# An illuminative evaluation of distributed interactive multimedia project management resources

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ABSTRACT | There is considerable interest in the use of novel computer-based training (CBT) techniques in higher education institutions. Partly this is an acknowledgement of the exciting pedagogic opportunities such resources offer, but the imperative of providing high quality education in the most efficient manner possible is undoubtedly a key institutional driver. Flexibility therefore is an essential pre-requisite of educational multimedia development. This paper reflects on the findings of an illuminative evaluation of a bespoke project management hybrid CD-ROM (DIME$^{PM}$) which sought to identify "facilitators" and "barriers" to learning arising from the use of CBT in an industry setting. Contrary to conventional wisdom, the evaluation suggests that more accessible learning materials combined with flexible delivery does not necessarily promote study. Rather it allows practitioners to prioritise work related tasks and demands greater discipline from the learner. A mixed diet of face-to-face and student-centred activities is advocated that maximise the advantages of each delivery mode.

KEYWORDS | CBT, training, education, qualitative evaluation, multimedia

## 1 Introduction

Construction companies that possess higher skills "make more money, complete more projects on time and have more satisfied clients" [1]. This is a view widely accepted by leading construction industry bodies such as the Construction Industry Council and the Movement for Innovation, by government supported initiatives such as the University for Industry and the Investors in People standard, and by many Built Environment education providers. Consequently there has been increased interest in lifelong learning and a general acceptance of the need to update skills, either through in-company training, Continuous Professional Development (CPD) activity or further study leading towards an academic award.

Demand for flexible education and training programmes that complement work-place experience has increased, as evidenced by the growth in postgraduate education during the last decade [2]. Such expansion is evident in construction project management, where the traditional role of the project manager is being challenged by an industry that is rethinking its processes and procedures [3]. Project managers necessarily must update their skills, therefore it comes as no surprise that educational

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technology is being used to accommodate the often conflicting demands of work and study [4][5][6]. Yet there remains scepticism that computer-based training (CBT) i.e. the generic term for training delivered, tested or managed by a computer [7], can provide the necessary educational benefits achieved through face-to-face contact.

Just as Egan's report "*Rethinking Construction*" [3] provided a catalyst for far reaching change within the construction industry, so too has Laurillard's (1993) seminal work "*Rethinking University Teaching*" [8] and the highly influential Dearing Report (1997) "*Higher Education in the Learning Society*" [9], stimulated a change in thinking by academics on the learning process and the role of new technology in educational delivery. Many educational technologists [10][11][12][13] suggest that CBT might have important pedagogic benefits for the learner, providing opportunities for tighter integration and increased interactivity [10] provided always that due attention is given to underpinning learning strategies.

It is this so-called renaissance in the discipline of project management [14], the expansion of built environment postgraduate education and the pedagogic and technological evolution of CBT resources that provides stimuli for the development and subsequent evaluation of a novel project management hybrid CD-ROM (DIME$^{PM}$). This study analyses the reactions of a small sample of practitioners as they work through DIME$^{PM}$, in an attempt to gain insight into the facilitators and barriers to learning arising from the use of CBT in an industry setting.

## 2 Distributed Interactive Multimedia Education in Project Management (DIME$^{PM}$)

Relying heavily on the developmental framework outlined by Benyon *et al*. [15] i.e. specification, instructional design, multimedia development, integration, implementation and evaluation, a multimedia learning resource was created by a team of academics and graphic designers at Leeds Metropolitan University (LMU). DIME$^{PM}$ contained a collection of academic papers, scripted interactive activities, audio/video clips, panoramas and animation (refer to Figure 1).

The application, written in Authorware Professional, was based on a well-established postgraduate module that was delivered as both a core and an elective module throughout the academic year in the School of the Built Environment. Indeed the module, first delivered in 1994, had become an increasingly popular choice for students. Comprising an overview of key project management tools and techniques i.e. value management, risk management and critical path analysis, and emphasising the importance of interpersonal skills, the module had broad appeal. Students were expected to develop both their analytical and problem-solving skills, through a series of hands-on exercises and the preparation of a strategic plan for the re-development of a major building project. Not only had cohorts increased dramatically in size, making the originally conceived pedagogic approach difficult to manage in the classroom, but the module was also to be offered on a newly launched distance learning Facilities Management degree at LMU.

