

## ***Using e-learning resources to 'level the playing field' between traditional and non-traditional learners***

### **Introduction**

Southampton Solent University is one of the newest Universities in the HE sector in the UK. As such our emphasis tends more towards learning and teaching, and widening participation is a core element in the University's strategic vision.

Students within the Built Environment programme come from a very wide range of educational backgrounds. Each year a proportion of students would be classified as traditional university students, entering straight from school with reasonably good A levels. However, because the entry criteria for our degrees are significantly lower than most other similar courses in the UK, we will normally have a significant proportion of students from non-traditional backgrounds who have not developed the same habits of effective academic engagement.

In addition, we run a suite of two-year, part-time Higher National Certificate (HNC) courses for which the entry criteria are even lower. These courses are designed, where possible, to lead seamlessly into the third year of our five-year, part-time degree pathways so students can either finish with an HNC, or remain with us and top this up to honours degree level.

Our part time students come from a diverse range of mainly construction related backgrounds. Some are early career future professionals taken on in junior management related roles in construction companies; they are funded by their employers who will be training them up in their roles as they do their qualifications with us. These students are generally relatively inexperienced and frequently from non-traditional backgrounds in HE. A proportion of the part-time construction management and architectural technology students will be actively employed in practice, seeking to up-skill with a view to professional progression. Many of this group will be mature students, some of whom are entering higher education for the first time, others will already have related qualifications and be seeking a change of career. Each year within particularly the construction management HNC there will be a few students with a long experience of construction at a very practical level (as bricklayers, joiners etc) who have decided that the time has come to leave active site work and move into a management role in construction industry. This group generally have a very sound perspective of the process of construction, with minimal experience academically, having, in many cases, left school at 16 and gone straight into labouring or similar.

### **Literature Review**

The UK National Audit Office (NAO) study of 2007 into retention in higher education in the UK gives the continuation rate of first year students at Southampton Solent University as 89.7% in 2004/5, an improvement of 0.9% compared to 2001/2. This is slightly better than the average for post 1992 HEIs, but significantly worse than the pre 1992 Universities. Typically students studying in the architecture, building and planning area are slightly less

likely than the average to not continue into their second year, with continuation rates slightly less than 89% for this area of study compared to 91.6% for all subjects.

The same study considered the factors relating to the student that appear to increase rates of non progression, the most significant ones in relation to our cohorts being:

- Low A level grades (two grade Ds) compared to high grades (three grade As) (especially full time students)
- Men are more likely not to continue than women
- 20 year olds compared to 18 year olds (ages 21 and above appear not to be statistically significant)
- Students from areas with low history of participation in HE compared to high participation
- Working class (socio-economic classifications 4 to 7), compared to middle class (classification 1 to 3)

The reasons that students cite for not progressing into the second year of study has been the subject of many research projects and summarise as:

- Personal reasons;
  - Mental or physical illness
  - Homesickness
  - Home/study balance (carers)
- Lack of integration;
  - Lack of a 'bond' to the HEI
  - Students simply 'drift away' without an obvious cause
  - Cultural isolation causing problems 'fitting in' – may be social or cultural
- Dissatisfaction with course/institution;
  - Boredom or dissatisfaction with standard of tuition
  - Realisation the course is not going to deliver the qualification wanted (an obvious example is the difference between Architecture and Architectural Technology)
- Lack of preparedness;
  - Mistaken expectations of the course content
  - Poor study habits/lack of self-direction
  - Lack of commitment to succeed
  - Level of the course may be too difficult
  - Lack of/delay in provision of support and equipment for disabled students.
- Wrong choice of course;
  - Based on poor research/late decision making
  - Students channelled into inappropriate subjects (especially working class men)
  - Stereotypical choices due to lack of information (especially students from disadvantaged areas)
  - Lack of confidence to change course or institution
- Financial reasons;

- High debt incurred
- Necessity of working to fund living/study expenses
- Delay in funding coming through
- Fear of debt
- Limitations of funding – this is particularly an issue for part time students whose employers are paying tuition fees; each year a few leave because they have been made redundant and are no longer supported
- Unrealistic expectations of how far students can expect their money to stretch leading to debt and early leaving (especially young men)
  - Availability of a more attractive opportunity elsewhere.

