Abstract
This paper provides a case study and discussion of a curriculum design model using technology in the Initial Teacher Training context. It describes the transformation in design thinking which took the Adult Literacy Subject Specialist teacher training programme from a fully taught face-to-face model to one where technology acts as the ‘delivery mechanism’ and a space for problem-based learning.

Three discrete, but connected, themes are discussed here, which marked significant successes in the course, but which also raised issues for teacher educators and students. Firstly, an example is given of a shift in curriculum design thinking, incorporating the flipped classroom model in the delivery of a key ‘threshold concept’. Secondly, a case is made for a ‘persistent curriculum’; one which ensures students endure and succeed through the technologies used. Finally, a critical analysis of the success and issues around the use of blogs as the principal tool for reflective practice and formative assessment is presented.

Each of these exemplifies a ‘meta-curriculum’, where students encounter learning objectives and new technologies which locate them directly in themes of the adult literacy field in which they work.

At a time when the MOOC (Massive Open Online Course) is becoming increasingly popular, this paper evaluates how far it is desirable to ‘manage’ the online learning environment, and considers its impact on the independence of the student. It also reflects on the importance of face-to-face classroom experiences for teacher trainees and considers ways in which this valuable pedagogical asset might find a home through ‘collaborationware’ in the e-learning environment.

Keywords: Technology, teacher education, persistence, flipped classroom, blogs

Background
The Centre for Lifelong Learning, University of Warwick manages an extensive post-16, Initial Teacher Training programme in partnership with a number of local providers,
through different incarnations of national qualifications, most recently Diploma in Teaching in the Lifelong Learning Sector (DTLLS) and Diploma in Education and Training (DET). As part of this suite of qualifications, Subject Specialist Teacher Training, for Adult Literacy and Numeracy teachers in the sector, has been delivered for over a decade. It is on these programmes that e-learning has proliferated, with courses delivered through a blended approach of online activities and face-to-face taught sessions. This paper focuses on the Adult Literacy Subject Specialist (ALSS) teacher training course (for those practitioners who teach adult literacy in the post-16 community or further education sectors) with insights from former students and their work. Although this programme is ongoing, this paper includes the evaluations of students who successfully completed the programme in the last two years, and as such reflects the programme at that point.

A shift in curriculum design thinking: an example from practice

The original ALSS course was delivered as a face-to-face model in 2004, but the move to online delivery for some aspects of the programme provided the possibility of diverging from existing, established courses in the Warwick partnership. In addition, delivering the course in this way seemed conducive to the imperative for teachers to be able to use technology effectively themselves, in their own classrooms. The first and most important curriculum design decision was that the course should not be delivered entirely at distance, and that the ‘minimum’ classroom contact desired was a once a month, all-day meeting. It was judged that teachers ‘needed to talk’ and partake in a classroom experience themselves, where good practice in curriculum design and delivery could be modelled. This decision has stood the test of time over the ten years that the course has been delivered.

As with all Initial Teacher Training, the curriculum contained key elements of theory and its relationship to practice. Curriculum design decisions needed to be made about what existed in the (traditional) classroom domain, and what became distance study. Distance study materials were to be delivered online via short course tasks and links to relevant resources, such as e-books and external web sites. Students were to also keep a blog (online journal), for both reflective practice and formative assessment delivered via course tasks. This method seemed to suit most busy practitioners, as evidenced by the following comment: “I liked the tasks being online as I could do them when it was convenient. A taught course where you would have had to attend more often would have been difficult to fit into a teaching timetable”.

In the re-designing of the programme, to fit a blended study model, it was first assumed that those most challenging theoretical concepts (in the case of the ALSS course, linguistic and grammatical concepts such as phonology, morphology and coherence; and aspects of sociolinguistics) should be delivered face-to-face in the classroom, enabling the teacher educator to provide explanation and clarification to students. These challenging, but core ideas related to a discipline are described by Meyer & Land (2005) as ‘threshold concepts’. The ALSS curriculum design often demanded prior reading and post-session reflection on these threshold concepts, but the bulk of learning and consolidation of understanding was anticipated in the classroom domain.