The content in the existing module was restructured for the multi-media application and divided into a series of Units and Topics that could be navigated either sequentially or serendipitously. Users had access to a range of facilities that enabled them to personalise the CD-ROM (making notes on a separate disk via a "Digital Notepad"), re-visit earlier information, view content maps, access relevant Internet links and gain "help" at any time during their studies (refer to Figure 2).

Many academics [16][17][18][19] caution developers, when urged to transfer existing educational material into digital form, to reflect upon pedagogic design. Fowler and Mayes [18] provide a useful model – the (re)conceptualisation or learning cycle – that


**Figure 1.** Distributed interactive multimedia resources (DIME$^{PM}$)

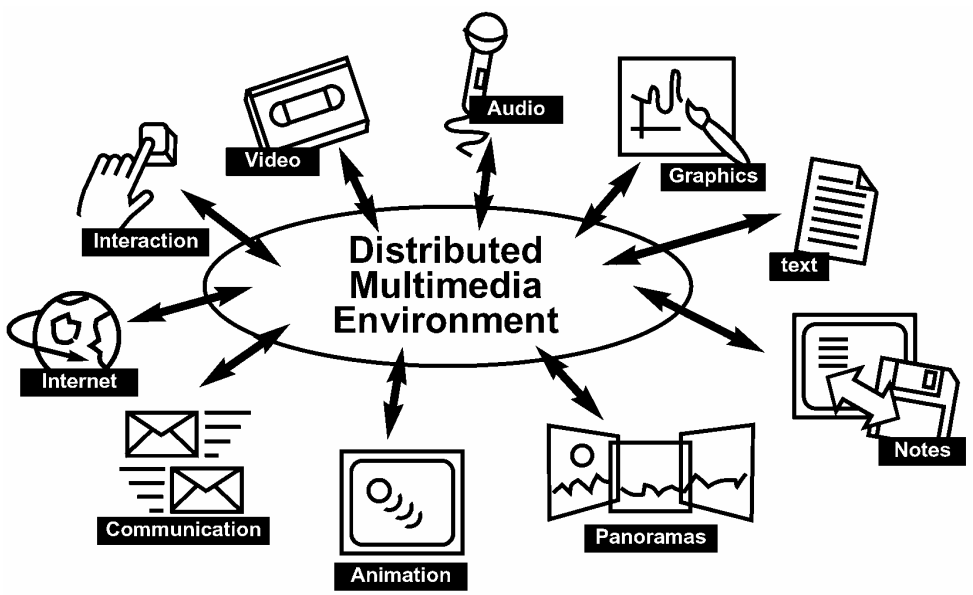


**Figure 2.** Functionality in DIME$^{PM}$

recognises the relative merits of different software applications. The continuum-based instructional approach places emphasis on the need for dialogue, promoting the use of on-line communication (often referred to as a Virtual Learning Environment (VLE)) to enhance stand-alone CBT resources, and enabling synchronous or asynchronous communication between users and course providers or their peers. DIME[PM] adopted this approach, combining the advantages of CD-ROM technology with Internet-based functionality i.e. Blackboard.com. Following a rigorous formative evaluation and having gained recognition in the form of a Chancellor's Award for Innovation in Teaching and Learning at LMU, DIME[PM] was launched in October 2000.

## 3 Evaluation methodology

The aim of the evaluation was to identify the facilitators and barriers to learning experienced by practitioners. It was not to assess how well an educational intervention performed using standard measures of assessment [20]. Instead, in-depth interviews were used to "illuminate" issues associated with CBT, in a qualitative study that sought to investigate this phenomenon in a real-life setting. As such, the evaluation was based on a case study that provided a "strong in reality" [21] research tool, allowing insights to be gained which might ultimately be of use to the company taking part in the research.

The company in this case study, White Young Green (WYG), is an engineering and project management consultancy, which appears in the "Top 250 UK Consultants" [22] and the "Top Firms in Building" [23] i.e. national league tables based upon the number of chartered staff and the fees rendered respectively. Directors within the company's head office had reviewed their existing organisational structure and were considering proposals that would change their traditional functional departments to a matrix-orientated design in which project teams assumed responsibility for all aspects of the commissions they received. To effect such change the company's business strategy prioritised the need for training, specifically targeting interdisciplinary working and project management. Following a company-wide review of staff performance and training and development needs, a Main Board Director expressed an interest in the development of innovative training programmes tailored to the needs of their employees. Outcomes, stated in the module specification, upon which DIME[PM] was founded, appeared to be consistent with the company's requirements i.e. to offer self-paced, scaleable high quality project management training and to draw together the strategic aims and training needs of the organisation (refer to Figure 3).

