Transferability of e-Portfolios in Education: Phase One report

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Executive Summary

Background:

The first phase of this project, evaluating the current uses and designs of e-portfolios in Higher Education Teacher Training courses within the UK, has now been successfully completed. Phase one of the study identified practitioner's views on the successes, failures and barriers to implementing e-portfolios into the ITE curriculum on a large scale. In addition, phase one investigated existing e-portfolio packages and tools currently used in the field of Education; the current use of e-portfolios in teacher training; and the present use of e-portfolios to support learner PDP. All HEIs currently offering Teacher Training within the UK were invited to participate in the study.

Key Findings

The findings of the survey clearly indicate that the current initiative taking place in teacher training courses in HEIs across the UK is still very much in its infancy, with only a third of respondents reporting that they are using some variant of e-portfolios. It is evident from the study that the majority of those practitioners who have engaged with this project are planning to integrate e-portfolios into the curriculum in the near future. The most frequently reported software used to support e-portfolios identified by the respondents included; Moodle, PDP Progress, Blackboard, PebblePad and free blogs and wikis.

Results from phase one suggest that respondents feel very positive with regard to the potential e-portfolios offer within teacher training programmes. However, it is clear that consideration needs to be made at the planning stage in order to effectively implement a fully embedded e-portfolio system into the curriculum. Respondents highlighted a number of points, are summarised as follows:

- I.T. training for students is imperative for all in the beginning of the course;
- Course Priorities – e-portfolios need to be fully embedded into the curriculum for all students and staff to understand the importance behind it;
- Student choice – in order to support the flexible nature of e-portfolios;
- Time consuming – instructors need to clearly outline the requirements of the e-portfolios to both students and other staff members;
- Instructors have strong aims of what they would like the e-portfolios to achieve;
- Technical implications – planning between instructors and administrative staff on technical support for e-portfolios needs to take place.

The issues raised by respondents highlight anxieties regarding the gap between expectations and reality when implementing e-portfolios into the curriculum.

Issues of assessment raised by respondents highlighted a number of implications when using e-portfolios as an assessment tool, including the time consuming nature of marking e-portfolios with particular reference to unclear marking guidelines for staff. Moreover, there is evidence that learning objectives held by students remain unclear and those students retain a lack of understanding of the task.

Respondents felt the use of e-portfolios in Education provided greater variety of the types of evidence students can include rather than the traditional portfolio model, while at the same time encouraging learners to develop IT skills which can

be passed on to their students once in employment. Subsequently, due to the time spent on teaching placement by students, developing their e-portfolio allowed them to upload video files, podcasts and pictures demonstrating examples of their acquired teaching skills which tutors are able to review remotely. This presents the tutor with the opportunity to provide constant feedback to the student throughout their teaching practice placement. Subsequently, the project identified that this type of evidence promotes reflective learning, in turn creating reflective practitioners as the e-portfolio encourages learners to weave their teaching practice evidence together and identify relationships existing between them. In addition e-portfolios provide evidence of acquired teaching skills which can be used to demonstrate the experience of the newly qualified teacher to future employers.

This aspect is highlighted in the feedback from one respondent:

> 'Increased awareness of teacher competences and level of progress in personal development as a teacher. Increased use of ICT for storing evidence. Better vocabulary when reflecting on experiences – awareness of what a reflective practitioner is!'

Conclusion and Recommendations:

Ultimately successful implementation of e-portfolios within Education is limited by how deeply learners engage in the process. That is, they themselves need to identify the benefits and value of developing an e-portfolio (Siemens, 2004). It is important that time is allocated to the training of both staff and students in the use and understanding of the technology (Hall et al, 2005). While learners are interested in how the portfolio will help them gain employment, instructors are interested in promoting the learners professional development (Zeichner and Wray, 2001). In this way the transferability of a teaching portfolio, whether it is electronic or paper based, has caused friction between learners and instructors. In order for e-portfolios to be successfully implemented within the course programme they need to be fully embedded into the education curriculum (Challis, 2005), with a clearly identified and demonstrated purpose.

Next Steps:

Phase two of the project involves developing an understanding of staff and learner expectations and actuality of e-portfolios as a teaching and learning tool through:

- surveying students prior to their introduction to e-portfolios (in the beginning of the academic year) about their understanding of e-portfolios, their expectations and anxieties;
- ongoing contact with the learners through a project Discussion Board and Blog;
- follow up survey in the second half of the year once students have engaged with e-portfolios;
- surveying staff on the use of e-portfolios.

Literature Review

There has been very little documented research on the impact and influence of e-portfolios on teacher training in Higher Education Institutions. However, with those institutions who have adopted e-portfolios claiming "they are the biggest educational technology development since the adoption of Course Management Systems" (Lorenzo & Ittleson, 2005a), it is easy to understand why the term e-portfolio is becoming so popular. With bodies such as the Department for Education and Skills (DfES) aiming to provide e-portfolios for schools by 2007, more documented research is required in the area of Teacher Training and e-portfolios (DfES 2005). Consequently, if the DfES achieves its aim to provide students with a personal learning space, with the possibility to facilitate e-portfolios in colleges across the UK, by 2007-08, it is fundamental that the implementation of e-portfolios into education is reviewed accordingly (Roberts et al., 2005).

The introduction of portfolios into Teacher Training is not a new phenomenon. Reflective journals in teacher education, which were in many ways the precursor to portfolios, have been widely used to promote learning. Sinclair & Woodward (1997) found that reflective journals enabled students to make connections between theory and practice and to critically evaluate their own performance as teachers. Clarke (2004) emphasised that one of the benefits of the use of reflection in teacher education includes providing evidence of professional learning. Scribner (1998) identified that it is imperative for teachers in the beginning of their career to "be autonomous learners with a deep commitment to continued professional growth and development". Loughran and Corrigan (1995) summarise the main benefit of a teaching portfolio as encompassing "learning about one's own learning and teaching and understanding how that might influence their approach to the students they will teach." Teaching students how to be reflective about their practice will teach skills which they can take forward into the workplace.

MacIssac & Jackson (1995) define a portfolio as "the structured documented history of a carefully selected set of coached or mentored accomplishments substantiated by samples of a learners work and fully realized only through reflective writing, deliberation, and serious conversation." This definition highlights the core themes of reflection and process which are embedded within portfolios, a concept further supported by Winsor and Ellefson (1995) who define portfolios as "a fusion of processes and product…. the process of reflection, selection, rationalization, and evaluation, together with [the] product of those processes." Wolf (1991) refers to the dynamic assessment of portfolios and states that a portfolio is "more than a container – a portfolio also embodies an attitude that assessment is dynamic and that the richest portrayals of teacher (and student) performance are based on multiple sources of evidence collected over time in authentic settings."

