

# Using e-Learning to Educate Health Professionals in the Management of Children's Pain

Denise Jonas, University of Salford and CMMC NHS Trust  
Bernadette Burns, University of Salford

## Abstract

*The Children's National Service Framework emphasises the importance of education in all aspects of children's pain management (DoH 2003). Therefore it is paramount that courses educating health professionals on managing children's pain continue to be accessible to an increasing number of NHS staff. Many health professionals find difficulty in accessing further education due to increased workload, reduction in budgets and personal commitments. Having the chance to study pain management in children, at a pace and time individual to their own learning need is welcomed. Management has the dual responsibility of enhancing the quality of care sick children receive whilst meeting the continuing professional development needs of the health professional. The Managing Children's Pain module was developed as an e-learning blended course in response to these changing workforce needs. Collaborative working between academic and IT staff and initial investment in extra time and staff development was to reap rewards in the increase of students accessing the course and the freedom of lecturer time normally taken up by face-to-face teaching. All module outcomes were mapped against the core principles of KSF (DoH 2004) which were dovetailed with staff appraisal systems, providing robust evidence of life long learning and continuing professional development. The first cohort attended the university for two days, with the remaining content accessed through the virtual learning environment at home, in their workplace or in the university. Students participated in on-line discussion boards to provide one another with support for the written component of the assessment. Further support mechanisms included personal and electronic supervision by the module team. The managing children's pain module by e-learning enabled the health professionals to learn in a manner that was adaptable to their workplace and promoted life-long learning by developing independent learning skills. Following evaluation from the first cohort, changes to assessment strategy are underway to enable students to deliver their assignment in an electronic manner, thus enabling the module to be accessible to a wider national and international audience. The development of the module content was all encompassing and the challenges surrounding the implementation and evaluation of the modular content will be disseminated with opportunity for delegates to examine some of the materials developed. As educators of future health professionals it is important that we continue to develop more flexible approaches to post registration education.*

### ***Introduction and Background***

Technology is changing the way people learn with many universities caught up in the e-learning tidal wave however the move to a more flexible method of delivery reflects current national and international trends for life-long learning and continuing professional development. The majority of health professionals accessing post qualifying courses within the School of Nursing at University of Salford are female, working full-time with significant family commitments. These health professionals can experience difficulty accessing further education due to increased patient workload, national shortage of nurses', reduction in NHS budgets and other personal commitments. As a result of these issues many institutes of higher education are experiencing difficulties with recruitment and retention of post qualifying programmes courses. Steadily declining student numbers on a post qualifying course within the School of Nursing required a radical rethink regarding how the school should respond to these changing circumstances. Action was required to transform the mode of delivery from face-to-face classroom delivery module to a blended e-learning modular approach delivered through the virtual learning environment (Blackboard).

### ***Pain as a Priority***

Healthcare professionals are the key 24 hour providers of acute pain management in hospital settings (Coulling 2005). Indeed professionals caring for sick children are required to work flexibly across healthcare boundaries, which require the development of enhanced skills to meet the needs of children in their care (Ellis *et al* 2007). However Seers *et al* (2006) argues that inadequate nursing knowledge pertaining to children's pain management continues to be problematic, despite the emphasises placed on the importance of ongoing education within the Children's National Service Framework (DOH 2003). Furthermore world governments affirm that children have the right to the best pain management possible and advise organisations to develop mechanisms which ensure that pain research findings are a feature of daily practice (Finley *et al* 2005). Children access services via a variety of adult based routes including accident and emergency, adult surgical environments, NHS walk-in centres and the GP practices. These practitioners do not always have the knowledge of child development required to assess pain in children. Lack of knowledge in vital subject areas and diminished attendance in continuing professional programmes will negatively impact on the healthcare children receive.

### ***Need to Change***

In September 2005 the *Managing Children's Pain* post registration module was scheduled for delivery over 20 weeks in a traditional lecture format to post-qualifying nurses, but the module failed to run due to reduced student enrolment making the module non-viable from a cost perspective. The module was located within the BSc Acute Child Care Programme; the module was also accessible as a single stand alone module gaining the student 20 level three academic credits. The module leader had previously delivered the module in close partnership with a specialist nurse from clinical practice. This practitioner had recently secured a joint appointment as a lecturer/practitioner in children's pain management. It was the intention to utilise this individual's specialist knowledge to further develop the academic content of this module, ensure that it remained up to date and applicable to practice.

