

1

Changing the curriculum: making skills, knowledge and experience count

Foreword *Rebecca Duffy*

1.1 Curriculum change for access in the service
industries: Foundation degree to BA Honours *Angela Benson*

1.2 Bioscience, not rocket science: aiding widening
participation and retention through curriculum design
and delivery *Becky Taylor, Steve Waite and Lucy Chilvers*

1.3 An industry perspective on standard setting and module
delivery in equestrian courses at Plumpton College
Andrew Murphy

1.4 Molecular diagnostics: the development of
student-centred resources for biosciences
Foundation degrees *Sheila Chambers*

1.5 Playwork – not just messing around with children
Deborah Price

1.6 Making sense of e-learning within a changing curriculum
Robert Catt and Jenny Lynden

1.7 Numeracy matters: a case study in online assessment
and feedback *Patrick Saintas*

1.8 What's in a Foundation degree? A feasibility study
Matthew Herd

1.9 The engagement of HE in the 14–19 reforms *Delyth Chambers*

Foreword

Rebecca Duffy > Rebecca Duffy is Network Manager at the Sussex Learning Network (SLN) where her responsibilities include student engagement and finance.

Between 2005 and 2008, the Sussex Learning Network (SLN) has driven forward and embedded far-reaching curriculum development, making vocational study accessible to new groups of learners.

The SLN developed partnerships with further education colleges (FECs) and higher education institutions (HEIs) in Sussex, each of which was chosen for its expertise and experience in one of seven broad curriculum areas, such as biosciences or travel, tourism and retail. These institutions also worked collaboratively (where previously they may have been in competition) to plan and develop new and flexible provision, progression routes and stronger working relationships.

The SLN curriculum leads, who are members of staff based in our partner institutions, have been spearheading this work. Pioneering new courses – such as the Foundation diploma (Fdip) – have been developed, and a thousand new additional student places created, supporting not just Foundation degree (Fd) courses but also vocational provision at honours degree and postgraduate level.

The SLN has also funded a number of short practitioner research projects, which have created opportunities for our network of partners to explore issues investigating vocational learning. Many of these are described in Section 4: *What can we learn from research?* For a full list of these articles, please view our [practitioner research page](#). However, those specifically relevant to curriculum development can be found in this section.

We begin with [Angela Benson's study](#) of entrants to 'top-up' degrees in service industry subjects, which looks at student profiles from a widening participation point of view. The Biosciences curriculum team, based jointly at the University of Brighton and Plumpton College, discuss how they have created flexible provision and learning resources in *Bioscience, not rocket science: aiding widening participation and retention through curriculum design and delivery*.

[Andrew Murphy](#) reflects on his role as an industry practitioner teaching the Equitation module in the FdSc Equine Studies at Plumpton College and considers the issues involved in teaching a course which balances academic and practice-based study, while [Sheila Chambers](#) describes her experiences of using new resources for a FdSc Biomedical Science and considers the implications for study at Fd level.

[Deborah Price's](#) account of teaching the Foundation degree in Playwork provides insights into the fast-moving world of Early Years provision. This is followed by two articles about e-learning, an area which the SLN has explored and promoted across the full scope of its curriculum development work. [Robert Catt and Jenny Lynden](#) discuss broad issues while [Patrick Saintas](#) describes a specific project which has developed resources for nursing students. [Matthew Herd's](#) case study presents some of the issues involved in collecting Foundation degree module data. [Delyth Chambers](#) provides a national perspective on HE and the inception of the new vocational diplomas.

The articles in this section demonstrate how universities and colleges are adapting their vocational provision to the policy and work environment, and highlight the contribution that the SLN has made to this work.



Curriculum change for access in the service industries: Foundation degree to BA Honours



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Introduction

In common with other UK university departments the School of Service Management (SSM) at the University of Brighton recently (2006/07) validated seven top-up awards. The rationale behind this validation event was to offer an opportunity for students to build on previous appropriate studies in order to gain a higher qualification, therefore providing a bridge between a student's previous study of a Foundation degree (Fd) or equivalent and an honours degree.

Top-up degrees are a flexible, learner-friendly solution and they fit into HEFCE's lifelong learning scheme (Roodhouse, 2006). Through the provision of Foundation degrees, the government aims to increase the 43% of 18–30 year-olds currently attending HE to 50% by 2010 (White Paper, 2003). Additionally, the HEFCE Strategic Plan (2008/15 updated from 2006/11) outlines six strategic aims; the one linked to this paper is that of Widening Participation and Fair Access.

This strategic aim identifies four key areas: increasing demand; increasing opportunities; progression for vocational learners and lifelong learning opportunities; and embedding widening participation. While the term 'top-up' is not specifically used in this section of the document, it is clear that the concept of 'top-up' degrees is a vehicle for meeting this agenda. The reality of providing this opportunity at the School of Service Management meant that a number of significant changes had to take place in terms of both process and curriculum.

This article begins by outlining the background to the changes. It goes on to examine the recruitment to **National Qualifications Framework (NQF)** level 6, the changes made to the curriculum for 2007/08, and further changes for 2008/09. The final sections examine dissertation results in terms of an indication of changes in the curricula and the entire level 6 cohort.

Background

For a number of years SSM has recruited direct entrants into level 6 (see Table 1). Prior to the top-up validation, direct entrants into level 6 applied through UCAS and opted for just completing one year of study (level 6). This being said, the majority of the students are recruited through partnership agreements and guided towards this process. Independent students wishing to undertake level 6 study search for suitable courses at institutions offering this service.

Potential students were not always aware that SSM offered a level 6 opportunity, and although the recruitment and admissions team did take occasional phone calls asking if SSM offered this service, it was very dependent on the student's tenacity to secure the best position for themselves rather than being a clear process in the school.

Previous years have shown a small number of students being recruited from the UK and other institutions. However, during the 2006/07 academic year SSM recruited only three independent students from Europe. Consequently, it was anticipated that the formalisation of the level 6 process, via independent UCAS codes for the top-up awards, would:

- Offer transparency for potential students into level 6
- Recruit students from a wider audience meeting with the university's agenda of widening participation (University of Brighton, 2007)
- Reduce reliance on students recruited from partnerships
- Increase and spread recruitment into a wider range of courses

Designing the top-up degrees initiated a major change in the admissions criteria. In the past, students needed a merit profile and had to demonstrate success in a research methods module. After a series of long discussions, SSM changed the admissions criteria to enable students with 240 Foundation degree points to progress into level 6, with research methods no longer a prerequisite.

Despite no longer requiring success in the research methods module, students still required skills associated with research methods in order to underpin the honours dissertation. It was understood that the majority of students coming from partnership arrangements have previously studied research methods but, to ensure no students were disadvantaged, a series of mechanisms was put in place.

Consequently, it was important to monitor these changes and make further amendments as required and to gain greater understanding of issues experienced by direct entry level 6 students.

Direct entry into level 6 recruitment for 2007/08

The top-up awards were validated in June 2007, with the first cohort of students commencing in September 2007. Table 1 indicates the number of direct entry students for the past five years.

Table 1 Direct entry to level 6: student numbers

Academic year	2003/04	2004/05	2005/06	2006/07	2007/08 via top-up
Level 6	72	68	69	83	91

Of the 91 students recruited directly into level 6 for the 2007/2008 academic year, 68 were female and 23 male. This female/male ratio for the school is evident in other cohort profiles.

The undergraduate programme consists of 11 courses, but direct entry students are predominately recruited into three awards and the 2007/2008 academic year followed this pattern of enrolment. Students were recruited as follows:

- International Hospitality Management (43)
- International Tourism Management (46)
- International Travel Management (2)

Of these 91 direct entry students, 71 were recruited through partnership agreements and 20 were independently motivated to apply, compared to three the previous year.

During the academic year five students deferred their studies for a year and one student de-registered, leaving 85 remaining students. The six students were all female and two were from partnership institutions. Of the 85 remaining students the nationality of the majority was German (55): this is not surprising due to two key partnerships with German institutions. The nationality of the remaining 30 students were Dutch (9), British (8), Chinese (6), French (2), Japanese (1), Ukrainian (1), Spanish (1) and South Korean (1).

Changes to the curriculum

Students without previous research methods skills were identified by the admissions team through their UCAS forms, and confirmed when students arrived. In total 13 students required research methods training. None of these students were from partner institutions and would not have been eligible under the previous admissions criteria. These students were directed to a three-hour workshop during induction week. The first part of the workshop was an interactive session (Benson & Blackman, 2003), followed by a lecture on research methods and a hands-on introduction to the online learning resource designed to guide students through the research methods curricula.

Students were given individual tutorial support and a further group tutorial after four weeks to monitor progress. An online multi-choice question test was planned at the six-week period, but students did not feel ready, so it was delayed by two weeks. Whilst students were required to pass the test, the focus was to ensure that learning had taken place and that they were not disadvantaged in terms of undertaking the dissertation. The dissertation module ran alongside the research methods online learning. The test was taken by 10 of the 13 students; two students deferred their studies until the next academic year and one student deferred her dissertation until the following year due to weak English language skills.

