

## **Keeping knowledge workers up-to-date: Creating just-in-time, virtual, micro-learning opportunities**

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Future generations of historians may well judge that we are living through the second industrial revolution, and that its impact will be as pervasive, economically, socially and culturally, as that which took place in the nineteenth century. Creativity, innovativeness and entrepreneurialism are at the heart of any such major upheavals, but whereas one of the key drivers behind the original industrial revolution was availability of, and access to, raw materials, the current revolution, if that is what it is, is powered by developments in, and applications of, silicon technology, communications infrastructure and the consequent globalisation of world markets. Marketing as a function, discipline and art, has a key role to play in any emerging business strategies, especially when embracing new opportunities afforded by the internet and world wide web.

In this New World, knowledge and its application, has become the real power behind the change, and the pace at which this has moved forwards is astonishing. Charles Leadbetter, a leading political thinker, commented recently that 'in the next century, the engine of growth will be the process through which an economy creates, applies and extracts value from knowledge'<sup>1</sup>. In a recent UK Government White Paper on Competitiveness<sup>2</sup>, it was emphasised that 'a knowledge economy is one in which the generation and exploitation of knowledge has come to play the predominant part in the creation of wealth'.

We see the emergence of a new generation of cultural entrepreneurs, whom Charles Handy would call 'new alchemists'<sup>3</sup>. People who, for example, work independently and globally in multimedia, design, computer games and Internet services. It is estimated by the year 2010, 1.5 million people will work in such industries, generating revenue of some £80bn, or 6% of GDP. Many of these will be very well educated, with nearly 50% having completed formal higher education processes, double the number for the economy as a whole. And for those in the 21-34-age range, the number will be closer to 80%. Such statistics imply that for the younger generation, higher education will be the gateway to the new and ever-developing, knowledge intensive industries.

One of the key attributes of these 'knowledge workers' will be their ability to learn quickly, to be flexible and adaptable and be able to cope with the impact of that which they, themselves, create. They will have on going, and continuous needs,

to update and up-skill, and learning activity must fit in with their needs and lifestyles, which will be complex, sophisticated, discerning and not least, busy. Education and training providers will need to deliver high quality 'packages' of learning that will accommodate this. In many cases, this will necessitate traditional learning providers looking fundamentally at their products, processes and procedures, as existing models may be too rigid and bureaucratic, thereby making them monolithic, cumbersome and 'climatically unsuited'.

This paper will explore the concept and potential for using emerging broadband networks to distribute electronically created, multi-media (learning) materials. In doing so, it will be exploring the potential use of a *groupware* product (Lotus LearningSpace - LLS) to facilitate the learning experience.

Groupware is much more than the popular Computer Aided Learning (CAL) or materials located on the web in various states of unstructured form<sup>4</sup>. It is a technology intended to take the benefits of web-based information and instruction forward. It is a generic name for network-based software designed to facilitate group as well as individual activities. These activities can be discussions, debates, joint-assignments or team projects. Groupware platforms combine elements of embedded material, links to other electronically available material (e.g. in Word, Excel, PowerPoint), links to local Intranets and the World Wide Web, electronic bulletin boards and discussion groups (and some programs include an interactive assessment function). The platform can be used to create a shared *virtual* environment where multiple users can read and edit each other's files synchronously or asynchronously<sup>5</sup>.

These platforms (which include Lotus LearningSpace being used in this pilot study) are commonly referred to as *virtual learning environments* (VLEs). A VLE encapsulates the idea of developing a learning environment that is in part or in total removed from the traditional classroom fronted by the traditional tutor. Groupware platforms provide the opportunity for participants to engage and develop interactive skills, seen as an essential ingredient of development of business managers<sup>6</sup>.

The use of VLEs is now an established form of learning delivery within the UK<sup>7</sup> though not all projects have been introduced without some problems<sup>8</sup>. The emphasis in this paper is to explore to what extent can a VLE support, and provide regular, structured, varied, interesting and stimulating 'mini-modules' of learning, which we refer to as *micro learning*. It is intended that these 'bite sized' portions will take fifteen to thirty minutes to complete, and that they will be accessible on an anytime, anyplace, any pace (subject to tutor control) basis. It would be impractical to think about such a model, if travel or movement were involved. It is the immediate potential of access from the desktop that makes this a viable, and potentially attractive, option. It is expected that learners will fit the activities to suit their routines and diaries, perhaps undertaking four activities a week. In a year, this would aggregate to ninety hours, not an insubstantial sum.

There is no reason, in principle, why it should not be possible to integrate an assessment strategy, and to then give formal accreditation that can be used for professional development purposes, or as part of other Award validation structures. The possibility, and desirability, of so doing will be explored during the research programme.

There are many possibilities that could emanate from this. On the remaining day of the week, if there are a cluster of learners that are geographically proximate, it might be possible, and desirable, for them to get together to briefly discuss that which they have done and learned. This would ensure, in some part at least, that the human dimensions of learning are acknowledged; i.e. that learners need to interact, discuss, debate and socialise with other learners, to avoid isolationism and the negative impacts that this can have, and to learn effectively. Some may choose to set up virtual 'get togethers', or a hybrid. There are many other possibilities, including organising occasional week-end get togethers, conferences, or whatever, to reinforce the model, but it should be emphasised that such activities should be complementary, and not compulsory, as these in themselves might impose the very constraints that this distributed model of learning tries to avoid.