A number of limitations have been identified with the traditional paper based portfolio format. The literature has highlighted the space required to store the portfolios of x amount of students – in practical terms they are cumbersome for both staff and student. Due to the authentic nature of portfolios further complications arise when portfolios are being passed from one staff member to another to be marked which could inadvertently lead to the possibility of students work becoming lost or mixed up. Other limiting factors include access to the contents of the portfolio. Wagner (1998) illustrates the implications with the assessment of the traditional portfolio model and states the importance of a portfolio having a content and structure which is easy for the assessor to follow. For students in teacher training it is likely that they would include recordings of

their teaching practice by means of video, DVD, or tape recordings. Obviously, this is not only further bulk to include but more importantly the markers then require access to a video player, DVD player etc. This not only imposes time issues to review a portfolio but also compromises the fluidity of the material in the portfolio and hinders the capability for students to show understanding of the links between those materials. The final consideration with the traditional style portfolio model includes the transferability of the artefacts within a portfolio from a learning portfolio to a showcase portfolio for employment purposes and further as a tool to support PDP once the teacher is in the workplace.

There are a number of definitions of e-portfolios:

> 'e-Portfolios ….are personal online spaces for students to access services and store work. They will become ever more useful as learners grow up and start moving between different types of learning and different institutions' (Secretary of State for Education and Skills, January 2006).

The Joint Information Systems Committee (JISC), which has been actively supporting projects in the area of e-portfolios and education through four categories, including; presentation, transition, learning and technical development, gives a wider interpretation of e-portfolios:

> 'e-Portfolio can be used to refer to a **system** or a collection of tools that support e-portfolio related **processes** (such as collection, reflection, annotation, etc.). The term 'e-Portfolio' can also refer to the **products** emerging through these systems or tools, and it is helpful to think about the purposes to which learners might put their e-portfolios (for example presentation for assessment, to support transition, or to support and guide learning)' (JISC overview paper).

Lorenzo and Ittleson (2005) define an e-portfolio as:

> 'a digitized collection of artefacts, including demonstrations, resources, and accomplishments that represent an individual, group, community, organization, or institution. This collection can be comprised of text-based, graphic, or multimedia elements archived on a Website or on other electronic media such as CD-Rom or DVD'.

Barrett's (2006) definition of an e-portfolio focuses on the process of creating an e-portfolio and includes "a collection of work that a learner has collected, selected, organized, reflected upon, and presented to show understanding and growth over time", while Richardson & Ward, (2005) view the introduction of e-portfolio practice in the UK "as evolving largely from PDP practice". However, reduced to its simplest form an e-portfolio is a collection of artefacts which can be used to demonstrate knowledge, reflection, and learning.

Recognition that there are issues of transferability which can, and must, be addressed before an e-portfolio can be utilised, regardless of the constrictions of time and space, has come from no less a body than the DfES:

> 'we will have to re-engineer the data so that wherever you are in the education system the individual learner can demonstrate to another institution, an employer, or to a parent, what they have done, how they are succeeding and who they are' (Director of DfES Communications Directorate, January 2006).

This is supported by Weller (2005) who states 'if e-portfolios are adopted in the manner that many predict, then being able to swap data between systems (e.g. work-based and university based) will be essential, so this is an area that is in definite need of a standard'. This is further supported by Jafari (2004) who argues that the transportability of e-portfolios should be immediate and effortless. However, without thorough consideration at implementation stage e-portfolios are at risk of being a tool that fails to reach its hype.

As we have seen above, one size does not fit all and within higher education e-portfolios are now being asked to perform an ever widening range of functions. As the uses differ, so to does the required content – components designed to encourage reflective learning do not necessarily lend themselves automatically to inclusion within an employment focused portfolio. Mosely identified three distinct needs from portfolios: a 'learning portfolio' for student engagement and reflective learning, a 'credential portfolio' to demonstrate proficiency and progress, and a 'showcase portfolio' for job search and employment (Mosely 2005). e-Portfolios progress through two distinct stages, in the process having to fulfil a number of separate functions which correspond with Mosely's identified needs. The first stage is that of the learner while the second is that of the practitioner. In the first stage the portfolio has the functions of assessment, reflective learning and, more recently, as a job search tool, while in the second it promotes longitudinal development of experiential learning. These two stages are defined by Sunal et al as 'process', the interaction between learner and teacher as the work is documented, and 'product', the demonstration of aquired practitioner knowledge (Sunal et al, 2005).

Greenberg (2004) also identifies three different types of e-portfolio which he refers to as Showcase, Structured, and Learning. As the name suggests the showcase portfolio is primarily designed to showcase the learner's best work and specific experience, for example at job interviews. The structure of a showcase e-portfolio takes place after the artefacts have been uploaded into the e-portfolio, and is structured according to how the artefacts are represented best visually and ease of navigation. The structured e-portfolio has a predetermined structure which is designed to instruct students on the predefined learning objectives. Consequently, the standardised nature of these e-portfolios makes it easier for instructors to evaluate and review. The learning e-portfolio is a dynamic approach to e-portfolios, there is no predetermined structure and the structure evolves throughout the process of creating it. It is designed to be fluid and forever evolving in parallel with the learner's interests and experiences.

Similarly, IMS (2005) outlined 6 types of identifiable e-portfolios. Assessment e-portfolios which follow a similar structure to the 'structured e-portfolios' Greenberg identified above; Presentation e-portfolios which is primarily another term for showcase portfolios; Learning e-portfolios, as above; Personal development e-portfolios which are structured to specifically fulfil PDP guidelines and are predominantly reflection based; Multiple owner e-portfolios, which, as the name suggests, are intended to benefit learners collaborating in groups; and, Working e-portfolios which are a combination of all of the above and are designed to include multiple views.

The components included within an e-portfolio are specific to the learning objectives and consequently have a purpose for being included. Siemens (2004) identifies the following as typical components of an e-portfolio.

i. Personal information
ii. Education history
iii. Recognition – awards and certificates

iv. Reflective comments
v. Coursework – assignment, projects
vi. Instructor comments
vii. Previous employer comments
viii. Goals, plans
ix. Personal values and interests
x. Presentations, papers
xi. Personal activities – volunteer work, professional development

Limitations evident in traditional portfolios can be reviewed using e-portfolios. Since e-portfolios can be networked on an institutional system, students and teachers alike can access the portfolios to review, update and provide feedback. e-Portfolios allow students to 're-work' the material in their e-portfolio to provide more meaning to it (Mason et al. 2004). In addition, because of the nature of e-portfolios, students can include short video clips, sound bites and links to relevant material within the e-portfolio to describe their best practice (Barrett, 2006). Subsequently, the flexibility allows the student to make links between their media clips and reflections, allowing clearer connections between the two and consequently showcasing the learning taking place. Finally, the potential of e-portfolios as a lifelong learning tool is apparent and yet to be unleashed. The concept of e-portfolios allows the learner to maintain their e-portfolios and transfer it with them into their different life stages. Lorenzo and Ittleson (2005a) emphasis the importance of an e-portfolio to be transferable because as "students transfer from institution to institution during their educational careers, the ability to transport their e-portfolios into new systems becomes increasingly important." This capability would encourage a generation of lifelong learners (Siemens, 2004, Greenberg, 2004, Meeus et al., 2006).