Feedback from students on the research methods training indicated that the initial lecture in induction week had been useful. They had found the online module difficult to navigate at first, particularly those students who were not used to this mode of delivery. The main problem for students was the additional workload – trying to manage a new university, new modules and the extra work on research methods. They were also not sure that they really needed research methods training, until the parallel learning of the dissertation module started.

This information was supported by the tutors monitoring the online module. The students did not fully engage with learning during the early weeks of the semester. The students talked about being 'lost' in the dissertation workshops and it was only after a few weeks that they saw the links and the necessity of skills in research methods. It is believed this is why the online 'performance dashboard' monitored by tutors saw improved levels of activity.

Further changes

Dialogue with the students instigated further changes that will be implemented for the 2008/09 academic year. During 2007/08, a 10 point CAT research module for level 6 students was validated and it is anticipated that because it is a credit-bearing module the additional workload aspect will no longer be an issue. The downside is that students who need to undertake this module will now only have 30 CAT points of elective choice rather than the 40 CAT points available to other level 6 students.

The newly validated module will follow a similar format to the learning that took place during this academic year, as discussed above. The module will commence with two three-hour workshops in induction week. It will be delivered online using materials developed during this academic year. Students will be supported by tutorials and monitored by the 'performance dashboard'. The online test will be replaced by an individual piece of written work, with the final grade counting towards the degree classification. This curriculum change will be monitored over the forthcoming year.

Students undertaking research methods learning and dissertation results

Of the 10 students who engaged with the research methods learning, nine continued on the honours degree route and submitted a dissertation, the other student withdrew in February and took the non-honours route. Six of the nine students received a 2.1 (60–69%), two students received a 2.2 (50–59%) and one student was referred (35–39%) and has the opportunity to resubmit in late summer. In line with university regulations the final grade for this piece of work will be capped at 40%.

Comparison of dissertation results

In total, 170 students were recorded on the dissertation module. Of these 85 (approximately 50%) were direct entrants into level 6.

Of the 33 students who received a 1st mark (70% or over) 19 were top-up students (58%). As can be seen in Table 2 these were primarily students from partner institutions. A similarly high result was also reflected by top-up students achieving a 2.1 (41 of the 76). In total nine students were referred in the dissertation and of these four were top-up students. All withdrawals to the non-honours route were from top-up students, only one of whom was a student without prior research methods underpinning. This being said, three of the students who withdrew came from one of the partner institutions, and they believed that the research methods underpinning that they had received from their home institution was minimal. This is currently under discussion with the institution.

Table 2 Dissertation results of direct entry to level 6 students

Dissertation classification	level 6 cohort results	Top-up student results		
	All students	Students from partner Institutions	Independent students	Totals for top-up students
1st	33	18	1	19
2.1	76	34	7	41
2.2	30	6	2	8
3rd	13	3	1	4
Refer	9	2	2	4
Fail	6	0	0	0
Non-submission (0%)	1	0	0	0
Defer until 08/09	2	0	2	2
Withdrawals – non-honours route	7	6	1	7

Conclusion

The formalisation of the process for students directly entering level 6 via a top-up route is more transparent and accessible to potential students than previously. While the recruitment of 20 independent students was viewed as a good start, it is too early to tell whether this trend will continue. The numbers from one of the German partners was just under 66% down on previous years, whilst the other German partner had increased student numbers to SSM; overall the student numbers from these two key partnerships were lower than previous years. To some extent the recruitment of independent students filled this void and, as can be seen from Table 1, 2007/08 recorded the highest number of students directly entering into level 6 for five years.

The changes to the admissions criteria have brought about a number of challenges. However the school is confident that the additional changes that will be implemented at the start of the next academic year will enable students without a preparation in research methods to have the opportunity of continuing their studies at the next level. It is anticipated that, as time goes on and Foundation degrees embed research methods into their courses, the research methods module for level 6 will become defunct.

Overall, the dissertation results of students with direct entry into level 6 are in line with the roll-through cohort. However, one area of weakness for the school to consider is the number of students who withdraw from the honours dissertation to the non-honours route, as all seven students were direct entrants into level 6.

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Bioscience, not rocket science: aiding widening participation and retention through curriculum design and delivery



Dr Steve Waite, Becky Taylor and Lucy Chilvers >

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Lucy Chilvers supported the SLN Bioscience Team as Administrator between 2007 and 2008 and is currently based in the School of Pharmacy and Biomolecular Sciences at the University of Brighton.

Background

The SLN Bioscience Team has been developing new opportunities for learning, progression and continuing professional development (CPD) in land-based and biosciences across Sussex. The themes of widening participation and retention have run through almost all our activities. Policy at both government and institutional levels identifies these areas as important, and there have been a number of initiatives to develop and support both retention and widening participation. Lifelong Learning Networks (LLNs) are playing an important part.

The team has engaged in several research projects that have informed our work. These include the STAR project (<http://www.ulster.ac.uk/star/>) and several small-scale practitioner-led projects funded by the SLN. Greater flexibility in course accessibility and delivery, particularly in terms of providing part-time options, was identified as a priority for curriculum design.

Student expectations and experiences

Although previous work has investigated the expectations and experiences of students progressing to postgraduate study, there has been little research into what students progressing from further education (FE) expect from their higher education (HE) course. In particular, there is a deficiency of knowledge concerning how widening participation has affected students' expectations of higher education. The biosciences curriculum team carried out two projects to investigate these areas further.

Over 30 students at Plumpton College on a National Diploma were surveyed towards the end of their two-year course. The purpose of this survey was to ascertain their expectations of the requirements of higher-level study and to evaluate the information, advice and guidance they had received to date. The students who chose to progress to Foundation degree study at the same institution were then interviewed one month into their course. The experience and expectations of the students were documented and evaluated at that stage.

It was found that there were clear differences between the students who decided to progress, and those who didn't in, in terms of their expectations of HE. For example, those students who had made the decision to enrol on a **National Qualifications Framework (NQF)** level 4 course typically used words such as "*challenging*" and "*hard work*". By comparison, those who were planning to enter employment or undertake further study at level 3 thought that HE would be "*difficult*" and "*too hard*". Textual analysis of the responses indicate that, on the whole, the latter group had negative expectations, and felt they would not be successful. In contrast, those opting to progress to a Foundation degree, whilst appreciating the challenges, made positive statements and thought they were capable of succeeding.

The sub-set of students who had progressed were interviewed once they were on the course. They expressed the view that the course was meeting their expectations and that they were receiving the amount of support they had anticipated. Their main concerns were centred on their ability to cope with the increased science content of the course and the financial pressures they now faced.

Although it is difficult to generalise from these findings, they suggest that there is a need for institutions to ensure that all students receive advice and guidance on progression, regardless of whether or not they express an interest in further study. The findings also suggest that it is important that students receive information on the financial and pastoral support available and not simply on the academic content of the course. Once studying at level 4 these students may require additional support during the initial stages of their course, particularly with regard to the science components.

Curriculum Design

The curriculum team took account of these findings when developing the bioscience curriculum as part of the SLN project. The development of the following courses was in part informed by the findings.

Foundation degree Bioscience

This course was a joint development between the University of Brighton and Plumpton College. Available in both full- and part-time modes, the course enables students to study modules across the full spectrum of the bioscience curriculum, from cellular to whole organism level. Modules can be taken at either institution and some are also available via distance learning mode. The entire curriculum is made up of existing modules and therefore the course can run with very small numbers. It is envisaged that further institutions may also become involved in the delivery of the course, subject to the necessary memorandum of cooperation being in place.

Foundation diplomas

The Foundation Diploma (Fdip) is a new qualification, validated by the University of Brighton after an initial request from Plumpton College and the SLN Bioscience Team. It is effectively a replacement for the HNC qualification. Studied part time over two years, the Fdip carries 120 credits taken from a selection of modules at levels 4 and 5. The qualification has been developed with a strong input from employers, and is designed to be particularly appropriate for those looking to study while at work but still gain a full award in a two-year period. The curriculum is made up of existing modules so that the Fdip can run with small numbers of students registered.

The team were also involved in the development of other courses, including the Master of Research Bioscience, and the introduction of an Environmental Biology theme to the joint honours programme at University Centre Hastings (UCH). Both these courses provide novel and flexible progression routes into the Biosciences.

Curriculum Delivery

The research identified a need for support with basic science. This was supported through the development of two initiatives, the study skills website and greater coordination with the SLN Information Advice and Guidance team.

Study skills site

The team used the existing Study Skills Handbook for the School of Pharmacy and Biomolecular Sciences as a starting point. After the team had made improvements to this handbook, it was supplied to two groups of students. These students were interviewed by the team to get their feedback on study support and what was relevant and helpful. Using this feedback and research into other study skills resources, the handbook material was developed into a website. Simon Macfarlane from 'ClearBytes' worked alongside the team to produce the website that is now online at www.brighton.ac.uk/pabsstudyskills.

This material was then edited and modified to produce a more generic bioscience study skills resource which will be published in a CD format and distributed to partner colleges around Sussex.

Information, advice and guidance (IAG)

The research showed that there was a need for specific IAG for students considering progression to level 4. This was taken up with the SLN IAG team who were also involved in careers and courses events at the institutions. Further information on their work can be found at the IAG section of e-book and by visiting [Sussex Routes](#).