One threshold concept on the ALSS course was that of ‘coherence in writing’. It proved continuously challenging to students, year on year; some students were unfamiliar with the term and many did not actively teach it to their own learners. Significantly, some had difficulties with recognising it and employing it in their own writing, with clear implications for summative assessment on the course (based on traditional university-style assignments). Early iterations of the ALSS course saw this concept delivered by a series of PowerPoint slides, alongside collaborative classroom activities intended to consolidate students’ understanding. However, habitually, this learning outcome took much longer
to deliver, with protracted discussions in class as students struggled to make sense of the concept, which put pressure on the remaining classroom time. To ease this time pressure, these same materials were eventually recorded and delivered in a screencast (a digital recording of a computer screen, with audio commentary), and made available via the course virtual learning environment (VLE) as a distance study task. However, the pedagogical benefit of this change was much more powerful than simple time-efficiency. Students reported (via their blogs) that they had understood (given the time to listen, ‘re-play’ and assimilate the content) and this was further evident during the subsequent taught session where they then engaged in collaborative activities designed to apply and test their knowledge. Soon these activities themselves were put online as course tasks, and students came to the taught session having not just learned about the concept of ‘coherence’ (via the screencast) but having applied the theory to practice, in the analysis of an authentic piece of writing (through a VLE task). This made space in the classroom for synthesis of ideas with peers, and evaluation of the concept and its applicability to practice, echoing what Wheeler et al. (2005) describe as “problem-based learning” in teacher education, “the development of skills through the use of complex, real-life problems…promoting critical thinking, collaborative learning, verbal and written communication…” (Wheeler et al. 2005, p126).

Following on from the collaborative activities, students completed the process of learning about this threshold concept by analysing a piece of their own academic writing. This led to some insightful reflections, even revelations, on students’ blogs; one such trainee remarking, “I found analysing my own writing incredibly difficult and a bit of a shock really – I have always thought of myself as a good writer but found my writing didn’t seem to have much coherence or cohesion…” This reflects Meyer & Land’s assertion that “a transformed internal view of subject matter, subject landscape or even world view…” can occur with such threshold concepts, but that also the results can lead to “troublesome knowledge”. (Meyer & Land 2005, p373). In spite of this troublesome journey for some, there was a marked improvement in students’ understanding of the threshold concept of coherence, which ultimately came to fruition in their summative assignments.

From a curriculum design perspective, about three quarters of the ‘learning time’ around this threshold concept took place at distance (through a series of task-based approaches) and can be seen illustrated on the right of Figure 1. The move from delivery of these challenging concepts face-to-face, to their delivery online, marked a transformation in practice for both student and teacher educator, moving from a position of “technology as a complement to instruction” to “technology as delivery mechanism” (Ginsburg, cited in Mellar et al. 2004, p32).

**Encouraging persistence when technology is the delivery mechanism**

This evolution in curriculum design might currently be known as ‘flipping the classroom’ (Flipped Learning Network 2014), which is more readily associated with whole-lecture delivery online, but which works well for these ‘threshold concepts’, delivered in short screencasts (O’Toole 2013). While gaining momentum as a pedagogical style, the notion of the flipped classroom has also raised concerns that simply putting lecture recordings online does not lead to active learning or engagement with the materials (Bogost 2013). The ‘task-based’ approach of the ALSS programme guarded against this possibility, by guiding the student towards both the intended course learning outcomes, and their own reflections on their skills and practice. As such, it encouraged what the National Research Development Centre describe as ‘persistence’, a “learner-centred concept, focusing on how, from the
The notion of persistence was first described by NRDC in relation to adult literacy and numeracy learners' perseverance, and was a theory discussed on the ALSS programme, but it has direct applicability here. For successful implementation of e-learning, persistence needs to be encouraged in a number of ways: cognitively, emotionally and physically, drawing on the domains of Bloom's Taxonomy (Forehand 2012). As the ALSS course evolved, so did concern with persistence in these domains, and the realisation that this was crucial for ongoing success. In the example described above, persistence was achieved through a series of closely connected tasks (some distance study; some classroom) that moved students towards the intended learning outcome, but which also promoted higher-level thinking skills. Initial 'comprehension' of the concept and its application was achieved at distance, with classroom time freed up for analysis and synthesis, followed by a period of evaluation and reflection after the taught session. This journey from lower to higher order thinking skills is also illustrated in Figure 1.