The lecturer/practitioner and module team were committed to ensuring that the module continued to be accessible to registered healthcare practitioners. The University strategic framework document (University of Salford 2006) demonstrated a clear commitment to improving the learning experiences of the student to meet the demands of the current NHS workforce (DOH 2002a, NHS NWG 2006, Jones *et al* 2006, RCN 2006). It became apparent the mode of delivery of the *Managing Children's pain* module required significant change if it was to continue to attract post-registration students. Different educational strategies would need to be developed; e-learning is one such strategy (Cook *et al* 2004). E-learning does not simply imply total distance learning, a combination of face-to-face and on line teaching can provide a blended learning approach (Littlejohn and Higgison 2003). Following faculty discussions a blended/ E-

learning approach was adopted because students required a University induction and an opportunity to meet the module team but in addition IT systems were not fully integrated with exams and the assignment could not be submitted online.

### ***Stakeholders***

There is increased expectation from government, stakeholders and employers that e-learning strategies form part of a package of measures associated with CPD activities, within higher education institutions. E-learning has the potential to increase the quality and flexibility of educational programmes and alleviate pressure on existing resources, whilst widening access to all forms of ongoing education (Littlejohn and Higgison 2003, Ellis *et al* 2007). There is a demand within nursing for continuous professional development opportunities (Kenworthy and Dearnley 2001). The implementation of the Knowledge Skills Framework (DOH 2004) has accelerated the demand for health professionals to have up-to date knowledge and skills related to their role if they are to progress their careers (NMC 2004).

Cook *et al.* (2004) suggested that a national shortage of qualified nurses was one of the reasons for changes in educational delivery but recent shortages of education funding within the NHS due to budget overspends has resulted in limited staff being released for study (Timmins 2007). Chambers (2007) and Ellis *et al.* (2007) highlighted the problem of students being allocated finances to attend academic programmes of study but then due to staffing pressures being unable to take study leave, these issues impacts on student retention.

Communication with key stakeholders established that there was still a need for this type of module, this communication was important as many educational programmes are funded by the Strategic Health Authority. Prior to re-developing the managing children's pain module the team consulted with current students on the BSc Nursing Studies programme. Feedback was positive, as the proposed changes offered students the opportunity to study an important aspect of child health, such as pain management, at a pace and time individual to their own learning need. The students saw this as an opportunity to fulfil their CPD needs regardless of time and location. Whilst NHS stakeholders realised the potential to provide the health professional with education yet still ensure the needs of the workforce and patients were met.

The NHS modernisation agenda (DOH 2002b) reinforced the need to widening access to educational development opportunities for the whole workforce. The vision enshrined within the modernisation agenda was one of collaborative learning aimed at enhancing the quality of the patients' journey at every stage. Applying this vision to children who receive care delivered by adult trained practitioners, strengthens the argument for a coordinated approach to pain assessment and management. Mindful of the modernisation agenda the module content was revised to address the development needs of the multi-professional team (Barr 2002) however the child's pain needs remained firmly at the centre of the modules redesign.

### ***Transformation of Module to e-Learning***

When engaged in the process of module redesign the module team were aware of the QAA (2002) health studies benchmark which state that students' should have access to CPD opportunities which promote independent learning. E-learning is an ideal vehicle to meet these benchmarks. Information technology was identified as an essential strategy to assist in the development of students' enhanced subject knowledge. It also develops transferable yet essential information technology (IT) skills useful for future education and the increased demand of IT within the NHS workplace (Haigh 2004, RCN 2006).

Adams (2004) proposes three components to e-learning, *hardware, software and 'under-ware'*, the latter being the pedagogy that underpins the curriculum development and engages the students in learning. The justification for the adoption of e-learning should be based on sound pedagogical principles. Whilst the initial rationale for the module change was based on reduced student uptake and cost-versus-benefit approach from the University it was important that the revised modular content was developed using the pedagogical approach of constructivism interlaced with interactive materials, web-based discussion forums and the application of learning to underpin practice. Indeed Seale and Rius-Riu (2001), Fetherston (2001) and Glen (2005) argue it is the

pedagogical underpinning that drives the design and then the integration of technology not the other way round.

