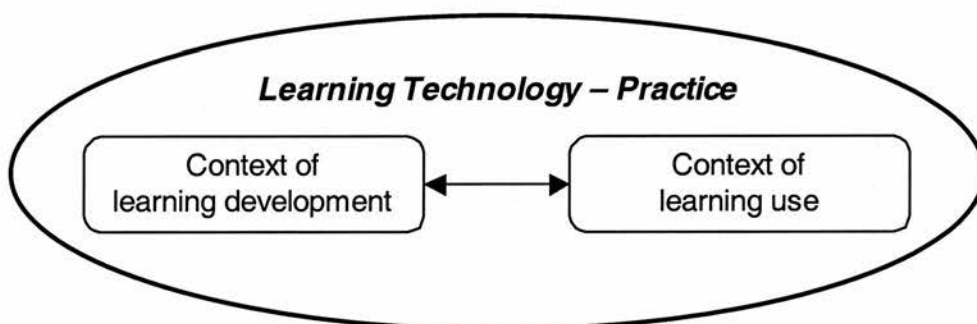


Figure 33: The *Learning Technology Practice Framework (LTPF)*

To recapitulate, the *context of learning development* is the socio-technical milieu in which learning technology is developed, and includes issues such as: choice and design of media, defining learning objectives, identifying student’ needs, and designing the learning activities. The *context of learning use* is the socio-technical milieu in which learning technology is used, and includes issues related to learning management, such as facilitator and learner preparation, changes in the role of facilitators and learners, integration with the course, pedagogic support, and logistics. Overarching issues in the framework concern the role of learning technology and the

essential need for dialogue in the teaching-learning process. Dialogue in teaching-learning is related to *practice*, the core of technology development and the centre of Pacey's (1983) *technology-practice* framework. Thus in figure 33 the central and most important issue is denoted as *learning technology-practice*, i.e. the working integration between the *context of learning development* and the *context of learning use* that is required for successful implementation to occur.

A consideration of the *context of learning development* and *context of learning use* elements of the *LTPF* and how they are integrated raises several issues related to the effective implementation of computer-based management learning technology for both HE and SME learners.

12.1.1 Context of learning development

A consideration of the choice of media element of the *context of learning development* in the *LTPF* allows insight into gaps in dialogue likely to arise in computer-based learning technology implementation compared to traditional teaching-learning situations. This follows Laurillard's (1993, 2001) *conversational framework* and Crook's (1994) account of the role of computers. Applying the *conversational framework* at a general level to *Virtual Visit* and the *EuroPILOT* learning materials indicated that they are something of a hybrid between multimedia databases and multimedia tutorial packages, and as such both will suffer from gaps in tutorial dialogue compared to traditional face-to-face teaching-learning events. Applying Crook's (1994:11) discussion of the role of computers indicated that the *computer-as-tutor* metaphor could be applied to the *Virtual Visit* courseware and to the *EuroPILOT* learning materials, in which the computer acts as a tutor for the learner. This was most explicitly the case in the use of the technology at Heriot-Watt University and on the *EuroPILOT* programmes where the learning materials were used predominantly on a "stand-alone" basis.

In both the *Virtual Visit* and *EuroPILOT* projects the choice of multimedia case study tutorials as the appropriate media was not based on strict research into user needs. In the *Virtual Visit* project the choice was based on hunches about the needs of learners as evidenced from course feedback questionnaires, the availability of funding for the

development of multimedia resources and acceptance of the use of business case studies as a prime resource in management teaching and learning. The *BEE open learning centre*, available to *EuroPILOT* participants, was a flagship development for the University of East London and employed a vast array of largely up-to-date computer-based learning technology. Although “top range” off-the shelf management development courseware was chosen, the nature of the content did not on the whole match the individual needs of SME learners. The *BEE* and *EuroPILOT* websites and *Decision Support System* were other innovations shaped by such factors, but problems of access, design and lack of flexible learning resources meant that they also did not sit well with SME learner needs.

As described above, limited research was carried out into the learning needs of users in both the *Virtual Visit* and *EuroPILOT* experiments. Learning objectives and learning activities were therefore shaped by existing approaches to management teaching and learning in HE. While this is not the ideal approach in either experiment, it had more serious repercussions in the case of *EuroPILOT* as the target users were SME rather than HE learners. In the *EuroPILOT* experiment this was also not helped by the fact that the technology was very much “bolted on” (Crook, 1994) to learning objectives and learning activities associated with traditional workshops and seminars. As with the *Virtual Visit* experiment at Heriot-Watt University, a technology-led “stand-alone” approach was taken to the use of the learning technology and this did not match the needs of SME learners who tended to be more interested in “hands-on” solutions to immediate problems.

Thus in both case studies it is found that the projects have been technology-led rather than being led by user needs, particularly in the case of *EuroPILOT*. Instead of beginning with the *context of learning development* to examine user needs and associated learning objectives and activities, the choice of media took the initial priority. This can be interpreted as a naïve technological determinist view (Williams, 1997, Van Lieshout *et al.*, 2001), particularly in the *Virtual Visit* experiment at Heriot-Watt University and in the *EuroPILOT* experiment,

In terms of the *context of learning development*, the evidence from the two case study evaluations points to its greater importance for the SME learning environment. As the

priority of many SME learners is likely to relate to learning that yields tangible business benefits, training material that does not immediately meet their learning needs may be rejected. Although educational materials in the higher education learning environment may also sometimes not meet learner needs fully, the learners are in some respects obliged to use the materials, particularly if they are assessed or supervised by a tutor.

12.1.2 Context of learning use

During the *Virtual Visit* experiment at The University of Edinburgh, adequate attention was paid to most aspects of the *context of learning use*, apart from pedagogical support, at least initially. In contrast, in the Heriot-Watt University *Virtual Visit* experiment and in the *EuroPILOT* programme little attention was paid to the pedagogical support and integration, resulting in ineffective use of the learning technology resource. A comparison of the experiences at The University of Edinburgh and Heriot-Watt University with the *Virtual Visit* courseware serves to reinforce Crook's (1994:9) claim that 'across different settings, there may be significant variation in how radically the same technology serves to restructure the activity of learning'. Thus there are likely to be variations in learning outcomes for the same learning technology in different contexts of use. This also agrees strongly with Laurillard's (1993) claim that the delivery of learning materials is more important than their design: if the context of learning delivery⁷⁹ fails, then even the best designed learning technology will fail to teach (Laurillard, 1993).

Thus a poorly thought out strategy regarding the integration of computer activities is likely to marginalise certain activities and undermine their impact (Crook, 1994). This claim is reinforced by experiences with the *Virtual Visit* implementation at Heriot-Watt University in 1997, where lack of integration caused the learners to marginalise the computer-based learning aspect of their course. This may have related to the lecturer's high expectations of learning technology. In contrast, because the same courseware was more effectively integrated into The University of Edinburgh course owing to the arguably more realistic expectations of the lecturer, feedback from learners was generally positive and the use of computers was seen to enhance the

⁷⁹ The *context of learning delivery* is one element of the *context of learning use* as discussed

overall learning process. However, this did require the support of a “live” tutor, which raises questions about the economic effectiveness of developing the courseware. Similarly the experiences of SME learners in the *EuroPILOT* programme reveals that they also marginalised the computer-based learning aspects of the programme, except where they could see immediate benefits. However, this tended to relate to skills-based training in IT packages rather than to management development training.

12.1.3 Comparing the *LTPF* in HE and SME contexts

“Technical specialists have tended to underestimate the complexity of application areas, and the consequent difficulties of applying ICTs, which has contributed to the repeated experience that ICTs fail to meet the expectations generated by technology-driven visions.”

(Williams, 1996)

Comparing the use of the *LTPF* in HE and SME contexts provides an indication of the most important elements in each case. In both the HE and SME context, the choice of media should be subsidiary in terms of shaping the learning material, but the empirical work of this thesis indicates that in both contexts the development of the learning material was driven by technology, at least initially. The main driver at the beginning of a learning technology experiment should instead be the learning needs (and associated learning objectives and learning activities) of the learner in their particular learning environment. For HE learners this should be based on student feedback and user trials. For SME learners the situation is more complicated as learning needs, while being generic, must be contextualised to meet the needs of individual companies. This theme will be returned to in the recommendations presented at the close of this chapter.

Once the learning material has been designed, the *context of learning use*, and in particular pedagogical support and integration aspects, are the most important element of the *LTPF* in both the HE and SME learning environments. If this fails then the implementation of the learning technology will prove ineffective no matter how well designed it is. This is particularly the case in the SME learning environment. In the HE learning environment there will be more time to react to problems with *context of learning use* issues as a course progresses, and the worst-case scenario in blended

in the development of the *LTPF* in chapter six.

learning courses is that the learning technology will be seen as a bolted-on addition and largely ignored by the learners, but they will still have the opportunity to learn through the more traditional aspects of the course. In contrast, in the SME learning environment it is even more vital to establish a sound *context of learning use* from the start: SME learners tend to be impatient with material that does not meet their immediate needs, and opportunities to engage them and perhaps progress them onwards towards more formal educational courses will be lost if the *context of learning use* fails.

Important implementation lessons can be learned from the relative success of the *Virtual Visit* project at The University of Edinburgh compared to Heriot-Watt University. At The University of Edinburgh, the introduction of learning technology to an existing course occurred in a cautious fashion with a replacement of less than half of the original classroom-based tutorials with computer-based supervised tutorials, and the lecture component of the course remained unchanged. Attention was paid to most aspects of the *context of learning use*, apart from pedagogical support (at least initially). The educational outcome was generally successful in that the students appreciated the benefits that the learning technology had to offer, while also recognising its limitations. Also, the course lecturer and tutor responded to changing user needs as they arose and made relevant adjustments to the *context of learning use*. This is in keeping with the assertions of Williams (1996) and Williams & Edge (1996) that innovation is thus not restricted to technology supply, but continues through its implementation, consumption and use, and with Fleck's (1989) *innofusion* concept.

The more radical learning technology experiment at Heriot-Watt University using the same software produced very different results. Here all traditional tutorials were replaced with computer-based tutorials, but the experiment ran into severe problems. This approach to learning technology implementation departed too far from the expectations of the learners and this, coupled with a lack of attention to the *context of learning use* (particularly technical support, pedagogical support and integration), meant that the learners felt frustrated with the software and saw it as a "bolted on" addition to lecture material (Crook, 1994). As such it was largely ignored and the experiment was less successful. In this case the implementation of *Virtual Visit* was shaped by the high, but mistaken, expectations of the learning technology held by the

course co-ordinator, fuelled by the “hype” which tends to surround the introduction of novel technologies in many organisations (Williams, 1997).

From these experiences it can be concluded that a radical departure from existing approaches to teaching and learning will require a radical rethink in pedagogical approaches. It is not enough to supply learners with rich “stand-alone” presentations to use in their own time without monitoring and supporting such use adequately (both technically and pedagogically), and developing innovative ways of reproducing (at least in part) the social interaction of the classroom setting (Crook, 1994). Moreover, for learning technology experiments aimed at users from outwith the HE sector, such as SME learners, it can be concluded that “stand-alone” technology-led approaches will almost certainly fail and that an even more radical rethink of the overall pedagogical approach is required.

This was indeed found to be the case in the examination of the *EuroPILOT* programme. The *EuroPILOT* experiment began with a similar approach to that adopted with the *Virtual Visit* experiment at Heriot-Watt University, that is the implementation of “stand-alone” material that the learners could access in their own time, driven by a technological vision. While technical support at the University of East London was adequate (at least in the open learning centre if not at a distance), this approach was particularly undermined by a lack of pedagogical support and integration. Learners tended to become frustrated with the lack of guidance available in terms of what they could do with the learning technology and this stemmed largely from a lack of understanding of the nature of SME learning on the part of the facilitators and programme managers. The SME learners were on the whole interested in solving immediate problems connected to their work rather than browsing through a range of material that might one day prove to be useful. As the *EuroPILOT* programme progressed the facilitators began to address such concerns by working more closely with small groups of SME learners with common interests to address their particular needs. This proved to be a more successful approach, but by this time the project was nearing the end of its allotted funding period.

While ECOTEC, the project’s monitoring body, deemed the *EuroPILOT* experiment to be a success and even an exemplar for other programmes, analysis of the research

results indicates that the majority of SME learners did not see it in this light as it did not meet their informal learning needs. This was because it was originally shaped by existing approaches to teaching and learning in HE, which are not suited to the needs of SME learners, and an unquestioned acceptance by the funding body of HE expertise in the learning domain. However, while education and training may be merging to some degree, the analysis provided in this case study indicates that a significant difference remains between the two areas. This argument is strengthened by the University of East London's history as a former polytechnic, which provides closer links with the local business community than tends to be the case with more established universities. Thus the more established and traditional universities are likely to encounter even greater problems with engaging SME learners effectively.

Hence a more fundamental observation with regard to the *context of learning use* for SME learners is related to the fact that their learning occurs in an environment that is very different to the HE learning environment, and the nature of that learning is predominantly informal. What this means for the *LTPF* in the SME context is that once material has been developed for SME learners, facilitators will tend to have little of control over the *context of learning use* and it will be much more difficult to achieve a working integration between the two contexts. In the HE context when learning technology materials are developed and implemented, the *context of learning use* remains within the institutional structure and practices of the university in question, that is it is shaped by the local learning infrastructure, although arguably not to as great an extent as will be the *context of learning development*. In contrast, learning technology that is developed for the SME sector by HE is delivered to learning environments that are very alien to HE educators, that is the SME workplace, open learning centres, learners' homes and/or forms of mobile learning. Such learning material will contain "hidden" embedded assumptions about learning that are more in keeping with the nature of HE learning than the nature of SME learning (for example the belief in traditional lecture-based courses supported by tutorials) and these assumptions will be "hardwired" into the material at the development stage. There is still potential for *innofusion* to take place as the SME learners adapt materials to their needs, but this occurs within a learning infrastructure that is very different to that of a HEI. This makes it very difficult for learning technology developers and educators

based in HE to envisage how learning occurs in a context of which they have limited understanding.

This idea can be summarised through redrawing the *LTPF* (figure 34) to show how it changes when learning materials are developed for the SME sector by HE educators and learning technology developers:

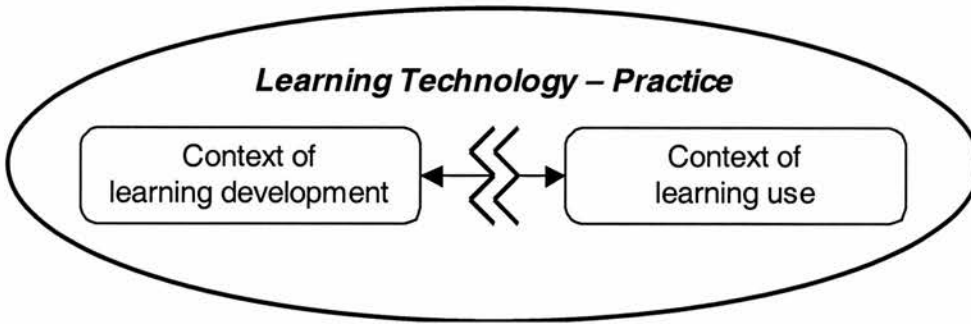


Figure 34: *LTPF* in the SME learning context

The choice of media will have a large influence on the *context of learning development* and the *context of learning use*, but once the materials are distributed to SME learners then there will be a loss of control of the *context of learning use* in the new learning infrastructure (the SME learning environment). Use becomes alienated from development and the learning technology becomes packaged or artefactualised once it leaves the HEI in question. This is illustrated in figure 34 by the bold jagged lines representing the rupture between the *context of learning development* and the *context of learning use* that occurs because they are no longer co-located. Thus one important issue to be face when designing learning materials within HE for SME learners is how to counteract this loss of control over the *context of learning use*. However, another important issue relates to the assumptions that HE educators are likely to make about the nature of learning and how this matches the learning that occurs in SMEs. The next section considers this issue further through a consideration of the suitability of Laurillard's (1993) *conversational framework* as a design guide tool for SME management development learning technology in light of the differences between HE and SME learning.

12.2 Differences between HE and SME learning

“It [*the conversational framework*] is not normally applicable to learning through experience, nor to everyday learning, nor to those training programmes that focus on skills alone, all of which tend to occur at the experiential interactive level only...A critical perspective, necessary for academic understanding, is not a normal adjunct of learning at the level of experience. The two levels are also observably different - the one bring action on the world, the other being talk about those interactions with the world. In the context of education, the distinction is an important one.”

(Laurillard, 1993:102-103)

SME learners have management development needs across a broad spectrum of traditional management topics. There is a growing need for softer and less tangible management skills, such as communication. Also, the smallest businesses (micro SMEs) particularly request training in the basic areas of finance and marketing. The smaller SMEs also lack detailed job specifications and therefore suffer from a lack of expertise in their training requirements (they do not know what they need to know). Another key demand-side barrier is lack of time for training and for developing the business, while key supply-side barriers are reported to be lack of bespoke training, which is uneconomic to provide, and the lack of understanding of the nature of SME learning, which is mainly informal and as such does not sit well with the formal training programmes often supplied by providers. These barriers are inter-related: if the informal nature of SME learning is better understood by suppliers then they will be able to focus more on adapting generic materials to the needs of their individual clients. This will then be more appealing to SME learners given the lack of time they frequently report: indeed if materials can be provided that save them time then they are likely to result in increasing uptake.

The key to overcoming many of the demand and supply-side barriers (apart from those that are difficult to influence such as attitudes and firm culture) relates to addressing the supply-side barrier of lack of understanding of the informal nature of SME learning. Informal learning places much responsibility with the individual learner, but various formal and informal support mechanisms may be available, such as coaching, mentoring, networking and use of the Internet. However, such support mechanisms are likely to be limited in the smaller SMEs. The nature of SME learning thus provides a stark contrast to the nature of learning in HEIs described in Laurillard's *conversational framework* (1993). While the *conversational framework*

has received much attention in the HE sector as an exemplar for the design of learning technology for HE learners, it is not as suitable as a model for SME learning. The critiques of the *conversational framework* (chapter 6) point particularly to the lack of attention to peer learning and learning management. The *LTPF* developed in this thesis is a framework for studying and guiding learning technology *in use*, with a particular focus on the issue of learning management, which attempts to counter the static nature of the *conversational framework*. This framework includes the *conversational framework* as a general reference point for the design of learning technology, noting the need to plug the dialogue gaps that learning technologies are unable to fulfil. This will apply at a general level for SME learning too, but the type of dialogue required is different to the second-order academic knowledge that forms the basis of the *conversational framework*. In addition, while HE learners are becoming an increasingly diverse group, they are still homogenous in nature when compared to the individual learning needs of the many different types of SME.

For SME learners, the majority of what is learned in the workplace is informal in nature and stems from “the demands and challenges of work-solving problems, improving quality and/or productivity, or coping with change” (Evans, 1999:6) rather than the more formal education processes familiar to HE learners which are driven by the need to fulfil the requirements of accredited course syllabuses and to pass exams. The findings of the *SME Learning Survey* (chapter 11) confirm the claims of Evans (1999:6) that SME learning “derives from thinking, trying things out and talking to other people” and is sometimes facilitated by organised learning support of various forms, such as teamwork, coaching or mentoring, and liaison with customers, suppliers or professional networks. Thus peer learning forms a vital part of how SME learners learn, something that is neglected in the *conversational framework*. This is not to claim that informal learning does not occur in HE or that formal learning does not occur in the SME sector, rather that the main form of learning is the opposite in each case: in HEIs it is formal whereas in SMEs it is informal.

In addition, the *conversational framework* points to the various dialogue gaps evident for HE learners in all forms of learning technology. Such gaps are likely to be greater for isolated SME learners, particularly if they are not part of a formal training or education programme and are in smaller organisations. Their learning needs will

relate to the particular issues in the companies in which they work. While these may be generic in nature the solutions require tailoring to their particular situations, and this is beyond the scope of generic “stand-alone” courseware designed in HE.

The implications for HEIs is that the shaping of their interventions by approaches with roots in education (either through explicit use of the *conversational framework* in the design of learning technology or more implicit use shaped by lecturers’ educational backgrounds) will be out of synch with SME learner needs. This emerging requirement for a merging of education and training is seen to a lesser extent on MBA programmes run by business schools and the development of the “corporate university”: companies who sponsor members of their workforce to undertake MBA qualifications are more interested in a narrow focus relating to their particular needs than to the wider approaches that business schools tend to offer. For SMEs the gap between training and education is much wider and to apply “learning” as a generic term to bridge this gap is misleading.

Thus current attempts by HEIs to meet the learning needs of the SME sector are likely to fall into the same trap as other current SME supply-side provisions and will also suffer from an even lower level of understanding of the nature of SME learning. As reported in chapter 3, section 3.4.2 Stockley (1999:2) claims that the traditional focus of policymakers and many providers has been on the development, funding and delivery of Mumford’s “type 3” activities (‘Formal management Development’), at the expense of the two other types of management learning activities that more commonly occur in SMEs (Type 1: ‘Informal Managerial’ and Type 2: ‘Integrated Managerial’). Evans (1999) also raises the issue of training for qualifications and not for knowledge, or more focused learning, with SME learners often unable to obtain the new knowledge they require without having to strive for qualifications. Additionally, Evans indicates that SME learners complain about: too much theory and not enough practice; inflexibility on the part of the providers (providers are either unwilling or unable to provide learning opportunities required by the company); misleading promises regarding type of training provision; and problems with ensuring what is learnt is actually brought back and used in the company (Evans, 1999). All of these issues emerge in the *EuroPILOT* analysis and *SME learning survey* (chapter 11) findings, and are likely to continue if HEIs develop SME management development

programmes based on existing models of teaching and learning in HE such as that denoted in Laurillard's *conversational framework*.

Overall, support for the use of learning technology needs to mirror the types of informal learning support commonly found in SMEs, be that virtual, physical or some combination of the two. A reliance on traditional HE pedagogic approaches are likely to meet with limited success, and this and other findings from this thesis lead to a number of implications for HE educators, learning technology developers, SME trainers and public funding bodies attempting to reach the SME sector with technology-based management development materials.

12.3 Adapting HE knowledge of learning technology implementation for SME learners

The review of learning technology implementation in HE (chapter five) indicated that the current central debate in higher education concerns the difficulty of reducing costs while increasing provision to a growing and increasingly diversified learner population, while at the same time maintaining quality standards. It was found that while learning technology may provide part of the answer to such problems, some commentators thought that it could also prove to be part of the ongoing problem. The analysis and findings presented in this chapter concur with the latter viewpoint, particularly when the targeted learners lie outwith the HE domain.

Another point to emerge from the literature review of chapter five concerned complaints about technology and economics-led learning technology implementation at the expense of pedagogy, but also a recognition that pedagogy-led implementation may lead to lack of access for the wider customer base sought by HE. The *EuroPILOT* programme was certainly technology-led and although a large amount of funding was available to set up the technical infrastructure and content of the *BEE open learning centre* which *EuroPILOT* participants had access to, it could be argued that the actual programme itself was economics-led as there was a lack of resources for increasing the number of facilitators. In this particular case it has been argued that the programme would have benefited more from a greater focus on pedagogy than technology and doubt has been expressed about the proposed benefits of the

technology for the participants. This provides evidence in support of the need for pedagogy as the driving force behind learning technology implementation experiments, within the bounds of economic constraints. However, a more fundamental criticism is that the *EuroPILOT* programme was expertise-led, that is funding for the programme was received on the basis of the widely held view that HEIs have expertise in the learning domain. This has been found not to be the case when the targeted learners are drawn from non-educational fields such as the SME sector. This is not to say that HEIs have nothing to offer to SME learning technology initiatives. Indeed, experience gained in learning technology experiments *within*, *between* and *outwith* HEIs offer valuable lessons for new experiments aimed at SME learners. However, it is a great leap of faith to transfer such experience to a non-educational field, and one which will require deeper reflections about the needs of this type of learner and how learning technology can be used to match these needs. It is proposed that the growing expertise gained by HEIs in the implementation of learning technology can be improved and adapted for use in the SME learning context⁸⁰ if HE educators, learning technology developers, SME trainers and public funding bodies recognise:

1. That learning technology implementation is a socio-technical practice

This thesis illustrates that the implementation of learning technology experiments is a socio-technical practice, and the *LTPF* has been developed as one tool for assisting with the analysis and management of the sociotechnical implementation process. At its core is the need to provide an effective working integration between the *context of learning development* and the *context of learning use* in order to achieve effective *learning technology-practice*. The SST and associated technology implementation literature have much to offer to the learning technology implementation field. It has been illustrated that there is a vital need to recognise the broader meaning of technology and technology implementation if experiments are to have a chance of success through Fleck's (1987) process of *innofusion*. Technological determinist approaches will have limited application and will do little to aid the adoption and

⁸⁰ Recommendations 1., 3., 4. and 5. also apply to learning technology implementation within the HE sector.

diffusion of new learning technologies. Technology and education should thus be viewed as constituents of one sociotechnical practice rather than as separate entities.

2. The importance of informal learning to SME learners

A major finding from this study for funding bodies, developers and facilitators of learning technology solutions for the SME sector is that a simple transfer of existing materials from higher education, with all their inbuilt institutional assumptions, will prove unsuccessful. Furthermore, the identification of the nature of the SME learning environment indicate that it will exacerbate the problems experienced in the education sector with providing effective learning technology interventions. The implication is that the HE sector has a responsibility to find out more about the informal learning that occurs in SMEs if they are to effectively design and implement learning technology solutions that will engage SME learners successfully.

A recognition of the importance of informal learning to SME learners will be vital if HEIs wish to target the SME sector effectively with learning technology solutions. Thorough needs analysis of the target SME learners are required before learning material content is developed, and avenues for providing informal online learning support and socialisation must be explored. One potential solution is to set up moderated online networks of business owners, mentors, consultants and coaches with similar interests, which mirror the most common forms of informal peer-to-peer learning support found in the SME learning environment. The approach adopted in the *EuroPILOT* programme was to learning technology on a “stand-alone” basis with facilitation largely restricted to face-to-face events. Feedback from the learners indicated that while these events and the learning technology were in themselves interesting it was difficult to see the application to individual business situations. In contrast, when the *EuroPILOT* facilitators began working with small networks of SME learners the feedback was much more positive. It is likely that SME learners will require face-to-face meetings in order to establish trust in online environments, so blended learning solutions offer the most promise. Such learning networks can be moderated by business educators who have familiarity with the needs of SME learners. Above all, developing visions for SME learning technology solutions should not be based on existing HEI institutional and social practices but on the reality of

how learning occurs in the SME sector. This may then lead to more SME learners undertaking more formal training courses on offer, or developed, by HEIs for this particular sector once both groups gain experience of working with each other.

3. That the more the intended use of learning technology deviates from the developing institution's practice, the more attention must be paid to the *context of learning use*

The more radical the experiment, the more disruptive will be the effect on the users (facilitators and learners) as was revealed in the different levels of success achieved by the *Virtual Visit* experiment in two very different contexts. It was revealed to an even greater extent in the analysis of the *EuroPILOT* programme: when HEIs attempt to engage SME learners, this represents a significant departure from current institutional and pedagogical practices. If such experiments are to be successful then the amount of attention to the *context of learning use* required will be substantial, particularly in the areas of pedagogical support and integration into blended learning programmes.

4. The value of involving end-users in the development stage to provide an understanding of the *context of learning use*

The involvement of end-users is particularly important when designing learning materials for a group of learners of which there is little knowledge, such as SME learners. Users should be involved actively in the design phase of learning technology implementation experiments in order to develop learning content and technical infrastructure that matches their needs. Thus it should be a prerequisite for funding awards for SME learning technology development that users be actively involved in the design phase of learning technology implementation projects, and in subsequent development and implementation phases. In addition, the users should be as representative as the eventual end users as possible. For example, in the *Virtual Visit* project the users were akin to tame guinea pigs who had no choice but to take part in the experiment, and in the *EuroPILOT* project the users were "proxy users" and not very representative of SME learners receiving distance learning materials directly into the workplace or other potential learning locations.

The most important user groups are educators and learners as they are in the position to develop the knowledge that can lead to further innovations through the process of *innofusion* (Fleck, 1989), that is innovation in use. This particularly applies to educators who are trying to reach an audience in non-educational fields such as the SME sector and will not be able to rely on existing models of HE teaching and learning in order to be successful. They will need some way to get round the problem of embedding assumptions of how learning occurs in HE, and the most likely way they will be able to do this is by working closely with SME learners in the development and implementation of material that match their needs. They will also need to recognise that it is impossible to separate the development and implementation processes as they occur simultaneously. As reported in chapter 4, Williams (1997) discussion of the SST literature in relation to ICT includes the related issues of 'interpreting artefacts and user requirements' and 'suppliers and users'. He points to the problems with technology driven views that typically take the utility of the artefact for granted, assuming that new functionalities offered will somehow automatically suit user requirements. This does not allow for the more realistic view that user requirements are constructed; they are built upon earlier templates and evolve with the use of new artefacts. It also accounts for the reason why various players (suppliers and current and future intermediate and final users) may have quite different perceptions of artefacts and their utility. This was very much seen to be the case during the evolution of the *EuroPILOT* learning model. Initially the programme facilitators thought that the learning technology would somehow match the needs of their very disparate SME learners, but as the programme progressed and the learners were given the chance to provide feedback it emerged that the reality was very different. This ties in with Williams (1996) 'suppliers and users' issue: matching supplier offerings to user need is likely to prove to be a problematic process, particularly in the case of novel technologies with few established models of the application or its use. In addition, the evidence from both the *Virtual Visit* and *EuroPILOT* projects is that they should also be supported in development of skills in e-moderation. Similarly, learners will require support as they adapt to learning in a new environment.

Although HEIs have much to offer the SME sector in the area of formal education, there is a lack of need for this form of learning as it does not fit with the immediate

work-related problem-solving needs of SME learners. Joint research and project implementation, in partnership with organisations who have more experiences of the requirements of SME learners is required in order to design and implement effective learning technology solution for this sector. For example, this could lead to the development of a model for SME learning similar to the ideas behind the model for HE learning (the *conversational framework*) that is currently used as a reference point for the design of HE learning technology interventions.

5. The need for analytical frameworks for studying learning technology in use to provide a feedback loop into the *context of learning development*

The failure of the radical introduction of the *Virtual Visit* technology at Heriot-Watt University provided warning signals that “stand-alone” non-skills based learning technology is difficult to implement effectively. Although improved design may eventually lead to the effective implementation of more radical uses of learning technology, it is likely that this will require a mutual adaptation of users and technology over time. The failure of this project within a HE context and the adaptations that the tutor made as the *Virtual Visit* project progressed at The University of Edinburgh served as a warning of the difficult nature of introducing learning technology to learners from a non-educational field. The failures of the *EuroPILOT* programme and the steps that the programme facilitators took to tackle them provide valuable lessons for other HEIs implementing SME learning technology programmes, but these lessons were overlooked in the main by the ECOTEC evaluators. This was partly due to the pressure on the *EuroPILOT* facilitators to prove to the ADAPT funding body that the project was a success, but also due to a focus of the evaluation on the appearance and success of the technological infrastructure and learner access statistics rather than the achievement of learning objectives.

Thus the findings from the evaluation reported to other SME learning projects were of the control and verification variety with a focus on technological transferability, which does little to further innovation in this area. The call by Van Lieshout *et al.* (2001) for the opportunity to learn from failure (social learning) to be a part of research programmes, implementation programmes and individual project designs is reinforced by the findings of this thesis. The social learning that emerged from the Heriot-Watt *Virtual Visit* occurred only by chance when a colleague at The University

of Edinburgh involved with the OMNI project provided access to a copy of an internal evaluation report. It is understandable that the implementers of learning technology projects would not want their particular project to be viewed as a failure, but this owes much to pressures from funding bodies that every learning technology implementation experiment be deemed a success. If this situation could be reversed, much could be learned from failure, providing an important feedback loop into the *context of learning development* both within individual projects and across similar projects. This would then create the potential for an increase in the speed of adoption and diffusion of learning technologies implemented by HEIs for the SME sector. Coupled with this is the need for evaluation methodologies that move away from input-output considerations towards those that take account of the broader teaching-learning implementation frame, such as the *LTPF* developed in this study.

Following this presentation of the analysis and findings, the closing chapter concludes by providing a summary of the analysis and findings, a discussion of the limitations of this study and ideas for areas for further research.

Chapter thirteen

Conclusions

This chapter presents the conclusions of this thesis in relation to the research questions drawn up in chapter six at the close of the literature review and primary research:

1. What factors shape learning technology implementation experiments in HE?
2. What are the differences between HE and SME learning?
3. In view of these differences, how can expertise gained by HEIs in the implementation of learning technology be adapted for use in SMEs?

First the overall conclusions of the thesis are presented, followed by a consideration of the limitations of this study and suggestions for areas for further research. The thesis closes by describing the main contributions to knowledge arising from this study and a concluding statement about the potential for the transfer of SME management development learning technology from the HE sector.

13.1 Conclusions

Learning technology implementation issues in the HE sector bear many similarities to general technology implementation issues in industry. Learning technology implementers in the HE sector face numerous barriers to implementation that can be classified as technical, cultural or organisational. It is found that cultural and organisational issues are more crucial to the effective implementation, adoption and diffusion of learning technologies than purely technical considerations. Technology implementation, adoption and diffusion is a complex socio-technical practice comprised of technical, cultural and organisational issues. Implementers should try to obtain a working integration between such technical, organisational and cultural issues in order to smooth the implementation process and avoid narrow technological determinist views. Such views are common-place owing to the high expectations that often surround the introduction of novel technologies to existing organisational practices, and a lack of understanding of the process of *innofusion*. Learning technology innovation, in common with all technology innovations, is not restricted to technology supply but continue through the entire implementation process, including consumption and use. This process will also vary across different contexts of use with the same technology, and this has the consequence that the adoption and diffusion of different learning technologies will be much slower than that predicted by educational visionaries and technology producers.