Conclusion

The activities of the curriculum team have been extremely varied and presented a broad range of challenges, but we believe our work has led to some innovative and valuable approaches to widening participation and retention. The approach adopted by the curriculum team has not been direct. We consider that widening participation and retention need to be targeted, not as separate entities, but in an integrated way, during both course development and delivery. We may not have achieved this entirely, but within the confines of biosciences in Sussex we have taken some interesting steps towards it.

An industry perspective on standard setting and module delivery in equestrian courses at Plumpton College



Andrew Murphy and Becky Taylor >

Andrew Murphy worked in arts administration before pursuing a career training horses and riders. A successful Grand Prix competitor, he also holds British Horse Society teaching qualifications. Andrew freelances and is a Senior Instructor with the Training the Teachers of Tomorrow Trust, an equestrian educational charity in Surrey.

Becky Taylor is Head of Research at Plumpton College and was joint curriculum lead for the SLN Bioscience Team between July 2006 and August 2008.

Background

This reflective article is based on diary entries. It investigates the responses of learners to the Equitation module, which prepares riders and horses for competition work, and provides personal development guidance for learners. The learners are studying the first and second years of the Foundation degree (Fd) in Equine Studies at Plumpton College.

The Fd was developed as a vocational, work-based higher education qualification. Universities and FE colleges have adopted a wide range of approaches to work-related learning including placements, experience, college-based work simulations and guest speakers from the industry. The courses on offer at Plumpton College include work placement, industry experience and career development modules.

Feedback from students on equine courses at Plumpton found that both the work-related and college-based learning was useful and relevant. However, there was sometimes felt to be a gap between the training and experiences they were receiving in college and those received out in the workplace. With support from the SLN, it was decided to pilot two modules on the Foundation degree that would be entirely delivered and assessed by an industry representative but taught within the college environment.

Reflections on the teaching and learning experiences for the Equitation module

What follows is based on the diary entries of Andrew Murphy, the industry representative delivering both modules.

Lecture 1: 29 October 2007

Today's opening lecture was devised to be an introduction to industry standards and philosophies. Its title was 'The goals of training horses, riders as freelance professionals, and how traditional approaches can be challenged by non-standard problems'.

There was interest from the learners in the variety of situations outside the college environment. They discussed issues arising from their own riding experience outside the college. The lecture was an opportunity to develop an understanding of seemingly opposed approaches and priorities, such as leisure, competition or examination. These different approaches were understood better via the development of a broader perspective. I felt that this session started to bridge the perceived gap that the students felt existed between their instruction within college and their experience in the workplace.

Lecture 2: 10 December 2007

This session took learners on a visit to a teaching clinic given by an international trainer at the Teaching the Trainers of Tomorrow Trust (TTT), Surrey. The aim of this visit was to see the application of principles and approaches discussed in the opening lecture in a different context (in other words, a world-renowned figure working with experienced riders to the highest levels).

The session involved:

- An introductory talk about the TTT trainer and his methodology
- A Q & A session with the international trainer at the end of the morning's teaching
- An end-of-the-day summing up, pointing out themes and similarities in approach (despite the obvious capabilities of the more advanced riders)

Although much of the riding was beyond the experience of all but a few, the day was enthusiastically received and many learners commented on how inspired they had been and how they recognised much of what had been taught from previous work.

Lecture 3: 7 January 2008

This session was entitled 'Sculpting', and concerned the correct positioning of a rider on a horse. This was the first practical session, following background theory and the visit to the TTT.

The session involved:

- The use of a mechanical horse at Plumpton College to demonstrate the specifics of good riding technique in the body placement of the rider
- Demonstrating the application of the 'aids' (physical pressures by which the rider communicates requests to the horse)
- The use of a member of staff to demonstrate the 'sculpting' of a riders' position (the ensuing good natured, jocular attitude creating a relaxed but focused atmosphere for a subject that can potentially be somewhat dry!)

Many learners appreciated the way in which a potentially confusing subject matter, often presented as a series of small adjustments to a rider's position, became a sequence of actions. The objective was the development of 'muscle memories' that could be reproduced by themselves as riders, but also presented to their own potential clients. This session bridged a gap seen by the learners to exist between the theoretical, college-based sessions and their practical experiences.

Lecture 4: 11th February 2008

This session considered the structure of competitions, and how good training should be complementary to competing (and to examinations), without being dominated by the result.

A pleasing aspect of this session was the way in which the concepts and vocabulary which had been put in place at the start of the year were beginning to percolate into the learners' discussions of the issues raised. The learners also started to make links between their college-based experiences and those in the work place for themselves (without a need for prompting by me).

Issues arising

Attendance

A disappointment was the poor attendance among the first years. Reasons cited included a lack of communication regarding venue and times, and a lack of encouragement to attend in the face of alternative college priorities.

There is a difficulty for a module deliverer not 'embedded' in a college to ensure that the sessions are adequately publicised and the learners' enthusiasm is maintained. However, it was concluded that the main reason for dwindling attendance amongst Year 1 students was a lack of practical experience, which would have helped to consolidate the theoretical input. (Year 2 students had had a year at college and summer work experience, which helped to facilitate their understanding.)

This led to discussions on where a module delivered in such a way was best placed within the curriculum. After initially believing that it was most appropriate to use such a delivery method early on in the course, this experience demonstrated that it is more appropriate placed in the latter stages when the learners have acquired the higher level skills required for integrating and critically evaluating information.

Assessment

Part of the standard setting aspect of the module was a modification of the log books used in the final assessment of the learners. This involved integrating industry standards firmly within the assessment exercise and providing feedback that combined use of both industry terms and educational vocabulary relating to learning outcomes and grading criteria.

Learner feedback

Feedback from the learners related to:

- The content and presentation of the module which they found interesting, stimulating and thought provoking
- The way they felt it helped to make sense of the seeming contradictions in the expectations and priorities of the higher education course and the industry standards
- The understanding of the subject matter – this was enhanced by those learners who had experienced this sort of approach to teaching outside the college environment.

Conclusion

The representation of industry in a college environment is vitally important to prepare learners for the application of their acquired knowledge, if and when they become professional in their given discipline. Many of the learners became enthused and encouraged by the new perspective this module brought to their studies. The difficulties arose from the sometimes contradictory nature of educational expectations and industry requirements.

Molecular diagnostics: the development of student-centred resources for biosciences Foundation degrees



Sheila Chambers > Sheila Chambers began this research as Course Leader for Foundation degree and Certificate in Biological Sciences at City College Brighton & Hove. She is currently Lecturer and Course Leader (Animal Science) at Plumpton College.

Aims and objectives

This project has researched the development of student-centred learning resources, with particular reference to molecular diagnostics. It has focused on the application of biomolecular techniques such as PCR (polymerase chain reaction) and electrophoresis (a technique for molecular separation) via practical workshops for students studying on Foundation degree courses in biological and biomedical sciences.

Background

I was extremely pleased to be offered the opportunity to carry out a research project in my own field. I have worked in biosciences for many years (having a genetic engineering background) and been involved in the teaching of undergraduates in biology at [National Qualifications Level \(NQF\) Levels 5 and 6](#). For several years I have been looking to spend some time updating my own skills and knowledge in the field of molecular biology, with particular reference to diagnostics and the introduction of laboratory-based, student-centred resources.

Molecular diagnostics is an important analytic tool in today's society. It includes a range of technical processes that investigate the DNA extracted from cells to reveal critical information about the origin and vitality of the cell. These processes are used in many different disciplines of biology today, including detecting human genetic disorders, detecting oncogenes, identifying infectious diseases, chromosome abnormalities, pharmacogenomics, gene therapy, genetic profiling, forensic science, food authenticity (eg identifying if food has been genetically modified).

City College Brighton and Hove and the University of Brighton were planning to expand the biology provision at Foundation degree level by introducing a new Foundation degree in Biomedical sciences. It was hoped that this project would also provide valuable student resources to aid the learning of cancer diagnosis and treatment, in addition to forensic science applications.

Laboratory-based research

I was aware the biomolecular company Bio-Rad had recently developed a kit for the teaching of forensic science and decided to introduce this into the learning of a genetic engineering module. The kit and a thermocycler, for carrying out PCR, were purchased and with the help of a project student I undertook to train myself and technicians on the use of the equipment and the preparation of materials. I was particularly interested in assessing the kit for safety, streamlining the practical time and quantity of consumables required for each analysis.

Protocols were developed, evaluated for safety, streamlined for student and technician practical time and analysed for consumable cost effectiveness. We found that we could run the whole experiment with teaching in one four-hour or two two-hour sessions, using half quantities of the reagents.

The protocols have been trialled on two student groups to date, and evaluated by student experience, results and questionnaires. This resulted in several technical problems being identified with learners at this level, which included difficulties with gel preparation, rapid DNA staining with fast blast dye and the melting of the gels at the cathode terminal end. Further laboratory research was undertaken to tackle these practical difficulties and the protocols amended. New gel boxes with larger buffer reservoirs have been purchased in an attempt to solve the latter problem. It is planned to run a further trial with a third student group in November 2008.