Unlike traditional paper based assignments e-portfolios are not limited to showcasing best work (Barrett, 2006). With the appropriate design setup the e-portfolio can be a networked space allowing discussion and reflection by all users, encouraging interconnected feedback by peers, mentors, teachers etc. Interestingly, Clark, Topp and Goeman (2002) noted the use of e-portfolios for students to document their reflections while on placement provided more opportunity for rapid feedback from staff. Mason et al. (2004) identified networked e-portfolios as an opportunity for students to engage in collaborative learning with the opportunity to utilise their peers and work together. This dynamic approach allows the learner to incorporate materials such as the Web, DVD's and Cd's into the portfolio which as a consequence allows the students to incorporate many different media types as evidence of achieving the learning objectives (Barrett, 2006, Abrami & Barrett, 2005, Whitsed, 2005). Cunningham and Benedetto (2002), investigating incorporating these technologies to support reflective practice into teacher training, found that the implications with implementation largely surrounded the technology itself, which they felt required substantial planning and research in order to successfully integrate into the curriculum.

The flexibility inherent within the e-portfolio process was highlighted by Ingram (2006) as one of the main strengths of implementing e-portfolios, giving learners the opportunity to become involved wherever they chose with no limitation from being on, or off, campus.

Integrating e-portfolios into teacher education allows students to develop their technology skills as well as showcase experience gained while training (Grier, 2002, Dawson, 2006). The electronic portfolio represents a means to demonstrate the teaching skills and values of the learner and when used by

practitioners it demonstrates the continuing professional development of the qualified practitioner.

> *'it's compelling educational advantage is it's capability to support reflective text-based interaction, independent of the pressures of time and the constraints of distance'* (e-learning in the 21st century).

Consequently e-portfolios are a tool capable of supporting lifelong learning through CPD and PDP and are not restricted to periods of higher education (Mason et al., 2004). The process of developing an e-portfolio in itself teaches skills to further facilitate lifelong learning (Love and Cooper, 2004; Jafari, 2004, Richardson & Ward, 2005, Mason et al., 2004). This is also recognised by JISC who observe that:

> 'an important aspect of lifelong learning is the learners' ability to assemble, demonstrate and reflect on the skills, knowledge and achievement they have built up during their unique learning journeys. One of the functions of electronic portfolios (e-portfolios) is to support this kind of activity' (JISC 2006).

Foti (2002) advocates that the "construction of an electronic teaching portfolio forces students to continuously construct and revisit their knowledge, beliefs and biases about the profession". Similarly, Bhattacharya (2002) concludes that through the process of designing a meaningful learning environment (MLE) student teachers developed different technology skills which promoted lifelong learning. This suggests that creating an e-portfolio "may be a useful approach for fostering authentic professional development" (Milman & Kilbane, 2005).

e-Portfolios provide the learners with an opportunity to select artefacts and assess their own learning by focusing on the process involved (Strudler & Wetzel, 2005). Barrett (2006) further advises that the 'artefacts' provide an essential element of the e-portfolio. Those artefacts include the "learners reflection on individual pieces of work as well as the overall reflection on the story that the portfolio tells" (Barrett, 2006). Lorenzo and Ittleson (2005a) support this view and list the key benefits as including: document training, skills and accomplishments, and encouraging teachers to be reflective about their teaching. Bhattachara (2002) recognises that students "become skilled at self-evaluation by developing electronic portfolios" while Wade et al. (2005) extend upon this by indicating that "electronic portfolios may provide additional means to scaffold teachers and students in the portfolio process and better encourage self-regulation."

Via reflective learning, e-portfolios offer the opportunity for learners to consider the work inside their portfolio which can help the learner to "create a meaningful learning experience" (Lorenzo & Ittleson, 2005a). Wade & Yarbrough (1996) see teaching portfolios as providing a "connective process" by giving the students the opportunity to step back from their learning and reflect. The social network of an online e-portfolio allows learners to digest feedback received, alter work accordingly, and resubmit their work for further review (Ahn, 2004). This encourages students to think critically about their work and develop fundamental writing and IT skills (Lorenzo & Ittleson, 2005a). This process is what Acker (2005) refers to as the 3rs"representation, reflection, and revision". Giving the opportunity for students to redeem their work based on feedback they have received, means the construction of their knowledge, and the learning process, can be viewed as spiralling upwards rather than the traditional linear model.

This reflective style of learning encourages learners to engage in the process of, and in turn map, their own learning (Wolf, 1994). Levin and Camp (2002) feel the introduction of e-portfolios has developed students reflective practice skills while providing the training for these skills has helped students develop into reflective practitioners. The process of developing an e-portfolio further encourages students whose written language is less developed to have an opportunity to develop their written evidence (Whitsed, 2005). Milman and Kilbane (2005) argue that "teachers need to participate in professional development that requires teachers to explore, discover, discuss, and construct new meaning."

Brown (2002) investigated the perspective of students "on the learning that resulted from their creation of an experiential learning portfolio". Brown attained 3 major findings. These included:

- Increase in participants' "self knowledge"
- Greater appreciation of the value of e-portfolios through work and mentors
- Development of organisation and communication skills

Amber and Czech (2002) found that among pre-service teachers the process of creating an e-portfolio enhanced their ability to improve teaching practices, particularly becoming a reflective practitioner. In addition, they discovered that student teachers felt themselves to be more employable for having developed an e-portfolio as it demonstrates their proficiency using technology.

e-Portfolios present the learner/practitioner with the capacity to act quickly on their reflections by offering the ability and flexibility to adapt and restructure and by offering a range of technical tools to use both in reflective analysis and the presentation of skills development. The learner/practitioner is therefore provided with the opportunity for 'constant' reflection rather than the 'periodic' reflection offered by more traditional paper-based portfolios. In this fashion there is the opportunity for continual improvement. (Adcock 2005). The reflective capabilities of e-portfolios have been demonstrated through a two year pilot study (Hall and Weimer 2004) and it is increasingly evident that teacher values can be more strongly expressed in electronic format than traditional paper format. In a recent study on teaching values in pre-service teachers e-portfolios, Sunal et al argue that the use of e-portfolios promotes a greater impetus for the user to assume personal responsibility for their development, in the process taking a greater degree of individual control over their progression towards becoming a teacher.

Roberts et al. (2005) pose the question "should reflection be assessed?" This highlights the current conflict between a process-focussed approach and a product-focussed approach. However, Zeichner and Liston (1996) identify that reflection on its own may not necessarily benefit the learner and may not impact on the quality of teacher the learner becomes. The lack of understanding by students of the learning objectives of an e-portfolio can hinder their success. Darling (2001) states that the flexible approach to structure of the portfolio caused anxiety in some students as they had a sense of 'helplessness' by not knowing where or how to start. This was supported by Wade and Yarbrough (1996) who also found that this anxiety of developing a traditional paper based portfolio also existed with the introduction of teaching portfolios and was not viewed as a success for all students. Carney (2002) found students who developed traditional portfolios were also anxious about the prospective audience and consequently avoided including personal reflections in their portfolio, a factor which hindered the student's ability to develop their reflective thinking skills. Carney acknowledged that students using e-portfolios were also nervous of publishing personal reflections on the web, in turn inhibiting the level of professional teaching knowledge that they were willing to share with their peers.