Key issues in the HE sector are the numerous roles that can be played by learning technology in the teaching-learning process, and the changes this brings about in the roles of the lecturer/tutor, the learner and evaluation techniques. The more disruptive the technological experiment is, the more disorientation it will cause the users (lecturers, tutors and learners) and the greater the need will be to adopt innovative evaluation methodologies that are able to analyse learning technology in use. One such evaluation framework, the *LTPF*, was developed and applied in this thesis to two case studies: one with HE learners (*Virtual Visit*) and the other with SME learners (*EuroPILOT*). The *LTPF* revealed a tendency for learning technology experiments to be technology-led with limited research into user needs, and that learning objectives and learning activities tend to be shaped by existing institutional approaches to teaching and learning in HEIs. As a result, and particularly where attempts are made to use the learning technology on a “stand-alone” basis, this marginalises learners who view the materials as “bolted on” to other elements of a course rather than being an integral part of the course. Technology-led “stand-alone” approaches are found to be particularly unsuitable for SME learners, who have a learning style that is distinct from HE learners as it is based around informal learning predominantly.

The application of the *LTPF* to the two case studies suggests that the development of learning technology should begin with the learner needs element of the *context of learning development* rather than the choice of media element. If development begins with the choice of media then the implementation process will be technology-centred rather than learner-centred, that is the development of learning technology materials will fail to take account of the “social messiness” of learning technology implementation. However, the most important element of the *LTPF* is the *context of learning use*, particularly its pedagogical support and integration elements. The important role of facilitators when introducing learning technology is found to be particularly relevant for SME learners, as they require a high level of guidance and mentoring in order to see the relevance of the learning materials to their individual company contexts. The more radical the learning technology experiment, the more attention must be paid to the *context of learning use*. Radical experiments may depart too far from learners expectations and there will be a need to re-educate learners, which requires a radical rethink in pedagogical approaches in order to develop innovative ways of reproducing the social interaction of face-to-face settings. This

particularly applies to SME learners who are outwith the HE domain and tend to learn less formally than learners in HEIs. The situation is made even more complex because learning technology developers have much less control over the context of *learning use* once it moves from the HE learning environment to the SME learning environment.

From this it can be concluded that the assumption by funding bodies about HEIs' expertise in the learning domain is mistaken, particularly when learning technology programmes are being developed for learners from non-educational fields. Thus expertise-led visions can be as misguided as technology-led visions of learning technology implementation. It also leads to a question mark over how far education and training have actually merged: SME learners tend to be more interested in training for immediate needs (at least initially) and HE offerings will tend to be more along longer term educational lines. As it is difficult for learning technology developers and educators operating in the HE sector to envisage how SME learning occurs, learning materials developed in the HE sector are likely to contain "hidden" embedded assumptions about learning based on HE rather than SME learning contexts. These assumptions are "hardwired" into the material at the development stage, which makes adaptation to different users requirements across different SME learning contexts more difficult to achieve.

The significant differences between the nature of HE and SME learning indicate that the *conversational framework* is unsuitable as a design tool for SME management learning technology development. The informal nature of SME learning is characterised by individuals being responsible for their own learning, supported by formal and informal support mechanisms, such as coaching, mentoring, networking and Internet resources. This provides a stark contrast to the nature of learning in the HE sector as described in the *conversational framework*. Additionally, two main criticisms of the *conversational framework* identified in this thesis are its lack of attention to learning management and peer learning, both of which are of vital importance to providing effective SME learning interventions. The lack of attention to learning management has been countered in this thesis through the development of the *LTPF*, which allows for the study and planning of learning technology interventions in use.

The implications for HEIs are that the shaping of their interventions by approaches with roots in education, either explicitly through use of the *conversational framework* in the design process, or implicitly through the influence of educators' and technology developers' own educational backgrounds, will be inconsistent with SME learner needs. To apply *learning* as a generic term is misleading. Support mechanisms to encourage the use of SME management learning technology need to mirror the types of informal learning found commonly in SMEs: virtual, physical, or some combination of the two. Traditional HE pedagogical approaches are likely to meet with limited success.

13.2 Limitations of the study

Several limitations to this thesis study are identified. At a more general level, there are a number of limitations to consider. The study was set up as an inter-disciplinary CASE studentship spanning SST, MoT and Cognitive Science disciplines. As a result it employs a wide range of research methodologies and theories that are more demanding to assimilate than an approach more conventionally acceptable to researchers from any one of the independent disciplines. Overall, the methodological approach is more in keeping with the interpretivist SST combined with the pragmatic action-oriented MoT perspectives than the more positivist Cognitive Science perspective. Also, this is a single study comprised of two surveys of SME key informants and two case study evaluations, carried out mainly in two cities (Edinburgh and London) in the UK, and in Prince Edward Island, Canada. Furthermore, it relies primarily on qualitative data. Qualitative research may be challenged for its use of small samples and hence lack of generalisable findings that can be applied to the population at large. However, Lipstein (1975) counters this common criticism by claiming that increasing sample size does not necessarily increase accuracy: many other errors may be made as sample size increases. In addition, the research was more concerned with examining the use of learning technology in practical experiments in the field and to develop an implementation framework, rather than to gather large-scale data about learners' problems with the use of learning technology.

More specifically, the primary research of chapter three, the *SME Survey*, gathered perceptions of technology-based solutions to the barriers to SME management development training rather than views from learners', facilitators' and implementers' practical experience with the use of management learning technology. This was countered in the *SME learning survey* of chapter eleven, which gathered perceptions of the usefulness of learning technology from learners, facilitators and implementers with experience of technology-based solutions to SME management development needs. Also, the evaluation of *Virtual Visit* in chapter seven relied on a questionnaire survey of learners coupled with tutor observations and discussions with the course lecturer. Further insights might have been made possible through qualitative interviews with the learners, and/or intensive observation of the way learners navigated their way through the courseware. The researcher's role as tutor on the course employing the *Virtual Visit* courseware prevented the logistics of such actions, but it did allow (at least to some extent) for the important activity of 'observing real students learning' (Draper, 1996):

“...observing real students learning will always be more informative than consulting teachers and other experts...”

(Draper, 1996:58)

In the case of the *EuroPILOT* evaluation, observations of the learners' experiences with using learning technology were extremely limited. This was because the learners made little use of the learning technology, and when they did use it this occurred either in their own workplace or at whatever times suited them in the *BEE open learning centre*. Hence logistical difficulties prevented further insights from being gathered in this way. However, observation of learning at more traditional learning events was possible, and this, coupled with the *EuroPILOT Learners' Survey*, enabled the gathering of informal learner feedback about their experiences and perceptions of the relevance of learning technology to their needs. As in the case of the *Virtual Visit* evaluation, due to time restrictions, logistics and opportunities, a combination of data collection methods of real learners and the use of 'sensible compromise' was employed (Draper, in LTDI, 1996):

“...although costs and opportunities may not often allow optimal methods, it is in general best to base evaluation on actual learning by representative students who really want to learn (not the opinions of onlookers or the performance of special subjects bought in for a trial); to test what they actually did learn, rather than asking whether they felt they learned; and if possible to observe them as they try to learn, and pick up as many observations from them as possible... Personal observation and interviewing gives better information than questionnaires, but on

the other hand realistic classroom trials usually have all students learning at the same time, so questionnaires may be a sensible compromise in order to get data from the whole class with only one or two investigators.”
(Draper, 1996:60)

There are also a number of specific limitations related to the *LTPF* developed in this thesis. Two main criticisms of the *conversational framework* discussed in chapter six were that it fails to take account of learning management and peer learning. While the *LTPF* focuses on the former, it fails to take account of the latter explicitly as this was not possible to assess in the case studies examined. Another drawback of the use of the *LTPF* is that it does not take account of the role of assessment in the context of learning delivery, again because neither of the case studies examined had an assessment element. The main limitation of the *conversational framework* in the SME context is that its underlying premise of academic learning does not match the informal experiential needs of SME learners. As a general indicator of the need for the plugging of dialogue gaps with learning technologies it remains valid, but to base the design of learning technology on the *conversational framework* would lead to content development unsuitable for SME learners. Thus in the SME learning context the stated overarching nature of the *conversational framework* in the *LTPF* should be seen as an indicator of the need to plug dialogue gaps rather than a model for designing learning content. This represents another limitation of the *LTPF* in that it does not provide an explicit model of SME learning for designers to follow.

13.3 Areas for further research

Overall, taking these limitations into account, it is argued that this study provides a foundation for greater understanding in this area. Suggested areas for further study are: closer observations of SME learners’ use of learning technology; the feasibility of establishing SME “e-learning communities” through, for example, the formation of sectoral, size and/or growth stage groups; learning technology design (e.g. the use of narrative for contextualising multimedia management case studies); ethnographic studies of learning technology materials development, to unravel the potential mismatch between HE educators learning expertise and the needs of SME learners and to examine ways that SME learner needs can be built into the design of learning technology; and further trials of the effectiveness of the *LTPF* in similar and different

management teaching-learning contexts for the planning, development and implementation of learning technology solutions.

13.4 Contributions to knowledge

This study acts as an initial bridge between the Learning Technology Implementation, SST and MoT literature. It has been found that the Learning Technology Implementation literature does not explicitly incorporate insights from an SST/MoT perspective, and it is proposed that a recognition of learning technology implementation as a dynamic and complex sociotechnical process has much to offer to the study of learning technology implementation. The study also closes specific gaps in both areas of study: in SST and MoT studies it offers insights into the use of learning technology by learners in the HE and SME sectors; and in Learning Technology Implementation studies it offers insights into the use of learning technology by SME learners.

This thesis examines the potential for the diffusion of learning technology from the higher education sector to SMEs. It identifies the fallacy of assuming that learning materials developed in HE can be easily diffused into SMEs, as they are shaped by institutional frameworks, the materials are adapted by users through the process of innofusion and there is little opportunity for feeding back such adaptations into the development of materials. Thus the process for adapting HE material for SME management development is not currently based on deep pedagogical principles. While much is known about the needs of SME learners, little is known about how SME learners learn and consequently how HEIs can develop and implement learning technology solutions for this sector effectively. HEIs do have a growing expertise in the development of learning technology solutions, but the demands become much more complex when trying to develop materials for learners from non-educational fields. The main recommendations resulting from this study are that when developing and implementing learning technology solutions for SMEs, HE educators, learning technology developers, SME trainers and public funding bodies should recognise:

1. That learning technology implementation is a socio-technical practice;
2. The importance of informal learning to SME learners;

3. That the more the intended use of learning technology deviates from the developing institution's practice, the more attention must be paid to the *context of learning use*;
4. The value of involving end-users in the development stage to provide an understanding of the *context of learning use*;
5. The need for analytical frameworks for studying learning technology in use to provide a feedback loop into the *context of learning development*.

Appendix 1: SME Survey interviewees

SME managers

- HR Manager, Edinburgh (anonymity requested).
- Jim Gordon, Finance Director, Nimmo's Colour Printers.

SME management development training providers

- Eric Denton, Business Development Services Manager, Edinburgh Business Development Ltd., Edinburgh Chamber of Commerce, Edinburgh.
- Jackie Pillinger, Multimedia Designer, Lothian and Edinburgh Enterprise Ltd..
- Sue Godfrey, SME Project Manager, Lothian and Edinburgh Enterprise Ltd..
- Bob Moffat, LEEL New Ventures, Lothian and Edinburgh Enterprise Ltd..
- Alistair Tait, LEEL New Ventures, Lothian and Edinburgh Enterprise Ltd..
- John Goodson, Financial Manager, London Lee Valley Business Innovation Centre Ltd., Middlesex.

SME and general management learning technology developers/providers

- Tony Myhill, SME training director, NETg, Edinburgh.
- Peter Wilson, Training Consultant, NETg, Edinburgh.
- Alan Sneddon, Account Manager, NETg, Edinburgh.
- John Sivak, Director, Business and Technology School and Teleregion project, Middlesex University, London.
- Tom O'Brien, Business Development Manager, The Teleregion Company Ltd., Lee Valley Technopark, London.
- Dick Hill, Education development manager, International Computers Limited (ICL).
- Tom King, Education development manager, International Computers Limited (ICL).
- Colin Reith, SME Business Development Manager, British Telecom, London.
- Pete Bennett, Managing Director, Learning Resources International Ltd., Bedfordshire.

HE SME management learning technology researchers, developers and providers

- Naomi Lawless, Lecturer in Innovative SME Development, The Open University Business School, Milton Keynes.
- John S Allan, Lecturer in Innovative SME Development, The Open University Business School, Milton Keynes.
- Martin Laycock, Director, Business Development Centre, University of East London (two interviews).
- Dr David Hall, Director, Thames Gateway Technology Centre, University of East London (two interviews).

HE SME management researchers

- Dr. Simon Collinson, SME researcher, Japanese Education and Technology Services, The University of Edinburgh.

HE/SME liaison specialists

- Bob Poorer, “Graduates for Growth” SME development manager, Careers Office, The University of Edinburgh.
- Margaret Thomson, Graduates for Growth, Chamber of Commerce, Edinburgh.

HE management learning technology developers

- Dr. Ian Graham, Senior Lecturer, Department of Business Studies, The University of Edinburgh.

Further Education (FE) SME management development learning technology providers

- Bill Steel, Distance Learning Coordinator, Bell College of Technology, Glasgow.
- Anne Gibb, Enterprise Development Manager, Lauder College, Dunfermline.

Management learning technology project managers

- Soren Jensen, IT Manager, Scottish Prison Office, Edinburgh, Scotland.
- Ann Doug, Business Development manager (open learning centre), Cigna Healthcare & Group Life, Greenock.

Appendix 2: SME survey semi-structured interview schedule

Introduction

Interviewer's notes:

Brief summary of project.

Purpose of this meeting: an examination of the SME learning environment.

SME training needs

What do you see as the main training needs for SMEs?

How are you addressing these needs?

What do you see as the main obstacles to meeting training needs?

Multimedia training

What do you understand by the term multimedia?

Have you considered using multimedia as a training aid?

What do you consider to be the main obstacles to implementing multimedia training?

University collaboration

Have you heard about the University For Industry Initiative?
(If so, what do you think of it?)

Would you be interested in finding out more about it?

Would you be interested in forming collaborative links with a university/FE college?
If so, what type of training would you require?

What do you see as the main differences between training company employees and university courses?

Further contact

Would you be interested in follow-up interviews/further contact?

Appendix 3: Virtual Visit Learner Survey (1998)

WORLDWIDEBEB and MULTIMEDIA COURSEWARE SURVEY

The purpose of this survey is to obtain feedback about the use of the WWW in your course and to contribute to ongoing research into the use of educational technology. As a user of the WWW and courseware you are a highly valued source for innovative ideas and your views on the appropriate use of technology. Your assistance is greatly appreciated and acts as a catalyst for further progress in this new area of education.

Please indicate the appropriate response for each question with a circle or tick.

1. How familiar were you with the use of the WWW before the tutorials?

Unfamiliar					Familiar
1	2	3	4	5	

Do you use the WWW as an information source?

Not at all				A great deal
1	2	3	4	5

2. Have you logged into the Operations Management multimedia courseware (Virtual Visit or Quality Management) or course website outside tutorial time?

Yes
No

If yes, which of the following have you used the most?

Virtual Visit
Quality Management
The course website

Do you intend to use the multimedia material for revision purposes?

Yes
No
Don't know

Did you use the multimedia material for assistance with the assignment?

Yes
No
Don't know

4. Did you require help in using the multimedia material in tutorials?

No
Occasionally
Often

5. Could the tutorial be carried out without the presence of a tutor?

Yes
No
Possibly

6. Do you feel the material substitutes actual factory/site visits?

Not at all				Very well
1	2	3	4	5

7. Please rate how easy/difficult you find the work in the multimedia tutorials:

Easy
1 2 3 4 Hard
5

8. Please rate how easy/difficult you find the work in the traditional (classroom) tutorials:

Easy
1 2 3 4 Hard
5

9. Which style of tutorial do you prefer?

Multimedia
Traditional (classroom)
A mixture

Please give reasons:

10. Please comment on your comprehension of the tutorial learning objectives (i.e. how you rate your understanding of what you are supposed to achieve in each tutorial)

Multimedia tutorial learning objectives

Unclear
1 2 3 4 Clear
5

Traditional (classroom) tutorial learning objectives

Unclear
1 2 3 4 Clear
5

11. Please comment on the degree to which you feel that you reach these objectives:

Multimedia tutorials

Not at all
1 2 3 4 Fully
5

Traditional tutorials

Not at all
1 2 3 4 Fully
5

12. Do you feel you benefit from learning at your own pace in the multimedia tutorials?

No
1 2 3 4 Yes
5

13. Do you find it beneficial navigating your own path (as opposed to working through a set framework)?

No
1 2 3 4 Yes
5

14. Assess the speed of downloading the multimedia courseware:

Too slow
1 2 3 4 Appropriate
5

15. Please indicate the importance of educational technology (such as multimedia courseware, course websites etc.) to the future of higher education:

Very important
1 2 3 4 Not important
5

Comments:

Please add any further comments in the space below. Thank you for participating in this questionnaire.

Appendix 4: Virtual Visit Learner Survey (1999)

WORLDWIDEBEB and MULTIMEDIA COURSEWARE SURVEY

The purpose of this survey is to obtain feedback about the use of the WWW in your course and to contribute to ongoing research into the use of educational technology.

As a user of the WWW and courseware you are a highly valued source for innovative ideas and your views on the appropriate use of technology. Your assistance is greatly appreciated and acts as a catalyst for further progress in this new area of education.

Please indicate the appropriate response for each question with a circle or tick.

1. How familiar were you with the use of the WWW before the tutorials?

Unfamiliar
1 2 3 4 Familiar
5

2. Do you use the WWW as an information source?

Not at all
1 2 3 4 A great deal
5

3. Have you logged into the Operations Management multimedia courseware (Virtual Visit or Quality Management) or course website outside tutorial time?

Yes
No

If yes, which of the following have you used the most?

Virtual Visit:

United Distillers (Leven)

Beacon

Safeway

Quality Management

The course website

4. Do you intend to use the multimedia material for revision purposes?

Yes

No

Don't know

5. Did you use the multimedia material for assistance with the assignment?

Yes

No

If yes, which of the following did you use?

Virtual Visit:

United Distillers (Leven)

Beacon

Safeway

Quality Management

Course website

6. Did you require help in using the multimedia material in tutorials?

- No
- Occasionally
- Often

7. Could the tutorial be carried out without the presence of a tutor?

- Yes
- No
- Possibly

8. Are the written worksheets a useful learning aid?

- Yes
- No
- Possibly

9. Do you think verbal summaries by the tutor towards the end of the multimedia tutorial are useful?

- Yes
- No
- Possibly

10. Do you feel the material substitutes actual factory/site visits?

- | | | | | |
|------------|---|---|---|-----------|
| Not at all | | | | Very well |
| 1 | 2 | 3 | 4 | 5 |

11. Please rank the multimedia tutorials in terms of learning effectiveness on a scale of 1- 4 (1 = the most effective, 4 = the least effective):

- United Distillers (Leven)
- Quality Management
- Beacon
- Safeway

12. Please rate how easy/difficult you find the work in the multimedia tutorials:

- | | | | | |
|------|---|---|---|------|
| Easy | | | | Hard |
| 1 | 2 | 3 | 4 | 5 |

13. Please rate how easy/difficult you find the work in the traditional (classroom) tutorials:

- | | | | | |
|------|---|---|---|------|
| Easy | | | | Hard |
| 1 | 2 | 3 | 4 | 5 |

14. Which style of tutorial do you prefer?

- Multimedia
- Traditional (classroom)
- A mixture

Please give reasons:

15. Please comment on your comprehension of the tutorial learning objectives (i.e. how you rate your understanding of what you are supposed to achieve in each tutorial)

Multimedia tutorial learning objectives

- | | | | | |
|---------|---|---|---|-------|
| Unclear | | | | Clear |
| 1 | 2 | 3 | 4 | 5 |

Traditional (classroom) tutorial learning objectives

- | | | | | |
|---------|---|---|---|-------|
| Unclear | | | | Clear |
| 1 | 2 | 3 | 4 | 5 |

16. Please comment on the degree to which you feel that you reach these objectives:

Multimedia tutorials
Not at all
1 2 3 4 Fully
5

Traditional tutorials
Not at all
1 2 3 4 Fully
5

17. How well do you think the tutorials relate to the course lectures?:

Multimedia tutorials
Not at all
1 2 3 4 Fully
5

Traditional tutorials
Not at all
1 2 3 4 Fully
5

18. Do you feel you benefit from learning at your own pace in the multimedia tutorials?

No
1 2 3 4 Yes
5

19. Do you find it beneficial navigating your own path (as opposed to working through a set framework)?

No
1 2 3 4 Yes
5

20. Assess the speed of downloading the multimedia courseware:

Too slow
1 2 3 4 Appropriate
5

21. Please indicate the importance of educational technology (such as multimedia courseware, course websites etc.) to the future of higher education:

Very important
1 2 3 4 Not important
5

Comments:

Please add any further comments in the space below. Thank you for participating in this questionnaire.

Other comments:

Appendix 5: EuroPILOT facilitator interview schedule

SEMI-STRUCTURED INTERVIEW SCHEDULE: PILOT AND CO-PILOTS

Name:

Date:

Introduction

Interviewer notes:

Part of my Ph.D. research and forms an independent evaluation for EuroPILOT. Anonymous if required. Recording information so that it is collected accurately.

Background information

Describe your current role. What sort of activities are you required to carry out?

How long have you been doing this?

Did you receive specialised training for this post?

Responsibilities

Please describe the areas of responsibility you find the easiest with respect to *EuroPILOT*.

Please describe the areas of responsibility you find the hardest with respect to *EuroPILOT*.

Performance of *EuroPILOT*

Please describe your present opinions of how well *EuroPILOT* is working:

- describe experiences
- is it meeting performance objectives?/what are the performance objectives?
- what successes have you experienced?
- what problems have you experienced?
- do you see any positive impact on businesses at this stage? (if yes, what type of impacts?)
- have you seen any negative impacts?
- what are the main reasons for companies losing interest in the programme?
- general feedback have you had regarding *EuroPILOT*?

Telematics

What is your opinion of the telematics element of *EuroPILOT*?

- BEE website
- *EuroPILOT* website
- BEE Open Learning Centre materials
- DSS

Integration

Do you think all the elements gel well together?

(workshops, telematics, advice from co-pilots)

Do they match the training needs of SMEs?

Which elements most closely match the training needs of SMEs?

Future

What improvements would you recommend for *EuroPILOT* overall?

What advice would you give to a new co-pilot?

Appendix 6: EuroPILOT Learners' Survey schedule

EuroPILOT Learners' Survey

Background, expectations etc.

How long have you been a participant on *EuroPILOT*?

Is *EuroPILOT* living up to your initial expectations?

(If not, what are the problems?)

What is the most useful element of *EuroPILOT* in terms of management training (and why)?

What is the least useful (and why)?

Are the CONNECT workshops relevant to your needs?

Do they inspire you to use the Webster, open learning centre and decision support system (i.e. the ICT components of *EuroPILOT*)?

ICT

Apart from attending the more traditional CONNECT workshops, what other activities have you undertaken as a participant on *EuroPILOT*? (e.g. BEE Centre, work-based learning)

What experience have you had with the ICT components of *EuroPILOT*?

(Obtain feedback on BEE Open Learning Centre, BEE website, *EuroPILOT* website, Knowledge Support System).

What type of management training products have you used the most?

Would you use them again?

Which are the most useful (and why)?

Which are the least useful (and why)?

What changes would you make to *EuroPILOT* to improve its relevance to your business/management training needs?

Could you envisage a time when the training would take place virtually over the Internet, without the need for face-to-face contact with a facilitator?

Business impact/Information about how SMEs learn

Has *EuroPILOT* had any impact on your business at this stage?

How would you describe this impact? (e.g. transformation into a learning organisation, increased profits etc.)

Do you think it will (continue to) have an impact in the future?

Appendix 7: EuroPILOT Initial Reactions survey questionnaire

We would very much appreciate you answering the following questions which form part of our overall evaluation regarding the attitudes, experience and expectations of key people in SMEs regarding the use of "Information and Communications Technology" (we refer to it as "ICT").

Using the scale: 5 : a lot 4: quite a lot 3: a bit 2: not at all 1: what is it ?
to fill in the boxes below, how often do you use the following?

Word processing packages e.g. Word for Window, WordPerfect etc.)	[]
Spreadsheets e.g. Excel	[]
Email	[]
Internet	[]
Video-conferencing	[]
Multimedia CD-ROMS	[]

How would you describe yourself in relation to using computers and modern technologies ?
(Please tick the appropriate box).

Love it : use it a lot	[]
Interested : use it a bit	[]
Interested – but anxious about using it	[]
Not really interested – but required to use it in job	[]
Not really interested – don't use it	[]
No interest whatsoever - don't use it	[]

Have you ever used any of the above for **training** purposes?
(Please tick the appropriate boxes).

Internet	[]
Video-conferencing	[]
Multimedia CD-ROMS	[]

4a. What do you see as the **advantages** of using "ICT" for learning and development purposes compared to more traditional formats such as workshops and seminars?

4b. What do you see as the **disadvantages** of using "ICT" for learning and development purposes compared to more traditional formats such as workshops and seminars?

What were your motivations for joining *EuroPILOT*?
(Please tick the appropriate boxes and provide any other motivations/comments).

Do you have any concerns about participating in *EuroPILOT*?

Are you planning to study for an NVQ while participating in *EuroPILOT*?
Yes/No
(Please circle as appropriate)

ANY OTHER COMMENTS YOU THINK ARE RELEVANT:

NAME:

JOB TITLE:

COMPANY:

DATE:

Thank you for taking the time to complete this questionnaire.

Appendix 8: EuroPILOT website on-line questionnaire

EuroPILOT WEBSITE EVALUATION QUESTIONNAIRE

Date:

User: (optional)

Please tick those characteristics of the *EuroPILOT* website you feel are well-designed, and put a cross against those you feel need improving, together with an explanatory comment.

Navigation

Clear what options are available []

Clear how to get to where you want to be []

Easy to return to the main menu []

Ease of access

Instructions easy to follow []

Sufficient information and support []

User interface

Menus, icons, buttons etc. easily understood []

Screen easy to read []

Screen pleasing to look at []

Interaction with content

Content sufficiently informative []

Content interesting []

Content valuable to the business user []

General

Please add any other general comments you would like to make about the quality of the website, including any suggestions for improvement.

Thank you very much for your help. Please return to James.Carr@ed.ac.uk.

Appendix 9: BEE website on-line questionnaire

BEE WEBSITE EVALUATION QUESTIONNAIRE

Date:

User: (optional)

Please tick those characteristics of the BEE website you feel are well-designed, and put a cross against those you feel need improving, together with an explanatory comment.

Navigation

Clear what options are available []

Clear how to get to where you want to be []

Easy to return to the main menu []

Ease of access

Instructions easy to follow []

Sufficient information and support []

User interface

Menus, icons, buttons etc. easily understood []

Screen easy to read []

Screen pleasing to look at []

Interaction with content

Content sufficiently informative []

Content interesting []

Content valuable to the business user []

General

Please add any other general comments you would like to make about the quality of the website, including any suggestions for improvement.

Thank you very much for your help. Please return to James.Carr@ed.ac.uk.

Appendix 10: Decision Support System on-line questionnaire

DECISION SUPPORT SYSTEM USER EVALUATION QUESTIONNAIRE

Date:

User: (optional)

Please tick those characteristics of the Decision Support System you feel are well-designed, and put a cross against those you feel need improving, together with an explanatory comment.

Navigation

Clear what options are available []

Clear how to get to where you want to be []

Easy to return to the main menu []

Ease of access

Instructions easy to follow []

Sufficient information and support []

User interface

Menus, icons, buttons etc. easily understood []

Screen easy to read []

Screen pleasing to look at []

Interaction with content

Content sufficiently informative []

Content interesting []

Content valuable []

Learners are clear about what they have to do []

Learners are clear when they have achieved it []

The Decision Support System is a good substitute for a human business consultant []

.....

General

Please add any other general comments you would like to make about the quality of the program design, including any suggestions for improvement.

Thank you very much for your help. Please return to James.Carr@ed.ac.uk.

Appendix 11: SME Learning Survey Interviewees

1. MDPW Participants

a. Graduates

Participant A: Cheryl Des Roches
Human Resources Assistant
Royal Star Foods (sea food processing)
www.royalstarfoods.com

Participant B: Wendy Deveaux
Management Trainee
Deltaware (software development)
www.deltaware.com

b. Trainers

Participant C: Linda Mayne
Accountancy trainer and MDPW Graduate

c. Evaluators

Participant D: Bernadette Allen
Owner-Manager
Future Learning (learning technology training solutions)
www.futurelearning.com

Participant E: Patsy Beattie-Huggan
Owner-Manager
The Quaich (healthcare training and evaluation)
www.thequaich.pe.ca

Participant F: Nishka Smith
Owner-Manager
AE Group (training and evaluation)
www.aegroup.ca

d. Course co-ordinator

Participant G: Isabel Christian
MDPW course co-ordinator
www.upei.ca/mdc/courses/courses.html

2. Other participants

Participant H: Pete Bennett
Owner-Manager
Learning Resources International (learning technology business and education solutions)
www.lri.co.uk

Participant I: Martyn Laycock
Former *EuroPILOT* programme manager

Participant J: Stuart Sinclair
Finance Director
Stortext (document storage solutions)
www.stortext.com

Appendix 12: SME Learning Survey Interview Schedule (Learners)

Introduction

Outline purpose of interview

Ask for permission to record and reproduce extracts in thesis

1. Background

Please describe the nature of your business.

What is your role within the business?

How many people work in your organisation?

How many people undertook the MDPW program?

What levels within your organisation did they represent?

2. The MDPW experience

How has your approach to management development within your organisation evolved over time?

What led you to undertake the MDPW program (demand-side drivers)?

Describe your experiences with the MDPW program (what is your story of what happened?)

- What were your expectations?
- Were these reached/surpassed?
- How closely did it match your needs?
- What could be done to improve the program?

3. MDPW learning technology specific

What were your experiences with the learning technology aspect of the MDPW program in particular? *(if interviewee has not addressed this in questions 3.)*

- What were the expectations about what the learning technology could do?/Were these achieved?/What could it not do?
- Does it form any new barriers to learning?
- Was it a cause for concern?
- How relevant was the learning technology to your needs?
- How was it integrated into the overall course? How effective was this?
- Was the learning technology linked to specific work-based (or personal development) tasks? Did this prove to be useful?

- What support and guidance has been available for learners?
- Was the role of facilitators made clear (technical and pedagogic)?

4. The nature of SME learning

What are the main learning needs of people employed in your company and in smaller organisations in general?

How would you describe the way that you and others in your organisation learn (and in smaller companies in general)?

- What help do you obtain from colleagues, mentors and others?
- What barriers to learning do you face?
- How important is informal learning? (Please describe how this occurs)

5. Learning technology general issues

How would you judge the potential for the effective use of management development learning technology by people working in smaller companies?

- Are there any mismatches between this type of learning option and the way people in SMEs normally learn?

Can you see any clear business benefits from using learning technology for management learning and development?

What aspects of management learning and development might be best suited to online delivery? What percentage of your development needs could be met through using learning technology?

How would you go about establishing a computer based learning culture in your organisation?

What should governments and training providers be doing to assist with the effective use of learning technology in smaller companies?

Closing

Can I email you with any follow-up questions?

Appendix 13: SME Learning Survey Interview Schedule (Trainers)

Introduction

Outline purpose of interview

Ask for permission to record and reproduce extracts in thesis

1. Background

Describe your role as a trainer in the MDPW program.

Describe your experiences with the MDPW program (what is your story of what happened?)

What were your expectations?

Were these reached/surpassed?

How closely did it match learner needs?

What could be done to improve the program?

2. MDPW learning technology specific

What is your view of the effectiveness of the learning technology aspect of the MDPW program in particular? (*if interviewee has not addressed this in question 1.*)

What were the expectations about what the learning technology could do?/Were these achieved?/What could it not do?

- Does it form any new barriers to learning?
- Was it a cause for concern to learners?
- How relevant was the learning technology to your user needs?
- How was it integrated into the overall course? How effective was this?
- Was the learning technology linked to specific work-based (or personal development) tasks? Did this prove to be useful?
- What support and guidance has been available for learners?
- Was the role of facilitators made clear (technical and pedagogic)?

3. The nature of learning in smaller companies

What is your view of the main learning needs of people employed in smaller companies?

What is your view of how people in smaller companies generally learn?

What help do they obtain from colleagues, mentors and others?

What barriers to learning do they face?

How important is informal learning? (Please describe how this occurs)

4. Learning technology general issues

How would you judge the potential for the effective use of management development learning technology by people working in smaller companies?

Are there any mismatches between this type of learning option and the way people in SMEs normally learn?

Can you see any clear business benefits for smaller companies through the use of learning technology for management learning and development?

What aspects of management learning and development might be best suited to online delivery? What percentage of smaller company management development needs could be met through using learning technology?

How would you go about establishing a computer based learning culture in a small organisation?

What should governments and training providers be doing to assist with the effective use of management development learning technology in smaller companies?

Appendix 14: SME Learning Survey Interview Schedule (Course-Coordinator and Evaluators)

Introduction

Outline purpose of interview

Ask for permission to record and reproduce extracts in thesis

1. Background

Describe your role as a course coordinator/evaluator for the MDPW program.

Describe your experiences with the MDPW program (what is your story of what happened?)

- What were your expectations?
- Were these reached/surpassed?
- How closely did it match learner needs?
- What could be done to improve the program?

2. Key issues

How effective was the integration of learning technology into the MDPW programme? What could be done to improve things further?

What is your view of the main learning needs of people employed in smaller companies?

What is your view of how people in smaller companies generally learn in the workplace?

- What help do they obtain from colleagues, mentors and others?
- How important is informal learning? (Please describe how this occurs)

How can management development learning technology be used effectively to support SME workplace learning?