Library-based research

The Bio-Rad forensic kit was suitable for use with students studying biological sciences but needed a new rationale for the application to biomedical sciences. Therefore, as part of this project, I undertook a theoretical, library-based approach to update myself on the general use of molecular diagnostics in the identification of oncogenes, initially with respect to colon cancer. I found this aspect particularly challenging due to the wealth of information available on the internet. I found, that in most cases, colon cancer is diagnosed using physical techniques, such as colonoscopy and ultrasound. There were some syndromes that resulted in colon cancer that had a genetic basis, such as Familial Adenomatous Polyposis and Hereditary Nonpolyposis Colorectal Cancer types 1 and 2. However I found these difficult to fit to the genetic profile given in the forensic kit.

I did however find information on the treatment of breast cancer using herceptin and was able to apply this theoretical knowledge of how herceptin works to why it is successful in only a small percentage of patients. From this research I was able to develop a hypothetical scenario for the biomedical laboratory workshop. The rationale was to genetically screen women with breast cancer prior to treatment to identify whether the drug would work, thus saving the costly treatment for those who had a genetic basis for the use of herceptin. This approach was well received by the students who undertook the trial run. They enjoyed the scenario of being research scientists and gained good laboratory results that were easy to analyse.

E-learning resources

Additional research revealed that an e-learning site for distance learning had already been developed within the Faculty of Pharmacy and Biomolecular Sciences at the University of Brighton, for level 6 modules. This resource is based on the [studentcentral website](#), a virtual learning resource for University of Brighton students. The scenarios and practical workshops described above would be an advantage to students who go on to take the level 6 top-up degree at the university and then study molecular genetics at this level. It was hoped to evaluate Foundation degree student understanding of this resource via a student questionnaire, however this was not possible due to poor student return. Therefore the application of this resource for level 5 study (at Foundation degree level) is currently being investigated.

Evaluation of the project experience

Working with the SLN and undertaking this project has been very enjoyable and challenging. I have met other researchers at support meetings and at the summer conference, and exchanged ideas and experiences. The project has given me time to update, expand and apply my theoretical and practical knowledge of molecular diagnostics. Initially, I found applying the scenario difficult and would have benefited from a placement within a molecular diagnostic laboratory in pathology. I would recommend this to anyone undertaking such research in future. However, I have gained many new skills, and put into place new equipment and experiments within the teaching laboratories at City College Brighton and Hove and Plumpton College. I am now looking forward to applying the workshops on the teaching of molecular diagnostics to wine, equine and animal science students at Plumpton College.

Finally I would like to thank Bernadette Macadam, Lisa Jolliffe and Mellissa Graham for their technical support.



Playwork – not just messing around with children



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This summer the first cohort of seven students graduated with a Foundation degree in Playwork from the University of Brighton. They finished the course in January and, for them and for me as the course leader, it has been an interesting and exciting two years. Several of the students have changed jobs during the course – two have developed their careers and moved away from front-line work to development work, and one student has returned to working with animals and away from working with children!

The students had all achieved **National Qualifications Level (NQF) level 3** in Playwork in order to enter the course, and so had some experience of further education, but for many of them, moving onto HE was a step they did not expect to achieve and was very challenging. The pattern of attendance was approximately two days a month (Friday and Saturday), 10am until 2pm.

Starting the course

The need for a course was identified by the University of Brighton. There has been a move over recent years to professionalise groups of people working with children and the university was already running Foundation degrees for early years workers, teaching assistants, youth workers and students working with young people in an advisory capacity (such as Connexions advisors). The nearest Playwork Foundation degree available was running in Bristol and there was clearly a provision need for local playworkers who wanted to move on from a level 3 qualification and gain graduate status.

Some of the modules were taken from other courses – for example child protection, social policy, and culture and community, and some were written for the course. It was difficult taking on other people's material and delivering and managing it. I was the main tutor on the course and only four of the 11 modules were taught by other lecturers. This was a beneficial experience as it meant that I had sustained contact with the students and was able to get to know them and support them appropriately.

Reflective practice

The course contained a reflective practice module that spanned both study years and was attended after other modules in the afternoons. It was (and is) delivered by a very experienced playworker and trainer, with whom I worked closely on other projects.

When writing the course the idea was that students would be supported by a mentor who would visit them once or twice a year and also facilitate small group meetings. This proved to be the most problematic part of the course to organise and support. The students were scattered over four counties and small meetings were very difficult to organise. Eventually students were meeting with their mentor at the university after the taught sessions, an arrangement which was not giving them the continuous support that had been planned.

Originally, the mentors were tutors on the course – visiting lecturers at the university. Last year and this year the role will be carried out by a graduate playworker who has combined working as a playworker with training. This person is a very experienced professional, in a perfect position to lead the students' practice while still having a current understanding of live issues in managing a play setting.

Another learning point for me was to encourage the students to move forward from description to analysis and reflection when writing essays and working on the course generally. Some of the students were used to a more 'chalk and talk' method of delivery and found it difficult to focus when given time to work in small discussion groups and carry out independent research. *"I like it when you stand at the front and I can take notes"* one of them said to me wistfully in a tutorial.

Strengths of the course

A strength of the course has been the way it constantly draws upon the students' own experience. The students are generally in full-time work as playleaders and the range of settings they work in is vast. Students in the graduating year came from a rural farm, independent schools and adventure playgrounds. The students gained so much from talking to each other and sharing the different ways that they worked. I have good relationships with the Brighton and Hove Play Service who attended some of the sessions and spoke about local issues, and they also gained a great deal from the students.

Another source of support for me was the external examiner, Fraser Brown. He runs a similar course in another part of the country and has written some of the texts the students were studying; discussions with him proved to be an invaluable resource in the early days of the course.

I think that one of the benefits was that it gave credibility to students' work. Playwork was not just 'mucking around with kids'. It had its own Foundation degree and a full curriculum, and was discussed and written about with a sense that it was a valuable process undertaken by skilled practitioners enhancing the lives of the children they worked with and the communities in which they were sited. Playworkers often feel like the poor relatives of education or early years, and this course gave them a sense of self-worth and professional pride.

Crucially, I felt that the course enhanced the students' managerial skills. There were three modules on aspects of working as a play professional in charge of a team, and I felt that this was a skill often overlooked. Having a level 3 qualification, the playleaders attending the course were usually the person in charge of the setting and were often managing significant numbers of staff with little or no supervision or support. The course gave them support in this area and looked at what is entailed in being a manager, and the meaning of culture in a setting and how it fits into the idea of community. These were 'big ideas' that many of the students had not come across before in this form.

Ultimately, the course gave the students time: two days away from their busy lives managing settings, being carers or parents, and sometimes having an extra job. In the university the students could take time to think rather than always be doing. They could read about playwork, discuss with their tutors and colleagues what good practice should look like, and have a taste of the world that full-time students experience daily.

I am privileged to work with Foundation degree students and when they receive their certificates I have a sense of the hard work, sacrifices and commitment that it took to get them there. I am very proud that I have been able to help facilitate this process for them. The first group of students were very supportive of my own learning process, and the following group certainly gained from the difficulties and successes I experienced in the first year.

Looking forward to the new academic year

Fifteen playworkers are now proceeding to their second and final year, and another fifteen are starting their Foundation degrees. Next year the look of the course will change, as all five of the Foundation degrees in the School of Education are moving together and sharing 50% of their modules. This means that playworkers will keep half the course as it is, with the other half containing new modules to be delivered across all of the other five Foundation degrees. We envisage that students will come together for lectures, and then group in degree area to discuss the implications of the material for their own area.

This will provide a shift in perception and a chance for students to work in an interdisciplinary way that will be exciting and challenging for all. They will have some sessions on inclusion and child and youth development, and will attend lectures with colleagues on other Foundation degrees before splitting into smaller groups for discussions. I can only see this as continuing to build on the course's strengths in line with Every Child Matters and the Early Years Foundation Stage (EYFS) with their emphasis on seamless services for children and young people. It will encourage students to work across boundaries and think away from playwork to issues in early years, schools and working with young people.



Making sense of e-learning within a changing curriculum



Robert Catt and Jenny Lynden >

Robert Catt is a Senior Lecturer in education and a member of the Centre for Language and Communication at The Open University. His involvement in the SLN e-learning project has been motivated by an interest in the role of language in learning and this, in turn, has been both extended and challenged by the recent and rapid development of online communication.

Jenny Lynden, an experienced lecturer in both HE and FE, is based at The Open University in the South East. Jenny's role on the SLN e-learning project was to research e-learning practice across Sussex. This involved setting up and managing action research projects that required collaboration across the SLN's partner institutions.

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Introduction

Our article has three aims:

- To provide a contextual description of the kind and quality of work with which we were involved during our two-year SLN e-learning project
- To illustrate that description with some case-study material related to features of the practitioner enquiry projects and e-learning technology (ELT) events undertaken
- To problematise and critically examine aspects of our work in a way which, we hope, will benefit others in the field and foster continuing conversations and the productive exchange of practice and ideas

This article provides an evaluative and critical discussion. Fuller descriptions are available through the links, mainly to our [wiki](#), where a forum enables dynamic and interactive discussion.