Another way in which cognitive persistence was achieved at a more 'micro-level' was via course tasks themselves, delivered through the VLE. Purposeful directing of students towards learning objectives, through carefully worded instructions, encouraged them to consider the relationship between theory and practice and promoted reflection. Alongside this 'cognitive direction' was persistence encouraged by the physicality of the VLE task and website design itself. Activity symbols, consistent page layout and easy access to primary resources such as e-books also promotes persistence, and although good practice in web design and navigation is recognised, its impact on the persistence of learning is equally significant. Figure 2 shows a VLE task from the ALSS course, with indications of how persistence is achieved at micro levels.
Where cognitive and physical orientation needs are met through task-based learning and VLE design, so the ‘persistent curriculum’ should account for what Bloom determines to be the third domain, that of affective responses. A blended study approach to curriculum design, allowing for face-to-face student and tutor contact can help to alleviate fears about progress and support retention (the ALSS course had very good levels of retention and achievement). The emotional health of students on the programme was also easily determined through their blog entries and their appreciation of the taught sessions was particularly evident, and reported here, showing that students valued seeing their peers for both emotional support and encouragement: “I was relieved to find that others had found this concept challenging...” and, in terms of the regard for collaborative learning:

...this course was more interactive – learning from each other, sharing experiences, which I really enjoyed. It has impacted on my teaching a lot – I stress to my students now that by taking part in discussions, helping each other generate ideas for written work etc. they will learn a lot more than just listening to me.

This statement also shows the transfer of the teacher training classroom methodologies into students’ own practice; a model which was always a keen goal of the ALSS course. A final, and significant way in which affective persistence was achieved was through the expectation that students would prepare something ahead of the forthcoming taught session (in the case of the ‘coherence’ theme, students had to analyse an adult literacy learner’s text). This follows the flipped classroom pattern, but directing students very explicitly to bring something they had completed to not only share with peers but to use in conjunction with their peers' work to transform into something ‘new’ in the classroom, was a powerful way of ensuring persistence, as students felt some social ‘pressure’ to ensure they were not letting their fellow students down.

Some of the ways in which persistence in e-learning can be achieved in the three domains can be seen in Figure 3.

**Changing students’ literacy practices: blogging**

At distance, the use of student blogs also helped to achieve persistence in the three domains; another good example of this concept once again, at ‘micro-level’. Blogs, primarily a person-centric tool, provide an ideal online, accessible space for an individual’s...
formative assessment, whilst blog comments can facilitate tutor and peer feedback. Students on the ALSS programme had around fifty blog entries to write (which formed the bulk of their formative assessment and evidence of completion of course guided learning hours) related to the aforementioned course tasks or as part of their reflections on practice. Tutors responded to these blog entries on a weekly basis and situating this feedback on blogs allowed for a very personalised response to a student’s learning, whether affirming their understanding of a concept, further clarifying it, or prompting the direction of further reading, which according to Gaytan & McEwen (2007, p129), is an assessment opportunity not to be ignored.

Whilst cognitive persistence was achieved here, so was emotional, where course tutors acted in a pastoral role and as mentors for issues that arose in the students’ place of work. More practical matters and technology-related ‘trouble-shooting’ comments could also be included on blogs. With such discrete access permissions, blogs provided a ‘safe space’ for students to openly discuss all aspects of their practice and learning, and the relationship between both. Wheeler et al. maintain that this “iterative process of reflection on practice through continual evaluation of performance” might most effectively achieve the shaping of professional identity online through “engagement within mediated discussion” (Wheeler et al. 2005, p128). The level of personal response and dialogue between tutor and student on this blended study programme far out-weighed its face-to-face taught counterparts. Separate, discrete tutorial meetings with students were rarely needed, as the tutor and student engaged in weekly dialogue through students’ blogs. As a course tutor, there was tremendous value in having an insight into how students were thinking, feeling and learning in-between the taught sessions.

