

# WHAT EFFECT DOES E-LEARNING HAVE ON THE STUDENT LEARNING EXPERIENCE?

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## **Abstract**

The landscape for Higher Education, within the UK, is changing and educational institutions are evolving in order to respond to new challenges. Budgets have been reduced which has resulted in colleges and universities having to re-look at the way their programmes are being delivered.

E-learning has become a means of empowering and engaging learners, and enabling the teacher to become an active innovator of new practices and techniques (JISC, 2011). The rationale for this project was to establish whether recently implemented e-learning technology into a traditional course had an effect on the learner experience in terms of motivation, retention and achievement.

This empirical research was conducted within a University Centre in a large Further Education College in the North of England and involved twenty new learners enrolled on the new Assessor Award. A variety of research methods were used such as questionnaires (pre and post), focus groups, semi-structured interviews, retention and achievement figures. This small-scale research project aimed to gain insight into learners' perceptions of learning on-line, and to provide evidence of whether technology affected their learning experience, by evaluating their learning journey.

It was found that e-learning had a mainly positive effect on student learning and both retention and achievement targets were exceeded. It was also found that in order for effective on-line courses to be developed, teachers must be given time and training to meet both the needs of their college and learners.

## **Introduction**

There have been many studies completed over the last ten years relating to the practitioner perspective of e-learning and actual course design, however the learner perspective on e-learning has been somewhat over-looked (Sharpe, Benfield et al.,

2005). A project conducted by (Mayes, 2006) was one of the first to establish the 'learner voice' and to evaluate learners' actual experiences of e-learning. This study also aimed to capture the learner voice, by exploring and evaluating learners' perspectives of the effectiveness of completing a course on-line.

The occupational standards for the Assessor Award had been recently up-dated so it was decided that this was an ideal opportunity to include technology within a unit of this programme. The reason for this was to enhance teaching, learning, assessment and also to augment student engagement and feedback mechanisms. Furthermore, retention and achievement rates had started to decline, year on year, resulting in the course not meeting its targets. Commercial targets needed to be met and by offering the course on-line would hopefully attract a new market, due to a more convenient mode of study.

There were twenty staff members from various Curriculum Centres, within the college, wishing to embark on this award. It was these learners who were invited to be a part of this research project.

This was the first time this particular course had been offered with e-learning applications, as it has always been run via traditional methods, including classroom based teaching and 1-1 tutorials. The aim, by offering a unit on Moodle, was to provide a more personalised, accessible and flexible learning; and to improve the learning experience (James et al, 2010).

Moodle is a software environment for managing the online interactions which take place between learners and tutors (JISC, 2002). The course was structured around various types of learning activities including: online workbook; exercises and questions; tutorial support; discussion forums and links to useful websites. The course was designed in such a way that content could be delivered online, and students would be able to engage with the material at their own pace; at a time convenient to them and in their choice of location. The course is designed to take between four and six weeks to complete.

The research questions explored in this project were as follows:

1. **Primary question:** Does an e-learning approach impact upon learner participation and provide motivation to succeed?

2. **Sub question:** Is there evidence to suggest that e-learning has improved the retention and achievement figures?

Two methodological approaches were used, namely exploratory and evaluative research. Exploratory research in social science is sometimes described as a pervasive personal orientation of the explorer (Stebbins, 2001). The intention was to explore students' perceptions of e-learning, prior to their commencement of the course. The rationale for this was to gather explanations and gain insight.

Evaluative research attempts to assess or measure the value of something (Denby et al, 2008), which was the aim of the project. Formative or summative research can be conducted and the latter was used as it was concerned with the whole process and is normally conducted at the end of a programme. As Silver (2004, p.9) describes: 'Summative evaluation has often been associated with the identification of the pre-set objectives and judgements as to their achievement.'

Participants' views were established after completion of the course in order to evaluate their overall e-learning journey. Attention was given to key indicators, such as general IT skills, opinions of e-learning including concerns and potential barriers, views on both the e-learning experience and environment and finally the impact that it has had on the learning experience as a whole. This allowed a judgement to be made on how they had perceived this new approach to learning.