Practitioner involvement in the redesign of the module's curricular content provided a clear focus on the multi professional learning needs of future students accessing the module. The team were keen to encompass the perceived values underpinning blended/E-learning to enhance healthcare provision for the child experiencing pain in any setting. The module's concepts were to engage with the students' in the development of the knowledge and skills, which would encourage critical thinking pertaining to their decision making processes surrounding the quality of care received by the child and their family, whilst working collaboratively with other professionals. As the volume of research related to children's pain was increasing almost daily, it was important that the module outcomes reflected the increasing volume of multi professional, evidence based literature which should be influencing all aspects of clinical practice. The original modular content had been developed for registered children's nurses however the widening of the entry criteria facilitated access for an eclectic mix of health professionals. This resulted in the development of additional content to meet their identified needs. Students were advised of the core content then were able to choose aspects of the course content relevant to their area of practice and their individual learning needs. Development of the modular content was shared amongst the module team, the role of lecturer/practitioner within the module ensured that the content was applicable to practice and up to date.

### ***Changing Role of the Lecturer***

Lecturers are often charged with adapting existing work into a different format and Campbell (2001) argues that this involves lecturers engaging in the active process of rethinking their teaching style. Oberg and Henri (1999) suggest this involves lecturers moving outside their existing comfort zones when moving towards the development of on-line course materials with little or no experience of what is required of them. The authors acknowledge that whilst many lecturers welcome the change others are deeply rooted in their traditional practices and specialist areas.

The module team needed to consider their attitude towards the transition from classroom learning to cyber learning. Frank and open discussions allowed the team to rethink and adapt their teaching philosophy to function effectively in this new environment. The team identified their personal development needs that would allow them to guide the students' through the on-line curriculum, develop and moderate online discussion forums whilst being flexible and responsive to the students' needs, in terms of involvement, progress and achievement. This transition from traditional methods of teaching involved a major organisational re-think in terms of the resources required to underpin this mode of delivery. Indeed Duin (1998) suggests that some organisations consider e-learning as an inexpensive method of delivering the curriculum. Whilst there was a strong significant proportion of archived material for the module on the topic of children's pain it nevertheless needed adapting and altering so that it could be delivered via computer assisted learning. This involved the lecturers training in a number of computer software products. The team's own experience reflected the findings of Cook *et al.* (2004) and Green *et al.* (2006) who found that development of materials for VLE was labour intensive with additional technical difficulties and staff were often expected to develop skills with little or no experience of what was needed. There were times during development to e-learning that the team felt frustration as they struggled to come to terms with this new technology. No extra time was allocated to the lecturers for development of the content and the team were torn between existing teaching and supervision responsibilities and meeting the faculty curriculum deadlines. The team's experience mirrors findings from Lisewski (2004) where respondents commented on the lack of time within the system to develop e-learning programmes, with current emphasis being placed on operational aspects.

### ***IT Collaboration***

Whilst a funding stream was identified by the institution for the development of blended/E-learning module, the lack of named IT support personnel and the speed by which the content

needed to be developed generated problems. Future e-learning developments should include budgetary costing for dedicated IT support. However once IT support was secured, programme content developed more rapidly. Warburton (2006) supports these actions and identifies that success occurs where lecturers are well supported by learning technologists and software developers. Thus when the module commences students are able to focus on their learning rather than worrying about technology problems. Therefore student access to IT support within the University was encouraged through the provision of a named Information Services Division contact, details including telephone, email addresses and emergency helpline were provided when accessing the virtual learning environment (VLE) site.

McLeod (2004) suggests that changing to distance learning is not just about putting lecture notes online overnight, it takes many hours of preparation time to convert the materials. Extensive redevelopment of lecture content and supporting electronic reference sources was required. If a student could not access electronic content then they may have to access paper copies which do not support the e-learning philosophy.

### ***Trial Launch***

When using e-learning as the main method of module content delivery it is important to pilot the content before going live. The lecture/practitioner in the team accessed the content through the virtual learning environment at a variety of locations including UK and Europe and also in the practice setting. Conflict with the NHS computer firewalls were partially resolved with the hospital Trust IT department, in addition a problem was identified with the voice enhanced PowerPoint software which required the team to contact the software parent company in France to obtain a licence key, however the launch date was not affected.