- Are there any matches/mismatches between this type of learning option and the way people in SMEs normally learn?
- Although SMEs have generic management development needs, each individual SME seems to require bespoke training. How can this issue be addressed with regard to developing effective computer-based learning technology?

What aspects of management learning might be best suited to online delivery? (given that traditional management teaching and learning requires a vast amount of interaction)

What main measures should governments and training providers be taking to assist with the effective deployment and use of management development learning technology in smaller companies?

Appendix 15: Virtual Visit worksheet example

Department of Business Studies

2/3 Course: Operations Management in A Strategic Context

Tutorial 1. United Distillers

The aim of this tutorial is for students to understand the use of the transformation model of operations and be able to identify how technology, inventories and human resource policies may be used to accommodate variable demand.

In pairs connect to the Virtual Visit multimedia presentations by clicking on the **WWW** icon and going to the **Operations Management bookmark**. Look at the presentation on UD Leven. First, identify the principal outputs and inputs.

A "**help**" is available by clicking on the ? symbol in the top right frame. Remember to switch off **toolbar** and **location** in the **options** dialogue.

	Inputs	Outputs
UD		

For UD Leven identify how technology/machinery, the management of stocks of materials and finished products, and the management of the workforce are all influenced by the seasonal nature of whisky sales.

	UD Leven
Technology	
Stocks	
Workforce	

Appendix 16: Virtual Visit worksheet “skeleton” answers example

Department of Business Studies

2/3Course: Operations Management in A Strategic Context

**Tutorial 1. United Distillers
Key Points**

	Inputs	Outputs
UD	Whisky: grain & malt Water Labour Capital Bottles, labels, packaging	Packaged whisky on pallets

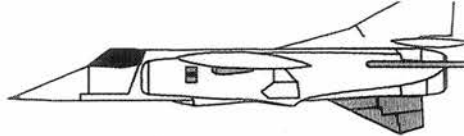
For UD Leven identify how technology/machinery, the management of stocks of materials and finished products, and the management of the workforce are all influenced by the seasonal nature of whisky sales.

	UD Leven
Technology	Allows changes in capacity by varying number of lines operating
Stocks	Stocks of packaged whisky built up in autumn to accommodate Christmas surge in demand
Workforce	Temporary employees hired in the Autumn

Appendix 17: EuroPILOT promotional literature



EUROPEAN
SOCIAL FUND GB



business
development
CENTRE

euroPILOT

a navigational and support system for East London organisations

New Euro-funding for University means fantastic opportunity for FIFTY East London organisations

In a recently announced £1.4m project, the University of East London's Business Development Centre is offering FIFTY East London firms the opportunity to avail of 15 months support and development package under the European Community's ADAPT programme - an exciting, leading-edge development programme to take them right into the next Millennium !

The programme is designed to help local firms respond to increasing competition and to adapt to new opportunities, to help them innovate and grow, increase sales and profits, preserve jobs, create new jobs. ***To qualify business and voluntary sector organisations need to :***

- have been established for at least three years
- be an independent UK firm or charity with between 2 and 249 employees
- have their primary business base in East London
- be seeking to grow and develop
- be prepared to commit to between 2-5 key employees (e.g. owners, managers, supervisors, key creative/development staff) to participate in a structured organisational/individual 15-month development programme requiring an average of 2 hours per person per week starting between Sept '98 and April '99.

If your organisation can meet ***all*** the above and make a strong commitment to a full 15 months participation in this project, ***then please read on.....***

the Bee flies high !



Superb Opportunity for
East London firms

Bee Centre Membership included !!

Online plan takes training to work

HELP is at hand for 50 lucky east London companies who want to develop their computer and business skills.

The University of East London's Business development Centre has launched a new project aimed at helping them into the 21st century, with an Internet based 'decision support system' offering training in business and modern computer systems in the workplace.

A few places are still available on the courses, which are tailored to the individual needs of businesses taking part.

Report: Colin Tredwell

The training is free to selected businesses, who must have less than 250 employees, have a primary base in east London, and have plans for growth and expansion.

"The programme is designed especially for their specific needs, and the instruction methods we use respect the time pressures facing small businesses," said project director Martin Laycock.

"Now that most of our participants are successfully online, it is time to deliver our support through the Internet, the advantage being the speed with which we can respond to their needs, and that they can learn in

the workplace."

The scheme is the second phase of the euro-Pilot Programme launched in October last year, and will run until the end of next year, offering support in key areas of business development, such as competitiveness.

Mixed in with the sessions will be networking barbecues, at which participating companies will be able to meet others and discuss their progress.

"Our business service is all about innovation, and our participants realise that networking is the fastest and fun way to learn," Mr Laycock said.

Informal

"We always mix sessions in the Business Enterprise Exchange here with social events, giving our participants the chance to share experience and information in an informal environment."

The project just launched is funded under the European Community's ADAPT programme, which aims to offer a leading edge approach to supporting participants in the programme, using the latest technology and work based learning methods.

"The new systems maximise the effectiveness of transferring new knowledge and information, technology into daily business practice," Mr Laycock added.

A limited number of places remain on the project, Mr Laycock said, and interested companies should contact Julie Taylor, project manager, or Bob Roberts, at the Business Development Centre on 0181 215 0700 for more information.

Alternatively, computer literate bosses and managers can check out the web site at <http://www.eurpilot.com> for more details.

It's one L of a deal

DRIVING instructors in the Southend district have clubbed together to strike a deal with Romford and Dagenham motor dealer Crown Motors for their cars.

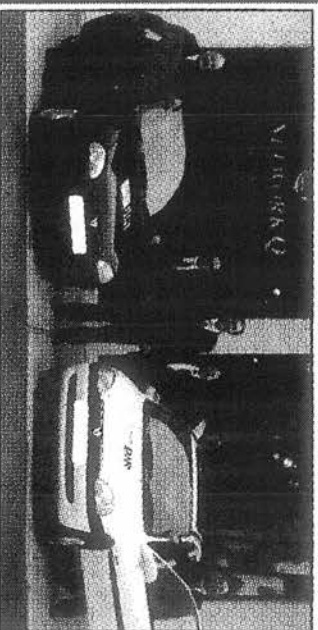
More than 100 members of the Southend and District Driving Instructors

Association have driven through a deal for the cars which will be supplied to their own specification, and on terms agreed through negotiation with Crown Motors.

Keith Woodcock, Vauxhall Business Centre manager at Crown Motors, said:

"It was an L of a deal, but we were able to present a contract hire package for the Vauxhall Corsa on a full maintenance agreement.

"The instructors can specify the contract length and mileage dependent on their individual requirements."



FREE COMPUTER ADVICE OFFER

Businesses that London East is offering east London small businesses a FREE review of their IT situation. The consultation will offer advice and reassurance about:

- buying new IT equipment
- analysing the costs and benefits of your IT resources
- using the web to enhance and promote your business

To see if you qualify for a free IT review, please contact the Area Business Advisor on 07000 48 50 45

Are you proud of your business?

If your business is going places, here is the opportunity to get the recognition you deserve.

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COMPANY TITLE

NOMINEES NAME/TITLE

COMPANY ADDRESS

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EAST LONDON SMALL BUSINESS AWARDS 1999

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PRESS RELEASE

August 1998

UNIVERSITY PILOTS MORE HELP FOR EAST LONDON FIRMS **UeL's Business Development Centre gains More Euro-Support**

More help is on the way for small and medium-sized firms (up to 250 employees) in East London. It's all part of the ongoing re-generation process and the increasing role which the University of East London is playing in it.

Ready for take-off in September is UeL's "Pilot" project, an initiative under the European Community's ADAPT programme, which will provide assistance and support for FIFTY firms in East London. The Project itself will create up to nine new jobs over the next 18 months as it sets about providing detailed ongoing support to owners, managers and key staff in local firms who want to adapt to meet increasing competition..

Martyn Laycock, Director of UeL's highly successful Business Development Centre in Stratford says:

"This is really good news for firms throughout East London. This £1.4m project will see us working with key people in each of 50 local firms over a period of 15 months. The aim is to use modern learning methods and technologies to help firms combat increasing competition, become more efficient, get more orders, create more jobs. We have been awarded over £500,000 of European Community funding to help us do this and we're going to be doing some pretty exciting things as part of this package."

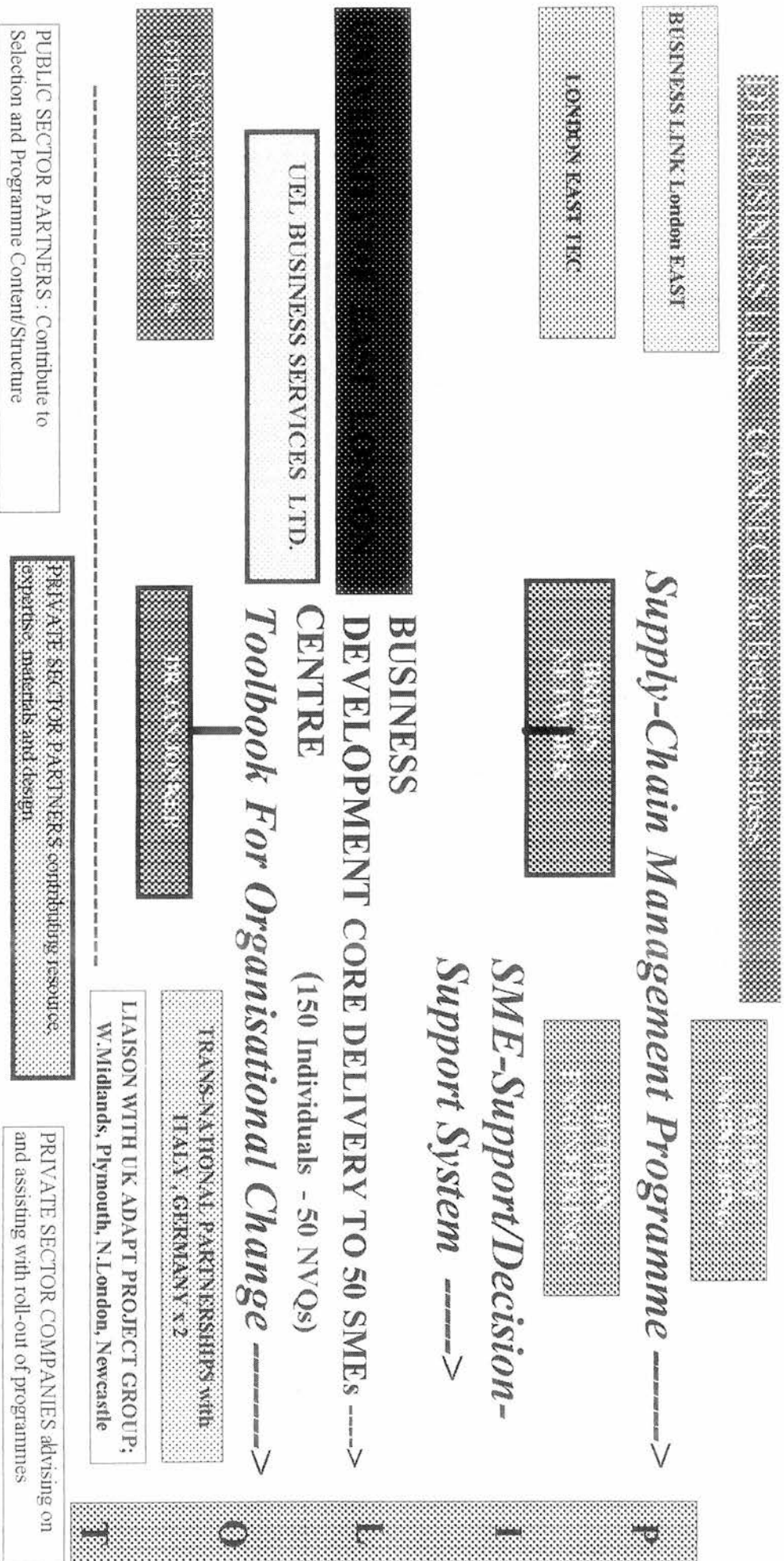
Now the University are looking for the fifty firms who can benefit under this scheme. "It costs them nothing other than employee time (about two hours a week) to participate in the project," says Martyn Laycock. "But for their involvement firms get full access to the Business Development Centre plus a 15 month company and individual development programme provided through state-of-the-art IT and Internet support systems. We're looking for firms who are keen to adapt, keen to grow and we will be able to take on between two and six people from each firm, depending on the size of the company and its needs. An integral part of the project is that at least one person in each firm will also be able to study for an National Vocational Qualification (NVQ), again without charge. The NVQs will be in Management, Customer Care or Supply Chain Management."

In addition to traditional workshops on subjects such as management, marketing, finance and managing change firms will be provided with access to a comprehensive library - not just the excellent libraries and learning centre at Duncan House in Stratford but also via on-line access to a wide range of business support systems and assessment and diagnostic tools which the University are developing as part of this project.

The University are now looking for firms in a number of key business sectors - manufacturing, transportation/logistics, construction, textiles, art/creative/cultural industries and in business/healthcare services - who can commit to this 15-month programme and start between September this year and January 1999. Any East London firm interested in participating should contact Martyn Laycock or Martin Cearns at the Business Development Centre - 0181 215 0700 or e-mail beekeeper@bee.co.uk

PILOT PROGRAMME

Organisational/Activity Chart



Appendix 18: Explanation of ADAPT

What is ADAPT?

ADAPT is a Community Initiative funded through the European Social Fund (ESF), (one of the Structural Funds), with a budget for the period 1995-9 of 307.6 million ECU in Great Britain. Introduced in 1995, ADAPT supports innovative and transnational projects.

ADAPT has four interrelated objectives

- to accelerate the adaptation of the workforce to industrial change;
- to increase the competitiveness of industry, services and commerce;
- to prevent unemployment by developing the workforce through improving their qualifications, their internal and external flexibility and ensuring greater occupational mobility;
- to anticipate and accelerate the development of new jobs and new activities, particularly labour-intensive ones. This includes exploiting the potential of SMEs.

Target Groups

In Great Britain ADAPT supports projects which benefit one or more of the three following target groups either directly, or through training and development of 'agents of change' (such as trainers and company managers) who will go on to influence the ultimate beneficiary group:

- employees of SMEs threatened with redundancy;
- former employees of workers who have been laid off due to industrial restructuring;
- workers who have involuntarily moved to part-time work and have the potential to be employed in newly created jobs after retraining.

There is a particular emphasis on helping the workforce to adapt to the demands of the Information Society.

Where projects target existing employees of SMEs, the beneficiaries must be employees of firms with fewer than 250 employees. Priority will be given to projects targeting companies that employ less than 50 employees. Where projects involve the provision of training to individual employees, the beneficiaries must be employed by firms with fewer than 50 employees.

Source: retrieved in March 1999 from: <http://www.adapt.ecotec.co.uk/index.htm>

Appendix 19: EuroPILOT programme objectives

- “to develop and provide unique telematic SME access to SME-focused consultants, functional specialists and independent advisors via a purpose-built on-line fuzzy-logic SME support system to be developed during 1998, piloted and thoroughly tested in early 1999 and launched in June of that year; the system will incorporate 50 learning modules and related relevant sites and 15 appropriate case studies featuring SMEs in a number of different countries and sectors which will be developed by early 1999 - all of these accessible via modern telematics;
- to work in close collaboration with partners in three other EC countries operating SME programmes in similarly economically and socially challenged areas and through telematic and other means of effective ongoing communication to compare experiences and to identify - and wherever possible replicate - best-practice in these areas to capitalise on the multiplier effect;
- to improve the sub-regional support base by helping to build the business support capacities of partner organisations - especially Business Link London East (BLLE) but also London East Training Enterprise Council (LETEC) - thereby helping them to take on more clients and provide them with faster on-line access to key data, information and case material relevant to the needs of both themselves and their client bases;
- to work closely with identified best-practice SMEs in the UK and with trans-national partner organisations to develop electronic versions of the Toolbook and to develop an SME-specific inter-active CD-ROM on Effective Supply-Chain Management and to use these as drivers to raise supply-chain awareness both within the primary target group and in a further 200 SMEs in the East London area via a programme of 16 supply-chain workshops run in collaboration with Business Links and the Regional Supply Network;
- to closely monitor and evaluate take-up and performance of SMEs during the 2-year project period and to identify and disseminate best-practice through rigorous further research linked to the company life-cycle and the take-up of new technologies and processes as primary contributors to growth and innovation in SMEs;
- to work closely with large companies in East London - particularly Ford - in order to obtain their support and active involvement through local supply-chains to help improve sector and cluster performance to the benefit of all parties and the East London economy in particular;
- to generate good publicity and awareness for the project and its relevance to the East London economy by arranging a series of conferences, workshops and seminars and by publishing case-studies and examples of good practice in the management, growth and innovation of SMEs.
- to directly support 50 carefully targeted vulnerable SMEs in areas/sectors in East London offering opportunities for growth and development over 2 years in order

to reduce their vulnerability, encourage improved performance and organisational development, innovation and growth - thereby preserving up to 500 jobs and creating up to 50 new jobs in an area of already high unemployment, via a specially created programme of integrated organisational support and management development facilities;

- to ensure that, working with our UK agency partners, within the targeted areas/groups we build in the widest possible cross-section of business owners to reflect the multi-racial, multi-cultural characteristics of East London business and provide for the special needs of women, members of ethnic minorities and the disabled throughout the project activity;
- to develop and make available - via two well-equipped assessment centres - to 150 participants (average three per SME) electronic versions of a comprehensive set of 35 assessment tools and techniques comprising a Toolbook for Organisational Change that will help SME owners and managers to anticipate change and encourage them to plan and operate their business on a more productive and profitable basis; also to encourage the development of 50 organisational development plans that connect management and people development to Management Charter Initiative (MCI) standards, including attainment of NVQ at levels 3/4/5 by at least one person in each participating SME.”

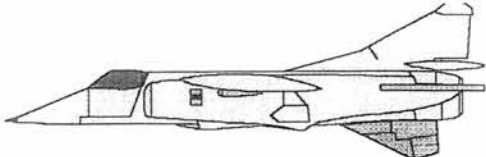
Source: *EuroPILOT ADAPT* application form, 1997.

Appendix 20: EuroPILOT Learner Target Group

“*EuroPILOT* is targeted at owners, managers and key staff (e.g. supervision in 50 SMEs identified through East London Business School (ELBS), Business Link London East (BLLE), London East Training Enterprise Council (LETEC) and, where relevant, participating local authorities). Similarly sized groups in two/three other European countries will also be targeted by transnational partner organisations. The proposed package/portfolio of activities will be particularly appropriate to certain groups of vulnerable SMEs e.g. those in sectors/areas undergoing fundamental long-term change, relatively new businesses reaching expansion phases and older established businesses encountering new market conditions/fiercer competition in their sector; also those in supply-chains (e.g. automotive, retail, transport/logistics) where new processes, concepts and communicational channels and devices are being introduced. There will be a particular focus on stabilising and developing the much-reduced base of manufacturing firms and on encouraging new firms to come into the area based on increased economic and local, sub-regional supply-chain activity. Awareness-raising of the long-term benefits of effective supply-chain management as a key driver for organisational change will be focused on owners/managers/key staff responsible for training in SMEs in service and manufacturing sectors - particularly logistics and transportation - and “key influencers” in local business support organisations by working in close collaboration with the Department of Trade and Industry (DTI) and, particularly, Business Links and the Regional Supply Network, with whom detailed discussions and draft roll-out plans have already been discussed.”

Source: *EuroPILOT* ADAPT application form, 1997.

Appendix 21: First EuroPILOT introductory workshop



euroPILOT



EUROPEAN
COMMUNITY
ADAPT
PROJECT



UNIVERSITY of
EAST LONDON

<http://www.europilot.com>

a navigational and support

programme for East London SMEs

business
development
centre



<http://www.bee.co.uk>

the Bee flies high !

Group 1B

START-UP:

29th October 1998

WELCOME !

Project Director : Martyn Laycock
Co-Pilots : Michelle Golding & Bob Roberts
Test-Pilot : Gordon Watson

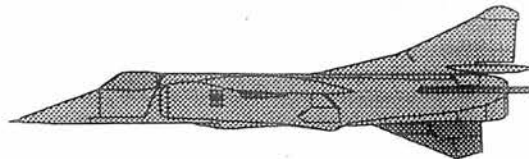
euroPILOT is an immensely practical, highly innovative high-impact organisational and individual development programme operated by the University of East London under the European Social Fund supported "Adapt" programme. It has partner organisations in Italy and in Germany.

Featuring the management of change and supply chain management as key drivers the programme blends traditional learning - meetings, workshops, access to libraries etc - with modern "telematic" support - through the "Bee" open-learning centre, on-line telematics, video-conferencing and access to a leading-edge SME "decision support system".

Participants may undertake National Vocational Qualifications in Customer Service (Level 3) or in Management (levels 3, 4 or 5) as part of the programme.



EUROPEAN SOCIAL
FUND GB



euBILOT

START-UP/ASSESSMENT PROGRAMME

GROUP 1 COHORT B

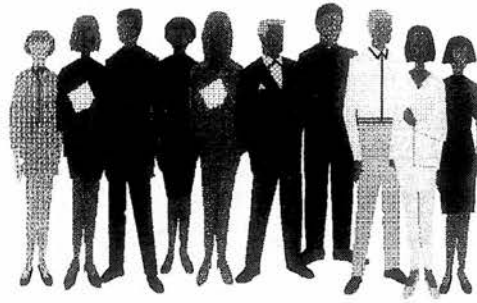
COMPANY PARTICIPANTS: Vijay Stores Town & Country Signs
 Inn or Out Ltd Byron Shipping Ltd
 Body Balance

SCHEDULE

9.30 for 10.00	Coffee and Registration
10am	WELCOME AND INTRODUCTIONS
1045	PROGRAMME REGISTRATION
11am	PROGRAMME DETAILS: <ul style="list-style-type: none">• Structure• Aims and Objectives• Activities - workshops<ul style="list-style-type: none">• Bee Centre• "on-line"• work-based• NVQs• Role of the Co-Pilots
12pm	TECHNOLOGY/SUPPORT <ul style="list-style-type: none">• Modems• Web-Sites• Courses, support, extra programmes
1230	WHO AM I? <ul style="list-style-type: none">• Psychometric Questionnaire
1pm - 1.45	BUFFET LUNCH
145 - 2.45	MANAGING CHANGE : <ul style="list-style-type: none">• Introducing the Toolbook• Initial Practical
2.45	PROGRAMME ADMINISTRATION <ul style="list-style-type: none">• activities• record -keeping• communication
3pm	EVENTS & BOOKING
3.45	CLOSING SUMMARY; Way Forward
4pm	TEA : Tour of the Bee/ BDC/LRC



People in Learning Organisations working Together



GROUP 1B : Start-Up : 29th October 1998

Likely Finish Date : December 1999

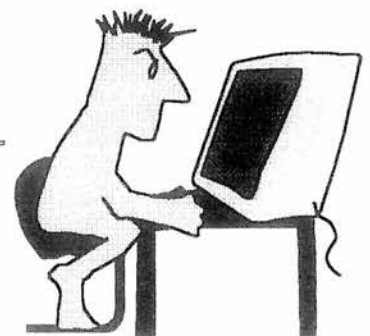
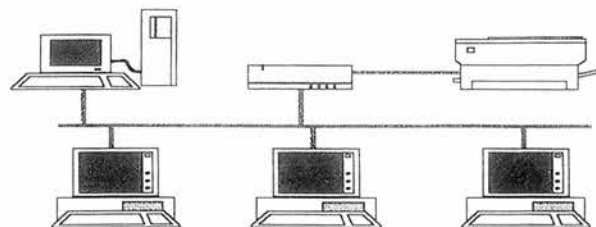
The key objectives of the *euroPILOT* programme are to assist organisations to adapt to change, to become more competitive through *the development of their people* and through *the use and application of modern information and communications technology (ICT)*.

Major subjects covered include:

Managing People	Managing Finance	Managing Markets
Managing Operations		Managing Technology
Managing Change		Developing Strategy

Inputs and activities are unlikely to be evenly distributed throughout the programme, but participants will - over the 15 month period - spend an average of 2 hours per week on Pilot activities which will include:

- * *workshops and meetings*
- * *self-learning in the Bee centre*
- * *occasional short courses and programmes*
- * *on-line activities*
- * *work-based assignments*





In *euroPILOT* we will be focussing on the needs of your business, your organisation, helping you to help make it more competitive, more efficient, more effective.

At the same time we are offering you the opportunity to develop *yourself*,

A unique blend of organisational and self development !

With your colleagues (where appropriate) and working closely with your management and our “co-pilots” and “test-pilots” and with others in your group we offer you the opportunity to take a hard look at your organisation to sense where “its at” - and where it may want - or need - to get to.

We provide a number of “assists” in this respect :

- * Membership of the Business Development Centre
 - * A DTi/Business Link Benchmarking Report
- * Access to special on-line facilities on the Bee and *euroPilot* web sites
 - * Membership of the Sunday Times Enterprise Network
 - * Various Tools and Diagnostics (e.g. supply-chain CD-Rom)

And in connection with your *personal* development we offer :

- * a unique “Insights” psychometric test
- * access to our Bee and Learning Resource Centres (Duncan House)
- * an opportunity to complete a National Vocational Qualification



All Pilot participants will be issued in due course with personalised Pilot pass-cards facilitating access to the Bee Centre, Learning Resource centre and approved Pilot workshops e.g. Connect for Better Business and other workshops.

In the meantime an individual Letter of Participation will be issued.

Are you **ready**?

- ready for program activity?
- ready to assist organisational change?
- ready to develop **yourself**?

We all start from different positions and have differing objectives, horizons and timescales. We start by offering you a service of short simple checklists which are aimed at helping **you** decide where you - and your organisation are.” They’re primarily for your **own** use but can be discussed with the Programme Director, or one of the co-pilots at any time.

The psychometric test is optional but recommended, and if you decide to have one, one will be delivered personally to you and its contents explained by one of the Pilot team within the next 6-8 weeks.

Appendix 22: BEE open learning centre promotional literature

development business centre

WELCOME to the new Bee centre !

its been re-modelled, re-equipped, re-stocked, and is now being re-vitalised

From March 1999 it becomes one of four
East London Centres of Excellence for Information Technology.
the others of which are at :

- * Newham College's campus in Stratford
- * ELATT in Stepney
- * a new 'virtual' centre on the Internet to be operated jointly
by LETEC and Ilford-based Internet Service Provider LeoNet

Through our partnership with London East TEC and in collaboration with Business Link London East we have been successful in obtaining funding from David Blunkett's "IT Excellence" initiative, part of the Government's long-term programme to help improve the levels of technology and other skills throughout Britain. In addition to an expanded range of learning products and materials the 'new Bee' centre, to be officially opened in MARCH 1999, will have a particular focus on helping local businesses and their employees improve their technology skills and will be offering a range of new facilities and services including :

FULL RANGE OF MICROSOFT APPLICATIONS & COURSES
GIS MAPPING
PROJECT MANAGEMENT
ADVANCED INTERNET APPLICATIONS
CAD - CAM
NEURAL NETWORKS/NETWORKING APPLICATIONS
MICROSOFT DIRECT-ACCESS PRODUCTS AND TRIALS

DfEE
Department for
Education and Employment

in partnership with
LONDON EAST TEC

Business Development Centre, University of East London
Duncan House, High Street, Stratford, E15 2JB

The Business Enterprise Exchange Diary of Events

This page will help you stay informed of the popular courses run at the BeE Centre. They include: **Open Days introductory events**, **Connect for Better Business workshops sponsored by the DTI**, **Business Breakfast Club meetings and meet local celebrities**, **Internet courses**, **IT Courses on the most popular PC software** and much more. To find out more about these events you can contact us [here](#) OR phone Jackie Chandler on 0500 007 807.



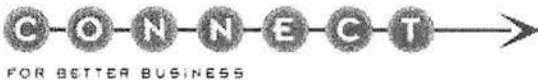
OPEN MORNINGS FOR LOCAL BUSINESS

A Business Breakfast meeting 8am to 10am unless otherwise stated.

'Show Arounuds' held several times a month -

NEXT DAYS TO BE ANNOUNCED

Book Early they are always very popular! You can book on-line NOW by clicking [HERE](#) Come and have breakfast with us at the BeE Centre and find out more about how we can help you and your business. Click [here](#) for details.



"**Connect for Better Business**" is a series produced by the DTI and Business Link and offers a window on best practice in action. During 1998 we presented 18 workshops based on DTI's *Connect for Better Business* material all of which have been well attended and very well received. Our initiative of augmenting the case studies with a local business person attracted acclaim from the DTI. This series now continues into 1999 with :



Watch this space for new events ! Join the **Business Breakfast Club** for automatic notification.

The formula of a celebrity guest speaker followed by a full cooked breakfast has been successfully running since September 1997 when our speaker was Ken Lewis of Dutton Engineering. Ken has since been awarded the O.B.E. in the New Year Honours List and has been used by the DTI to feature in their Connect for Better Business series. We have adapted the formula slightly since the summer of '98 to incorporate Connect for Better Business but retaining the guest speaker.

NEXT EVENTS:

Watch this Space for more details!

If you would like to be notified Automatically of New Events please register in our [Visitor's Book](#)

BOOK NOW! Using Booking [Form](#) OR Phone Jackie Chandler on 0500 007 807.

Appendix 23: Psychometric test

Insights Discovery

Preference Evaluator

Introduction

This Evaluator forms the basis of your Insights Discovery report. It is not a pass or fail test. It simply records your perception of your work preferences.

Instructions

Find a time and place where you will not be interrupted.

- In each frame, read each statement carefully. Select the one statement that MOST describes you in your work environment and circle **M** next to this.
 - From the remaining three statements, select the statement that LEAST describes you in your work environment and circle **L** next to this.
 - For each of the remaining two statements circle a weighting from the values 1, 2, 3, 4 and 5, where 1 represents 'not likely to describe me', and 5 represents 'very likely to describe me'. Please do NOT choose the same weighting twice. Select those weightings which you believe best represent the relative intensity of the description in your working personality.
 - Continue until all 25 frames have been completed. Please ensure every frame has been scored, and every statement has been allocated an M, an L, or a value selected from 1, 2, 3, 4 or 5.
- Remember, this is NOT a test! There are no right or wrong answers.
 - Respond to the Evaluator based on your perception of yourself. Do not discuss your choices with others.
 - Choose your responses quite quickly, as your first impression is often best. As a guide, this Evaluator typically takes between 10-20 minutes to complete.

Personal Details (please use BLOCK CAPITALS)

Date : ___/___/___ (DD/MM/YY)

Title : _____ Male: Female:

First Name : _____

Last Name : _____

Job Title : _____

Department : _____

Company : _____

Address : _____
 : _____
 : _____ Postcode _____

Telephone : _____

Fax : _____

E-mail : _____

Date of Birth: ___/___/___ (DD/MM/YY)

Staff No. : _____

MBTI® Type : _____ (If known) MBTI is a registered trademark of Consulting Psychologists Press inc

Insights Use

Ref 1 : _____

Ref 2 : _____

Ref 3 : _____

Insights ID : _____

0. Sensitive and diplomatic L 1 2 3 4 5 **M**
 Encouraging and valuing L 1 2 3 **4** 5 M
 Precise and deliberate **L** 1 2 3 4 5 M
 Results-oriented and fast L **1** 2 3 4 5 M

1. Careful and evaluating L 1 2 3 4 5 M
 Loyal and faithful L 1 2 3 4 5 M
 Influencing and gesturing L 1 2 3 4 5 M
 Strategic and pushing L 1 2 3 4 5 M

2. Sociable and familiar L 1 2 3 4 5 M
 Reliable and restrained L 1 2 3 4 5 M
 Forceful and goal-oriented L 1 2 3 4 5 M
 Methodical and logical L 1 2 3 4 5 M

3. Calm and even-tempered L 1 2 3 4 5 M
 Determined and dominant L 1 2 3 4 5 M
 Optimistic and cheerful L 1 2 3 4 5 M
 Exact and precise L 1 2 3 4 5 M

4. Confident and vigorous L 1 2 3 4 5 M
 Orderly and concise L 1 2 3 4 5 M
 Familiar and stable L 1 2 3 4 5 M
 Talkative and genial L 1 2 3 4 5 M

5. Detached and clear L 1 2 3 4 5 M
 Challenging and direct L 1 2 3 4 5 M
 Constant and attached L 1 2 3 4 5 M
 Sociable and active L 1 2 3 4 5 M

WHEN YOU HAVE COMPLETED THE EVALUATOR, PLEASE ENSURE EVERY FRAME HAS BEEN ALLOCATED ONE 'M', ONE 'L' AND TWO DIFFERENT VALUES SELECTED FROM 1, 2, 3, 4 OR 5.