It is clear that a key element in student success is their belief that they are capable of succeeding. It is worth investing time and effort in an activity, like a HE course, if the outcome is likely to be of value and the process is a positive one. While several of the reasons above are outside the direct influence of the course team, a positive approach and a sound set of induction processes can help the student to settle into the HE environment and understand the ‘rules of the game’, giving the motivation to overcome other issues, if possible.

### Design for learning

Like any other learning activity, to be effective, e-resources embedded into any learning programme should be one element in the entirety of the programme. Constructive alignment of intended outcomes, the learning environment and assessment practice is widely recognised as key to effective learning and teaching (Biggs 2003). If learning is to be considered effective the learner needs to change what they do – in relation to how they might approach a situation or a series of problems, for example. To achieve this there needs to be a cycle of engaging with what they know and what they are prepared to develop, between specific details and wider contexts, between practical experience and reflection (Harvey and Knight, 1996). Salmon (2004) continually re-emphasises the key point that learning is not about the content that is ‘delivered’ to the learner by means of teaching, it is what the learner actually does with the information in constructing their own knowledge-base that makes the learning happen.

Furthermore learning activities should reinforce approaches that encourage a deep engagement with the subject rather than surface approaches (Ramsden, 1992, in Prosser and Trigwell, 1999). The discussion of deep versus surface approaches features widely in the literature, with deep learning approaches associated with high level learning outcomes, such as inferring meaning, and surface approaches giving rise to lower level outcomes like memorising or basic increase of knowledge (Biggs 2003, Prosser and Trigwell 1999).

Prosser and Trigwell raise an aspect of the deep versus surface approach that is seldom addressed in textbooks relating to learning in higher education, however with our diverse range of student backgrounds at Southampton Solent University it is highly possible that it is

an issue that affects particularly students from non-traditional backgrounds. Entwistle et al (1991) discusses this as follows:

The successful students show the expected pattern of relationships even more clearly than in the analysis of the whole sample (Entwistle and Tait, 1990). The first factor links meaning orientation with those features of an academic environment expected to facilitate a deep approach to learning, while the second factor links the reproducing orientation with surface features... Among the failing students, however, the expected pattern does not materialise. The first two factors represent bizarre and uninterpretable combinations of loadings. The first factor is particularly strange in that it is defined in terms of high positive loadings on all four of the orientations, in spite of the fact that two are essentially the converse of the others. The second factor makes more sense in relation to the orientations, showing reproducing associated negatively with meaning, but that is then linked to both deep and surface facets of lectures and examinations.

(Entwistle et al , 1991)

Beetham et al (2007) develop this idea further in relation to the use of digital resources specifically, relating this to specific approaches to learning as aligned with different types of subject area.

#### **Using online quizzes as a learning tool at first-year degree/HNC level (level 4)**

The Unit and the Students:

The construction technology element forms half of a first-year, 20 credit point unit. The unit has been running for five years in its present form, though this year, for the first time, the construction half is running across the whole year and not condensed into the first thirteen weeks. The subject is a core one for Architectural Technology (degree and HNC), Construction Management (degree and HNC), Building Surveying (HNC) and Quantity Surveying (HNC); the ability to apply the principles of construction technology will be essential at a professional level for students progressing into a career in any of these areas.

As discussed in the introduction above, students come into this unit from wide range of backgrounds. Some will bring in relatively good academic habits and have a minimal prior knowledge of the subject area; at the opposite end of the scale others may have many years experience of construction work and minimal academic skills. This latter group tend to have a thorough knowledge of *how* buildings are constructed, but their appreciation of *why* things are done in a particular way, and why it might be necessary to understand this, may be much less highly developed. There is also the group in the middle of this who have not yet developed good habits academically, whose knowledge of construction is also minimal and whose motivation to study is not all that might be desired. One of the functions of the unit is to bring all the students up to a reasonable level to form a sound foundation for their second year.

There are two learning outcomes within the syllabus:

- Identify the key elements of dwellings and low-rise industrial buildings.
- Apply various construction technologies to different building designs.

Implicit between these is a third outcome which is not directly stated:

- Understand the relationships between the key elements of the relevant building types.

