An Initial Evaluation of Student Withdrawals within an e-Learning Environment: The Case of e-College Wales

Paul Jones, Gary Packham, Christopher Miller and Amanda Jones
University of Glamorgan, Pontypridd, Wales,UK
www.glam.ac.uk/bus/
wpjones1@glam.ac.uk,

Abstract: The proliferation of e-Learning programmes on offer within the UK raises critical issues that have yet to be fully addressed in terms of the nature of learning, effective pedagogy, learning expectations and student profile. The amalgamation and influence of these factors is also having an impact upon student retention. This paper examines student withdrawals associated with the online BA Enterprise programme initiative designed by the University of Glamorgan, which aims to help improve the entrepreneurial capacity of Wales. Utilising content analysis of student questionnaires at one of the University's delivery partners, eight prime cases for student withdrawal were identified including factors such as technical problems, pressure of work and lack of time. The paper concludes by identifying strategies to manage these barriers to e-Learning.

Keywords: e-Learning, retention, withdrawal, student motivation

1. The e-Learning phenomenon

Internet use has increased to the level where it has become universally recognised as the dominant commercial and social force (Sloman 2001) - but what does this mean for today's lecturers? The emergence of e-Learning has created a new platform for the delivery of training, it is, a phenomenon, and the impact of this technology will create opportunities that will enhance and transform the learning experience for both student and teacher (Sloman 2001).

It is vital within any study of e-Learning to illustrate the true nature of this new pedagogical resource. It is believed to be a new medium "involving the delivery and administration of learning opportunities and support via computer, networked and web-based technology, to help individual performance and development" (Pollard & Hillage 2001). Fry (2000) supports this and believes that the focus of e-Learning is primarily channelled via "networked interactivity and a range of other knowledge collection and distribution technologies". One of the problems with appraising e-Learning however, is that it is eclectic and one can learn from many different electronic mediums. For example, we can learn from surfing the web, from online courses, from participating in an online discussion forum or from being coached or mentored via e-mail (Honey, 2001). Nevertheless, there is one common thread running through all these forms of e-Learning – they all offer the possibility of learning from information exchanged electronically (Honey 2001). Whitlock (2000) offers a more holistic perspective and argues that a suitable term to cover all definitions has yet to emerge. He suggests that the best way forward is not to search for the definitive definition but to apply e-Learning as an 'umbrella term' that encompasses all forms of electronic delivery, whether online or via other electronic mediums such as CD-ROM. Irrespective of definition, e-Learning has received attention from academia as it arguably able to offer educational qualifications to a wider geographical population and provides the means to further the education of those with other work-life commitments unable to study full-time (Alexander 2001; Daniel 1997; Johnstone 1992). It also provides the most fertile ground for growing these key ingredients of university renewal: lower costs and unique attraction (Daniel 1997). Green & Gilbert (1995) anticipate that e-Learning will yield new levels of institutional and instructional productivity.

The proliferation of e-Learning programmes on offer within the UK however, raises critical issues that have yet to be fully addressed in terms of the nature of e-Learning, effective pedagogy and learner expectations. Moreover, issues associated with e-Learning and retention, especially those associated with widening participation, have made many institutions question the benefits of the e-Learning (Aldridge & Rowley 2001; Higher Education Funding Council for England (HEFCE) 2001; Select Committee on Education and Employment (SCEE) 2001). Studies conducted alongside e-Learning initiatives have often recorded varying levels of success in retention, identifying student motivation and satisfaction as reasons as to why a significant number of students ultimately decide to withdraw (Mason & Weller 2000; Alexander 2001; Bonk 2001). In addition,

whilst technological advances have widened access and provided what in essence is a new educational platform there are still limits to technology's ability to respond to individual learning demands (Laurillard 1993).

Historically, a considerable amount of academic attention has been given to why students withdraw from Higher Education (HE). Reasons for non-completion are typically complex and multiple, yet institutional records are often simplistic or inaccurate (Hall 2001). In general, drop out rates ranging from 30% to 75% have been associated with e-Learning courses in the United States (McVay-Lynch 2002). Further, McVay-Lynch, (2002) identified a number of factors that contributed to withdrawal including technology, the student experience, lack of tutor feedback and online miscommunication. Concurrently, the work of Diaz (2002) suggested that these factors could be further categorised into:

- Student factors – where the educational preparation, motivational and persistence attributes and the actual academic self-concept of the student are important.
- Situational factors – where the life circumstances of students affect their ability to complete the course.
- Educational system factors –examines the educational standards and qualities of the course and the impact of pastoral support for the student.