In order to gain both an informed and representative view of the organisation, participants were chosen from each tier of the Management Services Division (refer to Figure 4). For historical reasons a major project for a government client fell outside the established organisational structure, therefore a representative working in a co-location satellite office was also included in the evaluation.

Each participant was allocated 15 hours in-company staff development time to review the content and operation of DIME[PM]. A task-based approach was adopted and participants were requested to develop discussion threads and use the synchronous communication facilities on the Blackboard web-site prior to a post-evaluation interview.

The evaluation comprised:

- Individual briefing and demonstration of DIME[PM] to participants;
- A review of participant's learning style and self-efficacy;
- Taped interviews with participants;
- Analysis of transcripts using QSR NVivo qualitative research software; and
- A taped interview with the Director of Management Services and a Main Board Director of the company.

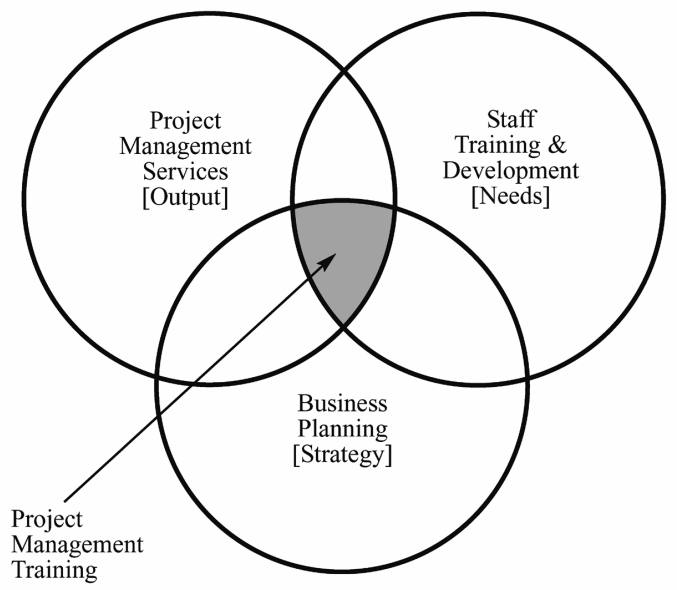


**Figure 3.** Rationale for project management training initiative

| Designation | Grade |
|---|---|
| Main Board Director | 1 |
| Director of Management Services | 2 |
| Associate Director | 3 |
| Associate | 4 |
| Senior Project Manager | 4 |
| Project Manager | 5 |
| Assistant Project Manager (Engineer) | 6 |
| Assistant Project Manager (Assistant Engineer) | 7 |
| Administration | 5/6 |

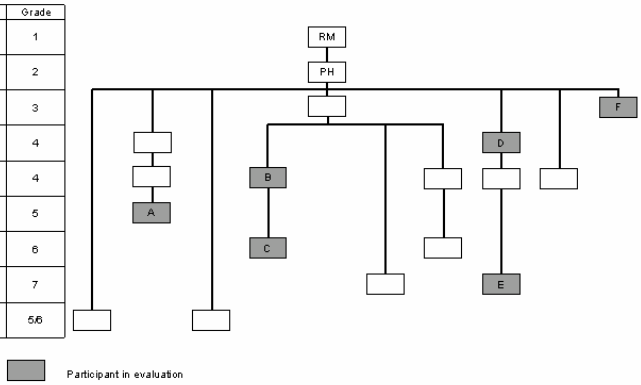


**Figure 4.** Divisional structure within Management Services

Following the briefing and DIME[PM] demonstration, all participants completed self-efficacy ratings and a Learning Style Questionnaire (LSQ) [25]. The LSQ, which provided both an insight into the profile of the group [26] and a prompt during subsequent interviews, was used to gauge whether learning style preference had influenced the participants' response to different learning activities contained on the CD-ROM. Interviews with participants were loosely based on the criteria in Table 1.