### **First Student Cohort**

Students were recruited onto the module through extensive marketing of the module within paediatric units, accident and emergency departments, and North West regional community trusts. This strategy proved successful and increased student numbers by 60%. The marketing materials were also co-ordinated and developed by the module team which enhanced the marketing success. A total of 18 students enrolled on module, this included 9 single module students. Students were from a variety of locations in the North West and one student flew from Norfolk to participate.

It was important to the success of the move to blended/E-learning to incorporate student support mechanisms. This proved challenging as this was the first blended/E-learning module developed within the Faculty of Health and Social Care. The literature presents a mixed picture with some authors (Hewitt-Taylor 2003, Littlejohn and Higginson 2003, Abramczyk *et al.* (2005) suggesting that support within e-learning can improve the flexibility and quality of learning. Thus in providing student centred learning the environment should be conducive to their individual learning needs encouraging students to take responsibility for their own learning. Sit *et al.* (2005) studied nursing students and reported that the e-learning format required them to hold a higher level of accountability for their own learning and as a result became more independent learners. However Seale and Rius-Riu (2001) suggest that even independent student learning needs to be guided and supported, by access to lecturers and through the organisation and design of supportive resources. Lambe and Clarke (2003) found that a high level of lecturer feedback in the early stages of the course resulted in greater student participation as the course progressed.

The team philosophy was to encourage students to proactively seek feedback and guidance but it was important from the outset to establish rules and boundaries. The students should be clear when and how tutorial support would be available and what support in terms of their academic assignment was available. These boundaries were flexibly interpreted in accordance with the individual student needs.

This led to the formation of a formal induction and ongoing support programme which are essential for effective learning. Embarking on an e-learning programme of study can be bewildering and an induction into the University allows the student to establish a learning

relationship with their host University. One of the early drawbacks surrounded registration as online registration was not available. Students had to attend for registration this was turned into a positive event and a one day induction was facilitated. However prior to registration students' received letters informing them of the technical skills and IT resources they would require in order to access the learning materials on the VLE. The induction day followed a model similar to that proposed by Forrester *et al.* (2004), this involved an informal meeting of the module team and other students within the module, familiarisation with the university policies, learning how to navigate the VLE and undertake electronic literature searches, discussion of module assessments and general discussion of any impending concerns. This opportunity was also used to guide students through the basic rules of 'netiquette' (Kallós 2004).

### ***Module Content***

A planned outline of the module content was placed on the VLE indicating when on-line content would be released. This gave students an indication of the approximate time it would take to complete individual components. Content surrounding physiology of pain was developed using supplementary and interactive websites to help the student understand this complex aspect of pain management. The team felt strongly that if the student failed to grasp the physiological underpinning early in the module, then they would be unable to synthesise the remainder of the course. However despite all these actions several students struggled with this aspect of learning, echoing research findings that qualified nurses are not confident of their biological knowledge base (Clancy *et al.* 2000).

The discussion boards aimed to provide an environment where students could engage in supportive discussion surrounding their learning, developing the students' ability to construct new ideas, undertake activities and receive feedback through dialogue with their lecturer and peers. Laurillard (2002) stresses the importance of this dialogue/feedback in the promotion of higher levels of learning facilitating the linking of theory to practice. Such learning can be used to enhance and influence individual practice, immediate feedback helps students understand their own learning and help foster self-regulation, reflection and developmental plans for the future (Gibbs, 1999, Yorke, 2003). All on-line sessions included signposting to useful websites, embedded research articles, video media and Nuggets (Jones, 2005). In addition a number of sessions incorporated short non-assessed quizzes to help the student to self assess their knowledge acquisition. Literature suggests that students find on-line tests highly motivational and useful to check their level of understanding and will often make repeated attempts until they succeed (Bostock, 2004, Nichol and Milligan, 2006). Students were also encouraged to share reference sources with their colleagues promoting the vision of a shared but supportive learning community. Reflective activities within the on-line material provided a framework for the students to critically reflect on what they had learnt and apply this to their practice, thus developing higher level critical thinking skills (Janes, 2006).