Few students on the programme had ‘blogged’ prior to attending the course but they appeared to quickly value the medium. Students supported its use as a record of progress or what Cochrane & Bateman describe as a “bread-crumb trail” (Cochrane & Bateman 2010, p10) with one student commenting: “I liked how I could see over the year how I was developing as a teacher…as it was all recorded on my blog”, whilst others commented on the accessibility of the technology: “If I had something occur in teaching, or a flash of inspiration, I could access the blog anywhere to record and reflect on it”, supporting the notion of “authentic learning – i.e. facilitating anywhere, anytime student centred learning” (Cochrane & Bateman 2010, p2). The ease of access described here, if combined with

Figure 3 Encouraging persistence in learning through three domains.
email notifications (i.e. a message that indicates you have a new blog comment) might positively harness what Hayles (2007) describes as ‘hyper-attention’, prompting students to check their blogs for new comments and therefore keeping them ‘alert to the course’; once again, a tool for persistence.

Another student commented on how the technology itself seemed to prompt a change in her commitment to the process of ‘reflective practice’ itself, ubiquitous in teacher education:

Blogging added another dimension to my learning. If I had been asked to maintain a diary that was not accessible to tutors online, I might not have committed to it as much as I did. Having an ‘audience’ made the process of reflection more meaningful to me.

For each of these students, blogging marked a shift in their existing ‘literacy practices’ and expanded their use of literacy in the online ‘domain’; both principle facets of Street’s ideological model of literacy, represented as part of the movement of New Literacy Studies (NLS), which re-conceptualises literacy not as a set of competencies, more a series of social practices (Street 2003). The theme of NLS was integral to the ALSS course in relation to the teaching of literacy to adults, and marked for many students a ‘re-thinking’ of what they considered literacy to be. Blogs, likewise, saw most students re-conceptualising reflective practice as a positive venture, rather than the obligatory (and often onerous) teacher training reflective journal; for many it became a new literacy practice integral to their work and life: “I found it an incredibly useful learning tool and I still miss using it! I am now studying with (another organisation) and have access to an on-line forum but this is open to all students so I don’t find it particularly helpful as there are things that you do not want the whole course to know about”.

The blog, then, became the seminal e-tool for reflection and formative assessment on the ALSS programme, the use of which was observed to be excellent practice by Ofsted (2010, p16): “Trainees on the skills for life distance learning programme benefit from their high quality online self-reflection”.

However, the nature of the tool itself, its convenience and appropriation on the ALSS course as a medium for personal, one-to-one dialogue, and formative assessment did lead to some pressures and issues for tutors and students. Encouraged by the ‘success’ of early
blog interactions, conscientious tutors felt some pressure to reply to all blog entries, to maintain the quality feedback that students were used to. This became impossible, given the number of blog entries, and led to issues which had the potential to damage persistence in learning. The same student who commented above about the value of the ‘audience’ for her blog, provided stark evidence of how she felt when that audience was not there:

On the occasions when feedback was delayed, it could be a bit disconcerting posting things into a void. The uncomfortable feeling when the flow of information was slower than expected perhaps suggests that I became a little too dependent upon feedback approval than was good for me!

The suggestion here is that, contrary to the original aims of the curriculum design, independent learning may have been eroded to a degree, and over-dependence upon the tutor for feedback might have been encouraged through the blog comments model. This “closed environment scenario”, which was so valued as an accessible, dialogic learning tool, became less effective when those “select, well known and trust-worthy people” (Boulos et al. 2006, p45) could not commit to it with the same level of intensity. Worse still, the idea that students might feel unsupported, combined with an acknowledgement of increasing tutor workload, prompted a new direction in curriculum design thinking, and an increased understanding of qualifying student and tutor expectations at the start of an e-learning intervention. The latest iteration of the ALSS course sets out an expectation to students, during the course induction process, that certain blog entries will definitely receive feedback, that detail would vary and that, increasingly, peers would provide formative assessment and feedback to each other. The number of blog entries has also been reduced and tasks consolidated, to improve the efficiency of the model and its requirements for feedback.

Towards a shared responsibility for curriculum design and learning

The ALSS curriculum model has been a highly managed, linear blended learning intervention. This was a deliberate act, on the part of the curriculum designers, to support busy students, all of whom had full- or part-time teaching posts, enabling them to gain a qualification of high currency to their job roles. Students valued this structure, both in terms of their own time-management and their ability to draw synthesis between the concepts on the course and their practice:

I need deadlines to keep on track and I thought the work timelines were very helpful. The tasks were given out well in advance so they could be fitted in with work commitments. Seeing what tasks were coming up could be incorporated into planning schemes of work to strengthen the links between the course and work.