Who are we?

The SLN e-learning project team comprised four members of The Open University: Robert Catt, Nigel Gibson, Jenny Lynden and Liz Thackray.

The Open University is a leading organisation in the development and provision of e-learning. It has expertise in the field of widening participation based upon clearly articulated core values and principles related to 'openness' and social justice.

Bringing higher education within reach >

As members of The Open University the e-learning team brought to the project experience, expertise and resources in pedagogy, e-learning technology, action research, student support and academic management.

What did we seek to do?

The essential aim of the e-learning project was to 'map', disseminate and develop productive e-learning practice within partner institutions and organisations and across the curriculum strands.

How did we work?

From the outset we were aware that we were operating in a field of rapid change, initiative and development. We were determined to find a principled foundation for our work and agreed to base our strategies on the kind of curriculum model presented by Banks and McCormick (2005). Here a distinction is made between curriculum activity at the:

- Specified level – taking the form of policy as documented in a syllabus, module aims and learning outcomes
- Enacted level – the ways in which such policy is presented and taught; often, for example, practitioners 'interpret' and give emphasis to a syllabus in a manner which accords with their own specialist interests, values and beliefs
- Experienced level – the learning experience of students themselves; as we are all aware, what is specified is not always what is taught, and what is taught is not always what is learned

Our view was that our work should illuminate and enliven all three features of this curriculum model. However, we also wanted to ensure that work undertaken was 'grounded' in the situated experience of learners themselves. This, in itself, was both complex and challenging as, in our discussion with regional e-learning technologists, we were quickly made aware of the very varied profiles of vocational students in terms of age, economic circumstances, study experience and expectations. Not all students, for example, have straightforward access to e-learning technology. In this respect '[In Their Own Words](#)', the ongoing research of the Joint Information Systems Committee into the e-learning experience of students was influential in the shaping of our project.

Advisory Group

At the outset of the project and following the advice of the SLN Director, an [Advisory Group](#) was established comprising e-learning technologists from participating SLN institutions. This group provided a dynamic forum for the exchange of practice, ideas and expertise. The SLN e-learning project quickly gained much from the advice and support of the Advisory Group and has, in turn, offered reciprocal opportunities related to staff development and the mainstreaming of our work beyond the end of the project itself.

The group had an interest in exploratory, 'hands-on' activity and its meetings took the form of workshops to which members were encouraged to invite colleagues. One exploratory workshop considered the topic of [Troublesome knowledge](#), and colleagues were invited to consider the ideas of 'threshold concepts' and 'troublesome knowledge' in relation to their own curriculum practice. Drawing on the work of Meyer and Land (2006), concepts were discussed relating to specific fields of knowledge which must be understood by learners but which might be difficult, troublesome and possibly disruptive of those ideas – and misconceptions – which learners consider robust. The development of learners' understanding of threshold concepts involves transforming behaviour, feelings, values and attitudes in irreversible ways which leads to a new level of coherence and integration of disciplinary knowledge and practice (*ibid*).

As an introductory example, workshop participants were asked to consider and make explicit their understanding of what constituted plagiarism. There was no easy agreement and, indeed, some ideas with regard to individual authorship and what was considered to be acceptable practice at particular stages of study resulted in some 'troublesome' but productive discussion.

Of value here was the way in which the design of the Creativity Zone at the University of Sussex encouraged not just academic debate but also personal narrative. In this respect some memories of our own practices as undergraduates were illuminating – and, indeed, salutary.

Such Advisory Group workshops had a number of benefits:

- The establishment of a community of practice within which ideas, beliefs and values could be made explicit and could be challenged
- A 'foregrounded' emphasis on pedagogy rather than technology
- The inter-institutional sharing of practice
- The reflective consideration of learning solutions, which may or may not include e-learning technology, to specific pedagogical challenges

The work of the Advisory Group has also provided a critical cutting edge to our work, enabling an informed understanding of how wider and global innovation impacts upon local practice. This has influenced our choice of keynote speakers at conferences and events and allowed curriculum teams' access to wider development through discussion.

E-learning technology (ELT) events

We launched our project with a one-day conference which combined keynote presentations with workshops and discussion groups. However, it was from the successful model of the Advisory Group workshops that we developed the idea of smaller-scale specific e-learning technology events.

- [Exploring Learning Technologies, 13 February 2008](#)
- [ELT2 3 June 2008](#)

Such events gave mixed groups of participants the opportunity to browse and interact with a range of technologies. Rather than 'showcasing', emphasis was given to critical inspection of, and discussion and interaction with work in progress, as this had reciprocal benefits for visiting participants and workshop presenters. Of benefit here was the use of the flexible space afforded by the [Creativity Centre](#) at the University of Brighton.

Such events required some meticulous planning and organisation so that the space could be divided into comfortable areas or 'booths' conducive to exploratory conversation. By the time of our final ELT event we had developed a more relaxed and less directional approach so that participants could interact within an informal space and drive the programme of activities in a way suited to their requirements.

Our conference and ELT events, however, had a further purpose. At each we gave participants access to a keynote presentation which would combine innovation with polemic. [Professor John Naughton](#) and [Professor Martin Weller](#), for example, gave attention to the ways in which grassroots forms of social networking (Social:Learn) were challenging and had the potential to disrupt institutional forms of learning.

Practitioner enquiry projects

Central to our project work was the development of a number of collaborative projects. Interested readers might find it useful to look at four of these, which are illustrative of the range and nature of partnership activity within the project.

- Action Learning Using Flash Meeting
- Number skills
- Writing skills
- Working online

Our interest here was in encouraging practitioner enquiry – those forms of enquiry into one's own practice which inform, illuminate and ultimately improve teaching and learning. Often referred to as 'action research', such a form of enquiry has a long tradition in education and accords with the intuitive approach of many colleagues. It's worth reminding ourselves, however, of the principled basis of that tradition. Carr and Kemmis described action research as:

"A form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices and the situations in which those practices are carried out." (Carr & Kemmis 1986:162)

Research leading to social action and productive change was central to the online Action Learning Sets project. Action learning has long been used to support reflective practice in work-based and experiential learning (Beatty, 2003). Action learning, originally developed by Revans (1980) as an approach to more effective management has subsequently been adopted in HE and a range of professional contexts because of its links to action research (Carr and Kemmis, 1986), reflection in and on practice (Schön, 1983) and the development of communities of practice (Lave and Wenger, 1999).

It has been argued that action learning has extensive value in the workplace because the approach involves identifying real-world problems, exposure to new ways of thinking about those problems, and a supportive environment in which to explore, adopt and evaluate new practices (Miller, 2003). As Beatty (2003) notes, this model can be *"an extremely powerful development tool"*. Further, because problem identification, action planning and evaluation are constructed by the individual practitioner rather than an expert in the field, the approach leads to a greater sense of empowerment and the development of professional and interpersonal skills (*ibid*).

The online action learning project tested the extent to which action learning practices could be transferred to a synchronous video conference. Initial findings suggested that while many of the practices involved in face-to-face action learning could not be replicated in an online forum, new and distinctive practices were developed which, it could be argued, facilitated a deeper level of critical reflection for participants. More information about the work of the project and its findings is available at <http://labspace.open.ac.uk/course/view.php?id=3402>

We found related value in the work of [Centre for Outcomes Based Education \(COBE\)](#) at The Open University (accessible to OU staff only). COBE suggest, essentially, two forms of action research. At times it is necessary to problematise practice by looking critically at what is not always working well in order to bring about change and improvement. However affirmative research can bring those features of practice which do work well to the attention of others.

The problematic aspects of the projects and, in particular, levels of participation, are discussed below. At their most successful, these projects illustrated ways in which it was possible to work at the situated and experienced level of other practitioners in the field.

OpenLearn

Probably the most successful area of our work was with The Open University's developing open education resource, [OpenLearn](#). We were privileged to work with a team of specialists who, although operating at the cutting edge of development, were keen to present, discuss and examine their work with practitioners at a grounded level. OpenLearn provided the project with some distinctive opportunities and resources:

- The creation of a dedicated [SLN Zone](#)
- Specialist workshops (OpenLearn Workshop, 4 December 2007) designed to introduce practitioners to the principles and aims of OpenLearn and provide induction into the downloading and editing of study units
- A complementary induction into the use of some valuable and innovative tools, including [Compendium](#) and [FlashMeeting](#)
- Participation in a discussion of e-learning development at a global and aspirational (rather than parochial and instrumental) level

So, what didn't work so well ...?

We would argue that, certainly within the context of e-learning, some urgent critical attention needs to be given to two commonly-used metaphors: 'mapping' and 'engagement'.

The 'mapping' of practice was difficult from the outset. Hindsight suggests that an initial aim of the project – to map regional practice in e-learning – was formulated at some distance from the dynamics of situated practice. Certainly our mapping activities had their benefits. We began by interviewing a number of e-learning technologists within the SLN partnership and the resulting data not only informed our work but provided case study examples and network contact with practice and practitioners in the field. However, in discussion with our Advisory Group colleagues, we quickly became aware that there was scant interest in data which could be considered too local and too quickly outdated.