In fact, it has been argued that the above factors are no different to the problems encountered by traditional students. Nevertheless, much has been made of the need to improve current levels of retention before e-Learning can be considered viable by most HE Institutions.

1.1 Retention and e-Learning

A result of widening access to HE has been an increase in the number of students without traditional qualification being admitted through the clearing system. HEFCE (2001) however, suggests that entrants with low or non-A-level qualifications are less likely to complete HE study. It is also believed that entrants without recent experience of HE lack the ability to be 'self-determining' and to organise their studies effectively. Thus, induction and study support programmes for these types of student become invaluable (SCEE, 2001). Furthermore, HEFCE (2001) maintain that students who are not prepared for the HE experience can lack the necessary study skills required. The SCEE (2001) recommend that wider access incentives for HE institutions should include 'completion incentives' that encourage the admission and support of student from non-traditional backgrounds. Nonetheless, the literature also implies that despite the recent political agenda to widen participation, those targeted may still be at a disadvantage.

Financial difficulties and lack of student funding have also become significant factors in student withdrawal from HE (Aldridge & Rowley 2001; AUT 2001; Bennett 2003). In an effort to alleviate student hardship, the government has attempted to provide significant resources, administered through HEFCE, in the hope of reducing its impact on retention. According to one report, funds provided for academic year 2000-01 were £57m through the Hardship Funds, £15m through the Mature Students Bursaries and £12m through the Fee Waiver Schemes (HEFCE 2001). Despite this support, the SECC (2001) reported that 20% of students fail to receive sufficient funding, as their parents are either unable or unwilling to make additional contributions. Consequently, many students are forced to work part time (PT) alongside their full time studies, which can also have a significant impact on commitment and performance.

Associated to the issue of PT working is time, whereby its limitation to students has become one of the primary reasons for withdrawals (Mason 2001; Powers & Mitchell 1997). Griffith's (2002) study indicates that 60% of employees have difficulty finding the time to use online training systems. Time related issues involved in online courses have also replaced the problem of distance (Mason 2001). Whilst education has now extended geographically it has limited students with time restrictions. Indeed, Mason & Weller (2002) found that one of the major complaints about online courses were associated with limited time. The study highlighted that time constraints had, on occasion, led to a modification in course content and delivery. Hunt (1998) however, argues that the survival of online courses will be dependent on their ability to reduce overall time-scales as well as providing the necessary flexibility demanded by today's learner. Nevertheless, issues of time-management, individual study patterns, and completion time-scale variations suggest that students also play a pivotal role in their ability to complete a course successfully. Similarly, Hunt (1998) acknowledges that the constant pressure of time on staff and

students, although creating a sense of empathy between them, is not conducive to sustained continuing professional development for either group.

Recently, it has been commonly accepted that most students should possess basic Information Technology (IT) skills and the ability to use these skills competently within an educational setting. Arif (2001) however, warns that it should not be assumed that any given population is 'technology-conversant'. In fact, Arif (2001) maintains that many students entering University have had no exposure to the Internet and very little to IT generally. Participation in e-Learning courses can therefore be seriously affected by the IT deficiencies of students and thus a significant contributor to withdrawal (Hara & Kling 1999). Reliable technical support is crucial for both staff and students as they become familiar with e-Learning, indeed students will readily give up if they are unable to get the technology to work and do not receive support (Alexander 2001; McVay-Lynch 2002). Moreover, given that many students are not 'technology-conversant', usability is also considered to be an important factor in improving retention (Frontend.com, 2001).

It is important for students to know what is expected of them before committing to a task (Frontend.com, 2001). Hall (2001) suggests that it is no surprise that a course failing to meet student expectations and lacking in pre-course information is linked to low rates of student retention. For example, many learners often find the whole online experience to be contrary to what they believe to be the best form of learning (particularly inexperienced learners). Therefore, for e-Learning courses to improve rates of retention, time and effort must be given to preparing students for the e-Learning experience (Alexander 2001). Ultimately, high withdrawal rates are a measure of the negative quality of the student's experience of HE (Aldridge & Rowley 2001).