The aim of this project was to explore and to evaluate whether e-learning influenced and shaped the learning experience and to establish participants' perceptions of useful components and potential barriers in learning on-line. This short paper includes a brief literature review, followed by the methodological approaches used and finally the results and conclusions are presented.

## **Literature Review**

The literature review included reference to a range of policies, national and international articles and journals, books and various methodological approaches.

The review also focused on literature relating to the learner's experience; especially the advantages and disadvantages of learning on-line.

During the past couple of years there has been a rapid increase in the use of technology and social networking within educational institutions, therefore it has been suggested that further empirical enquiry may explore the reasons as to how technology could be used to enhance the learner experience (Creanor et al, 2008).

### **Barriers and distractions of e-learning**

A study by Winter et al (2010) looked at technology enabled learning environments and the effectiveness of e-learning. The participants within this study became side-tracked whilst using e-learning applications, which ultimately affected their learning journey. This was something the researcher had not considered before reading this article and consequently became part of the data collection.

### **Digital natives versus digital immigrants**

Today's youth are more creative, interactive and media orientated (Greenhow et al, 2009) and are now widely referred to as 'digital natives' as opposed to 'digital immigrants'. Digital immigrants are people whom have not been born into a digital world but have adopted new technology and will always be compared to digital natives (Prensky, 2001 cited in Helpser, 2008, p.56). A study, however, by Creanor et al (2008) suggests that more mature learners can adapt to e-learning and technology very quickly. Adding age ranges onto the questionnaires would hopefully establish whether a digital generation existed within this study.

### **Learner-centred approach**

The course was structured to try and create a supportive environment by including a 'discussion forum', where learners could post messages, engage with different opinions (Lave & Wenger, 1991) and consequently collaborate with peers in addition to receiving regular on-line tutor support. Social learning theory suggests that learners who have a shared background may engage in Communities of Practice (COP) and these can provide support networks (Gibbs, 2002). The results of the study would hopefully establish whether this occurred.

### **E-learning models**

As this was the first time that e-learning has been used to deliver the assessor award, the on-line model and materials had to be 'fit for purpose'. The design of learning materials within a VLE is fundamental to their usability, hence the theory which underpins this was analysed. Educational theories such as the E-moderating Model (Salmon, 2002), whose model is a five-stage process which engages the student with online communication technology; and the Conversational Framework (Laurillard, 2002) were investigated.

These models have been topics of discussion for a few years and are 'user-guides' for working effectively in the virtual world. Staff training is deemed to be an important element and essential to successful e-learning (Mac Keogh and Fox, 2008); hence the course team and researcher had to embark on a variety of courses in order to gain the necessary skills needed to enable an on-line model to be implemented.

Reading and engaging with a variety of literature helped to inform and support this research project.

## **Methodology**

There are many different perspectives and structures within the world of research. The following term helps to understand the debates and diversity related to the production of knowledge. Methodologies provide researchers with more than research strategies, and according to O'Leary (2010, p.89) '...with legitimization for knowledge production.'

This research fell into the interpretive research paradigm, as it is concerned with the understanding of the participants' views and their experiences. Reality is constructed by subjective perception and predictions cannot be made in this paradigm. For example, truth and knowledge do not stay the same, because if something is socially constructed then it can be changed.

Interpretivist research is often criticised for its lack of rigour therefore a systematic and rigorous approach was essential (Denscombe, 2002). A variety of data was required in order to produce in depth research, and both quantitative and qualitative data collection methods were used.

## **Questionnaires**

The pre-course questionnaires were distributed to the participants in January 2012 by another tutor on the programme. This was in order to address any ethical issues which could arise, hopefully decreasing the perception of those learners who did not wish to participate in the study that they would not be discriminated against.

Pre and post course questionnaires were designed in order to do a comparative study and to obtain both quantitative and qualitative responses. The rationale for the use of pre-course questionnaires was to gather participant views and perceptions of e-learning prior to the start of the course and for participants to evaluate their journey by completing the post-course questionnaire at the end of the course.

A semi-structured approach was used where the content and the form of responses was determined by using a mixture of questions. Sharp (2009) suggests that this is ideal for individual research projects and can provide rich data.

The return rate of 75% for the pre-course and 60% for the post-course questionnaires was surprising; however this was probably due to the fact that the questionnaires had been piloted. They also contained questions which were short and easy to understand (Arthur et al, 2012).