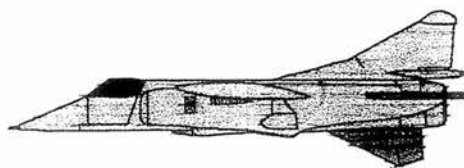
6. Accommodating and helping	L 1 2 3 4 5 M	16. Animated and persuasive	L 1 2 3 4 5 M
Upbeat and hopeful	L 1 2 3 4 5 M	Decisive and immediate	L 1 2 3 4 5 M
Powerful and assertive	L 1 2 3 4 5 M	Analytical and well-disciplined	L 1 2 3 4 5 M
Thinking and distant	L 1 2 3 4 5 M	Tolerant and laid-back	L 1 2 3 4 5 M
7. Demonstrative and ready	L 1 2 3 4 5 M	17. Patient and empathetic	L 1 2 3 4 5 M
Painstaking and discerning	L 1 2 3 4 5 M	Logical and controlled	L 1 2 3 4 5 M
Tough and initiating	L 1 2 3 4 5 M	Task-focused and confronting	L 1 2 3 4 5 M
Settled and reflective	L 1 2 3 4 5 M	Discussing and compromising	L 1 2 3 4 5 M
8. Determined and resolute	L 1 2 3 4 5 M	18. Influential and informal	L 1 2 3 4 5 M
Social and cheerful	L 1 2 3 4 5 M	Discreet and value-driven	L 1 2 3 4 5 M
Relating and amenable	L 1 2 3 4 5 M	Considered and impersonal	L 1 2 3 4 5 M
Consistent and correct	L 1 2 3 4 5 M	Challenging and unwavering	L 1 2 3 4 5 M
9. Sensitive and diplomatic	L 1 2 3 4 5 M	19. Systematic and prepared	L 1 2 3 4 5 M
Precise and deliberate	L 1 2 3 4 5 M	Courageous and independent	L 1 2 3 4 5 M
Encouraging and valuing	L 1 2 3 4 5 M	Responsive and extraverted	L 1 2 3 4 5 M
Results-oriented and fast	L 1 2 3 4 5 M	Counselling and caring	L 1 2 3 4 5 M
10. In-charge and firm	L 1 2 3 4 5 M	20. Articulate and strong	L 1 2 3 4 5 M
Reserved and cooperative	L 1 2 3 4 5 M	Spontaneous and spirited	L 1 2 3 4 5 M
Outgoing and gregarious	L 1 2 3 4 5 M	Studious and reasoned	L 1 2 3 4 5 M
Meticulous and detailed	L 1 2 3 4 5 M	Peaceful and harmonious	L 1 2 3 4 5 M
11. Team-focused and impulsive	L 1 2 3 4 5 M	21. Organised and thoughtful	L 1 2 3 4 5 M
Accurate and rational	L 1 2 3 4 5 M	Patient and supportive	L 1 2 3 4 5 M
Amiable and even-tempered	L 1 2 3 4 5 M	Strong and well-argued	L 1 2 3 4 5 M
Task-oriented and unyielding	L 1 2 3 4 5 M	Interacting and open	L 1 2 3 4 5 M
12. Analysing and questioning	L 1 2 3 4 5 M	22. Independent and bold	L 1 2 3 4 5 M
Friendly and entertaining	L 1 2 3 4 5 M	Peaceful and relaxed	L 1 2 3 4 5 M
Demanding and robust	L 1 2 3 4 5 M	Factual and conventional	L 1 2 3 4 5 M
Unassuming and responsive	L 1 2 3 4 5 M	Lively and congenial	L 1 2 3 4 5 M
13. Personal and deep	L 1 2 3 4 5 M	23. Demonstrative and enthusiastic	L 1 2 3 4 5 M
Emotive and trusting	L 1 2 3 4 5 M	Driving and realistic	L 1 2 3 4 5 M
Observing and apart	L 1 2 3 4 5 M	Compassionate and considerate	L 1 2 3 4 5 M
Active and controlling	L 1 2 3 4 5 M	Attentive and detailed	L 1 2 3 4 5 M
14. Strong-willed and purposeful	L 1 2 3 4 5 M	24. Fair and stubborn	L 1 2 3 4 5 M
Reasoned and particular	L 1 2 3 4 5 M	Objective and daring	L 1 2 3 4 5 M
Eager and engaging	L 1 2 3 4 5 M	Thorough and quiet	L 1 2 3 4 5 M
Concerned and sensitive	L 1 2 3 4 5 M	Good mixer and lively	L 1 2 3 4 5 M
15. Formal and principled	L 1 2 3 4 5 M	25. Cautious and accurate	L 1 2 3 4 5 M
Fun-loving and popular	L 1 2 3 4 5 M	Straight and unyielding	L 1 2 3 4 5 M
Steadying and moderating	L 1 2 3 4 5 M	Expressive and outgoing	L 1 2 3 4 5 M
Fast and reinforcing	L 1 2 3 4 5 M	Steady and accepting	L 1 2 3 4 5 M

WHEN YOU HAVE COMPLETED THE EVALUATOR, PLEASE ENSURE EVERY FRAME HAS BEEN ALLOCATED ONE 'M', ONE 'L' AND TWO DIFFERENT VALUES SELECTED FROM 1, 2, 3, 4 OR 5.

Appendix 24: Second EuroPILOT workshop



EUROPEAN
SOCIAL FUND GB



euroPILOT

THURSDAY 18TH MARCH 1999

WORKSHOP 2 : READY FOR TAKE-OFF !

Group 2B - VOYAGER

- | | |
|---------|--|
| 9.30AM | Coffee and registration |
| 10.00AM | Welcome & Introduction |
| 10.15AM | Psychometric Testing overview by Co-Pilots. |
| 11.00AM | IT Support : <ul style="list-style-type: none">• The Bee and euroPILOT sites• The SME Decision-Support System explained;• Discussion• Modems, e-mails and fings ! |
| 11.45AM | COFFEE |
| 11.00AM | NVQs : Registration/Schedules etc |
| 12.15PM | Psychometrics – Teamworking/Teambuilding |
| 12.45PM | Individual reports returned to participants. |
| 1.00PM | Discussion/Future Meetings/Lunch |

Appendix 25: Connect for Better Business promotional literature



UNIVERSITY of
EAST LONDON



EUROPEAN SOCIAL FUND GB

business
development
centres

EAST LONDON MEANS BUSINESS

at the University of East London, Duncan House, High Street, Stratford E15 2JB

CONNECT FOR BETTER BUSINESS AND OTHER EVENTS

FEBRUARY: Wednesday 10th

Customer Care

11am - 1pm } combined

Electronic Networking

2.30 - 5pm } lunch

Thursday 11th

Business Development Centre Open Morning

8am - 10am

Wednesday 17th

Business Start - Up (10 week course)

6.15 - 9.15 every Wednesday

Thursday 18th

Business Breakfast with Susan Fey CE of LETEC

8am - 10.30

Friday 26th

Partnerships & People Markets

8am - 10.30 with cooked breakfast
11am - 1pm plus light lunch

MARCH:

Thursday 11th

Business Development Centre Open Morning

8am - 10am

Wednesday 24th

Managing Change

10.30 - 12.30pm } combined

Products & Processes

2.30 - 5pm } lunch

APRIL:

Wednesday 14th

Benchmarking

10.30 - 12.30 } combined

Business Excellence

2.30 - 5pm } lunch

Thursday 15th

Business Development Centre Open Morning

8am - 10am

Wednesday 21st

Exporting

8am - 10am incl. cooked breakfast
11am - 1pm plus light lunch

Finance

MAY:

Thursday 13th

Business Development Centre Open Morning

8am - 10am

Wednesday 19th

Business Start - Up (10 week course)

6.15 - 9.15 every Wednesday



UNIVERSITY of
EAST LONDON

business
development
centre

Products and Processes

Wednesday 24th March 1999

“CONNECT FOR BETTER BUSINESS” *A highly practical workshop for business people*

For most businesses today the pressure to perform has never been greater. Competition becomes fiercer by the day *and only those businesses that continually seek to develop new and improved ways of working will ultimately be the ones which succeed.*

“Connect for Better Business” is a programme devised by the DTI and offers a window on best practice in action. Driven by the desire to provide businesses with the means to discover “how” to improve performance as against “what” to improve, it focuses on the key issues for managers today.

PRODUCTS and PROCESSES : Product innovation and increasing existing product ranges are activities that touch the heart of a company’s creative resources and management skills. Although new technologies can be an important competitive advantage in this area, many improvements can be achieved through more effective management processes and through improved relationships with customers and suppliers.

Learn from the experiences of others in achieving

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Value for Money

Effective Supply Chain Management

Tailored Products and Services

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(Dutton were the DTI “SME of the Year 1996/97 and continue in the forefront of innovation. Tina has been a popular speaker at previous BDC events)

PROGRAMME : Buffet Lunch from 1.30pm; Start 2.30pm - finish 5.00pm

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Presented in association with



**“CONNECT FOR BETTER BUSINESS”
Wednesday 19th May 1999**

The Internet and Electronic Networking

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The Internet and Electronic Networking : The convergence of information and communication technologies is changing the way companies work and compete. Those who seek to understand and harness the power of the new networks will be the ones who achieve real success. The Internet is available to almost anyone.

See how the new approach can create opportunity and reduce costs.

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- *Electronic Marketing and the Internet
- *On-Line Information

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RESERVE your place now by using the booking form overleaf.

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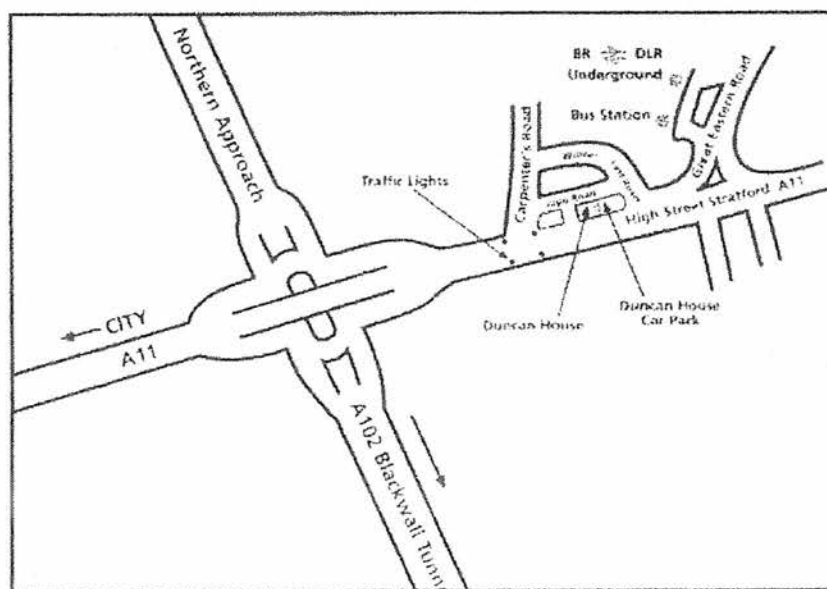
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***COST :** £25

£15 for companies in Objective 2 Area **

£15 **DISCOUNTED PRICE** for delegates from our Business Partners
and members of Docklands Business Club

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E1	E11 4H ONLY	EC2A, M,P	N13 6 ONLY	Jackie Chandler, Administrator Business Development Centre University of East London Duncan House High Street LONDON E15 2JB TEL: 0500 007 807 FAX: 0181 215 0704
E2 0, 6, 7,8,9	E12 5,6	EN2 6 ONLY	N15 4,6	
E3 2,3,4,5	E13 0,8,9	EN3 4,5,6,7	N16 0,5,6,7,8,9	
E5 0,8,9	E14 0,6,7	EN8 7 ONLY	N17 0,9	
E6 1,2,3	E15 1,2,3,4	N1 5,6,7	N18 1,2,3	
E7 0,8,9	E16 1,3,4	N9 0,8	N22 4 ONLY	
E8 1,2,3	E17 4,5,6,7,8,9			
E9 5,6,7	EC1P V			
E10 5,6,7				



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RESERVATIONS are on 'first come first served' basis. To book YOUR place please tear off and send this slip to Jackie Chandler at UeL Business Development Centre, Duncan House, High Street, Stratford E15 2JB (or FAX to 0181 215 0704)
Please advise if you have any dietary or access requirements.

Name of Delegate
Title/position in company
Name of Company
Address

Telephone
Fax
E-Mail
No. of employees

Nature of Business
Travelling by car - Yes / No
Source of invitation (e.g. UeL, BLLE, DBC)

*Please enclose cheque in favour of University of East London. VAT receipt required? Yes / No



Finance

Financial fitness is a pre-requisite for business survival and in turn profit and posterity. One of the key goals of businesses should be to make the maximum use of both internal and external resources by using a fully integrated business plan.

Working Capital - is the lifeblood of any business, without it they die. But where does it come from and what are the cheapest and most readily available sources of finance are the key questions for most businesses today.

Profit - is generally seen as the ultimate goal for businesses. With profit comes the ability to realise the aspirations of both the shareholders and the people. But where does it come from and how should it be used? Profit analysis is at the heart of a company's financial forecasts and strategic thinking.

Financial planning - is not a once a year activity. It is ongoing which must be owned and understood by as wide a representation of staff as possible. It is not the exclusive preserve of the accountant and when it becomes part of the day to day activity, of the culture of the business, enormous benefits will result.

Financing for growth - Growth costs money. Whether it be financing, increasing levels of working capital or it be raising investment funds for a new product or venture the key question is what is the best way to do it. Achieving the right balance of debt and equity financing is crucial for the long term financial performance of the business.

Case Descriptions

SMD Textiles - was created and built from working capital when Salvador Monlor began the business. In 1987 they had only £1000 in share capital, but they were fortunate in having a supplier who was willing to sell them their main cost fabric on a 90 day term agreement.

Daedalian Glass - (founded in 1986) has become one of the country's foremost glass making studios. The business began modestly with the expertise to tackle any project using the full range of glass techniques but then grew by manufacturing leaded glass panels, predominately for the pub sector of the restaurant industry. With this growth came the belief that they needed to become more strategic. This case shows benefits of business planning with its forecasting and budgeting activities and the analysis of operating information as an on going activity. It shows how the plan must be developed and owned by as many people in the company as possible resulting in a working document which enables management to understand the day to day running of the company.

Primavera - has established itself as a market leader in needlepoint. In eight years they went from aspiration, fuelled by hard work and motivation, to a recognised name in their market place. With that recognition came large orders, however the drain this placed on the overdraft, stock and staffing resources made it clear to Gill Goring that the business was getting out of control. The issue is that eventually, for most growth companies financing needs to be raised through a combination of equity and debt finance. The module shows that achieving the best balance will depend on the company's business plan and personal circumstances as well as the term amount of risk and associated liability involved.



Appendix 26: NVQ promotional literature



UNIVERSITY of
EAST LONDON

East London Business School

CUSTOMER SERVICE

Level 3 NVQ for Corporate Clients

What are NVQs?

You are probably familiar with the idea of work-based vocational qualifications (NVQs). All NVQs are based on a set of national standards for a particular occupation or area of expertise. The standards are descriptions of how a competent person behaves.

To achieve the NVQ you have to collect a portfolio of evidence, with a commentary to show that you fit these descriptions or 'competences'. A portfolio always consists of a number of units, each focusing on a specific area of competence – in this case, providing Customer Service.

What is Customer Service NVQ? (Level 3)

The key purpose of Customer Service NVQ is to help you deliver continuous improvement in service to achieve customer satisfaction

The Customer Service units are designed to assess whether you:

- maintain reliable customer service
- communicate with customers
- develop personal relationships with customers
- solve problems on behalf of customers
- initiate and evaluate change to improve service to customers

To achieve Customer Service NVQ 3 you will need to collect evidence to show that you are competent in these 5 areas.

How is the programme organised?

You will manage all the work on your portfolio yourself, but you will need support from your university adviser, who will assess units when they are ready. Your assessment will involve an interview, when you will be asked questions about the evidence that you have collected.

While you are compiling your portfolio to show what you can do, you will also be asked to show that you have a wide range of knowledge and understanding about customer service. There will be workshops in the programme to help you to further develop this knowledge and understanding.

Completion should take about 85 hours over the course of one year, though candidates can vary widely in the time that they spend on their portfolio.



UNIVERSITY of
EAST LONDON

CUSTOMER SERVICE

Level 3 NVQ for Corporate Clients

Who is the programme for?

These NVQs have been developed to recognise the role of the 'customer service professional', but at Level 3 they are relevant a range of people in supervisory or management positions in your company or organisation. The size of the organisation will have a bearing on who will benefit from doing the qualification.

How can Customer Service NVQ benefit your business?

Customer Service NVQ can also be used as a way of benchmarking a whole organisation against a set of national standards. Seen in this way, NVQs are not just about your staff doing qualifications - they are part of a process that can make the organisation work better.

If you or one of your staff are completing a Customer Service NVQ, you should gain valuable insights into:

- customer service systems that need improving
- how to measure concepts like 'empowerment' and 'total quality'
- current skills and future training needs of the workforce
- how to motivate your staff to think about service improvements to customers

For further information, contact Carole Flanagan, Administrator, Corporate Programmes Department, East London Business School, Duncan House, High Street, Stratford, E15 2JB, or telephone 0181 - 849 3662

The University of East London

The University celebrates its Centenary year in 1998 and currently serves over 13,000 students. In 1999 it plans to open its new London Dockland Campus and adjacent state-of-the-art Thames Gateway Technology Centre at Royal Docks. The University offers a wide variety of full, part-time and sandwich courses leading to certificates, diplomas, undergraduate and postgraduate degrees and a range of professional qualifications in accountancy, business law, engineering, health sciences, design and architecture.

East London Business School

The School currently has over 2400 students studying at graduate and post graduate levels and is committed to the continuing development of individuals, managers and enterprises both locally and increasingly on a national and international basis. Using a variety of modern teaching methods the school offers an open and highly practical approach to learning. Students and clients alike are encouraged to challenge convention, manage complexity, resolve ambiguity - and act decisively.

Corporate Programmes Department

Within The East London Business School, The Corporate Programmes Department has been established to develop education and training contracts with clients in a wide range of organisations in business, commerce and the voluntary and public sectors. This involves the provision of short courses, NVQs, certificates, diplomas, first and higher degrees, as well as customised programmes in business and management related topics.

Appendix 27: BEE open learning centre resource list



TOPICS AVAILABLE AT THE BUSINESS ENTERPRISE EXCHANGE

Accounting
Appraisals
Assertiveness
Balance Sheets
Benchmarking
Budgeting
Business Growth
Business Meetings
Business Planning
Business Start up
Case Studies
Career Development
Coaching
Communication
Competitive Marketing
Computers
Computers in Accounts
Computers in Manufacturing
Corporate Culture
Creative Thinking
Crime Prevention
Customer Service
Data Security
Development Plans
Discipline
Diversity

Empowerment
Equal Opportunities
Facilitation
Finance
Globalisation
Grammar
Global Competitiveness
Health & Safety
Hierarchy
Internal Customer
Internet
Interviewee Skills
Investors in People
ISO 9000
Learning Techniques
Learning Organisations
Logistics
Making appointments
Management
Management Styles
Managing Change
Manufacturing
Market Research
Marketing

Mentoring
Motivation
MRP II Negotiating
Numeracy
NVQs
Organisational Behaviour
Presentation Skills
Product Design
Project Planning
Project Management
Quality
Receivership
Scenario Planning
Selection interviewing
Self Development
Service Excellence
Setting Objectives
Strategic Analysis
Supply Chain Team
Building
Telesales
Time Management
Working With People

I.T PRODUCTS:

Office 97 Office 95 Office 3.1 Smart Suite 97 Smart Suite 96 Smart Suite 04 (
Office Suites Include: Word, Access, Excel. PowerPoint)



Our resource catalogue is the most comprehensive of its type currently available.



The training solutions cover a huge range of business applications and personal development issues. Preferred learning styles are catered for with VIDEO, CBT and cutting edge Multi Media CD ROM applications. With over 300 training products currently available we are sure that you will find a training solution that will meet your needs.

Our staff have many years experience in the training industry and are willing and able to match your training needs with the product which most accurately meets that need

Martin Laycock HEAD BEEKEEPER

Appendix 28: Business Briefs example

DELIGHTING THE CUSTOMER DEVELIN

& PARTNERS

A BRIEFS PRESENTATION

**By
DEVELIN & PARTNERS**

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Business Reporting Information Exchange & Feedback Service

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DELIGHTING THE CUSTOMER

A key source used for research for this presentation was: *"DELIGHTING THE CUSTOMER - The Launch Pad for Total Quality," pp 24, 1995, Develin & Partners, Harefield House, HAREFIELD, MDDX UB9 6RH, U.K. Tel: 01895 820202 - Fax: 01895 820210 - Email: max.hand@develin.co.uk*

Key words: *Customer, Delighting, Customer Needs, Capability, Positioning, Levels of Expectation. Exceeding Expected Service Levels.*

Additional Material: *This BRIEFing is adapted from a series of A5 sized Management Guides developed by Develin and Partners which include :-*

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- **Business Process Management** - Delivering Vision through Process Innovation and Continuous Improvement.
- **Delighting the Customer** - The Launch Pad for Total Quality.
- **Differentiating Customer Proposition** - A Signal for Corporate Transformation.
- **Empowerment** - You Can't Give it, People Have to Want It.
- **Activity-Based Cost Management** - ABC as a Means to improve Management Decisions.
- **Positioning and Capability** - A Guide to Formulating and Delivering Strategy
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For and on behalf of The BRIEFS Network Limited

January 1999

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Their approach features strong client participation. Senior and middle management are actively involved and work with their consultants to develop proposals for radical improvement. As a result, the client owns the recommendations, is committed to change and pursues rapid and effective implementation.

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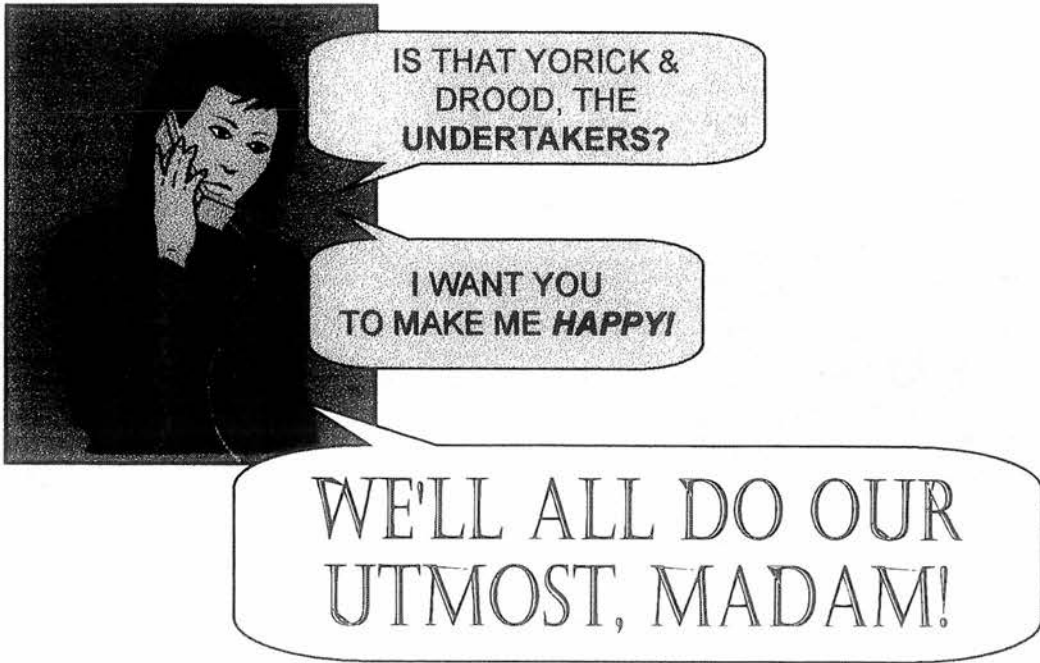
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DELIGHTING THE CUSTOMER

Abstract



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Abstract

Life is becoming tougher in all spheres of work. In the private sector competition grows ceaselessly; in the public sector the level of service demanded continues to rise. Everywhere, costs must be driven down.

What prospects are there for the customer, the object of our endeavours, in all this frantic Change?

Winning companies will be those who meet the needs of their customers so well, and so consistently, that their customers are delighted.

But organisations do not possess infinite resources to pour into Customer Service. They must focus on the most important elements and they must perform them efficiently.

This all sounds wonderfully simple, but those who have been involved in trying to deliver Customer Service know it isn't so. It requires a good understanding of what the customer really wants. But the key, elusive ingredient is an understanding throughout the organisation of everyone's role in supporting the delivery of Customer Service.

Cooperation and teamwork are the bywords. Success is the result.

This BRIEFing aims to give some insight into the key issues involved in delighting customers and some pointers as to how this may be achieved.

THE KEY TO SERVICE LEADERSHIP IS DELIGHTING THE CUSTOMER

<p>Basic service the absence of which causes anger</p>	<ul style="list-style-type: none"> • Dispense cash every time
<p>Worthy performance increases the level of satisfaction</p>	<ul style="list-style-type: none"> • Dispense cash every time • Current balance, instant statement printouts
<p>Distinctive edge delights the customer</p>	<ul style="list-style-type: none"> • Dispense cash every time • Current balance, instant statement printouts • Account transfers



Automatic Teller Machines

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The Key to Service leadership is Delighting the Customer

The view that quality relates only to conformance to specification is nowadays too narrow. It is certainly not the view of the customer, who probably knows or cares little about whether the product conforms. Customers have a different, broader focus, measuring quality against competing products or services, and against their own particular requirements, many of which will not be found in a formal specification, even where one exists.

It is not good enough simply to match the rest. Even a satisfied customer may switch to an alternative supplier on the basis that there is nothing to lose, and conceivably, something to gain. The key to service leadership is delighting the customer.

Leading companies provide superior service to win customer loyalty and rely on customer recommendations to win greater market share. Loyal customers are the base for business success: they resist competitive attempts to steal market share, they are cheap to supply and they are unpaid advocates of your products and services to your potential customers.

Do you know what wins the loyalty of your customers? Do you improve the processes of your business to ensure you keep their loyalty? Do you track how well you are doing?

THE PENALTIES OF FAILING TO PLEASE THE CUSTOMER

External	Internal
For each complaint received, research shows there can be 300 negative word of mouth contacts by dissatisfied customers	Costs of firefighting and diversionary activity: <ul style="list-style-type: none"> • Checking • Clarifying • Rework and repair • Issuing credit notes • Compensating

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The Penalties of failing to Please the Customer

Customer service research has shown that out of every 100 dissatisfied customers:

- Each unhappy customer tells 12 others
- Only 4 complain
- 91 say they will never buy from that supplier again, although 87 would remain loyal if only the supplier tried to solve the problem

For every single complaint, there are up to 300 cases of negative advocacy. Unless companies take pains to find out what their customers think, they will remain blissfully ignorant of the true scale of the dissatisfaction they are causing: all they will note is a few complaints and an inexplicable lack of repeat buying.

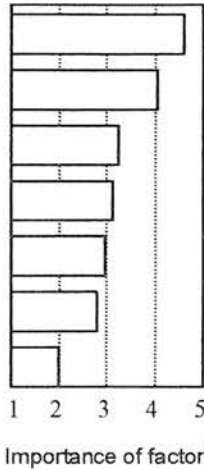
In addition, where there are displeased customers, there is usually a great deal of internal wasted effort as well. For example, firefighting, checking, clarifying instructions, correcting errors, warranty work and issuing credit notes. We call this wasted effort diversionary.

Gradual and continuous quality improvement is necessary to cut out diversionary activities, which contribute to the cost of poor quality, representing as much as 40 per cent of sales.

Improved quality gives rise therefore not to higher, but to lower costs and delighted customers. A virtuous circle is created: delighted customers do not need intensive sales efforts, so resources can be switched into growing market share. At the same time, lower costs allow more product or service development to take place, providing yet more delight for customers.

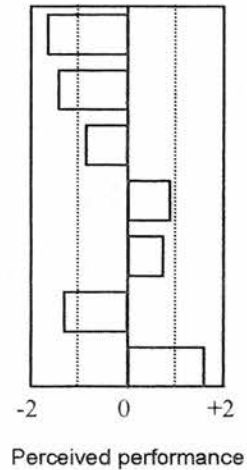
How much more seriously would managers take the issue of service quality, if the cost of poor quality were not so well hidden. Take the fact that only 4 per cent of dissatisfied customers complain. Would managers take more notice if they all complained and the Customer Service department had to be 25 times as big? Would they take note if they knew the selling costs which went into replacing dissatisfied customers, let alone the cost of replacing customers who were satisfied but not delighted?

Some aspects of your product or service are particularly important to your customers



Ease of upgrade
Compatibility
Maintainability
Service response
Price
Features
Delivery

How does your performance compare with the best of your competitors in these critical areas?



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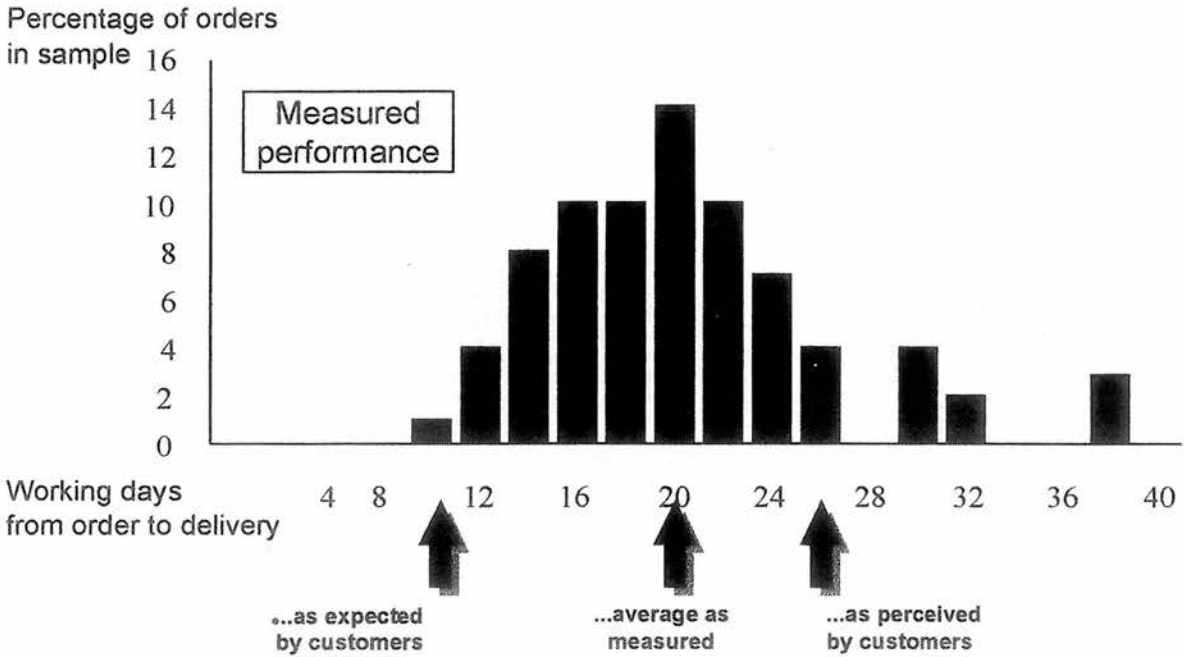
How to Research Customer Needs

The starting point for any company looking to improve quality is a Customer Needs survey to establish the requirements of both existing and potential customers. It defines the areas in which excellence will be rewarded by winning and delighting those customers. Properly executed, it will establish how well the company is presently perceived to meet customer needs, and will prompt it to consider alternatives to its present levels of service.

Take the case of a UK electronics company, which was failing to satisfy the most important needs of its customers: ease of upgrade of equipment, compatibility and maintainability. It was exceeding their expectations in less important areas: service response and delivery. The disadvantages of providing a poor service on what mattered most to the customer far outweighed the benefits of a good service on what mattered least.

Understanding the relative importance of different aspects of Customer Service is critical to winning a competitive edge through superior service.

A Customer Needs survey will highlight gaps and deficiencies in service and indicate the improvements required to bridge the gap between customers' expectations and perceptions. It may also identify areas where service levels can be reduced at minimal risk in order to re-deploy resources to more important areas.



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Customer perception versus Actual Quality

As an added complexity, companies must be prepared to accept that there may be a gap between the service quality they actually deliver and their customers' perception of that quality.

You may be in for a nasty shock.

For example, a survey conducted for a supplier of office equipment established that marketing efforts had created a mean expectation of two weeks' lead time from order to delivery. The measured lead time performance averaged four weeks. Unfortunately the delays affected customers' perceptions: they estimated the figure to be five weeks.

So this supplier had a two-fold problem: not only was their delivery service worse than the customers expected, they perceived it to be even more dismal than it was in reality.

If meeting customers' needs is so important, why is it that companies do it so badly? One reason, we have seen, is that the cost of failure is usually invisible to senior management. But there are several others, and we address them here.

TEN WAYS TO PROMOTE CUSTOMER DELIGHT

- **Avoid gaps between customer expectations and management perceptions**
- **Measure service performance**
- **Improve processes rather than set goals**
- **Put senior management close to customers**
- **Make managers commit to quality**
- **Don't break service promises**
- **Don't constrain managers**
- **Improve process design**
- **Let employees control processes**
- **Encourage teamwork**

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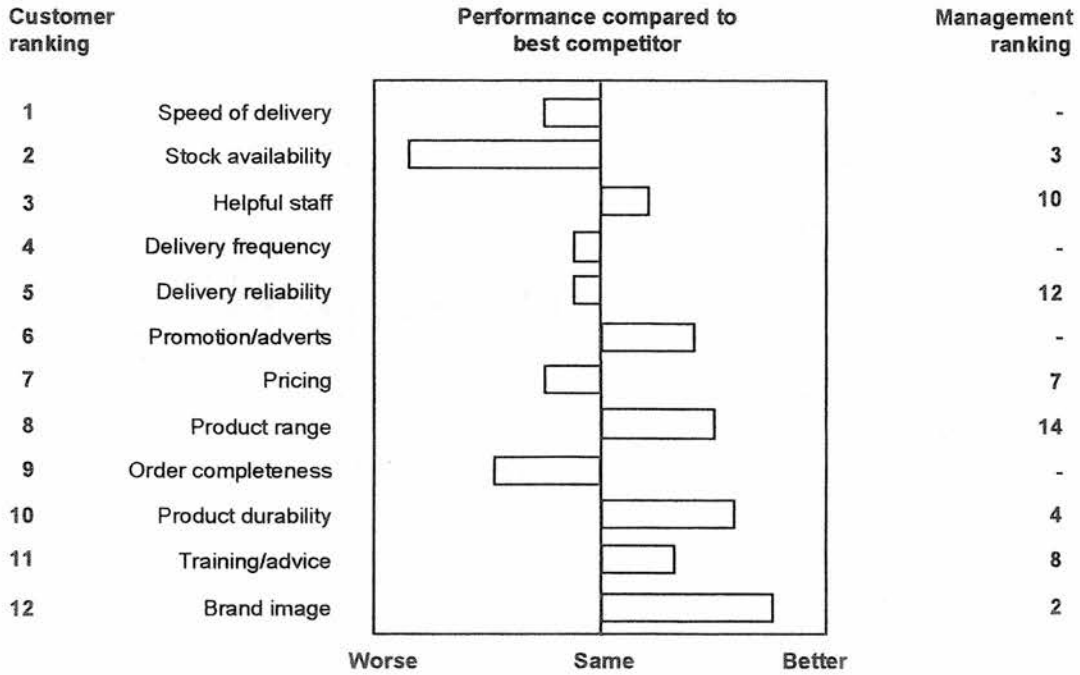
Ten ways to promote Customer Delight

Customer Delight means maintaining consistent excellence not only in customer contact operations, but also in key customer-facing processes. Below is a checklist of activities, behaviours and attitudes designed to promote Customer Delight:

- Avoid Gaps between Customer Expectations and Management Perceptions
- Measure Service Performance
- Improve Processes rather than set Goals
- Put Senior Management close to Customers
- Make Managers commit to Quality
- Don't break Service Promises
- Don't constrain Managers
- Improve Process Design
- Let Employees control Processes
- Encourage Teamwork

Brief details of each topic are presented in the following pages.

