

# Changing Pedagogy: Does the Introduction of Networked Learning Have an Impact on Teaching?

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## ABSTRACT

The University of Hertfordshire's Managed Learning Environment initiative, known as StudyNet, was developed in-house. Throughout the development, the enhancement of learning and teaching quality has remained a central tenet. However, take up has been extremely variable. This research, through questionnaire survey, sought to assess the extent of StudyNet embeddedness, the uses to which it is put and its impact on staff working practices and pedagogy. Analysis suggests that money, time and workload affect staff access and use. As a communication and information distribution resource it is well used but its impact on the enhancement of learning and teaching is, so far, fairly limited although some examples of good practice were identified.

## Keywords

VLE, Pedagogy, Networked Learning, Teaching

## INTRODUCTION

There are multiple claims about e-learning enhancing teaching and the teacher's role (Britain and Liber, 1999; Allen, 2003). For example Littlejohn and Higgison (2003) claim

- reduced administrative load because routine information is available on-line;
- easier communication with individuals and groups of students;
- a wider range of available resources;
- reduced assessment load;
- it motivates and supports students with little extra teacher time;
- it releases time for more interactive forms of teaching;
- it is easier to amend and update materials;
- it contributes to quality assurance audits.

However, while adding to this list more things that e-learning can support (such as active learning, facilitative rather than didactic teaching and the building of 'on-line communities'), Conole (2002), in her review of the 'learning technology landscape' states

"The reality is more complex, involving the context within which these systems are used and how well they are adapted to specific student needs. Making a discussion board available on a course will not automatically create a motivated virtual community of collaborating students with a benevolent smiling 'tutor on the side'. Therefore, although VLEs can be used to significant effect... this is not an inherent property of the technologies themselves."

The extant literature is full of examples of small-scale studies, often based in single institutions. While not ideal, this body of knowledge is growing and, taken together such studies may begin to provide answers in practice to Dearing's (NCIHE, 1997) strategic call for technological 'innovation', 'effectiveness' and thus quality enhancement in learning and teaching. The research reported here seeks to add to that body of knowledge. It is based on a study of teachers in one university in England.

## INSTITUTIONAL CONTEXT

Following Dearing (NCIHE, 1997) the University took a strategic decision to develop its own, bespoke, in-house, Managed Learning Environment (MLE). The University has a history of delivering successful projects that utilise many of the technologies that go into making a successful MLE. It chose to build on this experience and expertise rather than purchase a commercial package such as Blackboard or WebCT in order that the MLE integrated with systems already in place and to tailor it specifically to institutional needs. Development work started in November 2000 with a pilot release date of September 2001. It was delivered on time, has a high level of integration with central systems, is adaptable to the modularity of many of this University's degrees, and automated. It provides tools comparable to commercial offerings; it is Lotus Notes based, provides portals for all modules for University staff and students (20,000 FTE) across three campuses and includes email. The system has been fully operational since September 2002. An introduction to StudyNet can be viewed at <http://www.herts.ac.uk/clearing/index.html>.

## THE STUDY

The study was funded in-house and ran during the academic year 2002/2003. This was the first year in which it had been fully operational. The StudyNet pilot had targeted all teachers of first year undergraduate courses and all teachers of postgraduate courses, but was also available to anyone else who wished to use it. In 2002/ 2003 the target courses were extended to include year 2 undergraduates (in 2003/2004 institutional standards require all courses at all levels to have a presence on StudyNet). The intention of the study was to collect and evaluate teachers' perceptions of the impact (if any) that the introduction of StudyNet had had on their general working lives and on their pedagogy. Specifically, the intended outcomes were to ascertain

- information about the impact on pedagogy, if any, across the university of the introduction of StudyNet;
- staff views on the quality of initial training, the ongoing support provided for users and the time factors involved in their use of StudyNet;
- a staff perspective on the use of StudyNet for supporting students' learning;
- the identification and dissemination of emergent good practice through staff development.