In order to overcome this anxiety there might be the creation of a learning space where specific artefacts can be chosen to be showcased and personal items can remain just that.

Loughran and Corrigan (1995) argue that the use of teaching portfolios in teacher education helps "bridge the gap" between performance and learning therefore creating a realistic learning environment. In this fashion e-portfolios could potentially constitute a bridge between enhancing an individuals work and standards based assessment (Ahn, 2004). Wagner (1998) proposed that "as an assessment tool the portfolio has much to offer in terms of involving students in the assessment process and in documenting their achievements" with Whitsed (2005) concluding that e-portfolios are an assessment tool "which empowers the learner" because it develops reflective learning and promotes independent thought.

e-Portfolios provide an assessment environment which incorporates a learner driven process and which can afford a more authentic picture of the learning taking place. Traditional portfolios allow the learner to include numerous different types of evidence to be assessed which subsequently allows the reader/evaluator to draw on a variety of artefacts to assess the learning taking place. Love and Cooper (2004) acknowledge this, in turn viewing portfolios as a form of evidence based assessment which focuses on application of knowledge rather than the 'knowing' of knowledge. However, further implications arise with assessment when students randomly include everything in their portfolio rather than selectively presenting the process of how their learning took place (Wagner, 1998). Furthermore, Greenberg (2004) reflects on the authenticity of assessment of the learning process which e-portfolios can provide in comparison to traditional assessment methods. Due to the concerns expressed by Darling (2001) when assessing students portfolios, the students were encouraged to submit their portfolios for review from both instructors and peers before the deadline.

Love and Cooper (2004) consider the problematic issues affecting "core pedagogical and assessment design" as either ignored or overshadowed by the software itself. Zeichner and Wray (2001) support this and explain that it is easy for students to get caught up in the attractiveness of their portfolio rather than the work itself. This is one of the many issues which need to be fully considered when implementing e-portfolios into the curriculum.

In order to successfully assess a student's e-portfolio a diverse approach incorporating various strategies needs to be considered, as the process of assessing a vast array of artefacts, containing many different learning strategies, has proved to be problematic. e-Portfolios are not rigid enough in structure in order to standardise individual students learning processes. If e-portfolios were standardised to make this a possibility they might lose the overall essence of focus which is the learning process. Siemens (2004) claims that "e-portfolios will be successful if the urge to excessively standardise is resisted". Darling (2001) concurs with this and further adds that it is "the process not the product that may reveal the most about who they are as emerging teachers". Even if agreement occurred on the assessment of reflection – how does one quantify a student's reflection into the amount of learning taking place? Darling (2001) decided to evaluate student's portfolios in terms of 'excellent, good, fair and unacceptable' grading system by including the following five categories:

- Coherence and Cohesiveness
- Comprehensiveness
- Clarity
- Creativity

- Communication Potential

A further potential trap with teaching portfolios, identified by Loughran and Corrigan (1995), is the inclusion of single individual items into the portfolio which does not convey the actual meaning of the portfolio. This is especially relevant to e-portfolios which, without identifying the right learning outcomes to the students, would be difficult to evaluate and could easily become little more than a content management system.

Although Wagner (1998) found that teachers preferred to mark portfolios using marking guides, consideration needs to take place on developing and implementing structured marking guidelines to reflect on the unique nature of e-portfolios. Zeichner and Wray (2001) identify how some programmes use rubrics to assess the portfolios whether online or paper based, a process supported by Bhattacharya (2002) who found that using rubrics to evaluate student teacher reflections provided structure and by Tosh et al (2005) who feel rubrics provide the structure required by students in order to learn how to reflect on their learning.

Portfolios/e-portfolios have been used to showcase student's practical skills in job interviews as evidence of their experience. For student teachers, taking their portfolios to a job interview provides an opportunity for the employer to gain some perspective and insight of teaching experience gained while in training. However, Mosely (2004) found that 86.4% of employers surveyed found portfolios (not e-portfolios) to be too unstructured to be reviewed during the decision process. A further 63.6% found it too time consuming to review portfolios during the decision process and a further 63.6% found that portfolios contained excessive information which deterred them from reviewing the portfolio. These findings illustrate the design complexities which need to be considered and addressed with reference to what the potential employer would like to see as evidence of best practice and emphasise the importance of visual design of e-portfolios to benefit the prospective employer. Two vital design characteristics are highlighted - structure and amount of material made available. e-Portfolios provide the students with the opportunity to select some artefacts as their 'professional' showcase portfolios while saving other material for their personal learning portfolio.

Mosely (2004) assesses reasons why potential employers like to use portfolios as a means of assessment of interviewees with 81.1% of the cohort feeling portfolios provide a great deal of information about the potential candidates and 74.8% feeling portfolios provide a greater depth of information not otherwise available to the potential employer. However, there is limited literature available on the use of student e-portfolios to gain employment although, clearly evidenced by Mosely's study, a showcase e-portfolio should be structured, brief and concise in order for it to be effective to the employer.

Much has been written about the considerations which need to be made in the earlier planning stages of implementing e-portfolios. However, as Challis (2005) concludes, making decisions about the implementation of e-portfolios into higher education "is not adequately supported by research." Wetzel & Strudler (2005) concur and add that more research is required in the area of implementing e-portfolios into teacher training. At this stage implementation of e-portfolios into higher education is currently being reviewed as not reaching its full potential (Love & Cooper, 2004). Darling (2001) feels that portfolios have a place in teacher education but important issues need to be addressed in order to guarantee success while Jafari (2004) acknowledges that the current electronic resources within higher education do not offer the flexibility which is required for

a successful e-portfolio. In order to support personal development the e-portfolio system needs to allow flexibility so that students can create multiple views appropriate to each particular purpose (Tosh et al., 2005). This flexibility needs to allow "students to develop their own mental model of how they wish to organize their" e-portfolio (Brown, 2002). Barrett (2006) identifies that to be successful the e-portfolio needs to be flexible so that learners can "express their own voice and leave their own mark in their portfolios". Possible tools to encourage students to do this include blogging, podcasting, multimedia artefacts, and digital storytelling.

The race to implement e-portfolios into higher education has meant the ultimate effectiveness of e-portfolios as a developmental tool has been to some extent ignored. The development of e-portfolios is not currently student centred but, from an institutional perspective, assessment driven (Ayala, 2006). Hauge (2006) investigates how portfolios can lend themselves to improve understanding of teaching and learning practice, therefore bridging the gap between theory and practice. The key implication of the successful adoption of e-portfolios is reflected within the integration process.