### ***Assessment***

The development of robust assessment strategies was a major concern of the team, indeed assessment can determine how and what the student learns. Work-based students are more likely to immerse themselves in assessments that have immediate relevance and application to their practice (Rowntree, 1997). By using a variety of assessment methods it is possible to assess a range of knowledge and skills, which achieves more balanced results, and hopefully produces more rounded employable health-professionals. The students were required to undertake a 20 minute oral presentation to the rest of the cohort on a pharmacological product; this required a full day's attendance. The presentation was maintained from the original face-to-face module as the aim was to encourage evidence based practice through exploration of a topic area that was applicable to their practice area, whilst developing oral communication and IT skills.

Upon examination of the written assignment utilised in the face-to-face module, the team considered that the assessment still reflected the blended e-learning module aims. The 3,000 word written summative assignment was applicable to the student's individual practice area and related to the client group they cared for. It was necessary to maintain the link between theory and practice to ensure that the solutions of practice were congruent with the learning theory.

Therefore no changes were made to the theoretical assessment except that information was provided on how the students could post their assignment to the exams office therefore reducing the need to attend the campus.

### ***Reflexivity and Lessons Learned from First Student Evaluations***

#### ***Limited IT Skills***

Assumptions were made by the team that the student had chosen to undertake the e-learning module as they were IT literate; in reality a number had undertaken the course for the topic content not the mode of delivery, thus a number of students initially struggled with basic IT skills. A key factor for effectiveness of e-learning is accessibility and affordability of up to date computer hardware and software as well as speed and stability of internet access, Cragg *et al* (2003). Many of the students were competing at home for computer space with family members; others found that the computer systems in their own NHS Trust were inadequate for the course, in that they were too slow to open documents.

For some beginners confronting computer technology can be more stressful and consume more time than the actual learning activity (Atack 2003). Honey (2004) found that although 95% of nurses could use email only 75% knew how to send an attachment. However the student evaluations revealed that this was an area with rapid growth and learning;

- *Course taught me computer skills*
- *Easy to access university blackboard as I did not have many computer skills*
- *Learning from home, managing the time better to access teaching packages when I needed*

#### ***Lecturer Support***

The School of Nursing had embraced the opportunities provided by e-learning as this method could reduce the economic drivers associated with heating and lighting and also reduce pressure on classroom availability. It was also seen as a method of generating increased income without increasing lecturer hours but in retrospect the faculty had failed to acknowledge the 'invisible' lecturer time spent providing online student support and monitoring the Blackboard (VLE) site where the module was housed. However University of Salford are not alone in this misconception, many other universities become too focused upon the benefits of e-learning in terms of supporting a larger number of students with reduction in lecturer time (Ayers and Grisham 2003, Janes 2006). However online teaching can slowly eat into the lecturers own leisure time and it is generally expected that lecturers end up logging on in the evening and at weekends just to keep up (Chickering and Ehrmann 1996, Forman *et al* 2002).

The VLE site contained staff information which outlined contact details, photos and who to contact should a lecturer become unavailable. The team themselves were flexible in their approach to student support and acknowledged that the students would be mature learners who also have to place their studies within their other life priorities. This commitment paid off with overwhelming positive satisfaction from the students,

- *Even though e-learning, teacher support was excellent and you were able to access teachers when needed.*
- *I appreciated being able to contact tutors at any time useful*
- *Tutors have been very supportive they have communicated using personal and university emails, they have responded to all questions asked....*

#### ***Electronic Support***

The team found that some students struggled with the electronic supervision, this mimics findings from Hyland (2001) where distance learning students often found the lecturers' comments too generalised and this misled them into making further errors. However the positive

aspects of e-learning in the reduction of travelling time and costs were further supported the student evaluations;

- *Needed no child care*
- *Online - not having to travel to Manchester every week.*
- *Distance learning is a terrific idea for a busy working single mum like myself....*
- *That you could complete module on-line rather than travel to university every week.*

### ***Motivation and Development of Independent Learning***

Several studies have shown that e-learning with nurses promotes more independent learners (Sit *et al* 2005, Nichol and Milligan 2006) and that empowering students to self regulate their learning is a goal of higher education. Yet the perceptions from the students indicated their difficulty in achieving this.