Questionnaires were sent to virtually all contracted academic staff (716). Two hundred and eighty-eight questionnaires were returned, approximately 40 per cent of the sample. The questionnaire was sent via internal mail. Follow-up interviews were conducted with 8 Faculty/ Departmental StudyNet 'Champions', 14 users and 7 non-users (randomly selected from questionnaire volunteers plus, for non-users, a staff email request for more non-user volunteers as there were less than seven in the volunteer category). The support of Faculty / Departmental Champions, who are committed and proficient at using StudyNet and willing to help others in its use, was sought (and given) in encouraging completion of the questionnaire and a staff email reminder was posted 3 weeks after the initial mail drop.

Of the respondents 261 (91%) used StudyNet, only 25 (9%) did not (2 didn't answer). Thus our questionnaire sample was overwhelmingly one of users and we are able to say quite a lot about them. We have no way of telling if the 60% who did not respond were users or non-users but it is quite possible that there were a lot of non-users among the non-respondents. The majority of the respondents were in the 44 to 50 years age bracket. This fairly represents the age distribution of academic staff within the institution. In terms of sex, 93% of responding men were StudyNet users, 89% of women were users. While use is high in both groups female staff appear less likely than male staff to use StudyNet. Chi squared (Fisher's exact test) indicates that this difference was significant ( $p < 0.01$ ). The gap between full-time and part-time teachers was slightly bigger with 93% of full-time responders using StudyNet and 86% of part-timers (significant at  $p < 0.001$ ). There is no statistical support for these two effects (female and part-time) in combination together being significant. Female staff appear slightly less likely to use StudyNet and there are clearly more women than men in the part-time category.

## KEY ISSUES RAISED

The first issue revolves around equality of access for both teachers and students. Our respondents suggested that many assumptions appeared to be made about computer literacy and skills, about access to computers and the Internet. They were particularly concerned that off-site, mature and 'Widening Participation', i.e. non-traditional students, were at risk of having unequal access to StudyNet and increased technology costs.

The second issue concerned perceived diversity in teaching styles across Faculties and Departments. StudyNet was perceived more suited to 'science' based subjects than 'art' based, student-centred and professional courses, such as teacher training and health professionals, that required more 'hands on' and face-to-face teaching.

Problems and concerns centred mainly on registration, StudyNet's interface with the student information system (Genesis), 'desk-top' compatibility (particularly in Art and Design where Apple Mac computers were used because of their graphics standards), the way StudyNet was set up, and the recent and fairly constant changes that are made when many staff had yet to master earlier versions.

Of the seven non-users interviewed, two could not see the advantages of StudyNet at all and the rest would use StudyNet if problems with registering students on Genesis were resolved, if more resources were available for 'hands on' support and to reduce workload, and if they could be convinced StudyNet was beneficial.

### **Outcomes in Relation to Aims of the Study**

The impact of StudyNet on pedagogy was varied. The most used StudyNet facilities were module information and news, teaching materials (mainly lecture notes or power point presentations), upload of reading lists i.e. StudyNet was used mainly as an information source and administrative tool. Group discussion had been tried but had proved unsuccessful for several staff. However, these teachers did recognize StudyNet's potential for more interactive work and greater student independence and autonomy in learning. There was some evidence to show that staff were adapting and gradually changing their teaching methods.

"I'm not sure it helps learning but increased (student) independence / autonomy, take more responsibility for learning, gives students confidence..."

"I can work through the material much more interactively rather than wait for students to copy slides/write notes on handouts."

However, there was limited evidence to demonstrate that StudyNet had had significant impact on pedagogical development and change across the university. Face-to-face teaching was still preferred by many staff, and considered necessary, albeit alongside e-learning.

Teacher users were generally enthusiastic about StudyNet because it was an extra teaching resource that students "could drop in and out of"; it was a useful repository with everything in one place; it was useful for distance learning, and with larger and larger classes it enhanced communication and information sharing with students.

The Natural Science and Engineering Faculties appeared to use the StudyNet assessment facilities more than other Faculties and this may reflect a difference between disciplines in the types of assessment used and how well they do (or do not) transfer to the electronic environment. Articles and papers, and students' own contributions ranked higher in Humanities and Human Sciences than in Natural Science and Engineering. We conclude that StudyNet was and will be used differently by different disciplines in terms of pedagogy.