The development of a successful e-portfolio resource requires consensus between all stakeholders in order to consider and agree upon the objectives of the e-portfolio prior to design and implementation (Johnson & DiBiase, 2004, Tosh et al., 2005). Wade et al. (2005) feel the decision to incorporate e-portfolios needs to be institute wide which ulimately means also considering how to "support staff professional development" while integrating e-portfolios (Brown, 2002). Without this e-portfolios are at risk of becoming "a new vehicle used to perform an old task'. (Yancey, 2006).

Love and Cooper (2004) identify 4 common weaknesses in the design of e-portfolios. These include:

1. focus remains solely on technical side rather than administrative side;
2. e-portfolio is used as a content management system rather than an interactive learning tool;
3. stakeholders views or needs are not included in the development of an e-portfolio;
4. e-portfolio is not fully integrated into the curriculum.

Failing to include all parties involved in creating this consensus will impact on how users may respond if implementation of e-portfolios is not planned accordingly. This includes a lack of support for the change due to a lack of explanation of the goals and motivation behind the change in the first place. Tosh et al. (2005) added that "students have to know what an e-portfolio is, how to use one and, most importantly, how it may benefit them in order for the project to succeed". The benefit of having an e-portfolio running on the networked system allows constant reflection on artefacts by users, peers and teachers (Love, McKean and Gathercoal, 2004).

Although somewhat impractical due to current server and financial restrictions, in order for e-portfolios to lend themselves as a lifelong learning tool Siemens (2004) feels it is imperative for students to be in control of selecting their own e-portfolio software from an approved list of options supplied by the institution which they can use and later take with them into their employment. Whitsed (2005) also encourages the portable and transferable nature of e-portfolios to allow the learner to take their e-portfolio with them between employers and learning episodes. This would give learners personal control of their learning and allow individuals to be involved in the process. However, as Strivens (2007) found

"interoperability in terms of inter-institutional transfer is not yet a high priority" in the UK. Consideration needs to take place, due to anxieties which may be raised from the students, about the necessary IT skills for developing an e-portfolio (Ingram, 2006). Carliner (2005) suggests a possible method to address student's anxieties about IT capabilities is to incorporate different levels of templates to suit different user's abilities.

Many authors identify the key issues which are critical in the implementation of e-portfolios into higher education (Love and Cooper, 2004, Lorenzo and Ittleson, 2005, Roberts et al, 2005, Jafari, 2004). Lorenzo & Ittleson (2005a) identify seven main implementation issues which need to be considered when exploring the opportunity to implement an e-portfolio. These include:

1. Hardware and software – what type of hardware or software will be used to develop and maintain the e-portfolios?
2. Support and scalability – Is there enough room for the project to develop and expand with time?
3. Security and Privacy – What are the rights of the students for displaying their e-portfolio?
4. Ownership and Intellectual Property – Who owns the e-portfolio?
5. Assessment – Is it an assessment tool? If so how is it assessed? Should reflection be assessed?
6. Adoption – Is there sufficient support from administration and other stake holders?
7. Long-term maintenance – Who is responsible for maintaining the system?

Likewise, Jafari (2004) offers a model for a "Successful e-Portfolio Project"; this model includes 7 factors which need to be addressed in order to successfully implement an e-portfolio model into a HEI. The seven factors include:

1. ease of use;
2. sustainable business plan;
3. advanced features;
4. Robust Integrated Technology Architecture;
5. lifelong support;
6. standards and transportability;
7. miscellaneous.

Roberts et al (2005) similar identified the following five issues as critical:

1. define goals;
2. observe perspectives of multiple stakeholders;
3. communicate with all stakeholders during the development process;
4. support from both 'managerial' and 'functional' members of the institution;
5. integrate technologies.

It is evident that common concerns regarding implementation include the speed at which departments want the implementation of e-portfolios to take place. Ayala (2006) suggests a step back needs to be taken to reflect on the true needs of the students and therefore the requirements of the e-portfolio acknowledged accordingly. Wetzel & Strudler (2005) reflect on the sustainability of e-portfolios and the importance of ensuring the implementation process is manageable long term as well as short term. Interestingly, it was considering these student needs which lead to Darling (2001) noting that the initial reactions from students about the prospect of doing a portfolio included some levels of anxiety due to the undefined nature of the task.

Ultimately the success of implementation of e-portfolios is limited to how involved learners themselves feel in the process. They themselves need to recognise the benefits and value of developing an e-portfolio for themselves (Siemens, 2004), including developing a clear understanding of the technology. To this end it is important that time is dedicated to the training of staff and students in the use of the technology (Hall et al, 2005). In order for e-portfolios to be successfully implanted into the course programme they need to be fully embedded into the curriculum (Challis, 2005). The transferability of a teaching portfolio, whether it is electronic or paper based, has been a cause of friction between learners and instructors. While learners are primarily interested in how the portfolio will help them gain employment, instructors are interested in promoting the learners professional development (Zeichner and Wray, 2001). There is an ongoing need to clearly identify the purpose behind utilising e-portfolios within the curriculum and what this might mean for the development of learning and teaching.

The implications of e-portfolios in teacher education can be reviewed and overcome accordingly;

> *"Matching the philosophical orientation with e-portfolio tools should reduce the cognitive dissonance and conflicting goals between learners' needs and institutional requirements. The result should be support for deep, sustainable, self-directed, lifelong learning."*
>
> Barrett & Wilkerson (2004)

Methodology

The study aimed to identify the use of e-portfolios in Teacher Training courses Higher Education in the UK. The survey investigated the following; the existing e-portfolio packages and tools currently used in education; the current use of e-portfolios in teacher training; and the current use of e-portfolios to support learner PDP. A cross-sectional survey was employed to collect both qualitative and quantitative data.

Participants

All UK Higher Education Institutions (HEI's) offering Teacher Training were invited to participate in this study. Initially, Heads of Department were approached via letter inviting them to complete the online survey or to nominate someone relevant within the department. On two occasions a reminder letter, including a paper based copy of the survey, was sent out to the heads of department to ensure maximum response rate. Members of departments identified as having a personal involvement with e-portfolios were also approached via email to participate in the survey. Survey information was emailed to various mailing lists of members working in HEI Teacher Training programmes with two further reminders sent out prior to the survey deadline. Some respondents chose to send information about their use of e-portfolios without the aid of the survey pro forma either by email or in the form of a word document. There were 37 respondents from the 89 departments approached, equating to a response rate of 42%.

Data Collection

The Online Survey was available for completion during February and March 2007 and was hosted by Bristol On-Line Surveys. The paper based version of this survey was also sent out during the months of February and March. There was only one multiple response from one institution.

Results

Current Practice

Respondents feedback indicated that the introduction of e-portfolios into teacher training is a relatively new initiative, still very much in its infancy, with very few of the respondents actually using it. Only 32.4% of those surveyed are currently using e-portfolios as part of their teacher training programme (see graph 1). However, 52% of respondents indicated that plans are in hand to implement e-portfolios into the curriculum in the future. Overall, this is equates to 84.4% of respondents who are either using e-portfolios or intending to do so.