Our solution was to tackle that idea of 'seeing where we are' from a different perspective. We formulated a map of e-learning technologies (including, for example, blogs, wikis, 'twitterers' and mobile technologies) and invited colleagues to contribute examples of how, in their institutions, these were being used.

'Engagement' is a term currently used in almost every walk of life. But what, for our purposes, does it mean? Were practitioners who attended our conference, workshops and ELT events engaging with our work? How would we know? Does attending an event, listening to a keynote presentation and participating in an activity suggest engagement? The term suggests a form of commitment and loyalty beyond the mundane and everyday.

One indicator of such engagement, we felt, would be the extent to which those with whom we came in contact demonstrated continuing interest through subsequent online discussion. This happened rarely. At each event we would invite participants to post ideas, suggestions and responses to our discussion forum. Similarly, with each of the practitioner engagement projects we provided an online forum for discussion and the sharing of ideas and practice. The extent to which this took place was variable and, generally, disappointing. Such disappointment, however, is mitigated through reflection on our own online practices and through broader discussion.

Engagement (whatever it means) would seem to operate differently online than within face-to-face interaction. Much institutional face-to-face work would seem to be characterised by clear boundaries of activity, and knowledge of other participants above the level of discursive contribution. As a result there tends to be a level of (albeit, at times, possibly superficial) commitment. In a seminar setting, say, or a departmental meeting, we would feel obliged to participate even if only at the level of a nod of agreement, a simple question or a hand raised in a vote.

Online the social ties of commitment are less visible. Online – and we do it ourselves – we ran into what would seem to be a phenomenon of which we are all aware and which is described by a number of terms: multiple-partial participation, constant partial attention and *hyperattention*. On reflection we could have given more attention to what is something of a trend in the professional lives of many of us by providing more by way of fora for discussion structured to accommodate this developing communicative pattern.

At the outset of our project we planned to 'engage' with employers. Again, with hindsight, we might have been more strategic in our approach: employers form the part of the SLN community with the fewest resources and least space for reflection at the level of metalearning. Like teachers and other educational practitioners, employers are caught up in the immediate demands of their business. Certainly we made useful contacts and undertook meaningful discussion. Our view, however, is that employers need benefits to be articulated in relation to short and medium term rewards rather than as longer term developmental opportunities. This area would benefit from a sharing of practice within the national community of Lifelong Learning Networks (LLNs).

As the [JISC research](#) indicates, many learners are navigating their own way within the field of e-learning and many are simply by-passing institutional structures by relying more on the informality of social networking. Where we had opportunities to 'engage' with learners we were delighted and impressed by their resourcefulness, knowledge and readiness to participate in our work and activities, as a [student view](#) of our final ELT event illustrates.

... and what have we learned?

Several lessons were learned which we hope will be of value to others working in a similar field.

The importance of early attention to team composition and structure

Our final team evolved from an exploratory phase where we had some false starts in establishing roles and responsibilities. The lesson learned is to get on board as quickly as possible those team members whose expertise is complemented by an enthusiasm for innovation.

Democracy, openness and debate

As we illustrate below, 'argument' was a key feature of our work. We were quickly aware of differences in our views and understanding of pedagogical and technological development. That these differences were made explicit and were open to disinterested argument was a strength underpinning the productivity of the project. Indeed, a rehearsal of such argument became something of a presentational feature in our combined workshops, and it was clear that participants found value (and enjoyment) in the ways in which we were prepared to identify and debate openly some contentious features of educational development.

We would also draw attention to the value of dedicated debate through the presentation of conference papers at both [local](#) and international level. There can be an understandable nervousness in entering a field where there is now formidable academic expertise. We would, however, encourage colleagues to benefit from the 'inter-thinking' and encouragement characteristic of a collegial community of practice.

Collegiality and support

To colleagues involved or embarking upon similar project work we would commend the support of a local advisory group or its equivalent. The range and quality of pedagogical and technological expertise in the field is often only fully realised when shared, examined and discussed within a defined community of practice.

The importance of flexibility and taking risks

Not everything works and, if a project is to be innovative and worthwhile, then it will inevitably fail in some areas and respects. Our hope is that, in this short article, we have made such features of risk and occasional concomitant failure visible in a way that is helpful to others. In this respect we would argue the importance of flexibility. In our view it is important to identify and acknowledge challenges and to use line-management and periodic review to discuss ways in which it is sometimes necessary to manoeuvre and change course.

And, finally: what is e-learning?

Frankly, we still don't know. We began the project by asking this question and we continue to ask it at the end.

Whatever e-learning is, there seems to be a good deal of it about. There seems a tendency in the literature to polarise debate between 'web phobes' and 'web utopians'. Our own experience suggests a more complex situation within which many practitioners, often hard-pressed and working under difficult conditions, are developing ideas and practices based upon a genuine interest in pedagogy and an informed determination to offer all learners the best opportunities. Innovation of this kind should be shared. And it is work of this kind which our project has attempted to acknowledge, celebrate and disseminate.

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Numeracy matters: a case study in online assessment and feedback



Patrick Saintas > Patrick Saintas is a Principal Lecturer in the School of Nursing & Midwifery at the University of Brighton. He has been working with mature students in Nursing and Midwifery, assisting them with overcoming maths anxiety and developing their number skills through a range of pedagogical approaches. These approaches are based on evidence from literature findings and contemporary reports from the National Research and Development Centre for adult literacy and numeracy (NRDC).

Introduction

This case study outlines the process and outcome of the development of an e-learning package of resources. This integrated package includes online assessment, feedback and tutorial. It is aimed primarily at facilitating the acquisition of number skills by **National Qualifications Level (NQF) level 3** students prior to applying for professional training and education in health and social care. It can be accessed by practitioners logged in to The Open University's **Labspace**. These resources can be adapted by teachers or used directly by students who need understanding of the metric system, practice in converting one unit of measurement to another, and opportunities to develop confidence in working with fractions and decimals.

The objectives of the project were:

- To develop an existing e-learning package so that it may be offered to learners and tutors as an online resource via the SLN website learner and practitioner network areas
- To set up a small number of pilot groups in a range of settings (including work-based learning, college-based learning, and adult and community groups) to evaluate the effectiveness of the e-learning package

Rationale

The technological changes and the range of drugs available in today's health care systems have, for example, led to a situation where the mathematical skills required by nurses and midwives are more complex and critical (Weeks *et al*, 2000). This is underpinned by the Nursing and Midwifery Council's stipulation that all student nurses should be competent in mathematical calculation skills for clinical Nursing Practice at the point of registration (NMC 2002, 2007). Surprisingly, there is no minimum level set by the NMC for maths as an entry requirement for nurse training. It does not believe that certified learning such as GCSE or equivalents guarantees an ability to manipulate numbers (Wallis, 2008).

Individual universities can set their own requirements for maths, though it has been argued that such a requirement might exclude some potentially competent trainees (Hutton, 1998). In a review of the issues surrounding nurses' ability to undertake mathematical calculation, Hall (2005) referred to her previous unpublished thesis and insinuated that the problem may have multiple causative factors including the learner's past experiences of the subject and societal issues such as gender. Interestingly, she highlighted the point that formal qualifications in mathematics do not reliably indicate whether learners will find numeracy in nursing difficult or easy, or be able to complete specific assessments.

Contemporary nursing literature (Wright 2008, Hall 2005, Thomas 2004 and Wilson 2003) and the media (BBC report, 2000) have alluded to the risks of potentially fatal mistakes being made by nurses due to a deficiency in mathematical ability. Consequently, prospective candidates for the Diploma in Nursing course at the University of Brighton and other higher education institutions (HEIs) are being asked to undertake a maths test as part of the selection process to enter the nurse education programme irrespective of their pre-entry qualification. Empirical data from these tests appear to support the point made by Hall (2005) that a number of prospective candidates with GCSE or equivalents in maths were experiencing difficulties with these tests. The contents of the e-learning package developed so far appear to address the areas which these candidates find difficult.

Methodology

The first phase of the project involved contacting a number of institutions and agencies delivering work-based adult and community learning at level 3 to identify their interest in using the resources, particularly with learners planning on applying for professional training at level 4. The Workers' Educational Association (WEA) and one Further Education College (FEC) delivering Access to Higher Education with a pathway in Nursing and Midwifery were contacted and only the FEC responded indicating interest.

I developed some online learning materials while studying on the Postgraduate Certificate in E-Learning Design. Within the Virtual Learning Environment (VLE) of 'Moodle', I was able to transfer some resources from the University of Sussex Interactive Learning Environment to Labspace (another VLE) and made these accessible, while I continued the development of online diagnostic tests with immediate feedback using the quiz functionalities available within the Moodle environment. These can be accessed at labspace.open.ac.uk/PUB_6_1.0.

Moodle is a Course Management System (CMS), a web-based application which provide educators with tools to create a course website and provides access control so that the site can normally only be viewed by enrolled students. This CMS provides both educators and learners with a range of tools to make a course/module more effective. It is a resource for uploading and sharing materials, holding online discussions and chats, giving quizzes and surveys, gathering and reviewing assignments and recording grades (Cole, 2005).