A substantial staff development programme had been put in place prior to the launch of the StudyNet pilot in 2001. This continues, is centrally provided and free to all teachers at the university. Teacher perceptions of the quality of training suggest that 83% of users found the initial training useful. Eighty-one percent found colleague support useful and 70% found Department/ Faculty Champions useful. On the whole the training sessions were viewed positively, ranging from comments like "*fantastically useful ... We walked out of the room buzzing with how exciting it was ...*" to "*helped a bit*". Where problems were identified the following suggestions were made: repeat training for new or reluctant staff; subject-specific training at the local level so that generic training could be applied to teacher's own situations; a variety of training sessions to accommodate differing levels of IT skills and, most importantly, these teachers needed time to gain experience by using StudyNet intensively very soon after their training.

Teacher users chose 'human' rather than text or textual support when starting to use StudyNet. Face-to-face hands-on training sessions, 'Champions' and colleagues were preferred to hard copy or electronic guides, although these were found useful when actually used. Most needed time after the training courses to explore StudyNet further. Time was a recurrent theme, and was linked to workload both for teachers and students. More support from managers was requested in understanding the pressures teachers (and students) are under with reorganisation, dwindling administrative support and rising staff-student ratios, the need for more resources for training (particularly for part time staff and hourly paid lecturers), for computer hardware (access and upgrades) and for extra support. 'Human and hands on' support at the local level was considered vitally important. These teachers also believed that the work of such 'helpers', namely their IT literate colleagues and

peers (especially 'Champions'), should be properly recognised and that they should be rewarded for the work that they did, if not in money then in time release.

Teachers' views on the use of StudyNet for supporting students' learning were limited. Most suggested that we ask students this question! Those who did respond thought StudyNet was helpful to students through information being available in one place plus electronic links to the library and other resources, and several thought it made students more independent.

There was some evidence that good practice was evolving and being disseminated throughout all faculties but with varying degrees of success. Teachers used StudyNet for quizzes and question and answer sessions, for web links, posting seminar papers and good examples of an essay (anonymised and with permission), as a discussion facility to extend classroom time, for case studies and to provide skills booklets to students.

"The class discussion facility is used quite extensively ... staff respond to students queries that are raised, I also post up information of interest ... draw students attention to it and have a discussion around it on the class discussion facility."

"Last year we had a quiz ... very simple multiple choice thing on (X) for the students which was again just a basic knowledge testing exercise which the students quite enjoyed and things like that are time consuming to write but once they are written they can be used again and again ... it's a gradual building up of resources."

## RECOMMENDATIONS

The authors made the following recommendations to management as a result of the study. Resolve compatibility and access issues with Genesis and staff desk-top facilities.

- Extend, and reward in time if not money 'human' support for StudyNet use e.g. Champions.
- Ensure staff have time/space in which to follow-up training sessions e.g. through immediate use, assignments, dedicated local staff development and away days.
- Don't change too much too often as many staff are still in the learning phase.
- Acknowledge that subject-disciplines have different needs and approaches: StudyNet cannot be "a one size fits all" so local (Faculty) policies and benchmarks should be established.
- Identify, demonstrate and disseminate exactly what it is that StudyNet 'does best' for each Faculty.
- Seek to move StudyNet from an information tool to an integral part of teaching and learning by distilling and disseminating examples of good practice e.g. from annual conference.
- Commission some follow-up research into students' views and experiences of StudyNet.

The final recommendation has already been implemented and a follow-up study of students is currently underway. The final report was delivered in September 2003 so it is early days in terms of actions resulting from it. However, it has been well received and the information it contains considered useful.