LSQ and self-efficacy rating scores for each participant are shown in Table 2. The former suggested that half of the group [A, C and F] had the potential to be all-round learners i.e. they had three "strong" or "very strong" preferences [26]. The potential of CBT may

**Table 1.** "Comprehensive approach" [24] to educational software evaluation

| | |
|---|---|
| Technology: | Standards of modern instructional technology; the appropriateness of hardware and software for supporting interaction in learning. |
| Learner: | Constraining conditions of the individual study context (study location, time and budget); computer literacy; motivation; previous learning and education experiences. |
| Subject-matter: | Factual correctness and structure of the material |
| Instructional method: | Design in terms of instructional methods and media used to meet the requirements of the learner. |

**Table 2.** Learning Style Questionnaire results

| | Activist | Reflector | Theorist | Pragmatist | Self-efficacy |
|---|---|---|---|---|---|
| A | Moderate | Strong | Very Strong | Strong | 231 |
| B | Low | Very Strong | Strong | Moderate | 251 |
| C | Moderate | Very Strong | Very Strong | Strong | 252 |
| D* | Low | Very Low | Very Low | Very Low | 235 |
| E | Strong | Strong | Low | Low | 196 |
| F | Strong | Low | Strong | Strong | 248 |

* 16 statements not completed

have been more limited for the remaining participants, although the results for two of these individuals were inconsistent.

One project manager had a "strong" result for activist and reflector preferences and, as many of the questions for the activist and the reflector are opposite in their meaning, it was surprising that one individual should express strong tendencies to both preferences [26]. Observations that E was a strong activist, made during the interview, could not be substantiated by his line manager. It was felt that E, being relatively inexperienced and new to the organisation, would require further time to settle into his role before a judgement could be made. It should also be noted that one participant [D] recorded a "low" or "very low" score against all learning style preferences. This project manager felt unable to fully complete the LSQ as he perceived his responses would be "dependent largely on context".

Self-confidence in being able to perform tasks set out in the 34-item self-efficacy questionnaire (based on the Association for Project Management's Body of Knowledge) exceeded 75% (i.e. a score of 230) for five participants [27]. E was the least confident in the group. This result appeared consistent with the experience and designation of the project manager.

Interviews were held with each participant on completion of the evaluation period at the company's head office. As agreed with senior managers, the maximum duration of each interview was one hour and that they should remain confidential. Transcripts of each interview were reviewed for accuracy before being loaded into QSR Nud*ist Vivo 1.1 (NVivo) qualitative research software. Analysis applied the concept of "creative coding" [28], coding units of meaning [29] as free nodes before categorising the data in tree nodes. Richards [28] argues that qualitative projects need "containers for ideas, and links between those ideas and particular data". The process has been described as "thinking up" the data to create greater generality [28] and in order not to separate meaning from context, codes were applied to passages of

various length i.e. words, parts of sentences, whole sentences and paragraphs.

The provisional start-list of codes, based on the criteria set out in Table 1, informed the questions developed subsequently for the semi-structured interviews (a method preferred by Miles and Huberman [29]). However, the number of codes increased dramatically upon closer scrutiny of the data and as more codes were created so a review of earlier transcripts was required. This iterative process continued until a structure, comprising "larger" (more conceptually inclusive) and "smaller" (more differentiated) codes [29], could be plotted in hierarchical form. The network-like structure (refer to Figure 5), therefore, presents a picture of the themes and sub-themes which emerged from the data. It suggests that the effectiveness of CBT in WYG was dependent upon four key issues i.e. the organisation, the learner, instructional design and software functionality.

Clearly, it would be erroneous to imply that the profile of participants taking part in this evaluation was in any way representative of the industry as a whole or indeed that the findings should be likewise applicable. To do so would be contrary to the qualitative nature of this study. The aim here is to provide a deeper understanding of the issues that affect CBT and complement an experimental evaluation undertaken elsewhere in a Higher Education environment [27].

## 4 The organisation

Company IT systems were "more than capable" of running the CD-ROM although it became apparent that participants' PCs had been upgraded with soundcards and headphones prior to the evaluation. As expected there were some minor functionality problems associated with running the system on Windows NT, DIME[PM] having been packaged for Windows 95/98. These were considered not to have affected the overall performance of the application as the technical problems which did arise could not be directly attributed to the company Intranet.