## **Focus groups**

Two focus groups were used within this research project and these took place in April 2012. Participants were invited to the focus groups via e-mail and were sent aims and objectives beforehand in order to speed up the process.

The agenda was shared at the beginning allowing for brief introductions and this provided another opportunity to explain the rationale for the study. The same 6 questions were asked to each group in order to adopt a reliable and consistent approach; the discussion lasted approximately 45 minutes. The aim was to not only gather valuable data but to capture the 'learner voice'. This was done by asking the

participants to give specific examples. The questions were designed to elicit information based on participants' experiences of their e-learning journey.

The researcher made notes throughout the discussion, however Barbour (2011) suggested that a group could use flip chart paper in order to summarise shared ideas or perceptions, which can be recorded as a useful and valid quote. A participant therefore recorded key areas of the discussion which reflected the thoughts and ideas of the group.

The interaction was both horizontal between participants and vertical between researcher and participants (Denzin and Lincoln, 2000). The data was enriched as a result of views being reformulated through exchange.

### **Semi-structured interviews**

Two semi-structured interviews were completed with participants who volunteered to be part of this process; these were conducted in June 2012 after completion of the course. Interviews were used in order to obtain more in-depth information regarding participants' experiences of e-learning, and to validate the results from the questionnaires and focus groups. One was with a participant who had experienced a positive experience with e-learning and the other was with a participant who was wary of e-learning at the beginning of the course. The interview questions were devised based on themes which had emerged from the responses from the focus groups and questionnaires and therefore provided additional validity and reliability to the data.

Hughes (2001, p.36) suggests that 'for the interpretivist, knowledge is valid if it is the authentic and true voice of the participants'. Finally, the 'learner's voice' was captured as much as possible by exploring interesting avenues.

### **MIS figures**

A sub question of this project was in relation to whether e-learning had an impact on retention and success rates. These figures were captured by the Management Information Systems (MIS) and provided current data throughout this project. This data was both measurable and quantifiable and easy to present.

### **Ethical considerations**

Ethics was considered throughout the project and a rigorous and thorough approach was adopted.

### **Data analysis and discussion of findings**

Denscombe (2003, p.301) suggests that ‘..the notion of validity hinges around whether or not the data reflects the truth, reflects reality and covers crucial matters.’ Using a multi-method approach helped to achieve reliability and validity.

The aim of the data analysis was to establish themes. Therefore, after spending time coding the raw data from the pre-course questionnaires, the following themes were identified:

- **Support**
- **Collaboration**
- **Convenience and flexibility**

(Charmaz, 2006, p.45 as cited in Boeije, 2011) suggests that: ‘Qualitative codes take segments of data apart, name them in concise terms, and propose an analytic handle to develop abstract ideas for interpreting each segment of data.’

After analysing the data, elements of e-learning which had been most valuable to participants included responses such as, ‘everything being available at any time’; ‘regular contact with tutor’; ‘not having to wait for a weekly taught classes’ and ‘being able to access all materials and course documentation which were easy to follow and understand’. Song et al (2003) suggested that it is important that there are systems and mechanisms in place when offering a course online. These findings highlighted the fact that flexibility, convenience and regular support were plus points of the course.

### **MIS figures**

There was evidence of improvement in retention and achievement, as reflected in the chart below, in comparison to the previous year which suggests that e-learning could have contributed.

	<b>2010/2011 Target</b>	<b>2010/2011 Actual</b>	<b>2011/2012 Target</b>	<b>2011/2012 Actual</b>
<b>Retention figures</b>	80%	75%	80%	100%
<b>Achievement figures</b>	85%	95%	85%	100%

A summary of the overall findings are discussed under each theme which had emerged from the data; these themes were anticipated based on the literature review.

### **Support**

Overall, the participants had not found any problems or difficulties using the e-learning applications on Moodle. This was as a result of receiving operating instructions from their tutor at the beginning of the course, which made it straight forward and use-friendly.

The findings also revealed that the course materials were easy to understand and follow, and allowed them to construct their knowledge (Salmon, 2000) throughout the duration of the course.