Of those respondents currently using e-portfolios as part of their Teacher Training course, 76.7% stated that their existing e-portfolio software was not an add-on to their current VLE. The e-portfolio software packages currently being used were identified by the respondents as the following:

Moodle
PDP Progress
Blackboard Academic Suite: Content System Option
PebblePad
WebCT portfolio
Free services including Blogs and Wikis

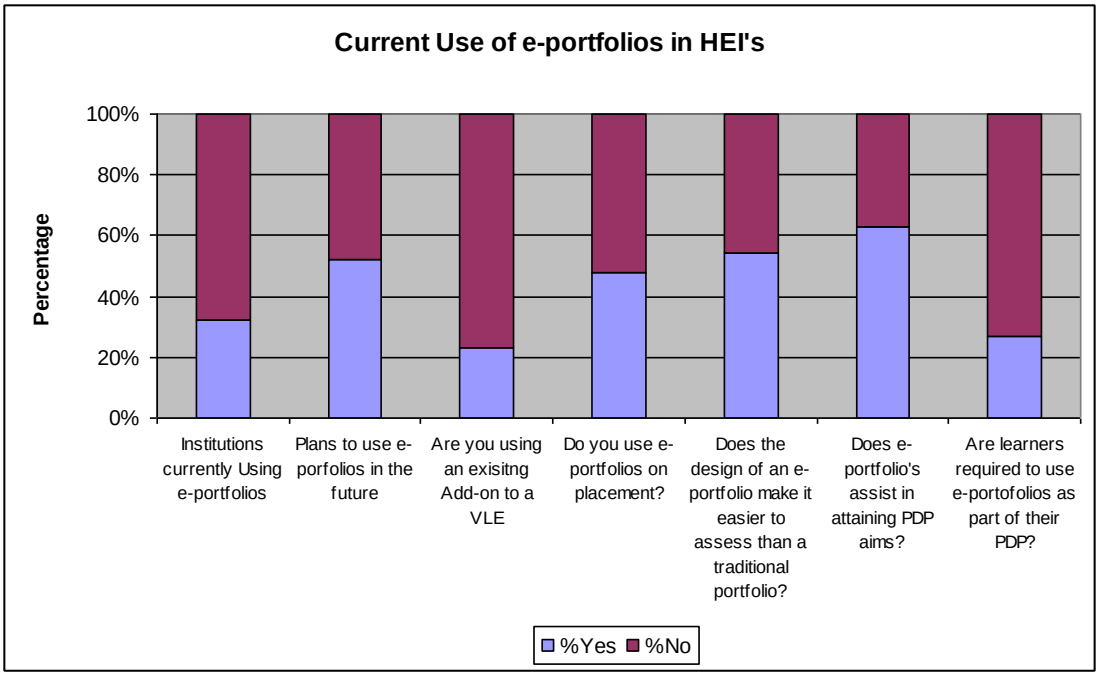
Respondents noted that these e-portfolio packages had been in place for a period between 2-6 years.

With 47.6% of respondents stating that students were using e-portfolios while on placement, one reason identified by a participant for the inclusion of e-portfolios for students on placement included:

> 'they enhance the teaching/learning /reflection of the trainees - which makes them better teachers'

The portability and flexibility made possible by incorporating e-portfolio practice within teacher training placement establishes a focus by which the leaerners can evaluate and record their teaching experience, a view supported by the following respondents comment.

> 'Students are more focused on competences and ways to enhance own performance. Students like the environment so willing to post blog entries. Openness and sharing of experiences with tutor and peers.'



Graph 1:

One of the contributions made by an e-portfolio to a learners PDP development is inherent within the actual process of developing an e-portfolio. This is a process which develops those skills required to facilitate reflective learning, develop the practice of lifelong learning, and lay the foundations of authentic PDP development once the learner has progressed into the workplace. While 63.2% of respondents felt that e-portfolios assist in attaining their PDP aims, only 26.9% make the use of e-portfolios to support PDP as a requirement. Feedback gained from instructors facilitated this process, for example:

> 'Comments by tutors, provide a range of evidence and reflect upon that evidence.'

Respondents displayed a variety of different methods designed to embed PDP within the curriculum although many respondents are still at an early stage of piloting the implementing of PDP and e-portfolios into the curriculum. For example:

> 'Personally I am piloting PebblePad with my own group of students who are very IOT literate and will feed these ideas to the rest of the PGCE tutors. I would anticipate we will be using PDP to capture evidence of teaching competence during school placements.'

> 'For ITT the use of e-portfolios approaches is currently voluntary.'

Other respondents commented on how they feel the e-portfolio process is supported by e-portfolios:

> 'Personal targets, links to standards, links with school based work, encourage collaboration and knowledge sharing.'

Some respondents reflected on how they intend using e-portfolios as a means of incorporating PDP into the curriculum. The respondent's reflections on the intended benefits are supported by the literature's hypothesis. For example:

> 'The e-portfolios will provide opportunities for reflective writing, action, planning and target setting. Students will have space to store these and also be able to talk to their peers and P/T'

The most common barriers identified by the respondent on the introduction of e-portfolios centred around technical issues. Respondents felt that generally the current generation of university IT systems did not effectively and efficiently support the use of e-portfolios. For example:

> 'We use PDP but not electronically – system will not support it.'

Various technical issues were raised including the type of software used, tools available, file storage and memory limitations. As one of the foreseen benefits of implementing e-portfolios is the ability to link different media sources into reflections, it is important for students to have sufficient memory space to insert their video clips into their e-portfolio. Many respondents reflected on the nature of teaching and the importance of e-portfolios to be interoperable in order to support lifelong learning ambitions. This demonstrates the importance placed within the literature on the implementation of e-portfolio's to be institution wide, enabling a consensus to take place between various stakeholders including administrators, technical staff and so on, in order to address issues of technology and technical support. (Johnson & DiBiase, 2004, Tosh et al., 2005).

Feedback gained from the participants suggested that the introduction of e-portfolio practice was initiated at both institutional and departmental level. Examples of feedback from the respondents included:

> 'Although the university has looked at e-portfolios institutionally not a lot of progress has yet filtered down to school level, so current investigations are the result of our own initiative'

> 'The department will be the first to introduce e-portfolios within the institution.'

> 'Introduced previously [by the institution]'

> 'institution [initiated]'

> 'No, the ICT department for PGCE second and ICT module for BAed (2005) were the first e-folios introduced at the institute of education.'

> 'The development of e-portfolio practice in the institution has been in parallel with an e-portfolio research and development project.'