- *Open learning – need to be strict with self, hard when get home and get interruptions*

Maintaining student motivation is considered important especially in e-learning as the temptation to sit back and not learn is a trap too easily fallen into (Baptista-Nunes and McPherson 2002). The academic tutor is the key to ensuring that the student remains motivated, in e-learning the onus is on the lecturer to maintain contact if the student is to remain focused.

### ***Course Content***

One of the criticisms of distance learning has been that learners only focus on what is in the package (Chapman 2000), the team considered that it was important to ensure that the content was applicable to a range of pain management settings and the evaluations indicated that we had achieved this;

- *Lots of information and links to articles also module leaders frequently put notices on blackboard*
- *Lecturers experts in the field and still practicing nurses*
- *I liked that each weekly session was different and covered the topic thoroughly*
- *Teaching packages were great with plenty of reference articles*

### ***Missing Student Contact***

Online learning can result in a rich stimulating milieu or can result in a sense of loss and belonging (Farrell and McGrath 2001, Nichol *et al* 2003). Students stated that they missed the classroom guidance and discussion with one another, the team considered that the discussion boards were an important aspect of this module but the cohort had not actively engaged in discussion boards, this sense of isolation was borne out by the student's comments:

- *I do not enjoy e-learning and there was little group participation via blackboard – prefer group discussions in classroom setting*
- *Lack of interaction with other members of the group*
- *Sometime through e-learning didn't see the group enough*

The key to reducing this isolation is to promote and engage students in thinking, discussing and applying concepts with one another through the discussion board, therefore the topics need to be planned in advance and be stimulating.

### ***Lack of Practice Support for Students***

One of the greatest issues the students faced was lack of support from their managers in practice with study leave, many complained of lack of time to work on the course as the greatest barrier. As the course was blended e-learning and required only two formal days in university some managers perceived this is as the only study leave that the students required.

- *Found it hard to do work as no set day in college found myself doing it late at night when my son was in bed.*

The module required the student to attend on one specific day to undertake their summative seminar presentation; two members of the cohort failed to submit their oral presentation due to work commitments. Jones *et al* (2004) found a 40% student withdrawal due to increased pressure of work whilst Mason and Weller (2002) and Attack and Rankin (2002) found that one of the major complaints about online courses were associated with limited time to complete the work. Ellis *et al* (2007) in particular found that post qualified nurses were often unable to attend the courses due to staff shortages, they were expected to complete the courses in their own off-duty time and as a result many fell by the wayside and did not complete the course.

### ***Future***

Consideration had to be given to the future of this module; a move to total e-learning with assessment submitted electronically would enable this important aspect of education to be accessible to a wider geographical audience thus reducing the problem of small student numbers accessing courses. The lecturer/practitioner as a member of a national 'pain in children' committee was aware of the need for specialised education in children pain management and considered that if the module was fully e-learning then health professionals accessing the module from outside of the United Kingdom could lead to increased finances to University of Salford. However this revision could not be undertaken in isolation as facilities within the University Of Salford, School Of Nursing are currently not aligned with the exams department to deliver on-line assessment.

### ***Conclusion***

Development of the module to blended e-learning was at times frustrating and time consuming for the lecturers but the revised managing children's pain module has enabled the health professional to learn in a manner that is adaptable to their workplace, minimised their absence from practice, and promote life-long learning by developing independent learning skills. In addition as the NHS becomes more reliant on IT the module has also develop generic IT skills useful for the students' short term academic studies but also for their long term health careers. The module now specifically addresses the needs of post-qualifying health professionals in terms of flexibility and learning that takes into account their current experience and practice setting. However care needs to be taken to ensure that traditional nursing students are not disadvantaged by the increasing use of IT and the complexities of e-learning. Increasing support through the induction process and pre-registration information may help the student decide if the module addresses their individual learning styles and IT capabilities before embarking on the course, this should reduce student dissatisfaction and increase retention. Learning is still considered to be second interest in the workplace, organisational support is required for the post-qualified nurse in order to ensure that the course is completed and the knowledge base acquired is applied to benefit the future care of the child. The module evaluation process should be used to further develop the module around the needs of the student especially with the possible increase of students from outside of the North West and indeed the UK. As educators of future health professionals it is important that we continue to develop more flexible approaches to post registration education and tailor our product to the needs of the market and the service providers.

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