CUSTOMER EXPECTATIONS MAY BE DIFFERENT TO MANAGEMENT PERCEPTIONS



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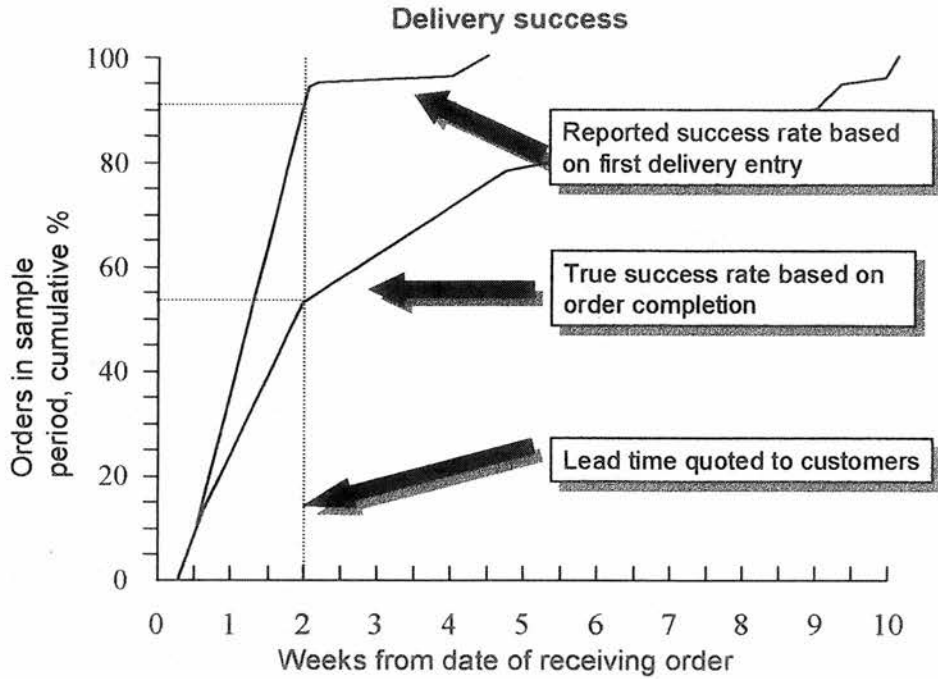
Customer Expectations may be different to Management Perceptions

Customer expectations and management perceptions of those expectations often differ, sometimes substantially. Take the case of an office equipment supplier. An analysis of customers' and management's ranked service factors highlighted differences in perception: the service factor ranked top by management did not even figure in the customers' Top 12!

As a result, the supplier was failing to meet its customers' key needs: fast delivery and stock availability. Only half of all deliveries met the two week despatch target. It was, however, excellent in terms of durability and brand image, having invested substantially in both. Unfortunately, customers had always been content with the previous level of durability, and were completely unswayed by brand image.

Suppliers must become aware of the factors which delight their customers - and those which don't!

THE IMPORTANCE OF SERVICE PERFORMANCE MEASUREMENT



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The Importance of Service Performance Measurement

Companies frequently fail to measure service performance. Without such facts, management is denied the means to make rational decisions, and falls back on intuition and emotion.

Even when facts are collected, they are often not the ones which will enable managers to improve Customer Service. Quality of service must be defined in terms the customer values. Internal measures of quality, such as productivity standards and absence of defects, are not sufficient and can be positively misleading.

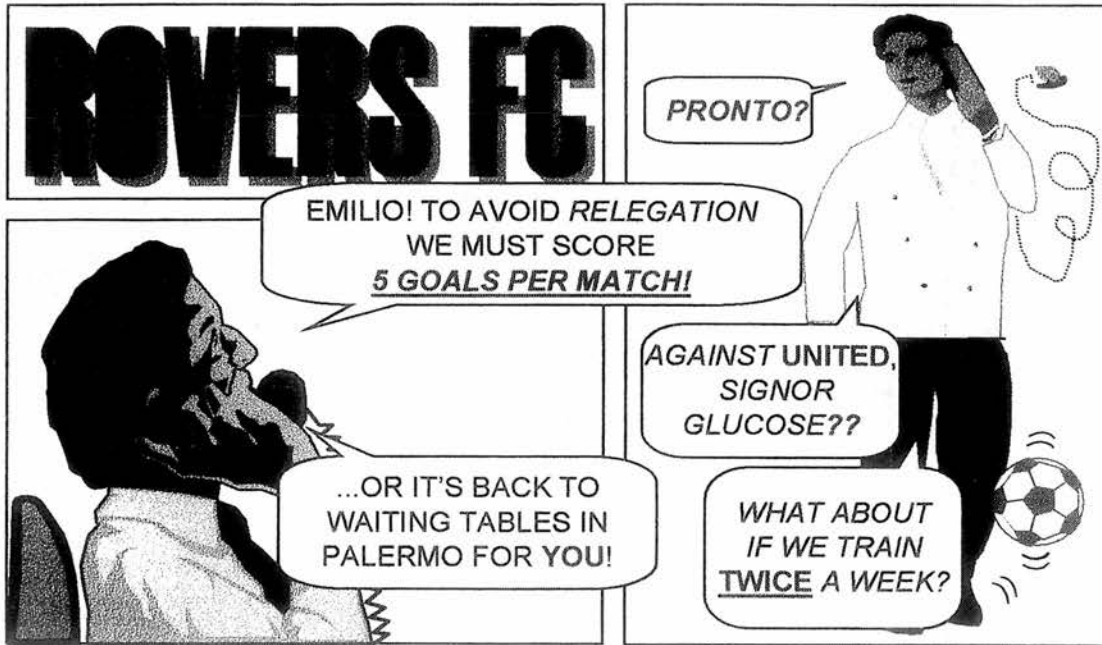
In the case of an office equipment supplier, the computer told management that over 90 per cent of orders were delivered within the company's two week target. But this statistic was based on the first delivery, which was frequently a part order. A different analysis revealed the true service level in the eyes of the customer: only 53 per cent of orders were completed within the target.

The culture of the company was such that managers feared retribution if Customer Service was found to be poor. So they chose measures which put them in a good light, and which hid the extent of customer dissatisfaction.

Selecting the correct performance measures is crucially important. Apart from anything else, measuring and tracking them is time-consuming. If they are inappropriate to meeting customers' needs, this time is wasted. But more importantly, inappropriate measures cause staff to work on quite the wrong priorities.

The discipline of measuring and tracking process performance will stimulate staff to seek ways to improve it. There is often no need to set goals or targets. However it is vital to institute a 'feedback' mechanism which enables your staff to resolve quality problems which arise elsewhere in your company, or even with your suppliers. Only then can they break through the barriers to superior performance.

DELIGHT CUSTOMERS BY IMPROVING PROCESSES RATHER THAN SETTING GOALS



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Delight Customers by Improving Processes rather than setting Goals

It is a perceived wisdom that setting goals is a core management activity: the tougher the goals, the better management is doing its job.

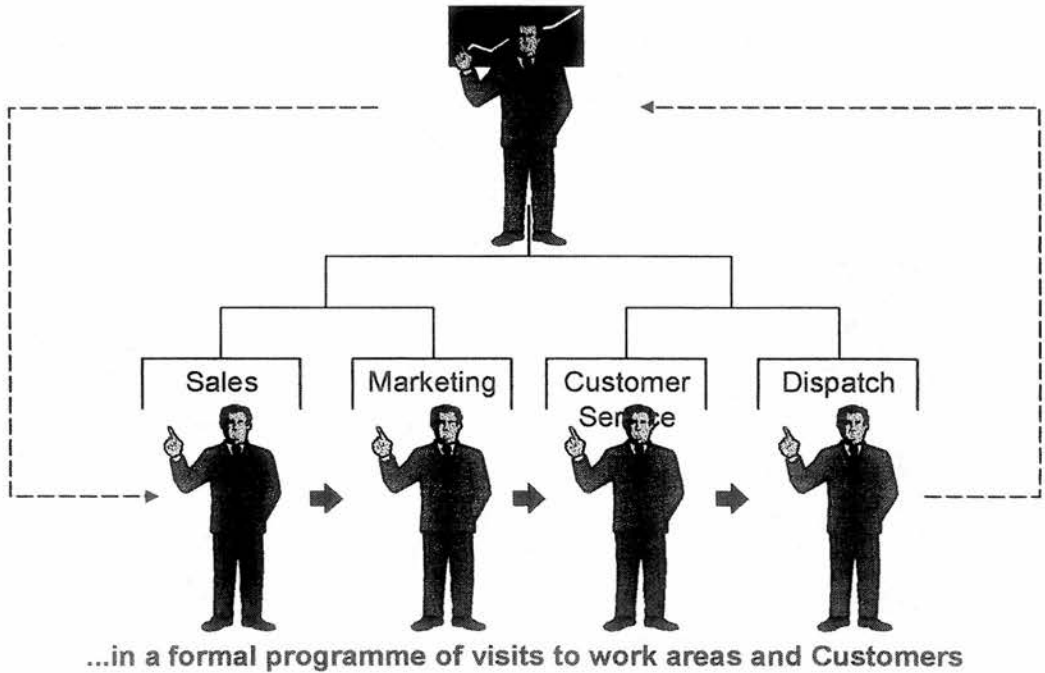
When senior managers emphasise corporate goals such as sales, productivity or market share, they often fail to understand that quality is the key to achieving them.

It is all too easy for managers to set goals which would be wonderful to achieve, but which the processes of the business are incapable of delivering. Staff who work within the processes realise the impossibility of meeting the goal and just give up. Alternatively, if the goal is easy to achieve, staff will simply slow down and relax.

Given the right organisational culture, staff will work as hard as they can to improve Customer Service within the constraints of the processes in which they work. They will do so through a natural desire to do as well as they can.

They don't need management to 'motivate' them, exhort them or set them goals: they do need management to help them improve the capabilities of the processes. Management must help them measure their own performance and solve problems. They must also invest in training, systems and procedures.

IMPROVE SERVICES BY PUTTING SENIOR MANAGEMENT CLOSE TO CUSTOMERS



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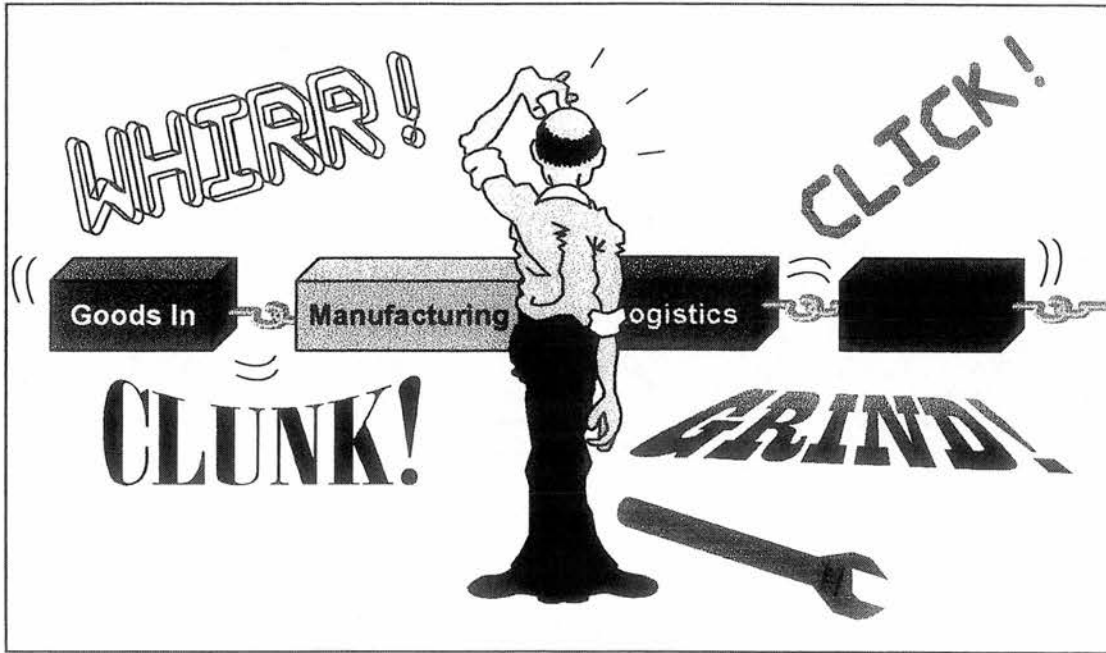
Improve Services by putting Senior Management close to Customers

In a large organisation, senior management is often remote not only from customers, but also from the staff who deal directly with them. Customer contact is restricted to reading reports and summaries - no substitute for dealing with them direct.

Moreover, each layer in the organisation structure filters messages. Like Chinese whispers, information about customers' expectations either does not reach the managers who can act, or it becomes distorted on the way.

In all companies, top managers must experience customers' expectations and perceptions first-hand. They must create opportunities for direct customer contact. They must listen to staff, who are a prime source of information on customer perceptions and service delivery problems. Like one quality director who made over 100 visits to customers in a year, managers should develop a formal programme of visits - to the work areas within the business and to customers - in order to experience the everyday problems of service delivery.

MAKE MANAGERS COMMIT TO QUALITY



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Make Managers commit to Quality

Far and away the most frequently quoted root cause of poor Customer Service is lack of management commitment to quality. This was one of the disturbing findings in Develin & Partners' survey *The Effectiveness of Quality Improvement Programmes in British Business*.

Managers in quality organisations help their staff improve the processes in which they work, to reduce variability and to meet customers' real requirements. Such managers develop a deep understanding of the processes of the business. They must also be able to interact easily and effectively with those beneath them, and with managers in other parts of the organisation.

Many managers find this role too tough. Others are prevented from assuming it by company culture. Most managers find themselves focussing on arbitrary targets: increase sales by 10 per cent or cut costs by 5 per cent. Those who succeed are rewarded; those who fail are punished.

The late Dr W. Edwards Deming, perhaps the best-known of the pioneers of Total Quality thinking and certainly its most influential advocate, claimed that only 15 per cent of defects are caused by operator error. The remaining 85 per cent are due to failures in processes, the very processes which the managers ought to be tasked with continuously improving.

Deming had a radical view of quality. One of his rules was: 'Remove the barriers to pride in workmanship'.

Do you permit those who work for you pride in what they do? Or do you force them to take actions which they know will dissatisfy the very customers they are trying hard to delight: shipping defective goods in order to meet month-end targets, or cutting important customer services to achieve arbitrary profit forecasts?

Managers must be prepared to resist the easy options, the routes to short-term profitability at the expense of long-term survival and growth. They must put delighting the customer before all else, and be seen to do so by their staff. They must build the base of loyal customers on which their corporate future depends.

DON'T BREAK SERVICE PROMISES

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Don't break Service Promises

A TV rental company promised that any customer who telephoned the company's repair centre before 10 am would receive a same day call from an engineer. But the repair centres were unable to handle the volume of calls, and customers became frustrated trying to get through.

Having had their expectations raised by the service promise and then dashed, customers reacted by attributing to the rental company an even poorer reputation for service than it had had before.

The message to managers is clear: by all means make a service promise, but only when you have satisfied yourself that you have set up processes capable of meeting that promise consistently. Give your people the necessary training in what needs doing and employ the right technology for the job.

DON'T CONSTRAIN MANAGERS - LEAVE THEM FREE TO STRIVE FOR SERVICE IMPROVEMENTS

...they must be allowed to experiment to deliver improved Customer Service

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Don't Constrain Managers - leave them free to strive for Service Improvements

When a line manager has limited authority to change the way staff work within the processes they operate, they are constrained to 'think small', to reject the challenge of improving Customer Service on the grounds that improvements are not possible.

Yet a commitment to quality demands a constant striving for improvement. Managers must feel secure enough, and have sufficient authority, to challenge the way things are done. They must be allowed to experiment and to modify the approach, in order to deliver improved Customer Service.

Causes of poor process design include:

- Tasks not standardised
- Conflicting objectives
- Lack of accountability or authority
- Poor documentation
- Inadequate tools or equipment

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Improve Service Delivery Process Design

If a service delivery process is poorly designed, employees will fail to meet customer expectations, no matter how hard they try. By trying hard, and failing, they will become demotivated. To make matters worse, management will probably blame the employees, not the process, which will demotivate them even more.

There are many causes of poor processes, such as:

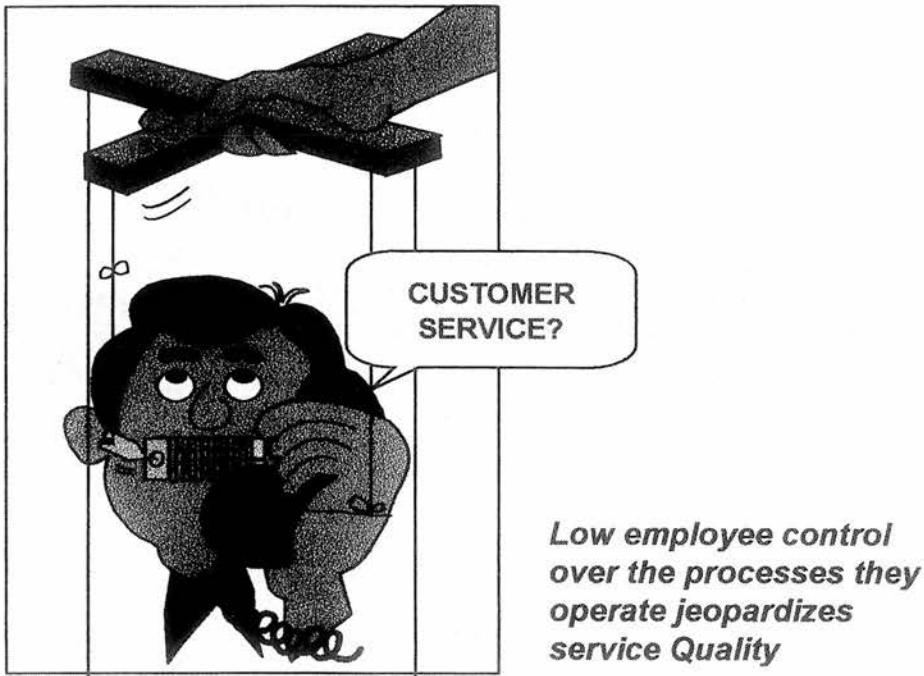
- Illogical sequencing of steps
- Tasks not standardised
- Conflicting objectives
- Lack of accountability or authority
- Poor documentation
- Inadequate tools or equipment

As an example of illogical sequencing of steps, a specialist finance company promised its customers that it would turn round loan applications within 24 hours. Its service delivery process was a series of tasks, each performed by a different specialist group. The process worked effectively when volumes were constant. But when they peaked, bottlenecks appeared and the 24 hour response was not delivered. No matter how quickly staff worked, they simply could not get a high volume of applications through every link in the process in time.

The problem was that each step had to be completed before the next could begin; some types of loan had to loop back to an earlier stage. Some sections had piles of unprocessed loan forms.

Managers redesigned the process into several parallel steps, carried out by a smaller number of larger work groups. This eliminated bottlenecks and enabled employees to meet the company's service delivery goal. As a bonus, it allowed the company to identify priority clients and give them an even better service.

LET EMPLOYEES CONTROL SERVICE DELIVERY PROCESSES



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Let Employees control Service Delivery Processes

To make the concept of improving Customer Service meaningful, employees must feel they are able to respond flexibly to customer needs. This in turn means they should have the degree of control over the process which is appropriate to their level and their capability. They should not be restricted by having decisions which they are capable of taking forced higher up the organisation than necessary.

Low employee control over the processes they operate jeopardises service quality. It creates delays and disruptions and inhibits people's natural enthusiasm and capacity for innovation.

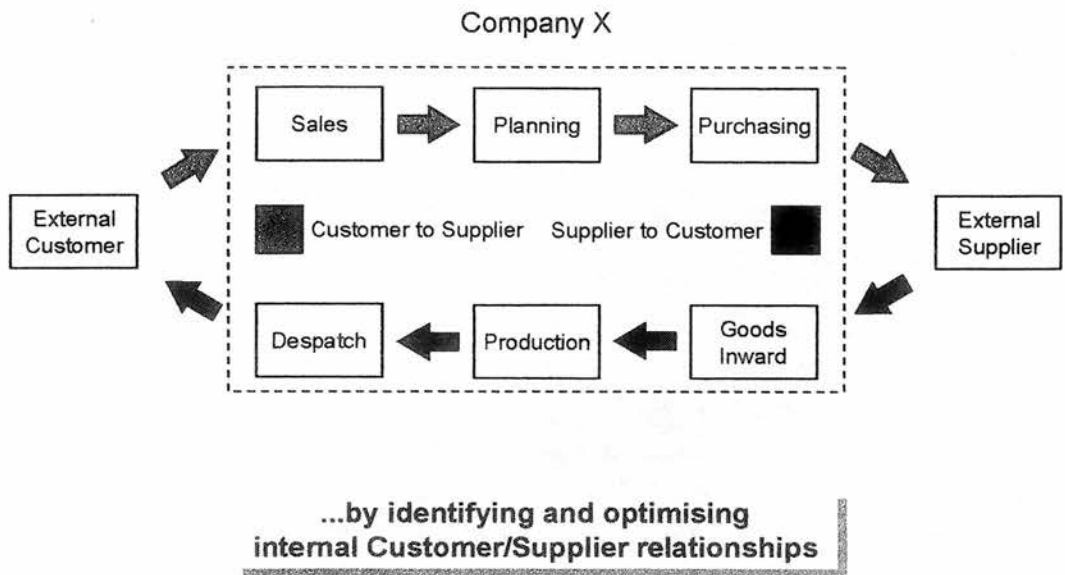
Management of a supermarket, entranced by their new checkout scanning system's ability to monitor scanning speed, instructed its check-out staff that it was more important to scan goods quickly than to adjust to individual customers' rate of packing. The result was a lot of crushed purchases and dissatisfaction amongst customers.

Managers should not only put effort into designing processes and training their people to meet customer expectations, they should also encourage employees to react innovatively to customers' needs.

Arriving late after a delayed flight, a British traveller checked into a US hotel and asked a bell-boy for a British newspaper. The traveller was told that the last copy had been sold. But he was delighted, when 20 minutes later, the bell-boy gave him a copy of the newspaper he had originally requested. In the meantime, the bell-boy had scoured near-by hotels until he found an unsold copy.

It is worth recalling the statistic on page 6 that each unhappy customer tells 12 others.

ENCOURAGE TEAMWORK AND THE CONCEPT OF INTERNAL CUSTOMERS



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Encourage Teamwork and the Concept of Internal Customers

From the customer's point of view, a large part of the organisation providing a service remains hidden. The customer has contact only with certain staff - the sales person, the delivery driver, the telephonist. Yet behind these are many more who, if things go according to plan, should remain invisible to the customer - sales administration staff who process the order, production planners who set up the production run and so on.

Each of these invisible people forms a vital link in the process chain which allows the customer contact staff finally to deliver the required service to the customer. If one link in the chain breaks - for example, if a sales invoice is incorrect or if production materials run out - service to the customer is at risk.

It is easy to fall into the trap of targeting service improvement on contact employees alone. This underestimates the effect that poor quality in the internal customer/supplier chain can have on the quality of service as perceived by the external customer.

Breaks in the chain are most likely to happen when there is a lack of teamwork among the people who form the process chain. When departmental barriers are high, there is little chance that people will fully understand the interdependencies in the process.

This is where the concept of internal customers plays its part. Delivering service to the external customer involves internal customers and suppliers in a chain of service relationships: each internal customer has service requirements which each internal supplier has to meet.

The first step is for internal suppliers to find out exactly what their customer - in this case the internal customer - wants.

This sounds simple but is often deceptively so. In practice, it requires a culture in which departmental barriers are broken down and in which internal suppliers actively seek the views of their customers in order to improve service. Internal customers provide constructive criticism in an atmosphere free from blame and recrimination. They quantify the levels of service they need from their suppliers in order to meet the needs of their own customers.

SUMMARY - DELIGHTING THE CUSTOMER

A strategy for delighting the customer includes:

- **Top management's unequivocal commitment to Quality**
- **New products and services meet and exceed customers' expectations**
- **Customers - internal and external - invited to comment on performance**
- **An open, scientific approach to continuously improving every aspect of service delivery and product/service quality, including:**
 - **No recriminations over process failures**
 - **No hierarchical and interdepartmental barriers to cooperation**

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Summary - Delighting the Customer

In the near future, successful organisations will be those determined to achieve the highest standards of Customer Service - by constantly monitoring, even anticipating, customers' expectations and perceptions.

The foundation for market leadership in the service sector is a strategy for delighting the customer. It entails:

- An unequivocal commitment to Quality by top management
- A willingness to go to extraordinary lengths to ensure that new products and services meet and exceed customers' expectations
- A willingness to be self-critical and to ask customers - internal and external - to comment on performance
- A scientific approach to continuously improving every aspect of service delivery and product/service quality

The culture of the organisation must be open and receptive to the principles underlying excellence in service provision. Service quality cannot flourish if the culture is tainted by:

- Fear of recrimination if process failures are brought to light
- Hierarchical barriers between management and staff
- Inter-departmental barriers between groups who should be working in close cooperation

The fundamental goal for success is to have delighted customers. Total Quality provides the means.

Appendix 29: Business Link



THE BUSINESS NEED

The proliferation of business support services and associated initiatives has often been confusing and remote from the real business situation, making it difficult for businesses to identify and locate the right kind of help to meet their needs for growth and development.

Business Link London East was formed as the single point of access or "one-stop-shop" for a full range of business support services available from both private and public sector sources. We believe in the benefits of best practice and continuous improvement in all aspects of business management.

Businesses of all sizes are finding it increasingly difficult to create and maintain the competitive edge necessary for growth and development in their chosen markets.

Business Link London East is a champion of change bringing radical improvement in the delivery of business support services, focusing on the needs of businesses to improve their market position and actively encouraging the use of those services to take advantage of market opportunities locally, nationally and internationally.

OUR ROLE AND AIM

Our role is to be the first point of contact for any business or new venture in eastern London that recognises the need to embrace a culture of best practice and continuous improvement and needs the help of business support services to undergo change for growth and development.

We aim to persuade all businesses in eastern London to invest in the culture of best practice and continuous improvement to maximise their competitiveness and realise their full potential.



WE CAN HELP YOU

Business Link London East is a business in its own right, commercially oriented and supported by a powerful partnership with long experience in eastern London.

It is a business run by business people for business people, offering a full range of business support services that are locally accessible, customer focused and responsive to needs. The Business Link London East brand stands for services delivered to a consistently high standard and of guaranteed quality.

Our full range of current services is listed overleaf, all of which are accessible by a single Freephone call. Tell the enquiry operator you are interested in Business Link London East's services. Your query will either be answered immediately or you will be connected to the most appropriate person that can help you.

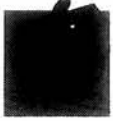
Some services have eligibility criteria, some are chargeable and others are free of charge. Please see the service sheet accompanying this leaflet or call us if you would like further clarification; if you are interested in any of our services; or if your needs are not readily identifiable with the services listed.

FREEPHONE 0800 997 998

*Business Link London East,
the Business Link run by Business People, for Business People*

Business Link London East, 4th Floor, Cityside House, 40 Adler Street, London E1 1EE
Internet Site <http://www.londoneast.businesslink.co.uk>
Facsimile 0171 505 2545

SERVICES AVAILABLE FROM BUSINESS LINK LONDON EAST



BUSINESS INFORMATION

Enquiry Handling and Signposting Service

The Freephone service designed to offer a single point of access to the full range of services.

Information Service

This service helps businesses to obtain the information they need to make better decisions.



SOURCES OF FINANCE AND GRANT ASSISTANCE

Financial Assistance Service

Sources and types of funding that meet business needs and guidance on grant availability.



SUPPORT FOR NEW VENTURES AND SMALL ENTERPRISES

Business Start-Up Service

For new business ventures, sources of advice and support for business plan preparation, training and raising funds.

Small Business Adviser Service

For businesses employing 1 to 5 people, sources of advice and support who will work with you to realise the full potential of your business.



SUPPORT FOR ESTABLISHED BUSINESSES

Diagnostic and Consultancy Services

Through our database of over 2,000 accredited consultants we can offer access to high quality consultancy support to enhance the competitiveness of local firms. For businesses meeting certain criteria, subsidies are often available to help towards the cost.

Personal Business Adviser Service

All manufacturers, exporters, or those that are interested in exporting, and all other businesses employing 6 to 200 people that feel they have growth potential are eligible for the special kind of advice and support offered by our team of Personal Business Advisers.

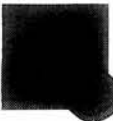
Regional Supply Network

The Regional Supply Network assists purchasers by matching UK suppliers to their exact requirements and assists UK suppliers by retaining detailed information on their capability to supply.



EXPORT DEVELOPMENT

Businesses considering an entry into export markets or widening their export involvement may obtain specific information and specialist advice.



INNOVATION, TECHNOLOGY AND DESIGN

Advice and support is available for innovation initiatives, the introduction of new technology and the implementation of new design methodologies.



STAFF TRAINING AND MANAGEMENT DEVELOPMENT

Use these services to enhance the skills of your employees and develop the expertise of you and your management team in line with the goals of the business.



EVENTS PROGRAMME

A programme of business events, seminars and workshops is available to all businesses.

Appendix 30: “Co-pilot” job description

EUROPEAN UNION

JOB DESCRIPTION

SME Co-ordinator : ADAPT Project (‘Co-Pilot’)

Full Time University Contract: to 30th June 2000

BACKGROUND

This is a key customer-facing role working with established Small and Medium-Sized Enterprises (SMEs) as part of a highly innovative EU-funded programme. The ADAPT programme depends on participant support through both workshops and open/distance and work-based learning and via a new on-line support system being developed as part of this £1.4m project. In all there will be 50 participant firms and 150 individuals - of whom about fifty will also undertake NVQs in Customer Service, Management or Supply-Chain management at levels 3,4 or 5. Working as part of a dedicated project team you will need real interest and enthusiasm in working practically and positively with small and medium-sized businesses.

JOB PURPOSE:

Reporting to the Project Director to provide key linkage between the project and the participating SMEs and their participating individuals so as to working as part of a small dedicated team, help ensure that Project aims, objectives and outcomes are achieved.

KEY DUTIES AND RESPONSIBILITIES

- Assisting with the recruitment of East London SMEs into this programme
- Close liaison with twenty or so of these organisations and their selected participants through 15-month organisational and personal development programmes
- Assist in running focused SME workshops - general and specialist
- Visit programme participants in the work-place, assisting their progress through the programme and, where relevant, the development of individuals through their NVQs.

PERSON SPECIFICATION:

This is a challenging, practical role requiring experience either with or as a 'SME' or of working with closely with them.

A strong working knowledge of SME needs and culture is essential.

A flexible but patient, people-orientated approach is important to the success of this role

The individual will need to be results-focused and have high energy and highly effective inter-personal skills

The ability to 'multi-task' within a sometimes high-pressure, adaptive customer-facing environment will also be a distinct advantage.

Knowledge of and/or experience in the delivery of NVQ qualifications, advice and assessment would be a distinct advantage.

SKILLS/ABILITIES REQUIRED:

- Good practical experience as (or with) SMEs
- Strong local (i.e. East London) Networks and Contacts
- Good knowledge of several key aspects of SME needs (e.g. finance, marketing, operation technology)
- Outgoing, personable 'hands-on' facilitator capable of encouraging, and maintaining SM involvement
- Strong inter-personal skills and the ability to deal positively yet empathetically with people all levels
- Strong presentational and IT skills (use of PowerPoint and/or Publisher or similar would and advantage

EMPLOYER is University of East London (Adapt 'Pilot' project) and the postholder will report the Project Director and be based in Duncan House, Stratford

**Appendix 31: New Connect for Better Business workshops
promotional literature**

UNIVERSITY OF EAST LONDON

Business Development Centre

Business Enterprise Exchange (Bee Centre)

<http://www.bee.co.uk>

in association with

DOCKLANDS BUSINESS CLUB

and euroPILOT

<http://www.europilot.com>

“CONNECT FOR BETTER BUSINESS”

***THE INTERNET & ELECTRONIC
NETWORKING***

A DTI /BUSINESS LINK BUSINESS SUPPORT PACKAGE

The Workshop is facilitated by

MARTYN LAYCOCK MBA, ACIB, MCIM

Director, Business Development Centre

University of East London, Duncan House, Stratford

Head Beekeeper @ The BEE Internet/Open Learning Centre

And Sponsored by

MIDLAND BANK (HSBC Group)

WELCOME !

to the

BUSINESS DEVELOPMENT CENTRE

East London Means Business !

THE INTERNET & ELECTRONIC NETWORKING

The convergence of Information and Communicational Technologies is changing the ways companies work and compete. The need to create new opportunities lies at the heart of all business. Those who seek to understand and harness the power of the new networks will be the ones who achieve real success.