1-1 communication with the tutor on-line encouraged learning and completion; and ultimately enhanced student engagement (Raj, 2011). Furthermore, regular feedback from the tutor on days/times promised at the beginning of the course, encouraged and motivated participants to succeed.

### **Collaboration**

The majority of participants in this study embraced collaborative learning via the discussion forums and recognised the learning potential; however some participants were wary of engaging on line within a learning community. These were within the

55+ age group category however most were much more comfortable with it towards the end of the course; moreover the more mature learners can adapt to e-learning very quickly (Creanor et al, 2008).

### **Convenience and flexibility**

E-learning was stated as being both convenient and flexible throughout the study. Raj (2011) suggested that on-line learning offers flexibility to students, which ultimately enhances their learning. Participants enjoyed the fact that they could organise their course work around their family-life and work. Other studies by (Conole et al, 2010; Creanor, 2008; Petrides, 2002) established similar findings; moreover highlighting the fact that e-learning provided students with increased flexibility and freedom to work at any time which suited them.

### **Boundaries for learning**

Haythornthwaite et al (2011) found that students do struggle managing and maintaining boundaries around their learning. Conole et al, (2010, p.13) revealed in their study that 'learning is intermingled with the use of tools for social and leisure activities.' The findings revealed weaknesses of completing courses on-line where participants were sometimes distracted from their academic work, due to being tempted by other on-line applications such as the internet, Facebook or Skype. The findings in this study revealed boundaries had to be carefully managed when learning on-line and participants managed to do this successfully.

### **Conclusion**

On-line learning effectiveness has been a subject of great interest to researchers for several years (Mayes, 2006; Halawi et al, 2009; Winter et al, 2010). This study revealed some significant findings and answered the research primary question: ***'Does an e-learning approach impact upon learner participation and provide motivation to succeed?'*** As discussed, e-learning has had mainly a positive effect on the learner journey; most found the experience convenient, flexible and motivational.

The study also answered the sub question: ***'Is there evidence to suggest that e-learning has improved the retention and achievement figures?'*** There was

evidence of dramatic improvements in retention and all participants successfully completed the course.

VLEs are not new or particularly innovative, however they have helped to improve the flexibility and accessibility of the course and made it more personalised for the learner. This ultimately improved the learning experience (James et al, 2010).

The findings of this study have also shown that support from tutors enhanced Moodle and provided an essential mechanism. It was also found, however, that tutors needed time and training to embrace this change in practice. According to (O'Neill, Singh & O'Donoghue, 2004) teachers need to be given the time and support so that they can develop new styles of teaching, in order to embrace and shape the digital world of the 21<sup>st</sup> Century. Furthermore, a proactive role taken by tutors in student learning has a positive impact on achievement (Nicol & Macfarlane-Dick, 2006). This was proven in the findings of this study.

The outcomes of this study have been briefly shared with the External Verifier (EV) from the Awarding Body City, and feedback received was positive. He is influential in the fact that he could recommend this new model, which could provide an opportunity for further discussions of the outcomes of this study. This could potentially lead to changes in practice at Awarding Body level.

Since the introduction of e-learning, commercial business has increased possibly due to the course being more competitively priced. As a result of a much improved, convenient, flexible and accessible mode of study there is a 100% increase, year on year, of distant learners enrolled onto the course and feedback received so far has been very encouraging.

After listening to the learner voice, throughout the study, 'Skype' will be trialled in the near future on other units within the award; this could be useful to review learner progress, complete assessments and standardise assessment decisions.

Findings from this project reinforce what other studies have demonstrated, in that technology has led to improvements in learning, learner satisfaction, retention and achievement (Conole et al, 2010; JISC, 2008; HEFCE, 2009; Raj, 2011 and Song, 2003).

Finally, capturing the learner voice throughout this study has allowed the exploration and the evaluation of learners' perspectives of the effectiveness of completing a course on-line.

### **Recommended areas for further research**

Based on the findings of this study, further research is recommended in the following areas:

- Gender – do females or males engage more with on-line learning?
- What impact do distractions have on the achievement of learning outcomes whilst learning on-line?
- Is staff training meeting the needs of the digital age in the 21<sup>st</sup> Century?
- Does a digital generation still exist?
- Is the use of 'Skype' an alternative method of assessment?

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