Initially, the pilot target market will be those working in management positions in local SME's, who are generally well educated, and in need of up-skilling their marketing knowledge. At this stage, generic marketing themes were chosen and developed, to evaluate the effectiveness of this approach. The authors contend that traditional learning providers are too inflexible to deliver this form of learning in a way that suits these participants needs'. If successful, this could expand to cover an almost infinite array of subject matter.

If this approach is effective, it could be seen as but one more arrow in the quiver for learning providers. However, the future competitive implications could be great, as barriers to entry for would-be providers of materials, and opportunities, would be significantly reduced.

The VLE chosen for use was Lotus LearningSpace, one of two VLE platforms being used currently by Staffordshire University. First introduced in 1996 by the Lotus Institute, LearningSpace was evolved from the commercial *Notes* program. It was designed to provide technology solutions and methods to support collaborative learning<sup>9</sup>. It provides a means of offering what is termed *distributed learning*, that is a type of distance learning that is defined as *technology enabled, learning-focused education, facilitated by a content expert, and delivered anytime and anywhere*<sup>10</sup>; the key being *flexibility of learning*. It has been used at Staffordshire University to support both undergraduate and postgraduate full time programmes since 1998<sup>11</sup>. Currently there are over 7000 student users of LLS within the University framework. More recent developments have seen the extension of the platform into delivery to part time and distance learners, including a growing interest in in-company provision.

The aims of this experiment are summarised as follows:

1. To test the technological infrastructure / capabilities / implications
2. To test the platform from a developers perspective as a means of developing and delivering a *micro learning environment*
3. To evaluate the time spent on developing such micro-modules
4. To test the platform from a users / learners perspective
5. To analyse the flexibility of participant usage of the platform
6. To evaluate quantitative data that relates to time / place and pace<sup>12</sup>
7. To explore the use of electronic discussion / learner interactivity as part of the participant's learning process
8. To ascertain whether a sound pedagogic model can be constructed from this research
9. To evaluate future opportunities of this type of approach, in the broadest context

A trial module, "Marketing Management Themes", was developed and made available using the University's server to the participants in April 2000. X number of participants, from Y companies agreed to take part in the trial<sup>13</sup>. The trial was planned to last for a period of 4 weeks and include a series of micro-learning activities. Access to the module would be via the University's website front page. To aid the participants, a range of paper-based instructions on using LLS was provided prior to the trial period. In addition, the University has developed its own Help facility available to all registered users of LLS, which supplements that provided by Lotus. Both are available on-line and seamlessly interact with every module. Further front-end (that is, information provided before the student has started working through the subject-specific knowledge) user support is provided with an explanation of the aims of the module as well as an "Help Forum" embedded in the module. This facility is used to keep the participant in touch with the tutor and other participants on any platform-related issues that arise. An "expectation Questionnaire", was embedded at the start of the module<sup>14</sup>. A further Questionnaire was used at the end of the trial period, data from which will be analysed.

Two test pieces of marketing knowledge were used in the experiment – The Marketing Mix and Basic Marketing Strategy. These were then subdivided into a series of "mini-blocks" of knowledge and/or activities, which were then "dripped" to the participants over the test period of 4 weeks in intervals of 3 to 4 days. Previous activities were left live to encourage any "catching-up" that might be necessary. The participants were encouraged to engage in both individual and group learning tasks using the "virtual" facilities offered by Lotus LearningSpace.

The authors' regard this is very much a work and concept in-progress paper. We hope to report back on our preliminary findings in July, and will demonstrate some of the materials that we have developed and used.

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<sup>1</sup> Leadbetter C (1999), The Independents: Britain's New Cultural Entrepreneurs, London, Demos

<sup>2</sup> DTI (1998), Our Competitive Future: Building the Knowledge Driven Economy, London, DTI

<sup>3</sup> Handy C (1999), The New Alchemists, London, Hutchinson

<sup>4</sup> Retalis S et al (1998) A Case Study of an Enriched Classroom Model on the World Wide Web, Active Learning 8 (July) p16

<sup>5</sup> Greenland K (1999) Using Groupware to Enhance Teaching and Learning in Undergraduate Economics, Journal of Economic Education Winter p33

<sup>6</sup> Gibbs G (1995) Learning in Teams: A Tutor Guide, The Oxford Centre for Staff Development

<sup>7</sup> Pybus L (1998) Towards Distance Learning: the first stages of integrating Lotus LearningSpace into a new in-company undergraduate degree, Scottish Business Education Group, Glasgow University, December

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<sup>8</sup> Lyons J (1999) The Pitfalls of using CBL, CTI-AFM Conference, Brighton, July

<sup>9</sup> Lotus LearningSpace is a product of IBM Lotus. Developments can be accessed on-line at <http://www.lotus.com/home.nsf/tabs/learnspace>

<sup>10</sup> For more information on *distributed learning* see (1996) White Paper: Distributed Learning: Approaches, Technologies and Solutions, Lotus Institute/Lotus Development Corporation, August.

Available on-line at

[http://www.peopleware.be/newsletterwhite\\_paper\\_learningspace.htm](http://www.peopleware.be/newsletterwhite_paper_learningspace.htm)

<sup>11</sup> See Clements M (1999), Introducing a VLE into an Undergraduate Business Programme: Using Lotus LearningSpace, Account 11, 1, pp 14-19

<sup>12</sup> LLS provides a systems log of use by registered users: data is available mapping time of access and duration of time spent on-line as well as the threading of discussions and debate

<sup>13</sup> Values for X and Y will be given at the conference in July

<sup>14</sup> VLE platforms like LLS have the facility to construct and analyse

Questionnaires using an assessment database. Participants remain anonymous.