However, this managed learning environment and the relative inflexibility of the blended study model (especially when employing interventions like the flipped classroom approach; dependent upon the completion of explicit pre-session tasks) also applied much time-pressure to students, one admitting, “it wasn’t easy completing tasks in the allocated time as well as working, maintaining family life etc.”. Boulos et al. acknowledge that “monitoring, moderation and administration tasks can be very time-consuming due to the requirement for intensive human resourcing” (Boulos et al. 2006, p45) in e-learning environments and this has definitely been the experience of the teacher educators at Warwick. A MOOC-like, truly self-directed environment may alleviate some of this shared
time-pressure, but is not the most desirable model with a professional programme subject to external examination, national standards and teaching mentoring and observation. Furthermore, the value placed by ALSS students on the face-to-face taught sessions was irrefutable:

...a lot of different teaching and learning approaches were put into practice on our taught days which was more powerful than merely hearing about it, reading about it, or finding out about it online. They are probably the things that have stayed with me the most and had the greatest impact on my own teaching practice.

Given the establishment of such positive communities of practice in the ALSS classroom, this curriculum has evolved again, and could continue to do so, to a point where similar shared responsibilities and reciprocal, collegiate relationships are achieved not only in the classroom, but at distance. The course has already moved in this direction, with the introduction of more of what Boulos et al. (2006) describe as ‘collaborationware’, not simply through opening up blogs to peer feedback, but through the use of wikis and similar shared online spaces. Increasingly, perhaps, the evolution now should be towards a ‘mindtools’ approach, where, rather than simply ‘technology as delivery mechanism’, students “bring their knowledge to the computer, which provides a sort of ‘mental gymnasium’ within which the student can ‘workout’ to build new knowledge through proactive exploration and collaboration” (Wheeler et al. 2005, p126). Although the students’ blogs and wikis can fulfil this function, the course VLE has remained the managed domain of the teacher educator. Rose (2014) claims students are, more than frequently, being ‘denied agency’ in the online learning environment by gatekeepers in their institution, and describes a recent project at the University of Exeter, where students have been given administration rights to a course VLE, allowing them to become co-creators of resources and setting formative assessments for each other, for example. This method could easily have application in the online teacher training environment, perhaps through what Wheeler et al. describe as the situated mindtool approach of “ill structured problems” to “emulate real-life teaching situations [where] problems can be constructed that have more than one possible solution” (Wheeler et al. 2005, p127). This could capitalise on some of the valuable collaborative learning achieved face-to-face on the ALSS course, whilst freeing students from some of the constraints of a linear, managed workload. Whilst acknowledging the relative time and potential ‘training needs’ of this method, it also, of course, creates more equity in the VLE between students and teacher educators.

**Conclusion**

“Online instruction and assessment must balance the requirements of technology, delivery, pedagogy, learning styles and learning outcomes.” (Gaytan & McEwen 2007, p130)

After ten years of delivering the ALSS course, it is clear that moving from a fully taught model to one incorporating e-learning is challenging and certainly not as straightforward as transferring classroom materials online (JISC 2007; Roberts 2006). Appropriate electronic delivery mechanisms should be sought, used, evaluated and changed with a close relationship established and monitored between learning outcomes and e-methodology. However, the match is also between students and their preferred tools and approaches, which is both further supported and challenged by the recent pervasiveness of mobile technologies. In the case of blogs on the ALSS programme, their fitness for purpose and ease of use; what Boulos et al. describe as “transparent technology” (Boulos et al. 2006, p42), had a ‘cultural capital’ to students which ensured their endurance on the course.
Being mindful of the forces of curriculum, pedagogy, technology, student needs and the expectations of all involved, is challenging for the teacher educator, and they should remain a reflective and conscientious curriculum designer, responsive to the issues and challenges that e-learning raises, whilst also critically appraising its ability to ensure persistence in learning. When all of this is considered, e-learning can truly transform pedagogy and experience.

References