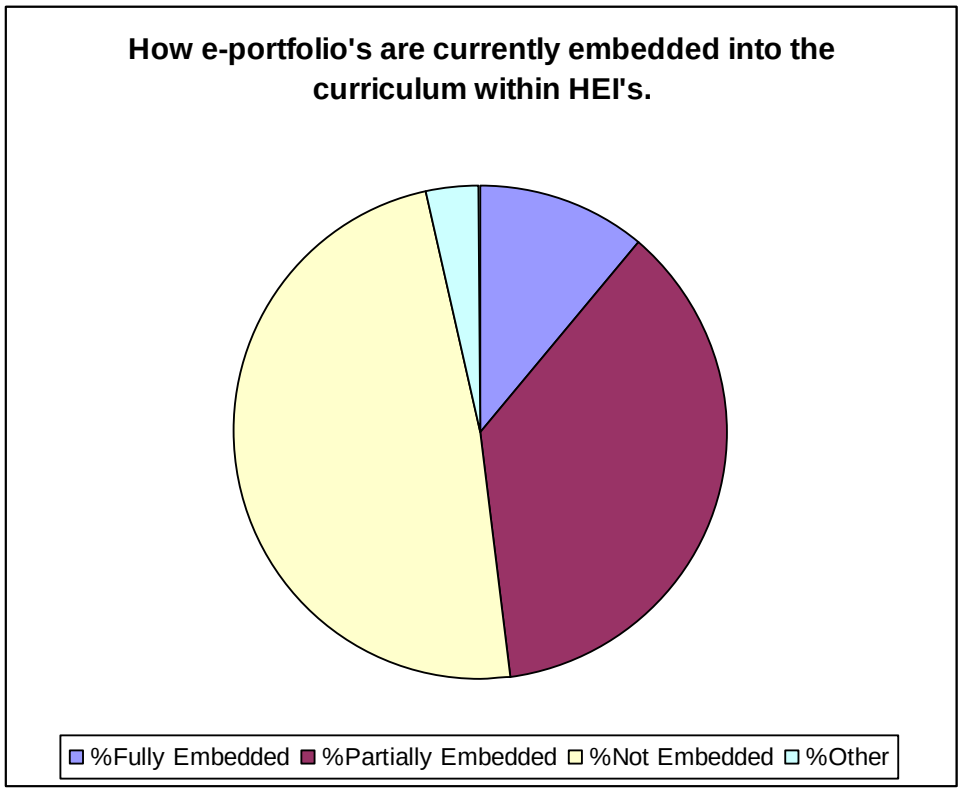
However, as suggested by the feedback, although some institutions were responsible for initiating e-portfolios the majority of implementation was initiated by the individual education department. This illustrates a natural progression from the inclusion of a paper based portfolio within the teacher training curriculum to the evolution of an electronic version.

Few (11%) respondents currently have e-portfolios fully embedded into the curriculum although a larger portion of respondents, (37%), felt that e-portfolios were partially embedded into the curriculum. This still left a further 48% who stated that their e-portfolios were not currently embedded into the curriculum. Another small portion of responses (3.7%) answered 'other' and provided an explanation as to why they felt their current situation was operating differently to

the answers offered. Examples of other practice included: respondents have *'not considered*' embedding the e-portfolios into the curriculum, or e-portfolios are currently embedded *'for ICT PGCE, not other areas*', or, due to the recent application of the technology some institutions are piloting the technology with sample students before full implementation. For example: *'We have encouraged some ITT trainees to prepare electronic CVs and records of achievement.'* Problems with this are, as Love & Cooper (2004) have identified previously, that without fully embedding e-portfolios into the curriculum they (e-portfolios) are at risk of failing to achieve their full potential.

Respondents felt that embedding e-portfolios into the curriculum was yet another initiative to support and students viewed engaging with e-portfolios as yet another requirement in order to pass. This suggests that students are not fully involved in the process of developing an e-portfolio and therefore lack a clear understanding of the benefits. This supports the work of Tosh et al. (2005) who found that students were lacking an understanding of why they had to do this, an issue which was reflected by the lack of understanding from the instructors. Consequently, respondents felt that e-portfolios were time consuming to mark and evaluate as students tended not be as selective as they could in the material which they include. This reflects similar findings to Wagner (1998) who raised similar issues regarding traditional paper based portfolios. One respondent commented:

> 'e-portfolios are time-consuming to compile and use, and stakeholders will need to be able to identify benefits from investment in them. One purpose of an e-portfolio would be to prepare a CV. However, since applications for first teaching posts are still largely text-based (i.e. through forms) there is little evidence to support a lot of work being put into an e-portfolio to this end.'



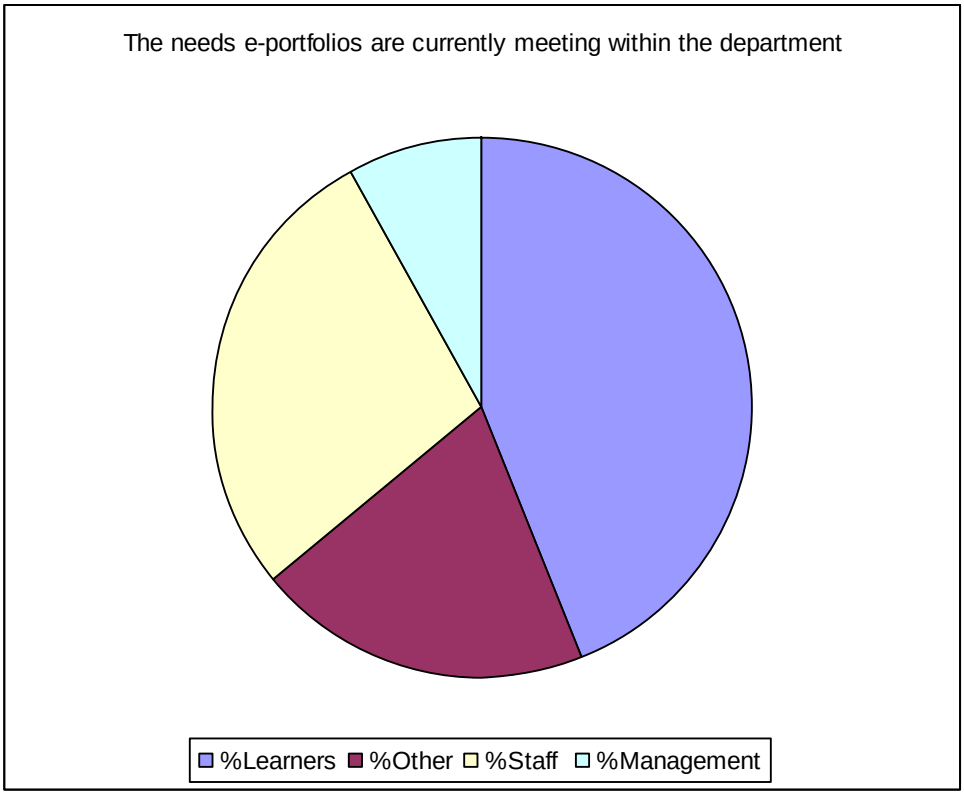
Graph 2:

In order for the successful integration of e-portfolios into the curriculum it is imperative that there is not only a concession on the learning objectives practitioners wish e-portfolios to achieve (Johnson & DiBiase, 2004, Tosh et al., 2005), but the decision to implement e-portfolios has to be institution wide (Wade et al, 2005). Graph 3 represents the needs which e-portfolios are currently meeting within HEI's and the findings reflect a current lack of consensus between stakeholders. While 44% of respondents felt that e-portfolios were meeting the needs of the learners, only 28% felt e-portfolios were meeting the needs of the staff and 8% the needs of management. A further 20% opted for 'other' and raised some interesting reasons for e-portfolio's not meeting the needs of stakeholders including:

> 'Doesn't meet needs because it is technologically driven'
>
> 'Seen as a complex add-on to serve an additional, imposed set of education related issues.'