The unit is taught as six groups of four lectures and two tutorials each covering a specific area of construction:

- General structural principles
- Ground conditions and foundations
- Walls
- Floors
- Roofs
- Smaller building elements (stairs, windows, doors etc)

For the first three years in the delivery of the unit, the final tutorial session was a revision quiz covering the whole syllabus. The quiz was delivered via a PowerPoint presentation, marked in class and the marks noted, but not used in assessment (summative or formative). Staff delivering the unit recognised that this could form a useful assessment tool and, during the third year of delivery, changes were made to the Unit Descriptor to enable a quiz to be used as 40% of the assessment for this half of the unit, commencing the following year (2009/10).

#### Development and Nature of Electronic Quizzes

Quiz development commenced during the summer prior to the start of teaching in October 2009. It is geared to assessing the simpler learning outcome (identification of elements) and the implicit outcome of understanding their relationships. During the course of this development it became evident that the variety of formats of question available within our Moodle based VLE, myCourse, could offer, not just a simple and (after the initial setting up) quick means of assessment, but quite a sophisticated tool that could be utilised to reinforce the learning process as the unit developed.

Students are widely aware that a 'traditional' multiple choice test in a paper-based format may be relatively easy to tackle in a strategic manner, utilising probability to achieve a reasonable mark with only a moderate knowledge of the subject matter. The electronic quiz is considerably more sophisticated than this. A simple example is that the computer can shuffle the answers, so each time the quiz is taken answer 'b' will be a different one of the options.

As well as multiple-choice, single-answer questions it is possible to include multiple-choice questions where students have to choose 'at least one' answer, so each correct element will give them *part* of the full marks for the question. These questions can be set up so that incorrect answers cancel out correct ones, so the student has to select all the correct options and none of the incorrect ones to get the full marks for the question.

The quizzes also contain matching questions, where the student has to match a name to a description or to a labelled element in an image. The final question type is a question where the student has to enter the name of an element, or, for example a typical dimension (e.g. Q: maximum distance between movement joints in brickwork; A: 15m).

With this range of question types it would be very difficult to achieve even a 40% pass mark without a sound understanding of the construction .

Using the Quiz to Bridge the Gap:

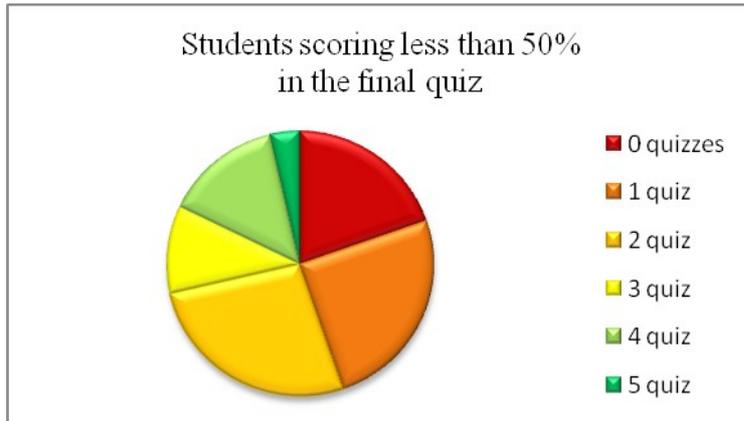
The quiz has been used, not just for final summative assessment but as a learning activity to help students engage with the subject material in a structured way as the unit delivery progressed. At the completion of each two week topic, a short quiz relating to that topic was made available to the students. The quiz can be attempted at any time of day or night to suit the student's convenience and the mark and formative feedback is provided as soon as the attempt has been submitted. The student can see immediately which questions they have got right and wrong, but they are not told the correct answers; the feedback gives advice regarding areas that the students need to put more time into.

The formative quizzes have relatively few questions (10 to 20), especially the early ones, and quite a long duration. Typically in the early stages they will have to be completed within 40 to 60 minutes; a student who knows the subject material will be able to achieve a good mark in five to ten minutes. In the formative stage the quizzes are open book – the students may consult any resources they wish to in completing the quiz. It is considered that the activity of researching the answers will be a beneficial reading around of the subject, whether this is done as the quiz progresses, or as a later revision process.

However, having observed how young people approach online quizzes on the internet, it was decided to have a gap of several hours (initially 6, but now typically 3 hours) between quiz attempts during which time students can go back over lecture notes and read up on the subject area.