Workplace learning presented many problems for participants. In part, this was attributed to commercial pressures brought about by the need to respond to client demands. One participant stated:

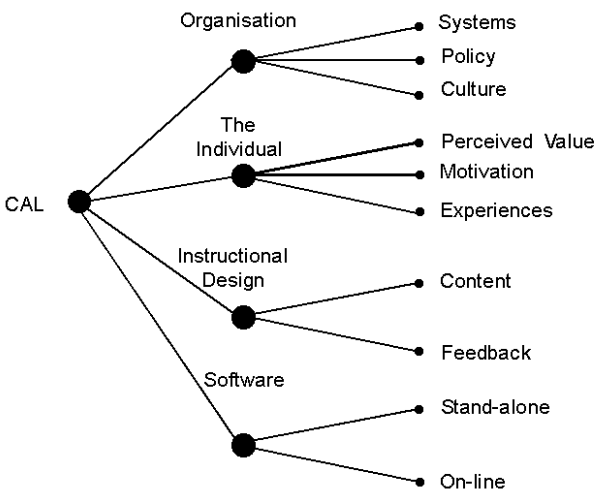


**Figure 5.** Categories generated by analysis of interview transcripts

*The culture within WYG has changed and we are now more of a commercial business and even people down to assistant project management level are very aware that we are a commercial organisation that has to make money to keep our own job if you like. So this is something that is drummed home time and time again.* [A]

Work, therefore took priority over learning. The opportunity to set aside time, while theoretically possible, seldom occurred due to fluctuations in workload. A heavy workload, long hours and an environment characterised by constant interruptions, meetings and phone calls, made it "difficult to break off to study". As a consequence some participants undertook the evaluation at home, preferring not to stay late at work while others used the CD-ROM in the workplace outside the normal working day. On occasion this was influenced by the specification of the participant's home PC or personal circumstances. The Associate Director was alone in conducting the evaluation principally during the day.

All participants used the Internet on a day to day basis accessing a variety of technical and professional information e.g. British Standards, design codes and government publications. The Internet was an established tool, available both for work and personal use, although access for the latter purpose was necessarily limited to outside normal working hours. At times this policy proved restricting but there was general agreement that it was appropriate and there appeared to be no company or hardware-related issues associated with gaining access to the Blackboard web-site.

The inherent flexibility that CBT offered in allowing study "at our own pace, at our own time" was acknowledged by all participants. Arguably, this facet of CBT was a weakness in the workplace. As it was possible to "fit in work on the CD with the rest of our work" there was little to prevent work commitments from being given higher priority than learning. Some participants suggested that an organisational policy was necessary to give "half a day a week to sit down and do something". It was important that specific periods of time were time-tabled into the working day not only to aid study but also to alleviate feelings of "guilt".

## 5 The learner

The desire for "real-life" education, relevant to the workplace, was a recurring theme. How this might be integrated into an educational programme was, perhaps, best embodied in the following quote:

*… I categorise project management as a more chaotic structure, which is what real life is. So project management comprises all these things [DIMEPM Units] and the way you arbitrarily provide a boundary between each of the subject matters is very much whether that is important to somebody to understand it. How then it is mixed in the cookery book of real world afterwards is very much the next stage of understanding, isn't it? And to a certain extent the case studies help with that although they obviously have to be a bit more simplistic than they actually occurred. But what real life is about is understanding the blurred grey areas around all the things that you teach and the people then have to apply experience to be able to understand that.* [D]

The value of authentic project scenarios and case studies was acknowledged by other participants. Furthermore, the use of video clips in the assessment brief provided context and emphasised "the perspective of real clients". All attempts to link theory with practice were well received as "it's helpful to put into practice some of the things discussed in part of the module". DIME$^{PM}$'s relevance was therefore perceived to be a strength.

The softer issues e.g. communications, and project management tools and techniques e.g. risk

management, were closely aligned with WYG's training needs. For participants, however, there was a place for both direct technical job-related training to do specific tasks and a place for broader-based training. While gaining a breadth of knowledge was worth doing from an individual's point of view it could also be to the company's benefit as it looked to expand its client base and enter new markets. It was surmised that such views might conflict with senior management's training objectives.

The reasons for pursuing postgraduate education and vocational training programmes were varied and arose as a result of company pressure and/or individual motivation. The former, was in part seen to be a response to clients' reluctance to accept experience in lieu of professional qualifications. Investment in training, from a perceived organisational viewpoint, had a two-fold benefit. "While the whole point of training is pay-back" it was recognised that it might also have an impact on staff retention. Previous experiences suggested, however, that the company only supported training that was directly relevant to the work undertaken on a day-to-day basis. The latter, was either career-driven, to keep updated or for personal interest and satisfaction. Postgraduate qualifications, in general, were perceived to have become commonplace and were arguably a necessity for professional consultants in this field.