This Workshop features 3 Case Studies which are contained on a specially commissioned and produced CD-Rom published by the DTI and distributed via the Business Link network. Joining us today are Roger Courtenay from local hauliers/shipping company Byron Transport Ltd and Peter Rosen, Managing Director of Walthamstow-based Printers Bovince Ltd who will give us insights into their nrecent excursions into the Internet.

Our thanks as usual to **Business Link London East** for allowing us as one of their Partners to facilitate this inter-active Workshop which is designed to stimulate thought, debate and discussion amongst local businesses about the benefits of effective business use of the Internet, Intranets and Electronic Networks. There are now thirteen Modules and 30 video case studies in all - for providing the support, equipment and technology which facilitates this highly practical approach to exploring key business issues for small and medium-sized businesses. All the video case studies are available for viewing in the "Bee" centre - which you are very welcome to visit during your visit to the Business Development Centre.

Each case study has been specially selected to illustrate a number of aspects of "Best Practice" in action :

ELECTRONIC COMMUNICATION : ELECTRONIC COMMERCE
ELECTRONIC MARKETING : ON-LINE INFORMATION.

The workshop provides a unique opportunity for delegates to participate *electronically* in the debate and assessment of a number of key issues related to the application and use of technology and electronic networks in business arenas.

Please do participate to the full in this workshop and enjoy your visit to the
BUSINESS DEVELOPMENT CENTRE

MASONS SOLICITORS

LOCATION: London
SECTOR : Professional Services
EMPLOYEES: 500
SALES: (= per employee p.a.)
International Business-to-Business
- including construction, IT and Technology Law

Features

'Information differentiates and adds value' BUT, roles are changing :

Computers now aid both internal and external communication

Reduce costs and release power.

Business being transacted increasingly via Networks

Constant contact helps overcome time differences

The Virtual office - everyone 'under one roof'

The collaborative approach requires highly efficient communications

Applications between provider and Client :

- aids client involvement
- facilitates instant up-dates
- speeds up processes :
- less paper/ more 'thinking time'

Legal Advisers become an 'extension of the supply chain'

New methods require full commitment and quality controls

Use of technology squeezes cost out of transactions:

- allows us to 'concentrate on essentials' (real value)

INTERNET:

- security/confidentiality aspects
- encryption

Business development opportunities : 'Global' vision

Continuing Expansion...

FORMS UK

SECTOR: Specialist printing
LOCATION: West Midlands
EMPLOYEES: 101

Features

Rapid growth

Transformation of day-to-day relationships by 'embracing technology'

New 'open' approach: - emphasis on :

- partnership
- **cost reduction**

Fewer Suppliers !

MIS - highly visible

Internet brings lo-cost communication

ISDN - 2Mb : 30 channel
- 'digital' v 'film'

electronic mail (e-mail)

electronic data interchange (EDI)

Web sites adds new marketing channel :

- new marketing **challenge**

Expanding into Print management markets

- augments traditional markets

High growth :

- brings need for accelerated training

Uncommon
max

me + change
Keep it simple

SPEED

Some relationships - most...
me...

CPD
See
customer

LONDON ASSOCIATES

LOCATION: South East
EMPLOYEES: 12
SECTOR: Product Design (Consultancy) Business-to-Business

Features

Information sharing - with customers and contractors

Rapid prototyping - aids flexibility and accuracy

Continuous information flows

Web site supports business activities
• provides instant up-date facility

New ways of working

Increased employee empowerment

Rapid world-wide communication : lo-cost

Impact ^{or} of profitability ? *needs*

- 'hard to estimate' BUT :

- 'couldn't do what we do without the technology tools'

Handwritten notes:
...
...

Accuracy

...

...

Appendix 32: Business E-ffective workshop promotional literature

NEW Business E-ffective

- The Ultimate Web Work-out!



"Every business has to be e-smart, it's not just about the Web, it's about knowing how the Internet affects your business and customers"
Shelley Daly, Headjogs

Wed 8th March
Wed 22nd March

8am-10am
8am-10am

5pm-7pm
5pm-7pm

Intelligent Businesses are E-ffective!

This new programme is already a great success with local companies. Imagine gaining the ground skills your company needs to be part of the E-business revolution in just 4 short high-impact workshops AND having the support of UEL's euroPILOT.com business development services

Optimise your e-volution! 4 modular workshops - flexible dates and times

- Includes a pre-course assessment to plan your e-future
- Fast-track strategic programme for senior managers and owner-managers
- Beginners and intermediate sessions for operational e-competence
- Individual session with a web-design consultant
- PLUS a starter web-site or support to make your existing website e-ffective
- Access to the Business Enterprise Exchange Internet and multi-media Centre
- AND FREE support from UEL's euroPILOT.com business development project to implement your e-culture

Whether you are wondering how the Internet affects you, would like to set out on the e-business highway, or would just like to improve your knowledge to improve your existing e-competence, Business E-ffective is for you!

Contact Michelle Golding m.s.golding@uel.ac.uk or Julie Taylor jules@bee.co.uk at the Business Development Centre, University of East London or see our websites www.bee.co.uk and www.europilot.com for details

Freephone the Business Development Centre on 0500 007 807

The Ultimate Web Work-out



sign up for this?

DO YOU WANT THE WORLD TO KNOW YOUR BUSINESS?

If you are a small/medium sized (<250 employees) company based in Newham, you are invited to participate in a unique development program that will put your organisation on the Internet and let the world know about your business! The objective is to help you become more competitive and get more sales.

"What's it all about?", you ask.....

This is a new program offered within the framework of the Government's Information Society /Initiative (ISI). The workshops include : ♦ Introduction to the Internet ♦ Doing Business on the Internet and Marketing ♦ Designing your own web site ♦ Consultancy and assistance to complete a company web site. This will be located on the Internet and the East London 'Trading Point' Business Park.

How long does it take?

Workshop 1 starts in October 1999 and workshop 5 will be completed by February 2000. Modules comprise of taught sessions, with further self-paced hands-on in our superbly equipped BEE Centre.

What will we get at the end of the programme?

All companies that complete the first 4 workshops will receive ♦ 4 hours with an advisor to discuss the design and development of their web site ♦ assistance with a design and development consultant to complete the company web site (worth £500). At the end of each workshop, participants will receive a certificate of completion, with a final, programme completion certificate from the ISI.

What will it cost us?

The programme including the web design consultancy assistance has been valued at £2000, but the subsidised cost to each company is ONLY £200 per delegate (strictly limited to maximum of 2 per company). This includes materials, refreshments, free time in the BEE Centre and access to a support 'help desk'.

PLEASE NOTE THAT THERE MAY BE SOME PLACES FOR NON-NEWHAM BASED COMPANIES - PLEASE PHONE FOR DETAILS (DIFFERENT PRICING STRUCTURE APPLIES)

ONLY 50 COMPANIES CAN AVAIL THEMSELVES OF THIS UNIQUE PROGRAM, SO TO ENSURE YOUR PLACE, PLEASE CONTACT MICHELLE GOLDING, IT TRAINING AND LEARNING MANAGER, BUSINESS DEVELOPMENT CENTRE, UNIVERSITY OF EAST LONDON, DUNCAN HOUSE, STRATFORD E15 2JB.

TELEPHONE 0208 215 0700, FAX 0208 215 0704, EMAIL m.s.golding@uel.ac.uk

'BUSINESS E-EFFECTIVE'

An Introductory and Development Programme for SMEs
Using the Internet and New Media

E-mail

E-marketing

E-commerce

E-effectively

The Ultimate Web Work-out!!



This Programme is operated by the University of East London and Business Link London East under the DTI's Information Society Initiative

STAGE I: Introduction: Internet Driving Licence

(6 hours workshop, 8 hours practice in Bee Centre)

Workshop Objectives

On completion of the workshop participants will know about:

- the development of computers and Information Technology
- the use of modern 'Telmatatics':
 - 'e-mail'
 - 'e-shopping'
- modern Networks and Communications:
 - Internet (world wide web)
 - Intranets
 - Extranets
- the Internet: what it is
what it can do

Workshop Content

the following topics will be covered

- ♦ brief history of Computers
- ♦ Introducing Information Technology
- ♦ introducing Tele-Communications
- ♦ computer based training
- ♦ Internet - and how to use it
- ♦ into the next millennium:
the internet and Multi-media as aids to business development

STAGE II: Intermediate: Internet Pilot's Licence

(4hours workshop 8hours further practice in bee Centre)

Programme Objectives

On completion of the workshop Participants will be aware of:

- the business **application** of computers and Information Technology in today's society
- Using modern Telematics:
 - e-mail
 - video conferencing
 - Multi-media
 - practical **applications** of the Internet and multi-media for businesses
 - marketing
 - trading
 - billing
 - current developments in digital media and communications

Programme Content

the following topics will be covered in depth:

- ♦ how to benefit from the 'Information Society'
- ♦ getting the best out of the Internet for business
- ♦ the role of IT and the web in the next millennium
- ♦ electronic commerce
the Internet and multi-media as aids to business development



Tel: 0500 007 807
Fax: 0181 215 0704

BUSINESS E-EFFECTIVE PROGRAMME

Booking Form

Name

Address

Post Code Tel: D.O.B.....

Company Name and Address

Post Code Tel: Fax:

Number of Employees:

Dates for booking (please tick your preferred date):
Workshop start 9.00am for 9.30am and finishes at 4.30pm

Workshop 1 - Introduction - Internet Driving Licence	Wed 27 October	<input type="checkbox"/>
	Frid 29 October	<input type="checkbox"/>
	Tues 2nd November	<input type="checkbox"/>
	Thurs 18 th November	<input type="checkbox"/>

DATES FOR FOLLOWING WORKSHOPS TO BE ANNOUNCED AT THE END OF FIRST WORKSHOP SESSION

COST FOR ENTIRE PROGRAMME OF 5 WORKSHOPS INCLUDING FINISHED WEB SITE:
SME in Newham £200; Business Partner outside Newham £499; Others £599
PLUS £5 Booking fee (non-refundable) per person

Cheque enclosed: £..... Please make cheque payable to UNIVERSITY OF EAST LONDON
Please send payment together with booking form in the envelope provided to secure your place.

Cancellation Charges: Up to 14 working days before the course - 25% of registration fee.
Registration within 14 working days of course - no refund of registration fee.
Booking changes are subject to £10 administration fee

STAGE III: e-commerce masterclass

(6 hours workshop 10 hours business planning)

Programme Objectives

On completion of the workshop

Participants will be aware of:

- The basics of HTML coding
- Elements of Web page make up and design
- Publishing pages to the Web
- Pitfalls in Web design
- Good practise in Web design

On completion of the workshop

Participants will be able to create their own draft Web pages:

Participants will leave the workshop with a fully developed MKI website, disk and support material

Programme Content

The following topics will be covered in depth:

- ◆ The logistics & growth of the Internet
- ◆ Using packages for Web page authorship
- ◆ Creation of basic Web pages and content
- ◆ Business use of the Web
- ◆ Web page creation using story boards
- ◆ Web page creation using advanced tools
- ◆ Using the Web for E-commerce

STAGE IV: Doing Business on the Internet

(6hours workshop; 20 hours further practise in the Bee Centre)

Programme Objectives

On Completion of the workshop

Participants will be aware of:

- How Internet and e-commerce fit with existing operations
- How to promote and market your website
- How to augment Customer Service via the Net
- How to achieve new Customers via the Net
- How to develop a profitable web strategy
- Marketing management and financial considerations of e-commerce

Programme Content

The following topics will be covered in depth:

- ◆ Basics of Marketing
- ◆ Marketing Strategy
- ◆ Relationship Marketing
- ◆ Marketing Channels
- ◆ How Internet and E-Commerce fit into overall strategy
- ◆ Managing the Web Site and Enquiries
- ◆ Handling the new Sales

STAGE V:

Following satisfactory completion of Stages I-IV, participants get 2x2 hr meetings with ISI advisor :

Re: design and development of a website

Plus £500 worth of assistance (e.g. design and development costs) to complete a Company Web Site to be located on the world-wide-web and East London 'Trading Point' Business Park.

Funded by Newham SRB as part of an ongoing SME development program-

TO BOOK A PLACE OR FIND OUT FURTHER DETAILS, PLEASE CALL MICHELLE GOLDING ON 0208 215 0700 OR FAX 0208 215 0704 OR EMAIL m.s.golding@uel.ac.uk

Appendix 33: EuroPILOT 2000 promotional literature



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a navigational and support system for developing East London SMEs supported by the European Social Fund and the University of East London

NEW to euroPILOT 2000!

Internet Driving Licence

Whether you are a complete beginner or already have E-culture, make sure you are at the leading edge with Business E-ffective. However you think the Internet may help your business, the only way to find out is to be well informed! All euroPILOT companies should complete this high-impact course at the Bee Centre.

EuroPILOT Alpha User Group

We would like to invite all euroPILOT companies to put themselves forward for the alpha user group. This group will be selected to represent a cross-section of the businesses on the programme and will help steer the project's online community and user-forum. Please register your interest NOW!

EuroPILOT Focus Groups

We shall be running a number of focus groups based around topics that YOU the companies have asked to explore in more depth. Focus groups will be facilitated by experts in the Particular area. The first group will be the **MARKETING PLANNING GROUP** on the 11th February. Other groups will follow shortly.

Europe is HERE and NOW! – Business with Germany

Those who took part in the December conference discovered the strength of our German network. We are running a video conference with our German partner SMEs on the 25th February, and planning a visit to Berlin between 1st and 6th April 2000. Places are limited!!!

Please register your interest using the faxback overleaf!



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euroPILOT 2000

Summary of workshop Programme:

All companies should complete the "Face-Off" programme:

Workshop I

Boarding Now!

This is the Start-Up workshop for euroPILOT. Companies are introduced to the facilities and resources of the project, including the Bee Centre, and guided on the process of work-based and open learning, especially the use of new technologies.

Workshop II

Ready for Take-off

This workshop centres on personal development for business Improvement and establishing a personal development plan.

Workshop III

Business Diagnostics

A chance to quickly and qualitatively assess the situation and to set business development goals where the project will be a key support mechanism.

Follow-up on site visit:

Once you have completed the above workshops, we will plan the way open learning and work-based learning can help your business, and support you in its implementation.

Internet Driving Licence

Using the power of the Web for business communication and information is key to success in the 21st Century. EuroPILOT enables companies to develop an E-culture through courses, workshops and support from co-pilots. *ALL companies are advised to complete the Business E-ffective Programme.*

At the Bee we know that open learning and work-based learning are key to success in business development AND efficient time-management for SMEs. We also know that setting goals and planning both for personal and business development are crucial so that you can track your own progress against the time that you invest. We strongly recommend that you fill the gaps!- GRAB AND FAXBACK A REGISTRATION FORM NOW! If you are NEW to euroPILOT and would like to discover what we can do for you and your business just call Julie Taylor or Liza da Silva on 0181 215 0700 for more information.



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BOARDING NOW!

EuroPILOT Workshop I - Start-up

20 Extra places on our **FREE** organisational development programme -
8 months of high impact support - closing date March 2000

A MUST for any established organisations looking to improve competitiveness, develop and grow

supported by European Social Fund and the University of East London
up to 5 places available for each participating organisation

Includes:

FREE: Workshops - NVQs - Diagnostic Tools

Company Development Logbook

Connection to the *Internet* & unique **DECISION SUPPORT SYSTEM**

FREE Access to the "BEE" Open Learning Centre for all Participants

The Bee Personal Development Programme including psychometric testing

International contacts and networking

"It's a real privilege to have access to all these facilities"

Manager, College of Health, Stepney

"Brilliant fun learning experience - and the opportunity to do an NVQ invaluable"

Junior Manager, Cle-Pol Ltd, Barking

"I'd recommend this programme to anyone looking to develop their people as part of an organisational development plan; the workshops and support are excellent"

Peter Rosen, Director, BOVINCE Ltd. (DTI "best practice" Walthamstow)

COME ON BOARD NOW - FLIGHT COUPON OVERLEAF

THREE EASY STEPS for East London firms to join *euroPILOT*:

1. Provide a few simple details on this fax-back form
2. Discuss the programme with us and decide if it is right for your company and staff
3. Sign Up up to 5 of your people to commence on one of our *euroPILOT* Start-Up groups - dates overleaf



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Flying High! EuroPILOT 2000

Please send me more information on:

The Internet Driving Licence

EuroPILOT Alpha User Group

EuroPILOT Focus Groups

Marketing Planning 11th February

Family-run Businesses

Business with Germany:

Video Conference 25th February

Visit to Berlin 1st - 6th April

Contact Name:.....

Position:

Organisation:.....

Address:

.....

Post Code:

Tel No:.....Fax:.....

E-mail:.....

FAX TO KARLA JOHNSON ON 0181 215 0704
(Or Call 0181 215 0700 and speak to Julie Taylor or Liza da Silva Now!)



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FLIGHT COUPON

USE THIS FAX-BACK FORM TO REGISTER NOW!

To qualify your organisation must be independent and have fewer than 250 employees

START-UP Workshops:

- | | | |
|---------------------------|---------------|--------------------------|
| 10 th February | 12.30pm - 6pm | <input type="checkbox"/> |
| 23 rd February | 09.30pm - 3pm | <input type="checkbox"/> |
| 6 th March | 09.30pm - 3pm | <input type="checkbox"/> |
| 21 st March | 09.30pm - 3pm | <input type="checkbox"/> |

Contact Name:

Position:

Family run business?: Yes/No

Organisation:

Address:

Post Code:

Tel No: Fax:

E-mail:

No. of Employees: Type of Activity

FAX TO KARLA JOHNSON ON 0181 215 0704

(Or Call 0181 215 0700 and speak to Julie Taylor or Liza da Silva Now!)



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Ready for Take-off! **EuroPILOT Workshop II** *Personal Development for Business Improvement*

This is the second workshop in the euroPILOT Kick-off Programme. This workshop follows your start-up session, and is intended to help you to plan your own personal development programme to support your business goals.

During this workshop you will benefit from:

- Feedback and discussion about your personal psychometric profile from trained facilitators including the implications for your management and team style
- A one to one discussion to set your personal development goals and training needs to support your business AND your own personal euroPILOT logbook and development plan
- Detailed introduction to the Bee Open Learning Centre and the resources available to you for supporting your development including information on the self-service multi-media materials and courses and seminars run at the centre
- Sessions using the euroPILOT website, and how to use it as a remote learning resource
- All workshops will be facilitated by Julie Taylor and Liza da Silva with support from the Bee Centre staff

To register please complete the FAX-BACK overleaf and fax to Karla Johnson on 0181 215 0704

For further information call Liza da Silva or Julie Taylor 0181 215 0700



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DIAGNOSTIC WORKSHOPS IN THE BEE!

Recently announced as a core new part of the continually developing euroPILOT Programme, we are proud to announce the dates for the Business Development Diagnostics Workshops using tools developed by EMTA (The Engineering and Marine Training Association). The euroPILOT team have adapted these diagnostics to SME needs and designed a computer-based multiple choice series that mean you can quickly diagnose the problem areas of your business and key opportunities for development.

During the workshop you will benefit from the following:

- Introduction to the Business Excellence Model
- Training on how to use the diagnostic tools for your organisation
- The opportunity to run some of the tests with guidance from the Co-Pilots
- The chance to compare and discuss results with other euroPILOT companies
- An overview of the Business Briefings available to help you in your goal setting
- A chance to start your company development logbook with the help of the Co-Pilots

IN ADDITION:

- The EMTA Adapt to compete workbooks containing back up information to the diagnostics CD ROM will be given to those companies who have not yet received one at their Start-Up
- The euroPILOT Company Development Logbook

Each euroPILOT participant should attend a workshop, ideally more than one person from each company (not necessarily the same one!) so that you can discuss the different views within your team.

Just fill in the FAX BACK form overleaf and fax it to Karla Johnson on 0181 215 0704 to register your attendance!



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Please register the following people for the EuroPILOT Workshop:
(You must have completed a Start-Up workshop before you may benefit from this workshop)

Ready for Take-off!

EuroPILOT Workshop II

Personal Development for Business Improvement

- | | | |
|---------------------------|-------------------|--------------------------|
| 24 th February | 4pm - 7pm | <input type="checkbox"/> |
| 7 th March | 09.30pm - 12.30pm | <input type="checkbox"/> |
| 15 th March | 09.30pm - 12.30pm | <input type="checkbox"/> |
| 31 st March | 09.30pm - 12.30pm | <input type="checkbox"/> |

Contact Name:.....

Position:

Organisation:.....

Address:

.....

Post Code:.....

Tel No:.....Fax:.....

E-mail:.....

FAX TO KARLA JOHNSON ON 0181 215 0704
(Or Call 0181 215 0700 and speak to Julie Taylor or Liza da Silva Now!)



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DIAGNOSTIC WORKSHOPS IN THE BEE USE THIS FAX-BACK FORM TO REGISTER NOW!

DIAGNOSTIC "Open Workshops" (facilitator Julie Taylor)

18th February 5.30pm to 7.30pm

29th February 5.30pm to 7.30pm

16th March 5.30pm to 7.30pm

DIAGNOSTIC "Closed Workshops":

Customised workshops may be possible where you and members of your staff could attend as a group. We may pair you with another company with similar business dynamics or goals to stimulate a fruitful learning experience. This may be a good chance for owner managers to involve other staff or for participants from larger companies to involve their senior managers.

I would like a workshop for my company during the day please call me to discuss

Contact Name:

Organisation:

Address:

Post Code:

Tel No: Fax:

E-mail:

No. of employees: Business sector

FAX TO KARLA JOHNSON ON 0181 215 0704

(Or Call 0181 215 0700 and speak to Julie Taylor or Liza da Silva for more information Now!)



euroPILOT team (pictured right to left) Karyl Johnson, Julie Taylor and Liza Da Silva, with participants, Bibby and Jaqui Linton of Chauffeur Force

Welcome to the NEW! euroPILOT2000

“The information age is dead, the currency of today is information and knowledge”.
A quotation from the Dti Visible results conference assumes that an e-business structure is established within a company and its supply chain and that technology is simply a tool for exchanging expertise and data.

The focus of euroPILOT over the final year of the programme, ending October 2000, is to help participating companies to establish an "e-culture", be that for customer or internal communications. The motto for the year is "intelligent businesses are E-ffective"

This update is full of examples of success from over 50 local firms who have already benefited from guidance towards business excellence and world-class Customer Relationship Management provided via our unique networking events and web-based Decision Support System and on-line panel of specialists. The programme allows participating companies to harness the power of technology through work-based and open learning; it provides key benefits for

decision makers and staff supported by the multi-media and Internet facilities of the Business Enterprise Exchange. In addition participating companies may register their staff for FREE NVQs in Customer Service and IT.

FINAL CALL

We are happy to announce a FREE high-impact 6-month version of this famous development programme for East London businesses AND the opportunity for existing businesses to extend their participation until October 2000! Contact the euroPILOT Team or fax back the form on the back of this newsletter NOW for more details. Welcome on board!
Julie Taylor, euroPILOT Project Manager

PRESS!+ euroPILOT Online Diagnostics and Business Support

Online diagnostics are now live! Simply go through the 18 multiple choice business health checks to highlight areas where you can improve your performance – print out the results to compare with your colleagues. You may find opinions differ in your organisation! The success of the Decision Support System depends on YOU asking

challenging questions that you face in your business lives, so that we can provide the targeted information and online support. So go on ask us a question! Go to the website, register on the site FREE, then enter your name and password to reach the diagnostic and online support pages.
www.europilot.com

NEW! Business E-ffective - The Ultimate Web Work-out!

This new programme is already a great success with local companies. Imagine gaining the ground skills you need to be part of the E-business revolution in just 4 short high-impact workshops! The programme is totally flexible and includes a pre-course assessment to help you find the most effective route to your E-future. This means you only need to attend the workshops that add value to your business. You may also mix and match the staff you send on the course according to their role and training needs. Naturally there is a fast-track strategic programme for senior managers and owner-managers. Business E-ffective includes an individual session with a web-design consultant PLUS a starter web-site, or, if you already have one, help with an Up-Grade. "Every business has to be e-smart, it's not just about the Web, it's about knowing how the Internet affects your business and customers" says award winning participant Shelley Daly of Headjogs. Whether you are wondering how the Internet affects you, would like to set out on the e-business highway, or would just like to improve your knowledge to improve your existing e-competence, this is the course for you! Contact the euroPILOT team or see the websites www.europilot.com and www.bee.co.uk for more details.

EAST LONDON IS THE CYBER CAPITAL OF LONDON

Visible results for euroPILOT.com at the new UEL Docklands Campus



Gareth Osbourne (BIC) Symon Bloomfield (Turquoise) Shelly Daly (Headjogs) Julie Taylor (euroPILOT Project Manager UEL) Jenny Searle (Dti) David Hall, (Director TGTC UEL) Alistair Stewart (Newscaster and TV Personality) at the recent Dti sponsored ISI (Information Society Initiative) event at the new UEL Dockland Campus.

The euroPILOT Website and Decision Support System took centre stage at the Visible Results conference on the 12th October 1999. Master of ceremonies Alistair Stewart introduced the major Dti-sponsored event which

demonstrated the use of ICT technologies in business via satellite links between four British venues. Julie Taylor gave a live demonstration of how the euroPILOT Decision Support System is bringing consultancy and valuable business information to the desks of managers of East London SMEs - a best-practice example of work-based active learning. Shelly Daly presented the e-based future of her company Headjogs. Shelley is using ICT to inform and entertain her customers while they visit the salon, a euroPILOT e-business performer! Check out the Headjogs case study at www.europilot.com

Gareth Osbourne of London BIC launched the BIC's Innovators website which the BDC helped to develop via the Dti multi-media Demonstrator Programme Grant. For more details visit the website at www.lisun.co.uk.

The euroPILOT 2000 team

Karla Johnson provides customer service and liaison support to our euroPILOT companies.

Liza da Silva, previously Operations Director of the Docklands Business Club, has joined the BDC team as a Co-Pilot. Liza supports euroPILOT companies in all areas, especially Customer Service Improvement, PR and networking.

Julie Taylor joined the BDC as Project

Manager for euroPILOT in summer 1999 having previously worked with similar projects in Germany. Julie's experience in business development and marketing is at your disposal!

Of course the newly upgraded and enlarged Bee and the whole staff of the Business Development Centre will continue to be a key part of your development on euroPILOT.

Contact details for the euroPILOT team www.europilot.com

Karla Johnson 020 8215 0701
Julie Taylor 020 8215 0702
Liza da Silva 020 8215 0705
Bee Centre / BDC 020 8215 0700
euroPILOT FAX 020 8215 0704

k.johnson@uel.ac.uk
Jules@bee.co.uk
Liza@bee.co.uk
beekeeper@bee.co.uk

If you are interested in enrolling additional personnel or know of another company who would benefit by joining euroPILOT, please complete the slip below and fax or post to Karla Johnson.

Please send me: the euroPILOT application form details of euroPILOT events and workshops details of business e-f-

Name

Tel

Job Title

Fax

Company Name

Email

Address

Website

Postcode

Nature of Business No. of emplo

Effective E-upho



Shelley Daly and John O'Neill at a recent euroPILOT workshop

Yet again, euroPILOT.com and our performing hairdressing company Headjogs headed by Shelley Daly - have proved getting into cyber space is about bringing the people of East London. In a venture between British Telecom and euroPILOT Project Shelley's award-winning hairdressing company is walking the line. The Ilford salon now offers new IT services where customers can "surf while they perm" - online access during treatment involving waiting time. In addition the salon is a veritable treasure-trove of multi-media and cyber information in the easy way to get online with BT, a many IT and business development led initiatives from UEL's Business Development Centre in Stratford. All of this is provided via TV screens and videos in the salon step by step information helping all to get in touch with the information highway. Shelley, who herself completed management NVQ at UEL in record time whilst running her business says, "Everyone should have a chance to learn using technologies. I want my customers and staff to be the best connected in London!" Check out the website at www.europilot.com for the case study on how Shelley did the business. Visit www.bee.co.uk for details of IT and business training at the Business Development

euroPILOT.com
Intelligent services for SME's

www.europilot.com

Uel
University of
East London

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business
development
Centre

www.bee.co.uk

TYRONE TEXTILES TO GO THE E-ROUTE

ford based textile manufacturers distributors, Tyrone Textiles were many ways naturals to join the PILOT programme.

An established family company they are already market leaders in certain sectors of the "window-fabrics" industry. Competition was intensifying; customer needs becoming increasingly sophisticated.

With over 50 locally based employees and a manufacturing sister company in Nottingham, Tyrone were determined to increase overall market share; to extend their traditional range of "net" curtains and had added modern voile and fire-resistant curtains and further product development was planned. There was a need to strengthen marketing, increase the rate of adoption of new technologies, increase the efficiency of management and workforce alike. Four Tyrone managers joined euroPILOT in late 1998 and after conducting a number of start-up

workshops began looking at different areas of the company - supply chain aspects, sales management, the use of technology, the development of greater team work and collaboration within the company and with its customers and suppliers.

"THE INITIAL PSYCHOMETRIC REPORTS WERE VERY USEFUL"

Tony Moyes, then Warehouse Manager but since promoted to a Senior post within the company welcomed this opportunity working with colleagues to "think, plan, act". "The initial psychometric reports were very useful in getting to understand ourselves and each other," says Moyes, "which helped us then to look at the company more objectively in the context of its

continuing growth plans".

Now early in year 2000 as Tyrone's product range, growth rate and workforce continue to expand, the company is turning to the Internet and to E-Commerce to help further improve performance, sharpen its competitive edge. Through project partners Business Link London East the firm is obtaining specialist E-advice and consultancy. Meantime Senior Management are to attend a high-impact "focus" workshop at the University whilst plans are made through euroPILOT to provide relevant "E" training for all key Tyrone staff during the year.

Jeff Witzendorf, Finance Director at Tyrone says, "Its essential to our survival and future success as a company that we adopt new technologies, new ways of working. To do this we need support, we need to train and develop our staff. The euroPILOT programme and the support we get from the University help us make sure that we do just that!"

SPONSORS BUSINESS INNOVATION IN EAST LONDON

London Small Business Awards saw success for Finger Protector Ltd. voted number one in the "Innovation Category" sponsored by UEL's BDC and East London Business School. As well as a cash prize for their successful firm that prevents children's fingers from being trapped in doors we are proud to welcome Finger Protector as a new

member of the @tew@y business partner and euroPILOT company. Long-term euroPILOT participants the innovative family business Cribbs and Co were recognised as best in class in the Customer Service category.

Julie Taylor pictured with award winning Finger Protector Ltd and guest speaker, Tony Banks MP



International SME Conference and German Business Exchange euroPILOT named as example of "best practice in transnational co-operation"

Between 29th of November and 4th of December 1999 twenty-five companies sponsored by the German Chamber of Commerce and the European Information Centre came to meet their counter-parts on the EuroPILOT programme in East London. Managing Directors and Marketing Managers of the companies from Berlin - one of the New Federal States in Germany - compared their market situations and

export opportunities for their products and services in the UK and Germany. More than 40 meetings took place with potential business partners in East London and with departments from UEL that could support further technological and business innovation. Their interest in the UK market ranged from looking for suppliers and partners for joint ventures to selling products to the UK

market via agents. During the conference presentations about SME's specific issues such as family business issues, cross-cultural communication, international marketing and finance were complimented by sector-based focus groups hosted by euroPILOT companies. We would particularly like to thank all of those who helped to make this event a stupendous success and encourage all of you seeking advice on European Business to see how euroPILOT can support you! Profiles of our German partner SME's can be found at www.europilot.com. We shall be reporting the success stories in the next issue.



learning is fun - even in another language

High-Impact Learning Meets High Impact Sport

UEL'S BDC TEAM WELCOME THE KNIGHTS ONBOARD!

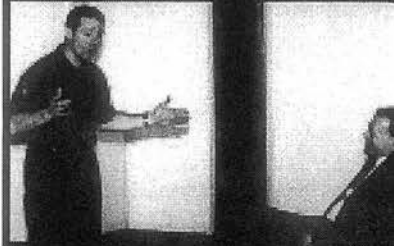
The University of East London's Business Development Centre have awarded a Business Partnership package to the London Knights Ice Hockey Super League team. "This is a great



chance to give our staff some really leading-edge skills" says Brian Jokat, CEO, "and we can really benefit from the business seminars and events at the BDC which allows us to be closer to the business community in Docklands and in Stratford". The partnership is a thank you to the Knights for the work of Chris McSorley, their head coach, helping to advise local small businesses on team management issues as part of the euroPILOT Business Development programme. A number of events are planned including discount tickets for business partners and visits by local managers to training sessions at the London Arena. Check out the Knights on the Web www.london-knights.co.uk

Picture: Brian Jokat (London Knights CEO), Chris McSorley with Julie Taylor and Martyn Laycock.

Have you got a 21st Century winning team?



Chris McSorley explains "when you lose, don't lose the lesson"

euroPILOT participants and guests gathered at the University's new Docklands Campus on a gloriously sunny January morning to hear how Chris McSorley, Head Coach of London's professional Super-League ice hockey team, The London Knights, manages a "winning team".

Chris delivered a truly inspirational presentation packed with motivational techniques, team building exercises and practical tips on how to successfully establish effective relationships with team members and lead for results. I wonder those London Knights are always near the top of the league!

Chris has invited euroPILOT participants to visit him at the London Arena to witness a "live" training session with the team. This is a great opportunity that will no doubt offer us valuable insights that can be related to any workplace you would like to reserve a place, please contact the euroPILOT team for further details.

resources and operations. UEL and in particular the staff, networks and programmes are going to help us do it for ourselves and to do it right". Ray and the staff of Carmelcrest collected three more awards at the Recorder/NatWest Small Business Awards held in November - growth business, training and development the coveted "East London Small Business of the Year".