2. e-College Wales: A case study

Despite complimentary feedback the BA Enterprise suffers a significant withdrawal problem. As our literature review has already highlighted, retention is influenced by a plurality of factors including admissions policy, pedagogy, course structure and nature of study (i.e. full or part time). This paper examines the retention issues within the program and identifies whether the causes of withdrawal correlate with the existing academic literature. ECW is a project designed by the University of Glamorgan aimed at creating and improving entrepreneurial and managerial capacity in the European Union Objective One Areas of Wales, where such activity has been deficient. This distance learning (with local partner Further Education colleges located throughout the objective One areas) platform has been created with the aim of aiding individuals and communities to generate their own economic development solutions, through the tools of entrepreneurship and promotion. A key component in this provision is the BA Enterprise programme, which was initiated in September 2001. Course materials are available on-line via the Blackboard Virtual Learning environment (VLE) and students have access to electronic database journals and library catalogues. Students interact online with module tutors via virtual classrooms, chat rooms and discussion boards.

3. Research strategy

To investigate the research proposition the research methodology involved quantitative and qualitative research. Descriptive statistics are utilised to provide a demographic profile of learners. Thereafter the study used content analysis of student feedback to identify reasons for withdrawal. The study focused on 44 students within the Coleg Sir Gar, Partner College. Initially a detailed analysis of the demographic breakdown of the student cohort and completion, withdrawal and deferral information was undertaken. Thereafter the authors identified and interviewed twenty (87%) withdrawn students from the programme using a semi-structured questionnaire.

A semi-structured research instrument was constructed to identify prime motivations for student withdrawal. Former students were contacted via telephone and the questionnaire was completed in a ten-minute interview with each respondent. Twenty former students (87%) completed the questionnaire, whilst 3 (13%) respondents declined or could not be contacted.

The aim of the questionnaire was to elicit the prime causes for student withdrawal and identify the student attitudes to an on-line programme. The initial question established the date of withdrawal from the programme, whilst the second questions asked the respondents to explain their reasons for leaving the course. The third question enquired whether the University could have influenced the respondents' withdrawal decision. The next question asked whether the respondent would

consider studying for an online programme in the future. Finally the respondents were asked to summarise their learning experience of the programme.

4. Results

Forty-four students undertook the first year of the programme. Fifteen students successfully completed the first year, 23 withdrew and 6 deferred to the next academic year (see Table 1).

Table1: Results 2001/2002

Total Students	Passed award	%	Withdrew	%	Defer	%
44	15	34	23	52	6	13

4.1 Student Gender and Age

Twenty-seven (61%) students were male and 17 (39%) female, the oldest being 66 and the youngest 25. The average age of the group was 43 with a standard deviation of 9.6. A group frequency analysis (see Table 2) revealed that the most populace group was 41-50 (34%) followed by the 31-40 (30%). Overall 59% (26 out of 44) of the year group were 41 years of age or over. Male students were predominantly 31- 40 (33%) years of age whereas female students were principally in the 41-50 (47%) age group. Male students accounted for 69% of the 31-40 age group and 67% of the 51-60 age classification whilst females accounted for 53% of the 41-50 age group.

Table 2: Group frequency analysis by age and gender

Age Break Down	All Pop	%	All Male Pop	As % of Male Age Group	As % of All Male Pop	All Female Pop	As % of Female Age group	As % of All Female Pop
21 - 30	5	11	3	60	11	2	40	12
31 - 40	13	30	9	69	33	4	31	24
41 - 50	15	34	7	47	26	8	53	47
51 - 60	9	20	6	67	22	3	33	18
61 - 70	2	5	2	100	7	0	0	0
	44	100	27	61	100	17	39	100

Table 3 analyses the profile of the 15 successful students as eight males and seven females. Overall, 41% of female and 30% of male students were successful. Further analysis revealed that 50% of 31-40 aged female students were successful as were 67% of the 51-60 age group. The most successful male age group was the 41-50, with a 43% success rate. The least successful age groups were the male 51-60 category with a 17% success rate and the female 41-50 group (see Table 3).

Table 3: Gender & age of completed students

Age Break Down	Passed by Age Group	All Female Pop.	Passed Female Pop	As % of all Female Pop.	As a % of Female Passed Pop.	All Male Pop	Male Passed f	As % of all Male Pop	As a % of Male Passed
21 - 30	1	2	0	0	0	3	1	33	13
31 - 40	5	4	2	50	29	9	3	33	38
41 - 50	6	8	3	38	43	7	3	43	38
51 - 60	3	3	2	67	29	6	1	17	13
61 - 70	0	0	0	0	0	2	0	0	0
	15	17	7	41	100	27	8	30	100

Seventy percent of withdrawn students were male and 30% female. The most prevalent age groups for student withdrawal were 51-60, with a 67% rate, followed by 21-30 (60%). The 61-70 groups suffered a 100% withdrawal rate although this involved only 2 students. Both the 31-40 and 51-60 groups suffered a high male withdrawal rate with a 80% and 83% drop out rate. Older males 73% were particularly

likely to withdraw as were females in the 41-50 age group (50%).