The resources were presented to practitioners at one of the SLN e-learning events at the Creativity Centre of the University of Brighton. As no participant was forthcoming from either the WEA or the FE colleges, I decided to design an evaluation package using the templates already available within Labspace. This enabled me to evaluate the diagnostic tests with feedback with new nursing students (May 2008 cohort) who had chosen to attend optional tutorials in number skills, following a diagnostic pretest (also designed in a VLE).

In total, 46 students from the May 08 cohort used and evaluated the package. There were 40 students from Brighton and Worthing and five students from Eastbourne. The **number skills evaluation** was completed by 31 students.

Apart from the May 08 student cohorts, the site has also been accessed by other nursing students who have found the online resources valuable in addressing their fear of maths. They also **shared their experiences** on the wiki designed as part of this package on LabSpace.

Outcomes

In spite of not being able to evaluate this package with adult learners from the WEA and FE sector, I was able to undertake the evaluation indirectly with another group of students which have similar characteristics to the initially intended participants. A number of our students have to undertake some diagnostic tests followed by a number of tutorials in the first six weeks of study. This uses a blended approach to facilitate the development of number skills needed for the safe administration of medicine to clients. These students have to demonstrate competence in number skills by successfully undertaking a summative assessment by the end of the first year of the programme as part of the requirements of the Nursing Midwifery Council (NMC).

The notion of this impending assessment has in some circumstances led to unnecessary stress and anxiety in a number of these students. This is mainly due to the fact that access to nurse education programme has a wide entry gate and attracts a number of mature entrants. Many of these have significant problems with manipulating decimal points and converting from one unit of measurement to another. This is often exacerbated by maths anxiety, normally linked to their previous experience of learning maths.

Research undertaken by the National Research and Development Centre for adult literacy and numeracy (NRDC, 2005) has shown that a number of adults have a real fear of maths or a sense of defeat, following bad experiences at school. It is important to note that fear of maths is only one of the underlying issues which adult learners may have with number skills. Weeks et al (2000) have categorised the nature of drugs calculation errors as being conceptual, arithmetical operation and computational.

The quiz used by the Institute of Nursing and Midwifery in the recruitment and selection process contains calculations involving the manipulation of decimal points and demands skills in converting from one unit of measurement to another. These diagnostic tests and the resources available within LabSpace have been designed to facilitate the acquisition of these skills. Results obtained from the recruitment and selection tests so far seem to indicate that some of the prospective entrants have similar difficulties; therefore using the new students for the evaluation is valid.

The Moodle's functionalities, such as the ability to use an online journal for self-reflection and wikis for sharing experiences, have been used as an attempt to make maths in nursing interesting and to address the maths anxiety theme. Students can work through the topic and subtopics at their own pace and are provided with a number of online resources and tutorials. They are able to access the package as many times as they wish, away from the campus and from the threat of having to expose their skills deficiency amongst their peers. The importance of practice in maintaining numerical efficiency have been highlighted by Wilson (2003) and Alessi and Trollip (2001). Comments received within the evaluation and the wiki available on the site appear to support the points made above. The following is a small selection of quotes offered by the students:

"The try and try again aspect of the test, was very encouraging to a maths failure like me!!!"

"Maths is not my strongest point – using these helpful tests makes me feel a lot better "

"I needed to acquire the skills to divide and multiply and where to move the decimal point...this programme has helped to achieve this."

"Practice makes perfect."

"Maths is a huge barrier for me. My fear comes from school, when my two maths teachers used to get us to stand up in front of the class and say our times tables. I was very nervous about it anyway, but when I got it wrong the class would laugh and the teachers did nothing to discourage them. ...I get very frustrated if I don't understand how it works and I can feel my anxiety levels going through the roof, but I'm determined enough not to let it beat me. So doing the review assessment online is great for me. I can do it when no one is around, at my own pace. I found nursing calculations by Gatford and Phillips to be a great help also."

On a personal note, it was quite pleasing to have confirmation that using evidence-based guidelines of to underpin the design and implementation of any learning is crucial. It is important to note that it is "not the delivery media that enables learning" but how any given delivery technology supports human learning processes (Clark, 2007). The number skills package development within LabSpace has been influenced by an eclectic approach, using aspects of behaviourist, cognitivist and constructivist frameworks derived from Alessi & Trollip's (2001) publication on instructional design, Mayer's (2001) dual coding principle (using both visual and auditory material simultaneously to facilitate learning) and Jonassen's (1991) three stages model of knowledge acquisition.

The use of the wiki was intended to facilitate collaborative learning as a major component of the constructivist approaches on the LabSpace site. The materials from the wiki were intended to be used at an individual or group level (negotiated meaning) to address the issues of maths anxiety where relevant. The importance of immediate feedback and its influence on learning has been commented upon by Gibbs and Simpson (2002) and is an integral and crucial component of this package. The following selected comments from participants illustrate the features which have just been addressed:

"Despite initial anxieties, under Patrick's excellent tuition I am starting to develop an addiction to the thrill of seeing 'CORRECT' appearing on the screen! It's the little boosts that give you the confidence to flex those mental muscles and apply cold hard reasoning to what, before today, was a daunting prospect."

"I really liked the fact that if you got a question wrong once, it would show you how to work it out and give you another chance."

"I used to be good at maths in school, haven't used my skills for over 20 years and I have only just started using a computer and it's the fear of the unknown which panics me. If I write on paper and go through it slowly I can get there eventually, I do like it that you can check your answers straight away as it builds my confidence as I work through the test..."

Further quantitative data about the package can be accessed through the [number skills evaluation](#) topic on LabSpace.

Further work

Number skills materials are already being used by other practitioners within LabSpace. However, one has to be cautious that packages are not being copied and given a new version number without indicating that this has been done. This is confusing to users and also gives no credit to the initial developer.

An interactive multimedia tutorial using Flash has already been developed and implemented within the conversion topic on LabSpace in conjunction with a graphic designer from [East Sussex Design](#). Teamwork is important in designing and implementing online learning materials, as one facilitator may not have all the skills necessary to produce and upload learning materials of significant quality. Apart from the research funding granted by the SLN which has enabled the involvement of a graphic designer in the development and implementation of the tutorial, I was fortunate enough to be supported by Jenny Grey from The Open University in being granted editorial access to LabSpace and with assistance in the development and implementation of resources.

I have just started using Articulate and Adobe Captivate 3 in order to establish the benefits for practitioners of developing online learning materials without having knowledge and expertise of Flash. Bersin (2005), as part of his rationale for the emergence of this fastest-growing category of online training, defines “rapid e-learning” as web-based training that can be created in weeks and is typically authored by subject-matter experts (SMEs). De Vries 2004 defines the Rapid e-learning category as having the following criteria:

- Courseware that can be developed in less than three weeks
- Subject Matter Experts (SMEs) act as the primary development resource
- A well-known tool (e.g. PowerPoint) or user-friendly templates form the starting point for courseware
- Simple assessment, feedback and tracking are usually provided
- Media elements that enhance learning but do not create technology barriers may be included (eg voice)
- Learning modules can be taken in an hour or less, often in less than 30 minutes
- Synchronous (scheduled or live) and asynchronous (self-paced) models may be used

Conclusion

It is hoped that this article has provided an account of the practitioner’s involvement in the SLN project. It also includes literature findings and references to frameworks which I have found useful in facilitating learning of number skills. These number skills are clearly relevant for access to higher education, employability and crucial for the delivery of health and social care.

Finally, I would like to thank Jenny Lynden of The Open University for her extensive help with this project and article.

Useful links

A free trial of Adobe Captivate 3 can be downloaded at
<http://www.adobe.com/uk/products/captivate/?sdid=DLEPX>

Articulate Rapid E-Learning website can be accessed at
<http://www.articulate.com/>

See our presentation in the summaries of the Three by the Sea conference held by the Sussex Learning Network
<http://www.sussexlearningnetwork.org.uk/sln-research/research-projects/research-18/research-zone/sln-research-projects/patrick-saintas-and-jenny-lynden>

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What's in a Foundation degree? A feasibility study



Matthew Herd > Matthew Herd started work with Sussex Learning Network (SLN) on a Shellstep work placement programme. He is currently working on the ongoing development of a Foundation degree module database.

Introduction

In January this year, alongside my second year of study on a BSc (Hons) Design and Technology at University of Brighton, I joined the SLN on the Shellstep work experience programme. I was attracted to the project as it allowed me to explore the design of a practical and highly usable resource.

On my first day I sat down with the SLN Director Chris Baker, who explained that a Foundation degree, like other degrees, consists of modules (which carry their own credit value, aims, learning outcome and objectives). They are complete pieces of accredited education. When developing a new course, practitioners commonly create completely new modules which often end up very similar to existing modules run at other universities or colleges. A problem is that module information is not easily accessible to view, so it is very hard for a practitioner to see what is already developed.

This raised the following questions:

- Does a degree have to be seen and updated as a whole?
- How can we break it up and use these individual bites of learning?
- How can we present the module information in an easily accessible resource?

Background

The development of the vocational higher education curriculum has been driven by the growth of Foundation degrees over the last six years. These work-related qualifications have, by and large, replaced Higher National Diplomas. New funding policies and the actions of Foundation Degree Forward (fdf) have helped to promote and develop what are seen as employer or sector-specific qualifications.