## THE STUDY AND THE LITERATURE

Our sample of teachers was predominantly users of StudyNet (91%) so these data can say little about non-users. We had to search for seven 'laggards' (Moore, 1991) for the non-user interview sample. However, our users cover the full gamut of Moore's Technology Adoption Life-Cycle, from 'innovators' to 'late majority'. The 'innovators' tended to come from engineering and information sciences, some of whom expressed a degree of reluctance to adopt StudyNet whole-heartedly given their personal, established and highly developed web sites. 'Early adopters' and 'early majority' teachers were the most enthusiastic users of StudyNet. While not at the forefront of e-learning developments in general they quickly took on-board StudyNet as a strategic, centrally resourced facility and experimented with all its functions, prompting further developments and using the facilities they found most productive and beneficial to good effect in their teaching. These teachers in our sample might be better termed 'new innovators'. They conform to Johnson and McCormack's (1996) 'early adopters' who want the latest technology, are prepared to try new ideas, are strong risk takers and prepared for revolutionary change.

*"The best thing the university has introduced for many years. From a staff point of view, it is brilliant."*

The 'late majority' teachers in our sample tended to fit more closely a pattern of compliance rather than convinced commitment. They met the required institutional 'standards' of use, which revolved around

information posting but were not creative interactive users of StudyNet in the ways in which the literature claims enhanced learning can be achieved.

*“It has changed the way material and information are made available to students, not how I teach.”*

For these teachers in particular, StudyNet is an extra work burden rather than an enhanced mode of working. They may eventually become committed, but if Johnstone and McCormack (1996) are correct then these teachers will want good educational reasons for using StudyNet. They will need opportunities to explore their own thinking and to develop personal confidence in making changes to their traditional teaching practices.

The infrastructure is in place, training and support are freely and frequently available, but this study suggests that effective take-up of StudyNet may be lower than desired. Our findings lend support to a similar study undertaken at Southampton University, England, which found that enthusiasts did develop interactive materials but that it tended to be a minority activity (Hall and White, 2003). Information posting was our samples predominant mode of activity.

### **Academic Identities, Ownership and Institutional Change**

We cannot be sure, from the responses reported here, that use of StudyNet is a minority activity, but it would seem reasonable to postulate that there were many more non-users amongst the non-responders than amongst the responders, if only because of the user ‘standards’ stipulated by the university. Interestingly, ‘laggards’ are now technically non-compliant. Whatever their number / proportion there are some indications, from the non-user interview data, as to why they have not (as yet) engaged with StudyNet. Two could see no advantage at all from its use, whether it be for communication, information sharing with students, or the desired enhancement of learning and teaching. Teachers such as these will need some convincing of the claimed benefits.

“I don’t think that pedagogy’s been transformed ... I think the basic feeling of staff is that while no-one’s practice is beyond improvement, by and large pedagogy ain’t broke, they don’t feel any great urgency in fixing it, where if there is anything wrong with pedagogy it’s not obvious the solution lies necessarily in StudyNet. ...”

The non-users were not alone in expressing concerns, but they were the staff who had admitted to choosing not to engage with StudyNet unless and until some of these concerns had been addressed. Their number within the study institution remains unknown but it is likely that such staff exist in all higher education institutions. What we need to understand is why this overt resistance to pedagogic change that is claimed to be for the better. One answer might be ‘lack of convincing evidence’. Another might be straightforward resistance to change.

Taylor (1999) argues that acts of resistance and expressions of uncertainty are academic responses to threatened change in identity. We all have our own academic (as well as personal) identities (Cockburn, 1991). They give a sense of belonging, of place and role. Our identities, academic and personal, constantly evolve and adapt to changing circumstances and life experiences but when change is imposed we feel a sense of loss. The solution, proposed by Boezeroy (2003), and Hall and White (2003) is ownership. If teachers are to commit to e-learning they must be convinced of its pedagogical benefits to students rather than its organisational, financial and administrative benefits to the institution. For such teachers to become committed the evidence must be collected and marshalled rather the benefits asserted; they must have the opportunity to use, develop and adapt the facilities and functions on offer to fit with their own educational theories and beliefs. In parallel with strategies for the enhancement of student learning, they must actively engage in order to make it their own.

### **Interactivity, Blended Learning and Balance**

The literature suggests that the emergence of different systems will significantly influence the way learning and teaching are conducted. Laurillard and McAndrew (2002) note that

“As professional teachers, academics are facing a difficult challenge from learning technologies, as they have to renew and develop their model of the learning process well beyond the traditional transmission model.”