Table 4: Gender & age of withdrawn students

Age Break Down	All Pop	Withdrawn	% of W/D of Age Group	% of all W/D Students	All Male Pop	Male W/D Pop	% of W/D Male by All W/D	% of W/D by Male Age Group	All Female Pop	Female W/D Pop	% of W/D Female by All W/D	% of W/D by Female Age Group
21 - 30	5	3	60	13	3	2	67	67	2	1	33	50
31 - 40	13	5	38	22	9	4	80	44	4	1	20	25
41 - 50	15	7	46	30	7	3	43	43	8	4	57	50
51 - 60	9	6	66	26	6	5	83	83	3	1	17	33
61 - 70	2	2	100	9	2	2	100	100	0	0	0	0
	44	23		100	27	16	70	59	17	7	30	41

4.2 Employment

Twenty-four students were self-employed (62%), 7 worked within the public sector (18%), 8 were in private sector (21%) and 5 (13%) were not employed (see Table 6). Self-employed students witnessed only a 33% completion rate and a 62% withdrawal rate. Similarly public sector students recorded a poor completion record (29%) and higher withdrawal rate 43%. The worst completion record was displayed in the private sector employment group with only a 25% completion record and 50% withdrawal record. The most successful employment sector was the not employed group recording a 60% success rate.

Table 6: Employment by student completion, withdrawal & deferral

Sector	All Pop	%	Comp	% of Comp	% of Sector	W/DN	% of Withdrawn	% of Sector	DEF	% of Def	% of Sector
Self Employed	24	62	8	53	33	15	65	63	1	17	4
Public sector employment	7	18	2	13	29	3	13	43	2	33	29
Unemployed/Not Working	5	13	3	20	60	1	4	20	1	17	20
Private sector employment	8	20	2	13	25	4	17	50	2	33	25
	44		15			23			6		

4.3 Education

Sixty one percent of students possessed no prior HE qualifications, 27% were graduates and 9% possessed a Masters degree. Seventy percent of students had achieved O levels or equivalent qualifications and 50% attained A levels. When these statistics are analysed in terms of completion against prior qualifications it revealed that of the 17 students with a prior HE qualification only 24% successfully completed the year and 65% withdrew. Of the 15 successful students only 2 (13%) possessed a prior degree. Typically successful students were lacking in prior HE attainment with only 24% of students having gained a previous qualification.

Table 7: Student cohort by qualifications

Total Students	Graduates	Masters Degree	HE qualification	No HE Qualification	O levels	A levels
44	12	4	17	27	31	22
%	27	9	39	61	70	50

4.4 Reasons for student withdrawal

The semi-structured interviews with students revealed 14 factors of withdrawal cited on 44 occasions. Eight prime causes were identified occurring on 3 or more occasions.

Table 8: Prime reasons for withdrawals

Factor	Frequency of Occurrence	As a % of all Respondents (20)
Personal Reasons		
Job or Business Changed/increasing pressure of work	8	40
Lack of Time	5	25
Personnel Issues	4	20
IT skills	3	15
Total	20	100
Course Related Reasons		
Technical Problems	4	20
Not the Right Course	6	30
Amount of Coursework	5	25
Confusion/lack understanding	3	15
Other	6	10
Total	24	100

4.5 Personal reasons for withdrawal

Increased pressure of work was the most frequently identified cause of withdrawal cited by 40% of respondents. These were students who suffered a change in their working circumstances. Two of this group withdrew due to having to relocate due to new employment whilst 6 cited a change in their existing working circumstances caused by launching their own business or extra responsibility within their current post. Seven out of 8 of these students either ran their own business or were employed within the private sector where time is a critical factor. Three students identified this factor as the sole reason for their withdrawal whilst 2 students recognised it as 1 of the 2 factors behind their withdrawal. Five students (25%) cited time as a prime cause of their withdrawal. Of this number, 3 ran their own business and 2 held high-level position in the public sector. All of these individuals identified that they did not initially appreciate the amount of time the course would entail and also underestimated the demands of their current posts. As identified in the previous section there was a realisation that the coursework was onerous and required reduction. Again this factor can be identified as a contributory factor towards their withdrawal decision. Three students identified their IT skills as a reason for their withdrawal from the programme. These students identified several other factors that contributed to their withdrawal; they were all self-employed males in excess of 54 years of age.