Student Outcomes from Participating in Formative Quizzes:

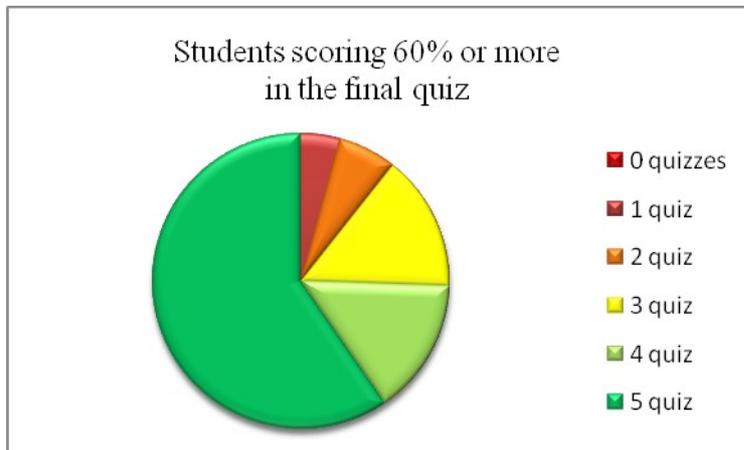
Of students who scored less than



50% in the final quiz, 72% had participated in 2 or fewer quizzes as the unit progressed. The same figure for students who failed is 77%.

Only 18% of this group tried to do 4 or all 5 of the quizzes (12% of the fail group).

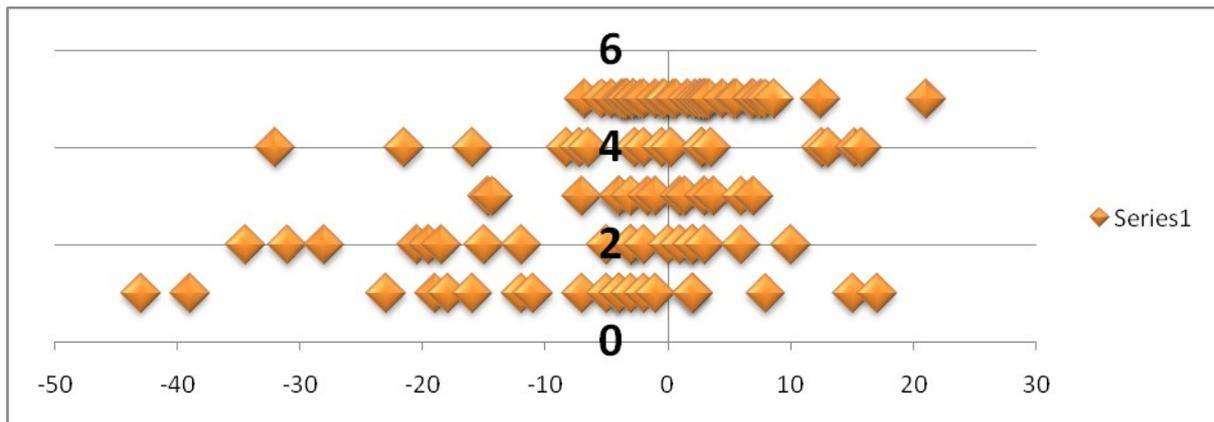
The outcomes for the group



scoring between 50% to 59% is, as might be expected, mixed.

On the other hand, 60% of students who scored more than 60% in the final quiz had done all five of the formative quizzes; this rises to 72% in the group scoring 70% and above.

A comparative exercise was also carried out to look at how students' final marks varied relative to their average formative mark. The vertical scale shows the number of quizzes they participated in; the horizontal scale the difference between final and average formative. It is evident, though unsurprising, that participating in more of the formative quizzes gives a more accurate prediction of the student's probable final score. It is more interesting to note that higher participation rates appear to indicate a significantly greater likelihood that any given students' final score will be higher than their formative average.



The results above may simply be indicative that students from more traditional learning backgrounds tended to engage more effectively in the unit as a whole, were more likely to actively participate in the quizzes, and thus be more likely, generally, to achieve better marks. However it is possible to review the marks and see how they changed over time for students who did a quiz on a number of occasions.