They are therefore all fairly recent qualifications with content that is up to date and relevant to the world of work. In addition, they all comprise individual modules which, together, equate to two years full-time study at [National Qualifications Level \(NQF\) levels 4 and 5](#). These courses are delivered either part-time or full-time over two to four years.

Mapping foundation modules

The SLN Curriculum Team decided to explore whether the individual modules in Foundation degrees and HNDs in Sussex were a resource that could be used flexibly to support work-based learning. A decision was made to conduct a feasibility study with the following aims:

- To research the existing Foundation degrees and HND courses to see whether the modules could be easily identified
- To design and build a prototype database, and a website around it, which demonstrates how the modules could be presented and accessed by practitioners
- To test the concept and database on teaching staff and senior managers

Phase 1: Research

The initial task was to identify the number of modules in question. It came as a surprise to discover that an overwhelming 818 modules make up the 106 courses provided at the universities and colleges in Sussex. It was evident that the project would require a large data collection process.

The next step was to locate the information. This presented many obstacles; as there was few contact details given for those who held the data, it took time to track them down. The information is protected from the public gaze for clear reasons but is often buried within websites and intranets which make it hard to find. A further difficulty was that different institutions used different ways to describe modules (descriptors). For example, the University of Brighton always identified module aims, content and learning outcomes, whereas The Open University identified the content, learning outcomes and the qualifications of which the module was a part.

There was a lack of consistency between institutions in where module information was held. For example, it could be found on an intranet, stored within larger documents, or held by the course leader. This made it difficult to develop a common record. Initially, there was a phase of trial and error, long phone calls, meetings with confused course leaders and sieving through 300-page course specifications to find the right information. As time went on it became easier to develop a better sense of what to ask for and the best people to contact. So far the project has collected 500 of the 818 modules.

Phase 2: Building the database

Using a free online resource called Zoho, a database was created to display information about the modules in an accessible way. The obstacle here was presenting the information; there was no common structure in the module descriptors between institutions as institutions did not describe modules in similar ways. They were often written for different audiences. To solve this problem of presentation it was important to consider the practitioners' outlook on the resource. The input of the initial target users and experts was needed to answer the question 'What information is useful and what is unnecessary?'

Phase 3: Testing

To tackle the question of what information to display, and to generate some initial feedback, the concept and prototype was presented to 25 higher and further education staff at a Foundation degree Symposium held at Sussex Downs College in April 2008. As a result of helpful and positive feedback, refinements have been made and a presentation for practitioners has been produced.

The project was presented to the Sussex Learning Network Board in July where it was received with great interest and displayed evident potential as a useful resource. The Board approved the database and it is now accessible for practitioners to view on the SLN website as a prototype to gather feedback and generate discussion.

The engagement of HE in the 14–19 reforms



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14-19 education is undergoing far-reaching reform. As receivers of the secondary education ‘product’, there are potentially far-reaching implications for higher education. As a result of these reforms, virtually all young learners entering HE in 2010 will have studied something different to current school leavers, and been assessed in different ways.

Higher education has already been challenged by the [Leitch Review of Skills \(2006\)](#) to think differently about the delivery of education and training, in order to meet the future skill demands of the UK economy. The ‘14–19 qualifications reform programme’ will contribute to this agenda.

If students are learning different things, in different ways, and being assessed differently, there will be an impact on the programmes delivered in HE, their content and assessment methods. There are potential changes in the trends in subject take-up, and in the future employability of young people. A good education is the key to better life chances – a route out of poverty and into better opportunities. Higher education plays a key role in helping to shape young people’s life chances, therefore it is important that we in HE understand the changes sufficiently, adapting programmes, entry requirements and so on, where necessary.

The government is keenly aware of the role of HE in influencing the choices that young people make about what they study and where. It is essential, therefore, that the HE sector can have confidence in the outcome of the reforms, and feel able in the future to welcome students progressing to HE from the new system and with new qualifications. The reforms have been designed to address the concerns of HE about the preparation of young people for higher-level study, and the government believes that the reforms meet those needs.

However, to ensure that the reforms ‘stick’, certain conditions need to be met to enable staff in HE to feel that they can accept the new qualifications, such as ensuring universal availability to learners. The situation that arose with certain aspects of the Curriculum 2000 reforms, particularly Key Skills and the Advanced Extension Award, was the extent to which schools made them available to their students, when for the FE sector it was compulsory.

Admissions staff in HE institutions felt that they could not insist on particular qualifications for entry if they were not available to all learners. There was a concern about being discriminatory and working against widening participation policies, and so the chicken and egg situation arose – with schools and learners not wanting to take qualifications that were not ‘counted’ as part of university entry requirements.

The reform programme currently being implemented answers that problem, by making the revised and new qualifications an entitlement to all learners in the maintained sector by 2013.

To help secure the engagement of the HE sector in the reforms, the Higher Education Engagement Project Board has been established jointly with the Department for Children, Schools and Families (DCSF). It comprises representatives of the main stakeholder groups, including Foundation Degree Forward (FdF), the Higher Education Funding Council for England (HEFCE), Universities UK, the Higher Education Academy (HEA), and representatives of various HE mission groups. The purpose of the board is to promote understanding of the 14–19 reforms, to encourage HE institutions to become involved, and to provide a two-way dialogue between ministers and the sector.

The HE Engagement project has two main strands: communications and awareness-raising, and engagement – trying to involve HE institutions with the organisations designing the changes, and with the schools and colleges implementing them. The reforms are extensive and include:

- Changes to A-level
- The introduction of a new integrated qualification – the Diploma – offered along 14 lines of learning and at three levels
- The introduction of an extended project
- The inclusion of functional skills (English, Mathematics and ICT) in GCSEs and diplomas
- The reform of Key Stage 3 and GCSE

The changes to A-level (a reduction in the number of units of assessment to four in many subjects, the introduction of an A* grade, removal of optional coursework) and the introduction of an extended project can easily be seen to meet the criticisms of HE about the current system. It is intended that students will benefit from greater synoptic assessment, and the opportunity to undertake a sustained piece of work. The A* grade will allow selecting programmes and institutions to make finer distinctions between well-qualified students. However, much of the focus of information and press reporting to date has been about the diplomas and how HE will view them. The introduction of diplomas is something completely new, and those involved in teaching and admitting in HE will need to take the time to understand them.

The Diploma is intended to sit between the academic and vocational qualification routes. Diplomas are described as general education within a context – the context being 14 employment sector areas ranging from engineering, through environment and land, to public service management; and three general subject areas – science, humanities and languages. They are being developed as ‘integrated qualifications’ that combine essential skills and knowledge, hands-on experience and employer-based learning to prepare young people for work or further study.

It is intended that diploma programmes will be challenging and motivational, attracting a range of learners, including the most able. The revised A-levels, extended projects and the first five diploma lines will be taught from autumn 2008, and will provide the first cohort of students to enter HE in 2010. Three more phases will see another five diplomas start presentation in 2009, four in 2010 and the final three in 2011.

Diplomas have been developed by Diploma Development Partnerships, established by the Sector Skills Development Agency, and are therefore greatly influenced by the needs of employers. However, representatives of HE have played a role, with involvement within the Diploma Development Partnerships from Chair level to being part of a HE reference group. The challenge though, is to ensure that the involvement in HE is really worthwhile at this stage.

There is little point in developing qualifications with progression to HE in mind if those progression routes are closed. HE representatives at subject level need to be involved in influencing curriculum content for the diplomas, and to critically assess their own curricula in the light of the likely demands of the learners for something equally engaging and motivational in HE. Recent research with young people carried out by the DCFS shows that they are attracted by the notion of the diplomas, and it gives indications of the way they like to learn and receive information.

While the volume of the first diploma cohorts at level 3 will inevitably be small during the pilot phase to 2012, the aspiration of the government is that about one third of the age cohort will study for diplomas from 2013. If that happens, and given the demographic downturns of the next 10 years, HE institutions will need to embrace the qualifications in order to admit sufficient numbers of students to fill their places.

Colleagues in HE have shown considerable interest in the developments so far, with positive statements appearing about the diploma plans and extended projects in particular. Acceptability for entry to degree programmes is something that providers of the new qualifications in schools and colleges will want to see as soon as possible, and admissions policies will emerge in the autumn when the diploma specifications become available. In the meantime, efforts to inform and involve continue apace: HE institutions are being encouraged to make links with the school and college consortia recently approved to deliver the first five diploma lines.

The reforms themselves must be seen as a positive step in improving the preparation of young people for HE study. Being optimistic, the reforms will address the criticisms of the current system from HE: they will deliver students better prepared in terms of their knowledge, skills and motivation, and will allow greater differentiation between students. In time, like many 'new' qualifications before them, diplomas will become a standard route into many programmes in HE and will be the preferred entry route to some. One milestone will be when we see HE programmes being developed specifically as a progression route from a level 3 diploma programme.

Useful links

The Department for Children, Families and Schools, *14-19 education and skills*, Available at: <http://www.dcsf.gov.uk/14-19/>

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