The preferred mode of learning was seemingly affected by previous learning experiences and the participant's own learning style. For example:

> *… everyone's into computers these days. Everyone likes the little twiddly bits don't they? That's the appeal, especially to the younger end.* [A]

Another participant, who had recently studied an APMP accredited course at LMU and was consequently familiar with the course material, had little difficulty navigating through the CD-ROM. It is posited that such prior learning might have aided understanding and assisted in the operation of the CD-ROM. Conversely one participant, who had never taken any form of distance learning and was unfamiliar with CBT, found the whole experience refreshing and was keen to adopt new approaches to learning. Not surprisingly, all participants who preferred the CD-ROM to a book suggested that CBT would become accepted practice i.e. it represented "the way forward". The web was perceived to be changing lives dramatically and as graduates came increasingly into contact with CD-ROMs, CBT for postgraduate education and industry training would, they suggested, become commonplace.

Others preferred books. One participant reasoned:

> *You can flick through a book without problems and you can do it quickly. You can skim read a book quickly. It's more difficult on a CD-ROM because you have to flick through screens. You can multi-reference much more quickly so you can keep your thumb or fingers in various pages and just flick backwards and forwards.* [D]

Such comments suggest weaknesses in the navigation and note taking features in DIME$^{PM}$. Moreover they reinforce the importance of instructional design and multimedia development (stages advocated by Benyon et al [15]) in the production of a CBT application.

## 6 Instructional design

Expressions of enjoyment, excitement and interest occurred most frequently when participants made reference to the use of alternative media, interactive exercises and case studies.

> *… the exercises, I thought, were an incredibly helpful way to actually present the information … I really enjoyed the exercises, the sound bits, the video bits, the interactive bits. That kept my interest.* [A]

Clearly, it was the web-capability and interactivity of the various activities contained on the CD-ROM that distinguished DIME$^{PM}$ from a book. And it was these

features, and the way that they were integrated into the package, which provided the necessary motivation to work through the software. Moreover the presence of immediate feedback enhanced the learning.

> *Yes, it's interactive. Certain elements were marvellous … where you asked if you were to win a lottery ticket and what was the minimum amount that you would accept for it. Okay, that was a very good exercise because you had to think the answer through. But it was interactive. It responded to the answers you were giving, so it was a lot more than a text book.* [F]

Not all exercises incorporated the same level of interactivity and, having raised expectations on one activity there was disappointment when other exercises did not promote the same level of understanding. There was a need for consistency, not only in presentation but also in the level, interaction and feedback offered by each activity.

Feedback should not only provide a suitable "kick", prompting users to work steadily through the resource, it should also encourage the exchange of ideas "at the time you are trying to understand the issues". However, for one participant, CBT seemed unable to offer this vital component in the learning process:

> *If you are reading text you can read through it and you can think you've understood it. The only way you will know you've understood it is when someone questions you on it. Therefore the points of learning that you might get out of it on first reading are what you assume them to be.* [D]

It was suggested that formative questions at the end of each topic, comprehensive feedback following each interactive exercise, the articulation of "some kind of structured approach" and the opportunity to discuss issues with tutors and peers might overcome some of these problems. But the participants in this evaluation were not comfortable with using electronic communication to share ideas. Participants knew that a VLE existed, but it was perceived to be "just that step further forward that we haven't taken yet".

The need for personal face-to-face contact was a recurring issue not merely in a communication context. There was a social dimension here too, offering scope to "branch out, meet new people, new experiences". CBT relied upon the discipline and motivation of the individual. Lack of social contact weakened students' resolve.

## 7 Software functionality

The quality of presentation on the stand-alone CD-ROM received universal approval. Described as being "helpful" and "interesting" this facet of CBT was attributed to the nature of the medium. Although there was need to break up textual material with exercises, graphical imagery, animation and sound so as to alleviate the boredom of reading from a screen, CBT was perceived to be a medium that offered more scope than the written page.

Arguably, the Digital Notepad, had the greatest impact upon the users' approach to learning. Reaction to this feature was mixed:

> *The opportunity of actually putting text notes in yourself is wonderful. You can't start writing all over a text book in that way.* [F]

> *I find it really annoying. You're writing your notes and then you click to the next page and you think I'll write a note on that as well and then you've got to open the notebook again.* [C]

Such diverse views however tend to strengthen further the argument that CBT must cater for a variety of learner preferences, making available alternative facilities to accommodate individual user needs. Failure to do so, disenchants learners who might otherwise benefit from this mode of learning. But the relationship between learner preference and instructional design is complex. No observable

patterns were revealed between the participants' LSQ results and their reaction to DIME[PM].