4.6 Course related reasons for withdrawal

Six students identified that that did not think that this was the right course for them. This was a contributory factor behind students' withdrawal as 4 candidates identified it as one of the two reasons which caused their final withdrawal. These students were from a diversity of backgrounds and quoted a variety of reasons including a lack of enjoyment of the subject matter and the method of learning not suiting their learning style. Comments included 'lacking interest in subject matter', 'not meeting my needs', 'lacked applicability to my current job' and 'preferred the chalk and talk and intimacy of an actual lecture'. Three students identified a lack of understanding and confusion as a factor contributing towards their withdrawal. This was one of a number of factors, which caused the students to withdraw from the programme. Student comments included that they did not understand what they needed to do and felt confused about using the technology. Five students criticised the amount of coursework, which involved weekly tasks and assignment work. Two students withdrew stating that they could not cope with the number of assignments. Three students complained that they were unable to complete the weekly tasks due to lack to time and withdrew or stopped participating early on in the course. Four students identified it as one out of the two reasons for their withdrawal. This can be seen as a contributory factor rather than a prime reason for student withdrawal. Four students identified technical problems as a cause of their withdrawal. Technical issues severely affected the launch of the course. One student identified it as the sole cause, whilst another identified it as one of two reasons for withdrawal

4.7 Student experiences of e-Learning

Ten students indicated that they would consider an online course in the future, comments included 'I would provided it was the right price', 'if it was relevant to my job' and

'provided it works'. Eight responded that they would not consider such a course again statements included "they preferred traditional learning", "not at my time of life" and "I don't want any more education". Two students where uncertain whether they would undertake an online course in the future claiming "it depended on their personal circumstances".

Respondents were asked to summarise their experience of E-Learning. The most frequently occurring description for the course was "demanding and challenging" (45%) followed by "attractive offer" (35%). These are positive comments bearing in mind that these are students that failed to complete the award. There were a number of less positive comments such as "over my head/confusion" 25%, "over assessed/too much work" 15% and "difficult and complicated" 10%. A number of individual comments were made such as the onus was on the learner, a great opportunity and innovative.

Twenty respondents were questioned whether the college could have altered their decision to withdraw. Fourteen respondents (70%) identified nothing could have been done whilst 6 stated (30%) positive action could have been undertaken. Of the 14 who identified that nothing could have been done, 8 claimed that their business or personal circumstances meant that they had to withdraw. Of the six students that responded positively, 4 suggested that there was a need to sort out the technical issues and increase the level of support whilst one suggested increase flexibility in the course structure and one recommended an improved induction programme.

5. Discussion and conclusions

This study provides a first attempt at classifying reasons for withdrawal on this undergraduate programme and correlating these causes with the extant literature and suggesting strategies to manage and overcome them. The study found that successful students were typically non HE qualified, self employed and aged between 31 and 50. Female students were more successful than their male counterparts with older males particularly likely to withdraw. The lack of success of students with prior HE qualifications could be attributed mainly to motivation. Students with existing undergraduate and postgraduate awards were discouraged from pursing the qualifications due to its extensive demands in terms of commitment and time.

This study identified the existence of 8 prime causes of withdrawal, which where categorised as extrinsic or intrinsic. Intrinsic factors are internal course related barriers, which the University can influence including technical issues, assessment (quantity and nature of) and readiness for the course. Intrinsic barriers can be controlled and reduced by improving the reliability and usability of the VLE, improving the design of the course in terms of structure, flexibility and assessment and fully preparing the students for the program. Extrinsic factors are barriers to e-Learning which are external to the University. These factors include the students academic profile, their family situation, employment and nature of job, and available study time. These variables are far more difficult to influence and control, a critical consideration being their identification and management strategy.

These results correlate with the findings of McVay-Lynch (2002) and Diaz (2002). McVay-Lynch recognised the existence of technological barriers and the need for a positive student experience. Diaz (2002) provides a classification of these factors as student factors, situational factors and educational system factors. Our findings support these classifications and contribute to knowledge in recognising the existence of Intrinsic and extrinsic barriers to e-Learning and suggesting appropriate strategies to rescind their influence.