### Using Wikis and Forums in Level 6 Group Work

Background and Rationale:

A level 6 unit Professional Studies unit, taught to final year full time architectural technology students, part time 4<sup>th</sup> year architectural technology students and final year interior design students is assessed primarily on a portfolio of evidence built up through active working in tutorials which follow directly from the lecture material covered immediately previously. For example if the lecture is on marketing, the students will be considering who their fictitious company is marketing to, the most effective ways of making contact with that audience, the unique selling point of the business etc.

For the first two years of running the unit in its current form students were able to self-select their groups. This resulted typically in groups of similar ability and all from the same group, so interior designers teamed up with interior designers, part-timers with part-timers, less-able students with other less-able students and so on. The portfolio was primarily paper based and, with written aspects plus related background evidence, was extremely heavy!

Generally the part time students, coming into university one day per week from industry, had the advantage of the direct experience of how offices and businesses function. But with seven taught hours (including the two hours of Professional Studies) their opportunities for group working compared to full time students were minimal. Generally, to have stayed the course this long, the full time students are very highly motivated and engaged, and those adopting a 'minimum to get through' approach are a small minority.

The full time students in both courses tend to fall into one of three types:

- Going all out for a first class, by hook or by crook; very highly engaged and motivated;

- Aiming to do the absolute minimum they can get away with to just about scrape a pass (if that), typically engagement and attendance in this group is far from desirable.
- Students falling between these two extremes, reasonably engaged, but happy not to 'go the extra mile'.

Because they form groups which are similar in ability, their engagement and (later) their marks typically follow the patterns set earlier in their university careers. There is often an envy of the wider background experience of the part time students, with no recognition of the challenges that the part time approach brings.

The main part of the assessment is submitted just before the Easter vacation; this is only a ten credit point unit and the full time students also have their major design projects and dissertations to complete, so it is considered appropriate to get the bulk of the work for this unit out of the way ahead of these. In order to maintain engagement up to the end of the taught timetable, the final part of the assessment is a short reflective piece by the student on the relevance of the unit to their future plans (whatever these may be), relating not just to the unit content but to the team situation and the delivery as well.

As a result of reflecting on the unit after its first couple of years, in particular:

- the tensions between full and part time;
- the continuing poor performance of under-performing students (some of whom nobody was prepared to work with at all);
- the problems of having groups of different numbers of students (anything from 2 to 5) doing the same areas of work;
- the availability of new and different teaching resources;

it was decided to trial a different approach. For the first time in 2009/10 groups were pre-selected by the course team. Each group had at least one person from each course group, and these were selected to give a range of ability in each group, based on the previous year's results. Groups were, as far as possible, in fours, with a minimum of three in a group. The portfolio has eight tasks, so in a group of four each person takes on two of these. With the threes the course team decided, in advance, which tasks were to be left out.

In allocating marks for the portfolio the 'default' position is that a group mark is given so all members are marked evenly. To discourage poor participation if any member of the group contacts the course team, anonymously, asking for individual marks then the contribution of each member will be marked separately, taking account of each individual's input into the team assignment as well as the team member's assessment of individual inputs.

### Levelling the Playing Field

Pre-selecting the groups went some way towards giving a greater level of equality between full and part time students in that now all groups were equally disadvantaged in relation to available interface time. However equality of *disadvantage* was definitely *not* the object of the exercise. It was hoped that by taking students outside their comfort zone the less engaged would feel less able to simply not bother to get out of bed to come to classes – more of this in

the Outcomes section below. It has been the availability of effective and (reasonably) easy to use, VLE-based, asynchronous communication and compilation tools that have made it possible to fairly mix the groups.

In 2007/8, for the first time, a group wiki and forum were tentatively offered to the (self selected) groups as a means of communication and pooling information. Both students and teaching team were unfamiliar with this as a means of developing group work and most teams made little use of them. Students were generally working with people familiar to them and did not feel the need for an extra means of communication beyond phone, text and email. Only a couple of groups made any significant use of the wiki; this showed the way towards the possibilities for structuring and pooling work.