Surprisingly, access to the VLE proved to be problematic for some. Two participants did not get beyond the entry screen due to difficulties working through the log-on procedure and one participant failed as a result of a faulty modem connection to reach the Blackboard homepage. The other half of the group "had no problem at all", but made little use of the communication facilities provided by the VLE.

## 8 A management perspective of CBT

Contrary to the approach taken by Scriven [30] who considered that contact with the training sponsor would "contaminate" an evaluation of this nature, the research findings were discussed with the Director of Management Services and a Main Board Director to gain a balanced account of CBT in an organisational setting.

Senior managers considered that lifelong learning was essential to the success of the company and as such did not conflict with a commercial environment. Project management was seen as a "bold subject area to tackle" in this delivery mode, largely because the factors that contributed to a successful project were perceived to revolve around "leadership and the softer issues". They were pleased that participants were seemingly aware of commercial realities but felt that the motivation to pursue further studies came from the individual rather than as a result of company pressure.

> *I don't think learning is in conflict with a commercial environment. To evolve and to maintain your position … you have to re-educate all the time. Life long learning is an essential journey you go through.* [RM]

Training as opposed to education had to be relevant. Education, they felt, in some way "banked knowledge" or "amassed credit" that could be drawn on at any time, in any situation, whereas training was perceived to be associated with the application of skills to the task in hand. Not that this, it was stressed, should imply that training must necessarily be confined to job-related tasks. But it was important that the company saw a return on their investment. The fear with CBT, was that it might go "unchecked" and that there would be no way of knowing whether a member of staff had undertaken the work or not.

The company's interest in technology-based delivery stemmed from a desire to enhance paper-based resources so that they might supersede face-to-face methods. CBT was perceived to offer many benefits. Firstly, it was "scaleable" with the potential to train hundreds of employees concurrently in different offices throughout the UK and overseas. Secondly, delivery was consistent. For example, the expert knowledge of some staff could be "bottled and packaged" either on interactive CD-ROMs or distributed on the Internet. Thirdly, as the company expanded into countries in different time zones, access could be shared at any time of the day – "the immediacy is there". And finally the pace at which someone could learn was "down to them". Both managers suggested that this degree of flexibility required individuals to adopt a more disciplined approach to their studies. However managers expected their staff to be able to manage concurrent events.

## 9 Conclusion

The contention that distance learning will save employers money and produce competence in the workplace has been refuted by many authorities [31]. Yet Coffrey [31] also argues that it would be foolish to reinforce the view that "real" training requires face-to-face contact. The findings of the CBT evaluation support these recommendations and have influenced WYG, the company sponsoring this study, to create on-line training materials based, in part, upon their own in-company seminar series. Whether similar strategies should be adopted more widely, it is impossible to

say, given the nature and scale of the evaluation. But the research does highlight four key issues i.e. the organisation, the learner, instructional design and software functionality, which should be considered by companies before investing in CBT.

Potential mismatches between management expectations and practitioners' abilities to cope with the conflicting demands of training and workplace commitments can be detrimental to lifelong learning. The flexibility offered by CBT accentuates this problem. Learning may be important but it can easily be set aside for more urgent work related duties. As such, learners require greater discipline and commitment if they are to gain maximum value from CBT. It is crucial, therefore, that management vision is shared with employees and that the importance of continuous professional development is clearly articulated. Ironically, employees may otherwise adopt a narrower definition of training than their supervisors, with short-term commercial gain being prioritised ahead of longer term knowledge gain.

Case studies and project scenarios are ideally suited to project management training programmes, provided always that they are relevant and presented in a thought provoking format. Interactive multimedia can help here through the use of images, panoramic scenes, sound bites from project stakeholders and video, but this form of delivery raises user expectations. Failure to offer a variety of stimuli in the learning material, thereby responding to user preference, disenchants learners who might otherwise benefit from the resource.

Clearly the relative strengths and weaknesses of alternative delivery methods are not static. Practitioners' comments and actions in this evaluation demonstrate resistance to the use of VLEs although they found considerable value in accessing materials directly from the Internet. As technology advances so there will be need for a reappraisal of these issues. However, organisations can promote the use on-line information by offering open access to the Internet and ensuring that the build of company platforms enable employees to make maximum use of the resources available.

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