Smith (2003) emphasises the potential benefits of e-learning to enhanced pedagogy by identifying the transferability of many traditional teaching skills to the e-learning environment. For her the teacher remains the organiser, designer and facilitator of the learning environment, with Information Technologists in support. The main shift or step change involves the move from oral (face-to-face) to written (e-learning) transmission. This in turn involves some modification of delivery methods but none that detract from learning and some that should actively enhance it. There is clearly potential for greater interactivity and reflection, increased student independence, autonomy and power, and more extensive resources for learning and teaching through e-learning

environments. But it is only potential. As Conole (2002) notes, like Jones (1999), these are not inherent features of the technology itself. Their realisation depends on the use teacher's make of the technology. 'Document dumping' by teachers will not have the desired effect, any more than simple document download by students. That would merely mirror, in electronic form, the poor practice of didactic transmission of knowledge by teachers and giving passive students a handout to read. Real, effective learning and teaching, in either environment, takes place through engagement, action and interaction (Ausubel, 1968, Gibbs, 1989, Laurillard, 1993, Kyriacou, 1998). As Orsmond and Styles (2002) argue

"... the simple transposition of traditional lecture programmes onto virtual learning environments is not generally effective, because it tends to provide a passive and content driven experience for the learner, and that such approaches can be extremely isolating. It is essential that distributed learning either includes collaboration and participative online experiences, or that the use of technology is combined in an effective and holistic way with the equivalent parts of a traditional approach."

Whether in the classroom or on-line, active learning is more interesting to students. It stimulates thinking, rewards self-direction, promotes understanding rather than knowledge, exposes misconceptions and provides feedback to both learners and teachers. E-learning, and StudyNet, to effectively enhance learning and teaching, needs to develop active participatory learning on-line. Some methods taken directly from the classroom may transfer well. Others, as Smith (2003) indicates, may need adapting. Still others can and should be newly developed to take maximum advantage of the technology. E-learning and StudyNet offer new, powerful tools for learning and teachers will need to extend their methodological repertoire to take full advantage of them, without losing that all important interactivity and ownership.

"For a student, interactivity is a prime dimension of a successful learning environment. They want support from and dialogue with tutors and peers. The internet provides unparalleled potential for interactivity." (Beaumont, 2003)

Helping staff to adapt their teaching to this new environment is the key. Most of our teachers are willing to adapt provided they have the time, help and the support needed to do it well, and for educational reasons.

"Where people want to realise the full potential of StudyNet it is time consuming especially where they are designing new materials ... whether it's hard copies or electronic materials ... people do need support in designing interactive materials."

"I've got to spend ages trying to track someone down or you've got to give up the day to go on a course ... hard to justify as an investment of time ... There is no substitute for having someone who really understands to sit down and look over your shoulder."

E-learning is a tool that can be used for the enhancement of learning and teaching. Its effectiveness will depend on how well the tool is used, not by the quantum of its use. Other tools, such as face-to-face contact have their own strengths too. The teachers in this study were clear in their preference for 'human support' in developing their StudyNet skills, and the need to balance e-learning with continued face-to-face contact with students. StudyNet was an enhancement not a replacement tool for learning. We suspect that students in the follow-up study may agree. In an ideal world, and at its best, teaching and learning in the twenty-first century will blend seamlessly active learning strengths in technology with those best delivered face-to-face. Some of our advanced StudyNet users have already changed their mode of interaction in face-to-face contact with students given the additional support and facilities they have made available to students via StudyNet. These advanced StudyNet teachers have already addressed the issue of what is best delivered on-line and what is best delivered face-to-face in order to enhance student learning. Others will follow if the context, climate and support is right.

## SUMMARY AND CONCLUSIONS

The study reported here illustrates the varied uses to which e-learning through StudyNet has been put and the rate of progress staff have made in adapting their teaching (or not) in ways that enhance learning. There is no doubt a long way to go before active learning in e-environments is standard majority practice across higher education but clearly advances are being made. However, it seems to us that teachers and their students, not the technology, should of necessity be at the centre of the process. They are the experts on learning and the technology is no more than a tool, albeit a powerful and exciting one with masses of potential. It is how teachers use it that will bring ultimate improvement and success.

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