Welcome to Karla Johnson (right) pictured with Charlotte Duncombe and the Mighty Mighty Karla joins the euroPILOT team to provide customer services to euroPILOT companies

East London Leads the Way



Ray Spooner pictured with award organisers Docklands Business Club, and sponsors; Canary Wharf Group plc, BT and UEL's Business Development Centre Director, Martyn Laycock.

Congratulations to euroPILOT participant Ray Spooner of CARMELCREST, who claimed the WINNERS PRIZE at the Docklands Business Club Annual Business Award held in December, sponsored by Canary Wharf Group plc. East London companies were invited to demonstrate success in key areas of their business and compete for the prestigious "Company of Tomorrow" award. The judging panel made up of key, local business people including Martyn Laycock, Director of UEL's Business Development Centre selected the winner from companies demonstrating competence and strategies for sustained competitive edge in the 21st Century.

The Business of Tomorrow Prize, sponsored by UEL, included a G@tew@y Business Partnership of the Business Development Centre, access to all networking events and a free place on the innovative Business E-ffective

training programme designed to give companies the internal competence they need to harness the power of the Internet for communication, Web-marketing and E-Commerce

Ray, Managing Director of the office renovation and refurbishment company says, "The exciting thing about working with the Business Development Centre team is that they want to help us to help ourselves. The whole open-learning concept and 24-hour web-based delivery is about helping us to obtain the skills we need to develop our business, and not telling us what to do. As an entrepreneur I realise the importance of continuous learning, I need leading-edge knowledge and information, and the ability to put things into practice from day one. I also need to embed that learning in the company and not be dependent on consultancy. The Internet is going to play a big part in the future of Carmelcrest, as is a more strategic approach to marketing, human

**Appendix 34: EuroPILOT dissemination: “vISible Results”
conference**

EuroPILOT

**‘vISIble Results for
SMEs’**

James Carr

October 1999

vISible Results for SMEs

The 'vISible¹ Results for SMEs' event was run by the University of East London (UeL) at its new Docklands campus. This was a high profile opportunity to showcase the work UeL and some of its partners are undertaking with local SMEs (see appendix 1). The event's Master of Ceremonies was Alastair Stewart of 'The Sunday Programme' and 'Police, Camera, Action!' His experience and professionalism lent an air of authority and importance to the event. He began with a general introduction about 'Technology, Innovation and Growth' which set the scene for the morning speakers.

EVENT 'A': 'East London Means Business'

Following a welcome to the UeL Docklands campus by David Hall, the Thames Gateway Technology Centre Director, Jenny Searle, Director of the Department of Trade and Industry (DTI) Information Society Initiative (ISI), began with an overview of the ISI. Then the London Innovation Support Network's 'LISuN' website for Innovators was launched by Gareth Osborne of the London Business Innovation Centre. The idea behind LISuN is to provide dedicated support for SMEs, innovators, entrepreneurs and inventors. The website offers comprehensive and practical online guidance, advice and resources to help innovators and SMEs exploit their innovations and turn them into commercial reality. The LISuN project is a flagship component of the DTI's ISI. It has emerged and developed through a partnership managed by the London Business Innovation centre (BIC), with strong support from the University of East London, the Research Initiative, Westminster University and Tunewell Technology. A major feature of the website is the inclusion of two interactive questionnaires, helping users to understand their own attitude to business and innovation as well as being a means for evaluating the potential for their project. Other sections on the site include detailed help on researching an idea, intellectual property, business planning and marketing. LISuN may also prove of

¹ The 'ISI' in 'vISible' stands for Information Society Initiative

benefit to small business advisors. Gareth's presentation was disappointing in that there was no live link to the website and demonstration of its uses. This left the audience with a lack of clarity about how the website actually works in practice.

Julie Taylor, Project Manager of the *EuroPILOT* programme at UeL, redeemed the situation by presenting a live demonstration of the programme's Decision Support System (DSS). This illustrated how SMEs can ask questions about various management topics from this 'on-line consultant', and can also gain access to a live consultant or the wider Internet if the DSS answers do not match their requirements. *EuroPILOT* SMEs are connected free-of-charge to the Internet and provided with email addresses to enable them to access the DSS. They also receive training in how to access the Internet and use the DSS which has been developed in partnership with UeL's electronic publishing partner, The Brief's Network. The system provides a series of specially developed Good Practice Case studies as well as informational platforms in a number of key business areas including:

- sales and marketing;
- finance;
- managing people;
- supply chain;
- use of IT in business;
- business planning and strategy;
- business excellence;
- managing change.

The live link-up went without a hitch and Julie delivered an excellent presentation. The only disappointment for me as an evaluator of the *EuroPILOT* project was that I would liked to have seen some discussion about the high level of support and encouragement SMEs need in order to make use of these type of resources and see potential links to their business training needs.

Before Symon Blomfield of Turquoise Ltd. closed the morning session with the announcement of new Thames Gateway technology Centre's 'Knowledge Dock' project, Shelly Daly of the award winning SME Headjogs Ltd. provided an enlightening discussion of how she has radically changed her hairdressing business from the traditional single shop to a chain of outlets. Of particular interest was the innovative nature of the changes she has introduced, such as the introduction of customer databases and emphasis on obtaining customer feedback which allows opportunities for repeat business and staff monitoring. Shelley is also proposing to provide Internet access in her business premises, expanding the client's visit to the hairdressers into the world of entertainment. As a *EuroPILOT* evaluator I would liked some discussion of the aspects of the *EuroPILOT* programme that may have assisted her with this innovatory process. Part of the problem here with measuring the impact of *EuroPILOT* on a company like Headjogs is that she was already making significant innovations before she joined *EuroPILOT*. When questioned about this later in the day she responded that the Information Technology (IT) training facilities at the Business Enterprise Exchange (BEE) centre had been of particular help.

EVENT 'B': 'vISible Results for SMEs'

The afternoon session began with an air of excitement owing to the live broadcast on EUTELSAT W2 Channel with full Networked Programme Linking Five National Centres. We were all hurried to our seats in the 'studio' by event manager Rob Woodhull, Martyn Laycock and other UeL support staff who did a wonderful facilitatory job throughout the day. Following a welcome to UeL Docklands by Vice-Chancellor professor Frank Gould, Alastair Stewart showed his broadcasting skills by successfully ad libbing (and getting other surprised speakers from the morning sessions to ad lib!) when there was an initial small hitch with the link up to the programme. Links from the main studio were made via video-conferencing to the other 5 national centres (including Docklands) periodically throughout the broadcast, which also showcased case studies of successful SME multimedia projects around the country.

This complicated technical event passed off extremely smoothly, for which the facilitators involved are to be heartily congratulated given the technical hic-coughs that I have frequently witnessed at other much less technically complicated events.

The main areas of discussion to emerge in the broadcast and the live panel and local panel sessions were:

- e-learning is set to be the next IT revolution and the rules about how best to carry this out are not yet written;
- The DTI are concentrating on raising awareness about e-learning and e-commerce;
- Those SMEs thinking about venturing into e-commerce should consider what needs it will meet, pay attention to the marketing of their website and realise that it takes an average of 3 months before the first order is placed;
- The Ufi are developing multimedia products specifically targeted at SME needs;
- SME training needs tend to be very focused, they need to be met quickly, cheaply and flexibly - best suited to this are small 'chunks' of multimedia training;
- The Ufi are developing technology to meet the needs of industry sectors on the one hand and individual workforce needs on the other hand;
- Training needs analysis by/for the SME is vital;
- The DTI ISI is now focusing on SMEs and e-commerce

Implications for *EuroPILOT*

EuroPILOT is already active in many of the areas mentioned in the discussion. The experience gained through *EuroPILOT* should help to write some of the new rules concerning effective e-learning, and there is the chance to develop *EuroPILOT* as a best practice model, particularly since none of the case studies featured in the live broadcast concerned general management training for SMEs. The fact that training needs analysis by and for SMEs is vital reinforces the relaunch of the *EuroPILOT* programme with its new emphasis on initial self-diagnostics which can then be developed into action learning plans. There is also the opportunity to perhaps develop on-line case studies based around some of the *EuroPILOT* participants which could then be rolled out to other SME training programmes.

Appendix 1

vISible Results for SMEs: 12 October 1999

EVENT 'A': 'East London Means Business'

'Technology, Innovation and Growth':

Alastair Stewart (of 'The Sunday Programme' and 'Police, Camera, Action!')

Welcome by David Hall, Director, Thames Gateway Technology Centre

Jenny Searle, Director, DTI Information Society Initiative

Launch of the London Innovation Support Network's 'LISuN' web-site for Innovators: Gareth Osborne, London BIC

Demonstration of UeL's '*EuroPILOT*' SME Decision Support System

Julie Taylor, Project Manager *EuroPILOT*

Shelley Daly of Award-Winning SME Headjogs Ltd.

Announcement of new Thames Gateway Technology Centre's 'Knowledge Dock' project: Symon Blomfield, Turquoise Ltd.

EVENT 'B': 'vISible Results for SMEs'

Sponsored and supported by The Department of Trade and Industry Multi-Media Demonstrator programme

Welcome and Introduction by Alastair Stewart

Welcome to UeL Docklands by Professor Frank Gould, Vice-Chancellor

Live broadcast on EUTELSAT W2 Channel with full Networked Programme Linking Five National Centres

Live Panel:

Jenny Searle, Director, DTI Information Society Initiative

Peter Byard, Peter Byard Associates Ltd.

Nigel Ashworth, Head of E-Commerce at the Royal Bank of Scotland

Chris Parker, Head of the Information age Policy Development Team, DTI

Local Panel:

Professor Cochrane, Head of Research, British Telecom (chairperson)

Shelly Daly, Headjogs

Gareth Osborne, Chief Executive, London BIC

Graham Fisher, Chief executive, Business Link London East

Appendix 35: EuroPILOT.com promotional literature







-
- **Support 50 East London SMEs**
 - business and personal development for owner-managers and staff
 - coaching and support NOT consulting

our goal: to provide independent and informed navigational support through strategic and operational decision making

- **Deliver Business Diagnostics, Learning, Coaching and easy to understand “knowledge units” online**
- **Respect the working styles and practical needs of East London SMEs using Informatics AND the introduction of an e-culture both for business and learning**

in close co-operation with private sector partners

- **Develop Sustainable Competitive Advantage**
 - encouraging long-term access to external resources and support agencies in the region

-  **Logbooks of Organisational and Personal Development**
 - define individual goals for project participation and track progress
-  **Diagnostic tools based on the Business Excellence Model:**
on-line for use in the workplace and with staff teams
 - connectivity and computer skills training through the Bee's Computer Skills Programmes and the Bee Centre including e-commerce and web development programme Business E-effective
-  **Online Knowledge Engine and coaching system with web community**
-  **Expert Signposting – guidance from UEL's Co-Pilots**
-  **Networking face to face and online - a magic combination**
 - National and International seminars, workshops and other events at the bee – UEL's Business Enterprise Exchange
-  **Free NVQs in Management and Customer Service**

-
- **The Business E-effective programme**
 - **“from modems to e-commerce”**
 - **4 high-impact workshops for e-business**
 - Assure familiarity with the Internet
 - Advanced searching and e-culture including EDI
 - e-business strategies and web marketing
 - Web page design and construction
 - Flexible delivery and work-based learning
 - 50 SMEs on the web and “e-marketing” by June 2000
 - Supported by the Information Society Initiative (ISI) and SRB (Newham) jointly with euroPILOT



euroPILOT.com
intelligent services for SME's



-
- **70 SMEs** and **150 Participants** enrolled through to October 2000
 - Network established with **50 German SMEs** and ongoing technical exchange with Italian Partners
 - Internet-based Knowledge Engine launched June 1999, developing with SME focus groups and Alpha-user group throughout the project
 - More than **50 On-line Business Briefings**
 - CD-ROM for **Supply Chain Management** and **Business Briefings™**

-
- **ECOTEC see us as a Centre of transnational excellence - real contacts real results**
 - **IHK (Chamber of Commerce) Frankfurt Oder project:**
 - Over 50 SMEs from New Federal States
 - Similar problems to East London SMEs
 - Project focus business development and export to UK
 - Good contact between project delivery teams
 - Use of europilot.com, email and video-conferencing
 - **November 1999 3-day conference with 70 participants and expert speakers and over 40 1:1 business meetings**



euroPILOT.com
intelligent services for SME's



www.europilot.com

Contact us at the UEL Business Development Centre for more
information:

Julie Taylor euroPILOT Project Manager

jules@bee.co.uk

Tel: +44 (181) 215 0700

Other websites from UEL:

www.knowledgedock.com

www.bee.co.uk

www.uel.ac.uk

coming soon.....www.europilot.net

Appendix 36: E-commerce workshop report

EuroPILOT

**NEWHAM ONLINE:
E-COMMERCE EVENT**

October 1999

James Carr

Newham Online e-commerce event

This event represented an opportunity for ten *EuroPILOT* SMEs to develop the e-commerce potential of their business, free of charge. Newham Online are offering free hosting for a year, and the e-commerce software employed will be Actinic Catalog 3. Representatives from Newham Online and the company supplying the software made presentations about the benefits of e-commerce, such as:

- turns your company into a 24 hour operation;
- provides possible access to new local and international customers;
- represents a new and different way of interacting with clients;
- cheaper and more reliable than telesales/mail order;
- requires low investment in infrastructure and low cost of ownership.

They also pointed out the importance of marketing and the design of the website; the need to integrate e-commerce with existing databases (Actinic Catalog 3 is based on Access so is customisable to most systems); the preparation required to deal with a possible flood of requests; the need to define your key on-line market; and the need to be using email regularly before even thinking about investing in an e-commerce website.

This was a very interactive session - those who attended obviously had a real interest in the potential of e-commerce for their businesses and posed questions such as:

- are their hidden maintenance costs?
- will they be forced to buy software upgrades?
- is it suitable for those in the service industry?
- is the one day training provided by Actinic enough to deal with the real hidden costs of marketing the new e-commerce function?

EuroPILOT facilitators will be undertaking SME e-commerce training so they can gain a close understanding of SME e-commerce needs and feedback the answers to questions such as these.

Overall the workshop was a very successful way of engaging *EuroPILOT* participants in an interesting wide-ranging discussion which began with e-commerce and e-commerce software and moved into the marketing function as applied to the whole business. This could be a key way to get participants to engage in thinking about wider management issues - if they can be motivated by new initiatives such as e-commerce then co-pilots can use this as a launch pad for examining other key management issues.

Appendix 37: Transnational conference report

EuroPILOT

**Transnational Networking
Conference:**

EuroPILOT and The Chamber of
Commerce Frankfurt Oder

29th November – 4th December

James Carr

Transnational Networking Conference

All *EuroPILOT* companies, Business Development Centre Business partners and members of the Docklands Business Club were invited to this international conference involving *EuroPILOT*'s partner German ADAPT-funded business development project. Representatives from The Chamber of Commerce and the European Information Centre in Frankfurt Oder, Germany, accompanied the managers and owners of 25 German companies from a wide number of sectors on this visit to the University of East London Business Development Centre. The aims of the conference were for German and UK companies to meet, exchange ideas and explore mutually beneficial business opportunities. The particular benefit on offer to *EuroPILOT* participants was an opportunity to explore potential business links in Germany, Poland and Eastern Europe. The conference format offered flexibility for local SMEs, allowing them to register for particular events, the whole day, evening sessions or just individual meetings with companies.

Wednesday 1 December

The day began with a demonstration of *EuroPILOT* by *EuroPILOT* project manager Julie Taylor, with a particular focus on The Decision Support System (DSS) and website services for SMEs. This was followed by the chance for the visiting delegates to try the BEE centre learning technologies. The visiting delegates were extremely friendly and enthusiastic - I was immediately shown a demonstration of Intercity Maps software by Ralf-Peter Stahr on the Internet in the BEE Centre. (He later made a very promising contact through the conference organisers with a multimedia developer from the Thames Gateway Technology Centre who was very interested in another of Ralf's software products).

The next session was 'Cross-culture in business communication: Doing business between Germany and the UK; cultural differences and tips for good co-operation'. The presenter was Professor Peter Woolliams of Anglia Polytechnic University and

he delivered an entertaining and informative presentation which was very well suited to the transnational nature of the conference.

The afternoon began with a change management workshop: this included two companies from Germany, one a metal zip manufacturer and the other a synthetic material recycling plant, and Dane & Company (chemical industry) from the *EuroPILOT* programme. Gunnolf Droescher of Rathenower Reissverschluss GmbH made a very lively presentation (interpreted and summarised by Julie Taylor) with a particular emphasis on the need to respond to competition from plastic zip manufacturers. Neil Armstrong from Dane & Company also provided an excellent overview of implementing change in a very traditional established company in terms of both IT and teamwork, and was ably assisted with the technology associated with his presentation by Jamie King. Their presentation was entitled 'Evolution not Revolution' and this was immediately seized upon by Guenter Engeimann of Berec-Recycling GmbH at the start of his presentation to illustrate one of the main differences between East German and UK companies; East German companies are now coming to terms with the change from a planned to a market economy - or as Guenter put it, revolution is still required in order to achieve change. This lively interchange was typical of the whole two day conference and greatly assisted the learning process for all concerned.

Then followed a more lighthearted though professionally presented session from Penelope Clayden of The Academy of Colour and Style (another *EuroPILOT* participant), assisted by 'victims' from the audience, the main one being the *EuroPILOT* facilitator Rob Woodhull who added much to the general good-natured atmosphere. But there was a more serious message behind this fun session called 'Looking Good in Britain - Dressing for business in the British business culture'; prospective employers, business associates etc. tend to make an initial and often lasting judgement about a person by their appearance. Although there was some debate about how true this is in practice (e.g. if someone can do the job it doesn't

matter how they dress) informal discussions after the event revealed that many could recount tales of 'fashion-phobia'.

Next Nicola Coan of the East London Chamber of Commerce/ European Information Centre delivered a very thorough and informed account of 'The role of the EIC and services provided for members'. Of particular interest to SMEs was the chances EIC offers to find transnational sector partners through its European-wide networks.

The VIP event in the evening was a marketing workshop, 'More Sales and Profit from Marketing with the Internet'. Delegates were placed in groups around several tables and asked to come up with the five most important factors for running a successful business. The presenter, Robert Craven from the Directors Centre, then went on to draw out the special importance of marketing/customers to the business through lively techniques including knife juggling! He then moved onto the main focus of his talk - successful use of e-commerce. There were many important messages in this presentation for SMEs but it was perhaps a little too lengthy for delegates who had been attending the conference since 10am. However it was encouraging to see a few *EuroPILOT* participants and business partners present at the evening sessions. It was also encouraging to see a large group disperse to the local hostelry for a different kind of 'meeting' even though the German delegates present had to make their way back to the other side of London.

Thursday 2 December

The day started with what I thought was a very low level of attendance, but later I was to find out that many delegates were away visiting business links provided for them by the hard work of the conference facilitators.

The morning was devoted to the special issues facing family run businesses in both Germany and the UK. The issues were tackled by the presentation of case studies from the UK and Germany and a summary from Chris Swaffin-Smith of the Family-

Run Business Unit at Anglia Polytechnic University. The case study presentation I attended was about a funeral director's operation called Cribb & Sons (a *EuroPILOT* participant). This was once again of an extremely high quality and stimulated much debate and discussion; many similarities in terms of issues facing family-run businesses were noted in both Germany and the UK. The useful summary from Chris Swaffin-Smith made the following main points:

- Being a family-run business is a strong marketing tool;
- Clear roles for family members are vital;
- Need to change the relationship within the family to a clear business relationship when dealing with business matters;
- Overall the key issues for survival of family businesses are communication; the development of strong relationships between the three areas of ownership; family and the business; and marketing in the local community.

The afternoon session ('How does it work in the UK compared to Germany?') was split into the following specialist sectoral focus groups:

- plastic/rubber production and re-cycling;
- the NHS;
- building industry;
- software development and innovative technology.

I attended the building industry event and if this was anything to go by, the afternoon was extremely successful. Two presenters from Lawrence Tring Architects (*EuroPILOT* participants) presented issues and trends in the UK building industry using professional PowerPoint slides prepared by another member of their team who was trained in this at the BEE Centre only the week before. The German audience was very diverse in terms of its connections with the building industry, but as this relaxed and informative session developed (with the excellent help of a UeL second year German student) it became clear that everyone present was linked at some point

in the building industry supply chain. The presenters were inundated with questions at the end of the sessions and had thoughtfully brought along trade magazines and other information of great interest to the German delegates.

Following the sectoral focus groups there was a friendly presentation from a Barclays Bank manager about its work with SMEs in the UK and advice for German firms who might be interested in establishing a UK bank account. Overall there appeared to be little difference between the UK and German banking system for SMEs, but this in itself was an important finding and also an encouraging one.

The final session of the day was entitled 'Advertising and promotion in the UK' and the presenter was Paul Wilkins of Aquamen. Paul made some good general points in relation to effective advertising and promotion in the UK, but the real relevance for the audience came about when Julie Taylor intervened and asked Paul to look critically at some of the advertising materials of the German firms present. Paul then provided some very useful advice for companies who might be thinking about advertising in the UK - one of the main differences appears to be that UK advertising appeals more to the emotions whereas German advertising places more emphasis on the technical competence of the product.

Finally Julie Taylor brought the conference to a close, but not before she and the other conference facilitators were rewarded for their efforts with the presentation of a framed certificate signed by all the German delegates. However things were not quite over yet - the Thames River cruise with dinner and cabaret was the next and final item on the agenda. This was a very fitting end to the German delegates visit as it provided a unique sightseeing trip from the heart of London to the Millenium Dome, not to mention the chance to dance the night away while dreaming of new business opportunities.

This very successful conference reinforces the need to work in a very 'hands-on' way with SMEs in order to gain their motivation and commitment to learning. Once they can see possible business benefits they will engage in relevant learning and

networking events and activities, but this requires the high level of support and guidance which was very much in evidence at this transnational conference. If this level of support and guidance can be maintained on a daily basis over the life of the *EuroPILOT* programme with its local SMEs, the result could be a model of best practice for use by other learning facilitators.

Implications for *EuroPILOT*

- place emphasis on a high level of daily support and guidance for *EuroPILOT* SMEs;
- develop virtual links with Frankfurt Oder to maintain the sense of learning community established at the conference;
- produce a CD-ROM/website link to all the *EuroPILOT* SMEs;
- develop sectoral/family-run business multimedia case studies based on the conference;
- run sectoral sessions for *EuroPILOT* participants.

Appendix 38: Report on ECOTEC monitoring visit

**ECOTEC Monitoring Day:
meeting with *EuroPILOT* SME
participants**

James Carr

February 21 2000

Executive Summary

The monitoring of *EuroPILOT* involved a one day visit to the University of East London on 15th December 1999 by two representatives from the ADAPT support unit. The visit aims were to: see how the project is progressing; to provide support where possible; and to identify the main lessons from the project for dissemination at a national level. This report provides details of the section of the monitoring visit where two SME *EuroPILOT* participants discussed the effect that *EuroPILOT* has had on their businesses. The SMEs reported that the flexible nature of *EuroPILOT* is likely to be of benefit to both managers and employees of SMEs, as are the opportunities it provides for both guided and self-directed learning. These new skills can be actively transferred to the workplace where they can help to lead to significant impacts on the business, for example through increased communication and team-building skills and an understanding of process chains. The 'train the trainers' approach is one possible solution for companies who do not want to release a large number of staff from the workplace, and may work best through a ripple effect rather than a dictatorial approach. Small tasters of skills training and the examples of others learning in the workplace may assist with the building of confidence in employees who may be contemplating a new learning experience. The human interface of *EuroPILOT* facilitators is also of importance, especially where it can lead to short-cut answers for busy SME managers. Timing and relevance of seminars and workshops is seen as an important consideration for *EuroPILOT* 2000 as it tries to attract more SME managers to these more traditional events. To meet this need *EuroPILOT* project manager Julie Taylor is planning to introduce sessions at more convenient times and to set up on-line SME communities. These will be driven by forward-thinking SME managers through the formation of an alpha user group. This would enable knowledge to be shared in 'newsgroups' and from an organic beginning eventually experts could step in to create relevant business briefs to be used by other SMEs. There are also plans to develop multimedia case studies around some *EuroPILOT* participants such as Hedjogs and Dane Group which it is hoped will provide relevant lessons for other SME managers.

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Introduction

The ADAPT monitoring of *EuroPILOT* involved a one day visit to the University of East London on 15th December 1999 by two representatives (Laurie Day and Victoria Jonson) from the ADAPT support unit¹. The visit aims were to: see how the project is progressing; to provide support where possible; and to identify the main lessons from the project for dissemination at a national level. This report provides details of the section of the monitoring visit where two Small or Medium-sized Enterprise (SME) *EuroPILOT* participants discussed the effect that *EuroPILOT* has had on their businesses. Meeting real SME end users of the *EuroPILOT* programme was particularly interesting and informative for the monitors. It also provides a chance for *EuroPILOT* facilitators to reflect on how SMEs have benefited from the project and to consider suggestions for future improvements.

SME learning barriers

The Learning Age green paper² sets out the following barriers to learning for SMEs: 'A recent study of small and medium sized firms found that 20 per cent of the firms surveyed in the UK saw no need to raise their levels of training compared with just 4 per cent in France and 6 per cent in Germany. There are a number of reasons for this. Small firms say they cannot readily find cover to release people for learning off-the-job in working hours. They lack the time and expertise to organise the right opportunities. Individually they cannot influence private or further education sector providers to offer the right education and training. They do not have the purchasing power to keep down the costs of training. Too often training and development takes second place to short-term survival, and yet the business benefits to small firms are tangible.'

Examples of two SMEs attached to the *EuroPILOT* programme at the University of East London who do see the need to raise their level of training appear in this report³. Their techniques for overcoming learning barriers such as those mentioned in the

¹ http://www.adapt.ecotec.co.uk/src/emp_su.htm

² <http://www.lifelonglearning.co.uk/greenpaper/ch0002.htm>.

³ Comments appearing in this report were recorded by kind permission of all participants during the ECOTEC Monitoring Meeting on December 15 1999.

green paper, in partnership with the University of East London's *EuroPILOT* programme, may offer important insights to other SMEs, training providers and policy-makers alike.

HEDJOGS: 'So what we are really doing is coming here and nicking it

Shelly Daly, owner-manager of Hedjogs Ltd. provided an enlightening discussion of how she and her staff are using the training facilities offered by *EuroPILOT*. She also described the exciting innovation of Internet access for her clients which is being achieved with the help of *EuroPILOT*'s technical expert, Paul Kernaghan. Shelley has kept up to date with IT and has built an office in her garden to house her growing collection of IT equipment and the three secretaries required to run both the hairdressing salons and associated training company:

'So they all trudge down to the garden in the morning but it doesn't cost us any rent or rates so that's great. But what's happened with me is I've got all these computers, I've got on-site computers at each salon as well to the point of sale so that we can mail out to clients. We do loads of direct mailing and all sorts of things.....'

(Daly, S. 1999)

Shelley has progressed the business far beyond the more common-place expectations of hairdressing salons; she carries out direct mailing, customer surveys and special offers, enabled by the development of a computerised customer database. The database allows Shelley to tell: the frequency of the customer visit; what treatment they had at their last visit; and how often they visit the salon. Then decisions can be made about the regularity of sending vouchers, client cards etc. Every month the salon draws up a 'dead client' list; if the client has not been in for six months they are automatically mailed a special offer: 'because something is better than fifty percent of nothing' (Daly, S. 1999). So what role has *EuroPILOT* played in the development of her business?

The role of EuroPILOT

Shelly had undertaken NVQ training with the University of East London prior to *EuroPILOT*, but she explained that it was a necessary rather than enjoyable experience:

'I just hated it because to me it was a bit shutting the door after the horse has bolted. I actually knew the stuff. I was really just producing the evidence up for the assessors really which was a bit of a waste of time but I wanted the qualification because I wanted to train it down the line into my staff so that's why.'

(Daly, S. 1999)

Owing to her managerial experience and the fact that she had already attended many training programmes, Shelley's approach to *EuroPILOT* has been either to undertake qualifications so that she feels in a strong position to train her employees, or to brush up on old skills, for example marketing, or to learn new ones such as IT:

'I think one of the problems I have is that I've done an awful lot So when I come to a basic course, it's like here we go again. I don't really want to be here because I've got so much to do. But there are certain gaps that I've really got that I need to do. With my staff, they are just starting off so what we want to do is take them through the structure and when they get to a certain point, they then can dip in and out. I think we are now able to offer level four whereas last year we were only able to offer level three and that's only because we've been here and I've done level five here and one of my girls has done level four so us two are now going to be able train that whereas we wouldn't have been able to come to this centre without having done that here. So what we are really doing is coming here and nicking it and pushing it down their eyes. But somebody at the top has got to do it (Daly, S. 1999).'

Shelley does not expect her employees to learn anything she hasn't already learnt herself, and points out that it is not realistic to expect immediate gratitude:

'... the top person has to be always one step ahead otherwise your staff will overtake you and I can't have that!... But they don't always see the benefit until they've done it. Afterwards they thank you but when they are doing it they don't.'

(Daly, S. 2000).

'SME-friendly' features of EuroPILOT

Shelley has found both the guided and self-directed learning opportunities provided in the BEE Centre to be very useful, and the flexibility offered by *EuroPILOT* suits her busy lifestyle:

'So I said I'd come along but I wanted just computer training and that's what Michelle has been doing and she's been ripping her hair out. And I've also been coming in and using the computers to use the self-service stuff which actually I've found quite good. It's actually very easy because I can ring up in the morning and go 'I've got a couple of hours between appointments, can I just pop in and do part of a programme' and that's been quite successful. One of my girls I think is doing a level four here as well...The flexibility of it is very important and it's not too tied up in strict rules of what we have to learn and what we don't have to learn because if it is we might as well come in and do an NVQ but that is not what we want to do..... now I want to know a bit more about marketing and I'm going to use the machines to try and pick up some stuff on that.'

(Daly, S. 1999)

The flexible nature of *EuroPILOT* also suits her employees. There are four Hedjogs employees registered on *EuroPILOT*. This became possible when the *EuroPILOT* programme was relaunched by project manager Julie Taylor in August 1999; increased flexibility meant there was no longer a limit on the amount of employees who could register per company:

'That comes back to the new flexibility that I put into place after talking to James and Daniel and what we could and couldn't do. At the beginning I think there was also a not knowing what would happen approach to the project, a limit of so many people per company and then so many NVQs and whatever. In fact what we realised was in each company normally there is a key person who is going to be the lead change agent like Shelley is or Neil Armstrong is. Over the time that the company is on the project it's very unrealistic so the company is going to put four people on the project and they are all going to come to lots of things.'

(Taylor, J. 1999)

Despite the abundance of new technology on the *EuroPILOT* programme the human interface is not redundant, particularly when it means being able to find quick

answers. In Shelley and her husband Steve's case, this has particularly meant contact with Paul:

'There's also when Steve just wanted to find out something, he just rang me up. Can I do such and such? Can I control a modem from another machine? Er, not easily Steve but it's possible. Then he'd discuss it and decided it wasn't worth it at the end of the day. So rather than sitting at home trying to read it up, he just gives me a phone call.'

(Kernaghan, P. 1999)

Shelley is particularly complimentary about the IT training aspect of *EuroPILOT* and the way small tasters can build confidence in staff who might otherwise have been afraid to undertake such training programmes:

'You have to give them a little bit of a taster and then they get to know a few people here and then they go 'okay, we'll come in for a couple of hours'. Whereas perhaps they wouldn't have done that because they would have felt a bit thick really that some of us are a bit behind the times.'

(Daly, S 1999)

This is leading to the development of an e-culture in the office. Again the fact that Paul is on the end of a telephone and can help with network organisation and the Internet installation was emphasised as an invaluable part of *EuroPILOT*, even if it is not an aspect which is actively promoted:

'We are not supposed to be consultants but on the other hand if we can get somebody like Shelley into e-culture which is the hardest step...There's a big difference between installing a modem, getting somebody up on-line, setting up an email account and actually having an e-culture. If the company has got an e-culture and Shelley's has now, Neil will talk a bit about his as well, then for us we can help them far more via these kind of tools. Because if we don't do that job of getting the e-culture going whatever it takes, then we are wasting our time because if we are dealing with people that can only do the normal classic, traditional things, then the project is not right for them because it's not resourced in such a way that it can manage classic delivery as its main mechanism.'

(Taylor, J. 1999)

Overall Shelley pointed out several 'SME-friendly' features of *EuroPILOT* in its present format: the flexible nature of *EuroPILOT* is likely to be of benefit to both

managers and employees of SMEs, as are the opportunities it provides for both guided and self-directed learning; small tasters of skills training may assist with the building of confidence in employees who may be contemplating a new learning experience; and the human interface of *EuroPILOT* facilitators is of importance, especially where it can lead to short-cut answers for busy SME managers. But how can *EuroPILOT* 2000 be improved?

EuroPILOT 2000 improvements

Shelley pointed out the importance to SMEs of both the timing and relevance of training events, particularly for a customer-focused business such as hers:

‘...It's not as bad for other companies I don't think but because we are quite customer facing, we can't put the customer on the in-tray and pick them up later on...One of the major problems we had was there was quite a lot lunchtime events which are very good and well presented and I've been to a few and I'm obviously fairly selective which we come to because we don't want to sit in on something that is not really of interest, but from my staffs' point of view that would cause me a major upheaval because mostly they are my senior people and at the end of the day I need them in the shops managing the rest of the staff.’

(Daly, S. 1999)

One solution Shelley suggests is more breakfast events. Julie Taylor agrees with the need to arrange either more morning and/or evening events for *EuroPILOT* 2000. She mentioned one SME manager who commented that ‘he would prefer to do something useful for two hours rather than sit and look at brake lights in a traffic jam on the way home from work’.

DANE & COMPANY: ‘We’ve had a kind of ripple effect.’