The following year an element of compulsion was added, with the students required to input their work into the wiki and print it off at the end for the final submission. The advantage for the students in doing this is that it is possible to see what and when each student has contributed. However use was still patchy, with groups and students who habitually left everything to the last minute continuing to follow these patterns. During this year a further advantage of the wiki became apparent, as it is easy for the course team to see the students' work in progress and feed back to the group via the forum (even if only to say 'don't you think it's about time you started').

The availability of e-resources in the form of the wiki and forum, as asynchronous communications technology really came into its own when groups were selected by the course team. From this point all the students had only a couple of hours on a Tuesday when they could work together face to face. The first occurs in the tutorial which follows the lecture introducing the week's task so staff are on hand to answer queries and feedback on progress; the second hour is the students' only break in a full timetable.

The group forum gives each team an easily accessed method of communication available from anywhere they have internet access. Messages can only be seen by the group itself and course team, so if there is a query which it is appropriate for a member of staff to answer this can be given very easily, otherwise one tends to leave the team to develop their own ways of working.

The assignment work is compiled in the wiki, in which students can create and link pages in whatever format they feel is appropriate for their work. To begin with the course team set it up with a front page containing a link to a further page for each of the eight assignment tasks. Students can create additional pages and link to existing pages, websites etc by creating links and hyperlinks by inputting the correct page name or address. In this way the business plan can, for instance, link directly to the marketing strategy, avoiding a lot of repetition.

If a student makes an error in the wiki, perhaps accidentally overwriting someone else's work (this recently happened with an entire front page, losing all the links to the pages beyond), it is possible to access the full history of the page, seeing exactly who contributed what, when. From this view the group can revert back to a previous version, reinstating the lost work.

Outcomes deriving from availability of e-resources:

The provision of asynchronous tools has made it possible for mixed-course, mixed-ability set-groups to work effectively together. Full time students see the benefit of working with part timers who are, for the most part, in relevant employment. Part time students can gain some benefit from working with people who are able to commit more time to the work. The three students this year whose classmates simply refused to work with on an earlier group assignment have bedded in well to their imposed groups and seem also to be working much more effectively in a group context in their design unit this term.

Being able to effectively mix ability/motivation groups has had a very noticeable effect on maintaining attendance in class. Attendance rates in this unit are typically 95% or better; usually students not attending send apologies to their group (and sometimes even the course team) and generally failure to attend is for genuinely good reasons. Students seem to be much more reluctant to let down a group that is not formed of friends with similar habits to theirs. Engagement in tutorial activities is similarly high. All the students make the most of their limited time for networking to get as much done in the tutorial sessions and it is noticeable that the weaker students are much more likely to raise their standards when working with students whose achievement habits are significantly higher.

Not all students are entirely comfortable with the wiki format. Copying and pasting from Word is straightforward (but only for text, not images), however the wiki does, at times, seem to have a mind of its own when it comes to formatting outputs. Students become anxious about the output of their work not looking as smart and consistent as they would like and it has been necessary to reinforce repeatedly that the course team understand the limitations of the technology and students will not be disadvantaged if the visual appearance is not all that they might like.

A key element for a successful group is to keep on top of the work for the unit, uploading tasks as quickly as possible. A major advantage of the wiki format is the ability to monitor progress and access of each team member. If there does not appear to be a great deal of activity (if any) or if the wiki is being used more as a discussion forum than a place to compile and develop the assignment it is possible very quickly to feed this back to the group.

The worst problem this year has been with a student whose finances had, through no fault of her own, resulted in fees not being paid and hence she had been frozen out of the VLE. The group were very supportive, using email to communicate rather than the forum, until the problem had been resolved.

## **Conclusion**

Many students today are much more computer-savvy than previous generations. Frequently a main mode of communication is via SMS texting, much of their social activity takes place on the internet in social networking sites like Facebook and MS Messenger. Learning habits of students from a much wider range of backgrounds than the 'traditional' university student are different from that expected in a 'traditional' learning environment.

While issues of pedagogy, the constructive alignment of teaching, learning activities and assessment, has to remain at the core of all design for learning, the availability of electronic resources can give course designers a new range of approaches which may appeal to an increasingly diverse audience. The thoughtful inclusion of appropriate e-resources, aligned to the intended learning outcomes and the level of the students involved, when combined into a fully considered programme, can enrich the learning experience and, at the same time, facilitate delivery, and even assessment, for the teaching team.

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