Key strategies to consider overcoming these barriers include: -

- Recruitment policy on e-Learning courses – consideration of IT skills competency and available study time.
- Effective support & communication mechanisms – both academic and technical teams
- Flexible course structure – level and nature of assessment
- VLE, robustness, reliability and stability.

Survey limitations include survey size and lack of consideration of course related issues such as no fee admissions policy and developmental issues related to creating a new program. This study will be extended to consider tutor perceptions of students' withdrawals and survey size will be extended and contrasted on a longitunal basis.

References

Association of University Teachers (AUT) (2001). Student retention – problems &

solutions, [online], http://www.aut.org.uk/media/html/studentretention1.html

Aldridge, S. & Rowley, J. (2001) "Conducting a withdrawal survey", *Quality in Higher Education,* Vol. 7(1), pp 55-63.

Alexander, S. (2001) "E-Learning developments and experiences", *Education & Training*, Vol. 43 (4/5), pp 240-248.

Arif, A. (2001) "Learning from the Web: Are Students Ready or Not?", *Educational Technology & Society*, Vol. 4(4), pp 32-38.

Bennett, R. (2003) "Determinants of undergraduate student drop out rates in a university business studies department", *Journal of Further & Higher Education*, Vol. 27(2), pp 123-141.

Bonk, C. J. (2001). "Online teaching in an online World", Bloomington, IN: CourseShare.com *[online]* http://mypage.iu.edu/~cjbonk/article.html

Daniel, J.S. (1997) "Why universities need technology strategies", *Change*, Vol. 29, No.4.

Diaz, D.P. (2002) "Online drop rates revisited", The Technology Source [online], http://ts.mivu.org/?show=article&id=981

Frontend.com (2001), "Why people can't use e-Learning. What the e-Learning sector needs to learn about usability". Frontend - usability engineering and interface design.

Fry, K. (2000) "E-Learning markets and providers: some issues and prospects", *Education & Training*, Vol. 43, No.4/5

Green, K.C. & Gilbert, S.W. (1995) "Great expectations, content, communication, productivity and the role of information technology in Higher Education', Change

Griffith, D. (2002) "An evaluation of online learning at British Airways. Assessing the perception of its effectiveness as a staff development tool", Business School. Pontypridd, Working Paper, University of Glamorgan.

Hall, J. C. (2001), "Retention and wastage in FE and HE", The Scottish Council for Research in Education. [online], http://www.scre.ac.uk/scot-research/wastage/wastage.pdf

Hara, N. & Kling, R. (1999) "Students' frustrations with a web-based distance education course: A Taboo Topic in the Discourse." CSI Working Paper (WP 99-01-C1).

HEFCE (2001). House of Commons Sub-Committee Inquiry into Higher Education http://www.jiscmail.ac.uk/cgi-bin/wa.exe?A2=ind0201&L=admin-hefce&F=&S=&P=673

Honey, P. (2001), "E-Learning: a performance appraisal and some suggestions for improvement." *The Learning Organisation*, Vol. 8(5), pp 200-202.

Hunt, C. (1998) "Distance learning: short-term gain, long-term commitment – a case study", *International Journal of Educational Management*, Vol. 12(6), pp 270-276.

Johnstone, D. B. (1992) "Learning productivity: a new imperative for American Higher Education." *Studies in Public Higher Education, Vol*. 3.

Laurillard, D. (1993) *Rethinking university teaching – A framework for the effective use of educational technology*, Routledge, New York

Mason, R. (2001) "Time is the new distance?", Lecture, I., The Open University, Milton Keynes.

Mason, R. & Weller, M. (2002) "Factors affecting students' satisfaction on a web course", *Australian Journal of Educational Technology*, Vol. 16(2), pp173-200.

McVay-Lynch, M. (2002) *The Online Educator – A Guide to creating the Virtual Classroom*, Routledge, London.

Pollard, E. & Hillage J. (2001) "Exploring e-Learning", the Institute for Employment Studies (IES), Report 376.

Powers, S. M. & Mitchell, J. (1997), "Student perceptions and performance in a virtual classroom environment", Chicago, IL, American Educational Research Association.

Select Committee on Education & Employment (2001), "Education and Employment - Sixth Report", [online] http://www.publications.parliament.uk/pa/cm/cmeduemp.htm.

Sloman, M. (2001) "The e-Learning revolution: from proposition to action", *Chartered Institute of Personnel & Development*, London.

Whitlock, Q. (2000) '*Tutor support in on-line learning: a report on a literature search*', Guides for managers, Practitioners and Researchers, DfEE, Sheffield.