Neil Armstrong heads the finance department at Dane & Company. Dane Group is a privately owned business which, in Neil's words, is a ‘big small business’. Its turnover is about twenty million pounds sterling world wide, split over five sites. The head office is in London and is about a third of the group in total size. It has

between 150-160 employees and is one of the largest SMEs on the *EuroPILOT* programme. It has a long history of family ownership (currently fourth generation) and is one hundred and forty six years old:

'So we come from a background where we are a fourth generation ownership. The Chairman is Mr. Dane and he is just fifty seven I think. He has a senior management team which are about the same age. They have done very nicely out of the group. They have all kind of risen up the ranks with him. They have got to the point where they are comfortable with their lifestyles, comfortable with the group, and they don't want any change at all.'

(Armstrong, N. 1999)

Neil recognizes that to a certain extent the finance department's customers are other internal departments. He has set a number of different objectives for his department:

'We wanted to look at our product, i.e. what we produce. We wanted to define our customer, internal and external, to the business. We wanted to look at our own personal skills particularly in the area of IT. There is a fourth one which is we wanted to look into managing teams.'

(Armstrong, N. 1999)

Neil explained that there has been a big shift in the chemical industry between the big players ('who have gone off to play their own premier league' owing to globalisation) and the smaller players, such as Dane (although Dane does have links with the larger players). Neil believes there are quite a few challenges for the business, but first he must convince senior management of the need for change and secondly it must actually be implemented. This represents particular challenges for a finance department and for inter-department communications in general:

'...I'm very aware that accountants tend to like numbers and don't tend to like anything else apart from numbers so I'm very keen for myself and my colleague to establish a kind of business acumen so that we've got commercial awareness with our IT skills. So we can be the hybrid manager which is effectively you've got a push where the centralised departments becoming more commercial because commercial people are becoming more accountable which means responsibility, profit loss. So the two are coming together at my level of business. So in order to help them, we have to understand where they are coming from. They can speak in a completely different language. And that's before we get into the intricacies of what we actually sell.'

(Armstrong, N. 1999)

EuroPILOT Benefits

Neil identified a number of ways in which he and Dane have benefited from *EuroPILOT*:

'If we go back to the four objectives. Product is effectively a technical thing for us to worry about. I think what we've gained is the understanding is that a product derives from a process and the process is very dependent on people for what we produce which is information. Making that link and then seeing the wider picture, we've been able to not just absorb that ourselves but spread it within my department. They are very aware that their job actually rather than not talking in the next sub-divided office, they actually form part of the chain of information.'

(Armstrong, N. 1999)

According to Neil this has improved communications and team skills within Dane, but more importantly it appears to have stimulated employees' thinking about the process beyond their own area of responsibility.

Neil and his colleague Jamie King, in common with Shelley Daly, have adopted the 'train the trainers' approach and have taken skills learned in the BEE Centre and through attendance at workshops back to the workplace. This has started to have an impact on company procedures:

'Previously 'PowerPoint' was a little picture that sat on 'Windows', what was 'Windows'? Oh yes, it's that thing that appears when you turn the computer on. We've advanced beyond that to actually using these things and now we do our quarterly report to the Board at the Board meeting on a 'PowerPoint' presentation. A year ago they would have used a manual document, written, probably about ten or twelve pages full of narrative and a few numbers which would have been read apart from page one and that would be it. So the attitudes are changing in the Board.....Before we didn't have Internet and email. This time a year ago we didn't have Internet or email or web sites or anything in the Group. Now Jamie and I have become email users. That's created a demand within itself because, 'I must have email because they get the report two days before I did'.

(Armstrong, N. 1999)

Neil believes that a 'softly-softly' approach is the most effective way of beginning change within the company he is employed by:

'I'm recognising that I'm not Senior Management although I report to the Board. I've taken the subtle approach by leading through example but not overkilling it. We are not trying to present ourselves as champion department and everyone has to copy us. It's kind of subtly penetrating that wall of resistance and saying you can change, here's an example of change. If you want to change you've got to put your hand out as well. There's no point in enforcing change.'

(Armstrong, N. 1999)

Impact on the business

The development of these skills has had a big impact in some areas of the business and little impact on others. The best example of a big impact is that one of the business units has turned a hundred thousand loss into a hundred thousand profit. This has effectively been a two and a half year strategy and has come about through communication and team building in a previously very hierarchical structure:

'... it was very much big brother, Head Office. I'll criticise you when you don't perform. If you do well I won't say anything at all and pretend it's just a one off and be very prudent and have lots of provisions against it. So there was no teamwork internally between the Head Office and business units. Even within business units there wasn't any teamwork. So what we've done is we've had kind of a ripple effect. We've started to work with business unit managers where we can.'

(Armstrong, N. 1999)

Neil believes that this ripple effect is starting to instill confidence in other employees to learn new skills, and perhaps in the Group itself:

'...training has been a forbidden word within the Group to a certain extent but it's given them the confidence to think, 'perhaps I might be fifty five, perhaps I can learn and do a bit of spreadsheet work, word processing'.

(Armstrong, N. 1999)

Conclusions

The preceding discussion indicates that the flexible nature of *EuroPILOT* is likely to be of benefit to both managers and employees of SMEs, as are the opportunities it provides for both guided and self-directed learning. These new skills can be actively transferred to the workplace where they can help to lead to significant impacts on the business, for example through increased communication and team-building skills and an understanding of process chains. The ‘train the trainers’ approach is one possible solution for companies who don’t want to release a large number of staff from the workplace, and may work best through a ripple effect rather than a dictatorial approach. Small tasters of skills training and the examples of others learning in the workplace may assist with the building of confidence in employees who may be contemplating a new learning experience. The human interface of *EuroPILOT* facilitators also appears to be of importance, especially where it can lead to short-cut answers for busy SME managers.

Timing and relevance of seminars and workshops is seen as an important consideration for *EuroPILOT* 2000 as it tries to attract more SME managers to these more traditional events. To meet this need Julie Taylor is planning to introduce sessions at more convenient times and to set up on-line SME communities. These will be driven by forward-thinking SME managers such as Shelley and Neil through the formation of an alpha user group:

‘So Neil, Shelley, people like Paul, are probably a group of about fifteen I would say, owner managers or major change agents, who make up the sample group and I think as an advisory committee to us and also as mentors for the others by example.’

(Taylor, J. 1999)

This would enable knowledge to be shared in ‘newsgroups’ and from an organic beginning eventually experts could step in to create relevant business briefs to be used by other SMEs. There are also plans to develop multimedia case studies around some *EuroPILOT* SMEs such as Hedjogs and Dane Group which it is hoped will provide relevant lessons for other SME managers.

Appendix 39: ECOTEC feedback

The ADAPT Support Unit

Priestley House General Helpline: 0121 616 3670
28-34 Albert Street Finance Helpline: 0121 616 3703
Birmingham Information: 0121 616 3671
B4 7UD Fax: 0121 616 3680
UK E Mail: adapt@ecotec.co.uk

received 31.01.00



Julie Taylor
University of East London
Business Development Centre
Duncan House
High Street
London
E15 2JB

24 January 2000

Dear Julie

Re: 997 473 UK8, euroPILOT - Project Visit

On behalf of Laurie and myself, I wish to thank you for arranging a very informative and enjoyable visit. I particularly enjoyed the demonstration of the Website and it is great to see that evaluation and transnationality are very strong elements of your project. I apologise for the delay in sending this form to you.

Please find enclosed a copy of the draft Feedback Form. If you wish to make any comments or changes, please let me know by 18 February 2000. The Feedback Form constitutes an official record of the visit and will be kept on your project file. It will also be used (along with the Feedback from other visits) to prepare reports to the DfEE and Monitoring Committee, and in developing our thematic work.

I also enclose a Visit Evaluation Form, which I would ask you to complete and return by the above date. Your views and suggestions will help us refine our arrangements for carrying out project visits over the coming months.

If I can be of any further assistance, please do get in touch. I can be contacted on 0121 616 3642 or Victoria_Jonson@ecotec.co.uk.

Yours sincerely

Victoria Jonson
ADAPT Assistant Co-ordinator

Encs.



Supported by the European Social Fund
Managed by ECOTEC Research and Consulting Ltd
on behalf of the Department for Education and Employment and the Scottish Executive Development Department

Visit Feedback Form

Organisation Name: The University of East London
Project Name: euroPILOT
Dossier Number: 997473UK8
Programme/Strand: ADAPT
Date of Visit: 15 December 1999
SU Contact: Helen Benhamou/ Victoria Jonson
SU Visitor: Victoria Jonson/ Laurie Day
Date Feedback Form sent to Project: 24 January 2000

People involved:

Julie Taylor - euroPILOT Project Manager
Jackie Chandler - Business Development Manager
Michelle Golding - IT Training and Learning Manager
Paul Kernagahn - Technology Manager
Daniel Gilbert - European Funding Officer
Mark Churchward - Managing Director Briefs Network
James Carr - Edinburgh University

Format For Visit:

A.M: Discussion with key project staff around delivery on objectives.

P.M: Further discussion, Website presentation and discussion with beneficiaries and partner.

Materials obtained:

euroPILOT Workshop materials
euroPILOT News
Business Development Centre Pack
Dti 'Connect For Better Business'
Insights Discovery Personal Report
Assessment/Feed-Back Questionnaire
euroPILOT Interim Evaluation
Diagnostics Workshop Evaluation sheets
euroPILOT Company Log-book
BeE-Brief Presentation

Conclusions

1. Overall message to project:

Progress against objectives.

EuroPILOT has experienced some slippage, which has meant a shift in timescales. This slippage has not affected the project delivery, with the objectives still valid, and in many cases, enhanced. The project has a huge number of objectives which are ambitious in scope and quantity, and euroPILOT has also charged itself with the overall objective of raising the profile of East London and contributing to the 're-branding' of the area.

SME recruitment has been very promising to date, with the initial target of 50 already having been met. The project staff are set to engage a larger number of SMEs and re-engage with inactive SMEs on the project to ensure that the target number of beneficiaries are met. Targets have been reduced slightly (jobs created reduced from 50 to 40 and jobs protected from 500 to 400) which reflects a more realistic figure and the commitment of the euroPILOT staff - the staff aim to create and protect 'high value' jobs. In addition to using LMI and SME testimonials, the project team plan to identify a control group of SMEs who will not take part in the euroPILOT project, so that the results of euroPILOT in terms of jobs created and protected can be stated more confidently. This approach is certainly encouraged and should bring interesting results.

EuroPILOT's objectives are strongly focused on Equal Opportunities. The project has attracted more female beneficiaries than initially anticipated as it was found that the gender composition of the creative industries is more balanced than in traditional sectors although it has also been the case that the industrial sector, such as building firms, often employ women to run the business. In addition to female workers, the staff confirmed that euroPILOT reflects the multi-ethnic composition of East London, with a 'get up and go' attitude amongst black and Asian entrepreneurs, and that general receptiveness to IT training has been good. The project must ensure that this information is collected and appears in the evaluation, as the Equal Opportunities element of this project is strong and should be emphasised.

The assessment centres utilised by the project have been instrumental in delivering the required learning tools and techniques. The Business Enterprise Exchange has provided a focus for the delivery of diagnostic workshops, via the Internet-based 'BeE Briefs' support service. A second assessment centre based at Docklands will be launched in January 2000. Assessment materials have been produced to schedule and appear in a digital format. Company and individual logbooks were launched in August 1999 to accompany and act as a guide to the digital assessment materials. The 'Toolbook for Organisational Change' was found to be too inflexible to meet the needs of most local SMEs, and so the project has opted for a more flexible approach to the production of organisational plans, leaving individual SMEs to produce a plan according to their own needs with plans produced on aspects of the organisation, e.g. marketing. The project has suffered from a high drop-out rate with regard to NVQs. 31 have registered during the lifetime of the project, but retention has been poor. The project expressed that formal qualifications have not been perceived to be relevant by most owner/managers, and that there has been a general reluctance to spare the time to undertake them.

The SME Support System developed by the project, in the form of access to advisers, learning modules and SME case studies has been developed and euroPILOT has found that the telematic learning systems put in place are well suited to the creative industries target group where there is a general lack of demand for intensive consultancy and more of a 'self-help' focus. In particular, the Website has been highly successful in providing on-line business support, with more than 50 business briefings having been transacted to date.

The project has been successful in building the business support capacity of the partner organisations with links established with SOLOTEC (a key dissemination outlet), LETEC and Business Link London East. The project has successfully identified a number of best practice SME examples in the UK and transnationally via the successful links established with overseas partners. Domestically, Dutton Engineering and TALENT have helped the project to drive supply-chain awareness as has the link with Ford. At present, the project is seeking other supply-chain orientated projects to feed into the forthcoming series of supply-chain workshops.

Innovation

The key innovation of euroPILOT comprises the IT products developed and the methods of delivery. The product developed include CD-ROM, the assessment materials, and in particular, the Website has potential to be a major success. Fitting in well with SME working hours, it offers ease of access and a substantial database of business-specific information that can be navigated using a 'keyword' system. A good balance of self-pace products and face-to-face networking/seminars has been vital in keeping local firms interested in the services that euroPILOT has to offer.

Transnationality

Transnationality is one of the strongest elements of the project. EuroPILOT is partnered with two German projects - Frankfurt Oder and Schwerin and an Italian project. Strongest links have been built with Frankfurt Oder given the similarities of the size of the projects and the social/economic make-up of the target area. The Schwerin project is smaller and its contribution has been limited. Links with the Italian partner have been less forthcoming as the language barrier has proven to be a major issue, with no English speaking project manager on the Italian side and there has been limited activity overall. Despite the challenges faced with Schwerin and the Italian partner, the partnership has fulfilled the activities as stated in the transnational workplan, and in many cases, activities have been enhanced - the Italian project have hosted an exchange of beneficiaries from the euroPILOT project, the University of East London has hosted beneficiaries from Schwerin and links between Schwerin and euroPILOT have developed to a stage where the possibility of developing a future project is being discussed.

A highly successful transnational conference was staged in December 1999, with 40 attendees from Germany. This conference allowed a 'gateway' to Eastern European contacts. In addition to the conference, activities have focused on the exchange of information and sharing experiences, with good synergy between East German and East London business culture, with two-way feedback and an exchange of materials. The success of the links established has prompted the project into planning the introduction of the decision support system to Germany in a limited format. There is some scope for exchanging the UK learning materials with the German CD-ROM.

Evaluation of the transnational partnership will be undertaken from January 2000, with Professor Peter Williams producing an interim report by the end of the month. It is planned that the final transnational evaluation report will be widely disseminated, with briefings to be provided in CD-ROM format. Whilst the euroPILOT project has an extension to December 2000, the German and Italian partners are planning to end in May 2000. Despite this difference in end dates, the partnership has planned significant transnational activity. A final transnational 'event' will not be staged, opting instead to stage a number of events including a conference in March and a second one in Autumn 2000. The exchange of SME beneficiaries and the use of videoconferencing is also planned as a major focus of activity.

Monitoring/Evaluation

Monitoring has formed an integral part of the project and a proactive approach has been taken. Monitoring tools have included the business registration form, Individual registration form, monthly timesheets, signing-in sheets from events and conferences and a telephone survey. The latter targeted 29 people and the results have been valued by the project as an indicator that SMEs generally need more guidance.

Close links have been forged with the commercial accountant on the project who has been involved with the supply chain and decision support systems. In addition, Barnet College and SOLOTEC have become involved with detailed information gathering with regard to the longevity of individual businesses. 'Team EuroPILOT' meetings are logged as and when they happen. The steering group has taken a particularly innovative approach, meeting partners on an individual basis to ensure greater flexibility than with traditional project steering group meetings. There are plans to form an 'Alpha User Group'.

A 'double edged' approach has been taken to project evaluation, utilising both a professional evaluator and a representative from Edinburgh University whose reports have fed back directly into the project delivery - the interim evaluation and other associated materials are of a high standard, and given the knowledge the external evaluators will have of the project, the standard of the final evaluation should be excellent. It is also very encouraging to see that the project staff are considering distinct topics of evaluation, in addition to the 'standard' evaluation - the extent to which SMEs are and want to remain a 'family business' will be a focus. The transnational partners will feed into the evaluation via conference reports and through the exchange of best practice, although the Italian input has lagged behind to date in terms of the value of its IT-related activity.

Mainstreaming/Dissemination

Although a formal dissemination strategy is not yet in place, the project has disseminated widely in the course of its delivery and aims to continue this level of publicity through its exit strategy. Events which have been scheduled include a promotional event with a local ice-hockey team, the 'London Knights' in early March 2000, a series of networking lunches to be held in February/March in the conference centre and a networking event at the Docklands on the 26th January : 'Managing People in the 21st Century'. It is hoped that the latter event will also offer the opportunity for additional recruitment.

Mainstreaming will take place predominately through multimedia case studies (domestic and transnational) with a particular focus on the dynamics of family businesses, the Website, a CD-ROM and final reports. It is hoped that these materials will offer considerable R&D spin-offs. In addition, it is planned use to utilise video footage from conferences and to develop posters. A local television slot on the 'London Tonight' programme is also scheduled. The project expressed a desire to turn the Website into a commercial product and to take forward the supply chain CD as a learning tool as part of a forthcoming 'Framework 5' bid and aspects of euroPILOT integrated into the BDC. EuroPILOT is strongly urged to develop a dissemination and mainstreaming strategy - the project aims to feed into policy development at both a national and transnational level, and so would benefit from a full strategy.

Finance

EuroPILOT is making use of its 1998 Underspend to catch up with general slippage and also to enhance key areas of activity such as Evaluation and Transnationality.

Discussion during the project visit focused on the calculation of private match funding. The Support Unit reiterated that for match funding purposes, all costs must be based on actual costs. The 1998 Final Claim was re-examined and the project confirmed that beneficiary

replacement costs were based on a notional rate, but that all information is now based on actual costs and the project is working retrospectively to collect all information. Given this, the project staff must re-visit the 1998 Final Claim and provide figures based on actual costs. Staff costs listed by BRIEFS were also discussed. The project staff and Mark Churchward from BRIEFS confirmed that all costs are based on actual costs (salaries). When re-visiting the 1998 Final Claim it is advisable to confirm that the costs associated for BRIEFS are based on actual costs.

2. Strengths and opportunities

The Evaluation and Transnational dimensions of this project are very strong and have been enhanced from the original objectives. In particular, the formative evaluations have proven valuable in steering the direction of the project and the knowledge gained by the evaluators should provide an excellent final report. The project staff have attempted to make euroPILOT a truly transnational project. The benefits of the transnational partnership are not only evident in the project management but SMEs in all the transnational partners projects have/ will have the opportunity to participate in SME exchanges.

3. Lessons learnt / problems overcome

EuroPILOT has proven flexible and adaptable to the needs of beneficiaries.

4. Outstanding issues

A small number non-ADAPT beneficiaries are registered on the euroPILOT Website. The project must ensure that the numbers of the non-ADAPT beneficiaries is closely monitored and ensure that, in the case of the on-line adviser (which ADAPT money is funding), they would not benefit. This issue was discussed during the project visit, and the project manager assured the Support Unit that this would not be an issue.

The project staff were reminded that in-kind match funding could only be calculated when beneficiaries are receiving training or other support under ADAPT during their normal working hours. Beneficiary replacement costs is a value calculated for the time the beneficiary spends on the project which would otherwise be spent in work, and is a cost incurred by the business. The project manager expressed concern that many euroPILOT beneficiaries work very long hours and may not be able to demonstrate a 'normal working week'. The project staff must ensure that all time calculated as in-kind private match funding is time spent on the ADAPT project which would otherwise be spent in work. The project staff could ensure that this information is evidenced in the case of the self-employed by asking the beneficiaries to provide a sample of their normal working week by keeping time sheets of their time spent on work, and the time spent on the ADAPT project. A beneficiary replacement cost can then be calculated.

5. Immediate action points

The project?

details	action	date
GB Partners	The project to provide a revised Section 3.12c of the Application Form to reflect the organisations who undertake a strategic management role in the project.	18.02.2000

1998 Final Claim	Project to revisit 1998 Final Claim that beneficiary replacement costs are based on ACTUAL costs.	18.02.2000	DG/JT LW
Dissemination Strategy	Project to pass a copy of the dissemination strategy to the Support Unit, when formulated	As appropriate	JT
Services for SMEs	The project staff agreed to pass information to the Support Unit for the development of an area of thematic work - Services for SMEs, as appropriate	as appropriate	

The Support Unit?

details	action	date
ESF and ADAPT logo	ASU to send a copy of the ESF logo and ADAPT logo on disk, with guidance.	with report
ADAPT projects - supply chain	ASU to send a list of contact details of ADAPT projects involved in supply chain management.	with report and via email
Transnational costs	ASU to provide further information on translation costs with reference to a reciprocal agreement.	with report
Dissemination Guidance	ASU to send a copy of the guidance on dissemination.	with report

ADAPT Projects - Supply Chain Management

'From Supply Chains to knowledge Networks'
 Graham Belcher
 EMTA - Engineering and Marine Training Authority
 EMTA House
 14 Upton Road
 Watford
 Hertfordshire
 WD1 7EP
 Tel: 01923 652363
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AL

'Supplier Development for SMEs'

Will Jellyman

Bilston Community College

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West Midlands

WV14 6ER

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Fax: 01902 821041

'World Class Suffolk'

Ms Lyn Howerth

Suffolk TEC

Crown Street

Ipswich

Suffolk

IP1 3HS

Tel: 01473 296081

Fax: 01473 231776

Transnational Costs

The issue of using the transnational budget to pay for translation fees was raised during the project visit. The guidance relating to transnational costs states that costs should only be claimed for the project's transnational activities, not for those of your transnational partners, unless a reciprocal agreement has been agreed whereby, for example, you pay for partner's costs (e.g. meals) when they are on a visit to the GB and they pay for you when you are visiting them. In the case of translation costs, it is possible for euroPILOT to pay for translation costs for material assuming that the activities are reciprocated in the partners projects. It is noted that a reciprocal agreement relating to translation costs is not included in the transnational co-operation document.

There may be a case for the euroPILOT project paying total translation costs if it can be clearly and strongly demonstrated that the existence of these translated materials directly and significantly benefits the euroPILOT project (contributes directly to the dissemination and mainstreaming activities of the euroPILOT project and the transnational partnership in partners member states).

Alternatively, for items or activities undertaken by the partnership (such as producing a final report, staging a conference), the guidance states that 'total costs should be equitably apportioned between all partners and the method of apportionment shown'. It is noted that the transnational budget for the University of East London is significantly larger than for the other partners projects (108,000 ECU - original budget for euroPILOT compared to 45,000 - Frankfurt Oder, 24,000 - Talete and 25,000 - Schwerin). It may be, given the larger budget of the euroPILOT project that translation costs could be apportioned, so that the euroPILOT project could pay the bulk of the costs, with the partners contributing a smaller amount.

Appendix 40: EuroPILOT workshop monitoring form

ADAPT euroPILOT

Workshop Evaluation DATE: 16th September 1999

We are always trying to improve the quality of our services. Please help us by answering the following questions and leave this form with the tutor before you leave. Thank You.

MARKING: 5 = Excellent 4 = Very Good 3 = Satisfactory 2 = Poor 1 = Unsatisfactory

WORKSHOP:

Comments: *Please circle that which most closely matches your assessment*

the relevance of the workshop to your work situation	5	4	3	2	1
the clarity of explanations and instructions	5	4	3	2	1
the clarity of handouts/support material etc	5	4	3	2	1
the Facilitator's helpfulness and availability for questions	5	4	3	2	1
the timing and pace of activities	5	4	3	2	1
the ability of the workshop to sustain your interest	5	4	3	2	1

Comments:
.....
.....
.....

Follow-on activity: Follow-on action plans.

Comments:
.....
.....

Follow-up (if any) would you like?

.....
.....



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Your impressions of the Workshop logistics etc: *Please circle that which most closely matches your assessment*

1. The timing and quality of advance information	5	4	3	2	1
2. The convenience of the venue and schedule	5	4	3	2	1
3. The quality of the venue, food and facilities	5	4	3	2	1
4. The general organisation of the workshop	5	4	3	2	1

Comments:

.....

.....

.....

General Comments: *Please circle that which most closely matches your assessment*

1. Reception	5	4	3	2	1
2. Our Bee Centre Staff: Generally:	5	4	3	2	1
Attitude :	5	4	3	2	1
Helpfulness:	5	4	3	2	1
3. The Bee Centre environment generally:	5	4	3	2	1

Comments:

.....

.....

NAME:

Job Title:

Organisation:.....

Date:

Appendix 41: “CAPITALising on ADAPT” report

EuroPILOT

CAPITALising on ADAPT Conference:

September 1999

James Carr

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Introduction

ADAPT is a European Community Initiative launched in 1994 with four interrelated objectives:

- to accelerate adaptation of the workforce to industrial change;
- to increase competitiveness of industry, services and commerce;
- to prevent unemployment by developing the workforce through improving qualifications and ensuring greater occupational mobility;
- to anticipate and accelerate the development of new jobs and new activities supporting, in particular, SMEs.

CAPITALising on ADAPT incorporated ADAPT's central themes of innovation, the information society, labour market changes and transnational collaboration. Its aim was to demonstrate the achievement of ADAPT's objectives by showcasing its transnational and innovative pilot projects.

The ADAPT London Network brought together key figures and organisations in this policy conference for London to explore the following themes:

- SMEs in the Information Society;
- Economic Regeneration and Policy Issues for London;
- New Developments in Lifelong Learning;
- The Future of EU Programmes.

Key decision-makers and practitioners including representatives from UFI Ltd., BBC, Government Office for London, ICL, IBM London and the TEC Council addressed the conference.

Keynote session 1

Following a welcome to the event by Roger Sumpton, head of the ADAPT Support Unit, Mary Gillard of the DfEE ESF Unit presented a summary of the new ESF Objective 3. She emphasised that it still has an SME, IT and lifelong learning focus and is keen to encourage job creation in the green sector. Judith Rutherford from the London TEC Council (www.skills_unit.com) then presented 'Training and Enterprise - Forecasting SME Skill Needs in London'. She quoted from the 'Lifelong Learning in London' report, which concluded that there is a need to develop key and IT skills among SMEs; to target minority businesses and communities; to target particular sectors and networks; and to make it easier for employers to undertake relevant training. Madeleine Williams of the Association of London government then talked about the future of the structural funds with a particular emphasis on regional strategies and the role of the London Development Agency. The main points to emerge from the question and answer session were:

- ICT training developments based around either sector or size of company could be suitable for mainstreaming;
- the DfEE and DTI are looking for best practice examples to mainstream;
- there are concerns about what government support will realistically be available to support SMEs when ADAPT finishes;
- the duration of funding programmes for SME development tend to be too short to expect major impacts;
- mainstreaming should occur based around the lessons learned from the various ADAPT pilot projects;
- there are too many different funding strands - they need to be pulled together;
- the main lesson from ADAPT is that in its present format it has produced a very fragmented service to SMEs; the best examples need to be mainstreamed and rolled out to other SMEs.

Keynote session 2

This keynote session provided an overview about UFI and its Linkage to ADAPT (presenter Ed Prosser, UFI Ltd.). This began with a broad typology of the types of ADAPT projects that are currently in operation:

- training/learner support;
- 'learning bridges' for individuals and individual firms (local provision, sectoral provision, supply chain approaches, SME networking, individual provision).
- skills diagnostics;
- partnership building.

The speaker noted that there is not enough going on at present in the typology represented by skills diagnostics. The UFI is looking to mainstream ADAPT projects through provision of appropriate infrastructure e.g. tools to develop SMEs as learning organisations.

The next speaker was Jeremy Harrison from EUROPS, and he examined ADAPT in a European context. The main points he made were:

- training providers need to look from the bottom up (i.e. from the perspective of SME employees);
- it is irrelevant to provide meaningless training - training must be focused and relevant to the SME;
- diagnosis of needs is vital;
- the UK has made a particular contribution in terms of ICT, multimedia development, local labour market statistics and well constructed target projects through UFI.

EUROPS are looking for ideas about how to deliver learning in local labour markets and want far more virtual transnational partnerships. They are now logging what different projects are doing to avoid reinventing the wheel.

I posed the following question to the speakers:

‘Is there a danger in relying too much on technological solutions for SMEs that haven’t yet been properly researched and tested?’

Their answers were that it was necessary to innovate even if this sometimes means failure and that the UFI does carry out research into such areas. They did however seem slightly defensive about this and took a long time to answer the question - my personal interpretation is that many technology implementation projects are led, at least initially, by the technology rather than user needs and this has been the case for ADAPT and UFI.

Rotating sessions

Video-conferencing session

The most interesting video-conferencing presentation was made by Joe McCormack of Telework Ireland (www.telework.ie). The objective of this ADAPT project is to promote development of micro-businesses and individuals through teleworking training in software localisation. One distinguishing feature of this transnational project is that it is run by the SMEs themselves. There is also a good deal of emphasis placed on evaluation and dissemination. Participants train at home on-line with support from on-line tutors and some residential courses. They also have access to specially developed web-based study guides and conventional CD-ROM and hard copy resources. They are trained in distance working techniques, which does not mean how to use email and the web but rather how to learn efficiently in a distance environment. Participants tend to be highly motivated and supply their own PCs. The

syllabus for the course has been agreed with the IT industry which often complains of graduates who are trained in outdated computer languages. Telearn Ireland are also developing training courses in general business management.

'Getting the most from ADAPT - a private sector perspective'

Chris McLean, Director of Distributed Learning at Protocol Systems International which develops SME learning materials mainly in collaboration with the FE sector, made the following main points:

- high quality content is vital to success;
- on-line learning is a large growth market and SMEs are the most difficult sector of this market to reach (whoever 'cracks' the SME market will 'crack' the whole market);
- the SME market represents a major opportunity as it is relatively underdeveloped;
- ADAPT has stimulated product usage;
- there is a need to develop generic products that can be tailored to individual SMEs - must be 100% customisable;
- learner support is vital;
- pedagogic design is vital;
- content must be developed in partnership with education institutions and publishers;
- content must be linked to accreditation.

Chris Yapp of ICL emphasised the explosive growth that will take place in electronic learning over the next ten years which he predicts will make it the biggest industry in the world. If we recognise this then we must also recognise the need to learn how to learn using new learning technology. There is a great need to learn how to socialise these technologies. London is very different to the rest of the UK as it is very advanced in ICT. There are also major gaps in skills sets in smaller companies as compared to large companies. New content industries are being formed, particularly

in the creative sector, which, as Chris put it, is building bridges between the 'luvvies' and the 'techies'. Further Education colleges in particular are carrying out needs analysis and demand stimulation and may be better suited to this type of training provision than higher education institutions. A word of warning was provided in that bureaucratic problems for SMEs will put them off - projects need to lower the pain barrier to increase accessibility and to prevent further psychological barriers about training emerging. To illustrate this point Chris suggested that SMEs would be more willing to pay £100 for a course rather than get a course for free which demanded excessive form-filling and personal details.

Keynote session 3

Jane Quinn of the BBC provided an overview of convergence in broadcasting technology of the future taking into account developments in interactive television etc. Television can then become the main medium through which learners, including SME learners, can access training at home. The BBC is already making initial inroads into the learning market through the development of its Learning Zone programmes and is currently gathering feedback about which market segments it is reaching.

Colin Payne of The Earth Centre followed this with a presentation entitled 'e-commerce, e-business - the future'. He started by indicating the vertical growth figures which have so far been reached with Internet technology. However there is a problem with the Internet's unstructured nature - Colin proposed that the answer lies in the creation of communities, which is already beginning to take place. One example is e-retail, which is coming of age and has an obvious relevance to the SME sector. SMEs need to find/create their own communities with which they can exchange information, train and do business. He concluded by stating that the future holds a strong commitment from the government to helping SMEs and to helping put communities together on-line.

Implications for EuroPILOT

Several of the following points which emerged from this conference also appeared in the telephone survey of *EuroPILOT* participants and therefore serve to reinforce their importance. The other points largely relate to opportunities for further developments of *EuroPILOT* as a model of best practice:

- ICT training developments based around either sector or size of company could be suitable for mainstreaming - there may be suitable case studies to be developed from *EuroPILOT*;
- the DfEE and DTI are looking for best practice examples to mainstream; in particular there is not enough going on at present in the area of self-diagnostic skills needs tools - this could be a development opportunity for the *EuroPILOT* self-diagnostic CD-ROM;
- training providers need to look from the bottom up (i.e. from the perspective of SME employees);
- training must be focused and relevant to the SME;
- EUROPS are looking for ideas about how to deliver learning in local labour markets and want far more virtual transnational partnerships - *EuroPILOT* could be developed into a model and perhaps more virtual links formed with the Frankfurt Oder PILOT project, perhaps split into sectors/family businesses/company size/stage of growth etc.;
- *EuroPILOT* must ensure focus on user needs rather than the technology it employs;
- The Telework Ireland project appears to be very successful. This may be because its participants are studying for a particular qualification in a particular industry sector where demand for skilled staff greatly exceeds supply at present (basically they are very highly motivated). However the level of support for participants is very high and they also have ownership of the project. There may be important insights here for *EuroPILOT* and it will be interesting to see how Telework Ireland tackles more general management training for SMEs;

- high quality content is vital to success - again there may be a chance to develop multimedia case studies with *EuroPILOT* participants;
- on-line learning is a large growth market and SMEs are the most difficult sector of this market to reach - *EuroPILOT* can learn from its experiences with developing e-learning for the SME sector and develop a model of e-learning;
- there is a need to develop generic products that can be tailored to individual SMEs (i.e. they must be 100% customisable) - *EuroPILOT* could investigate the best ways to do this through focus groups with its SME participants for example;
- learner support is vital, including training in learning how to learn;
- pedagogic design is vital;
- content must be developed in partnership with education institutions and publishers and linked to accreditation where possible;
- *EuroPILOT* could develop a model of SME learning provision in the higher education sector as most work is going on at present in the further education sector;
- bureaucratic procedures will discourage SMEs from partaking in learning events;
- what will the impact of set-top boxes, interactive television etc. have in the future on projects like *EuroPILOT* and the BEE Centre?
- *EuroPILOT* could experiment with developing on-line learning communities for its SME participants.

Appendix 42: List of papers

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