Conversely one respondent had a different but never the less increasingly important and relevant technology themed complaint. For example:

> 'Storage space for video clips is limited – need to be able to edit video to link to competence. Need one agreed model for e-portfolio so that students can be continuing the process in induction and EPD when they are no longer members of the HEI. Interoperability between platforms needs to be addressed and what to do with NQTs not from local HEI's.'
>
> 'Provide easy access and ease of adaptation, facilitate incorporation of multimedia work, can be customised for and by trainees with SEN models VLE/P – learning practice that they will find in the classroom.'

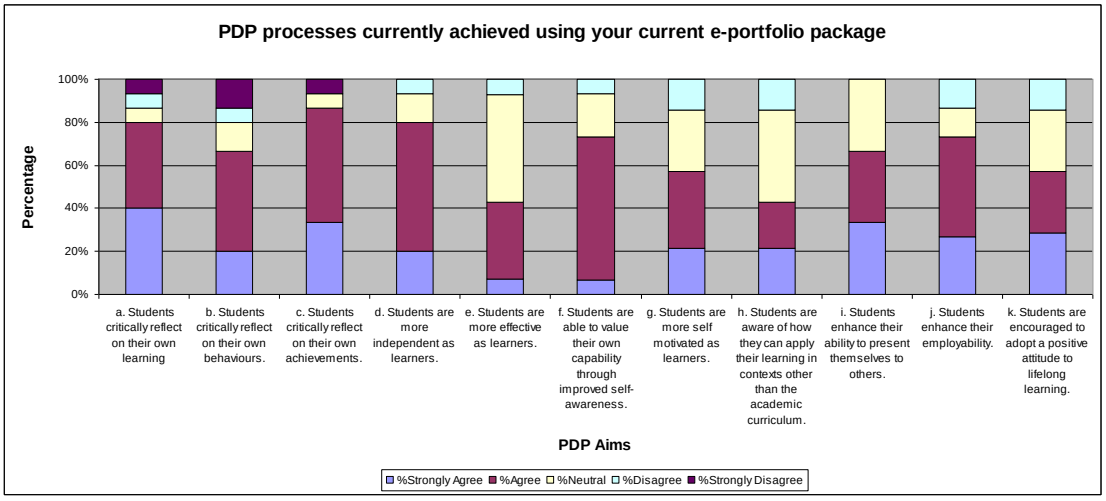


Graph 3:

Graph 4 (below) refers to the PDP processes which respondents feel are achieved using their current e-portfolio package. One of the most agreed upon statement by participants, with 73.4% either stating they agreed or strongly agreed, was 'Students are able to value their own capability through improved self awareness', with 80% of respondents 'agreeing' or 'strongly agreeing' that e-portfolios allow students to 'critically reflect on their own learning'. Conversely, 6.7% 'strongly disagreed' with this statement and a further 6.7% 'disagreed' with 'students critically reflect on their own behaviours'. Interestingly, 57.2% of respondents either agreed or strongly agreed to e-portfolios contributing to students adopting 'a positive attitude to lifelong learning.' A further 80% of respondents either agreed or strongly agreed to 'students are more independent as learners'. Similarly, 66.6% of respondents either agreed or strongly agreed with 'students enhance their ability to present themselves to others' and 'student enhance their employability'. 50% of respondents felt neutrally about e-portfolios enabling 'students to be more effective as learners'. A more dispersed response came from 'students are more self motivated as learners' with 21.4% strongly agreeing, 35.7% agreeing, 28.6% of respondents feeling neutral and 14.3% disagreeing to e-portfolios encouraging self motivation to learn.

The main restrictions respondents felt existed to limit the students achieving the above mentioned PDP processes included time, IT skills, and general priorities of the course itself. For example:

> 'At initial stages of PGCE course, students are unable to reflect effectively as they have no benchmark against which to compare themselves and they are more concerned with survival of planning and class management. By second half of PGCE course they are more self aware and can reflect and experiment with teaching strategies. More confident in the classroom.'
>
> 'Some students willingness to use IT'
>
> 'Time constraints and pressures of training year, takes time for them to start reflecting beyond behaviour management, need more regular encouragement.'
>
> 'the demands of the TDA paperwork/evidence base takes priority and eats time, so discussion areas are not exploited to the level they could be'



Graph 4:

Each of these issues again is reiterating similar themed issues previously mentioned. One key issue raised by many of the respondents included I.T training where many respondents felt that students were hindered by their lack of I.T. skills in fully constructing a successful e-portfolio. As a result, these students were further hindered because they found e-portfolios more time consuming with their focus on the technical side of creating their e-portfolio rather than the learning benefits of reflecting on their practice. Consideration needs to take place of how instructors support I.T. training for students, before commencing e-portfolio development, ensuring each student feels some level of competence using the software from the outset. One of the questions raised by the findings included 'is technology hindering or increasing motivation?' It seems some students are struggling with the technological side of e-portfolios whereby the technological basis of the application is making it harder for students to become fully involved. For example, instructing students on how to edit their video clips of their teaching and add text and add voice over to them to describe their learning, will help give students the technological know how to self-evaluate their work. Conversely, the development of an e-portfolio affords student teachers to develop the opportunity to develop I.T. skills using a range of tools which they can develop as lifelong learners (Bhattacharya, 2002). Respondents felt that the use of e-portfolio technology resulted in creating teachers who were not only I.T. literate but also have an understanding of e-learning to take with them into the classroom.

Learner PDP requirements for those undertaking teacher training are summarised as following:

> 'Monthly tasks are set for PGCE pilot group. Trying to determine minimum acceptable content and max content allowed – manageability for student and tutor. Expectations on each other agreed in advance –frequency of use and feedback. Experimenting with types of media that can be included. Trying to marry lesson evaluations with personal reflection on role as a teacher.'
>
> 'Paper-based portfolio covering: core areas/subject specialism, professional practice.'
>
> 'Interview between students and staff at regular points.'
>
> 'Lesson planning and self-reflection, formative and summative assessments of learners, subject knowledge development and collaboration with a range of professionals.'

Respondents displayed strong ambitions and aims towards the implementation of e-portfolios within the curriculum and highlighted that the first aim was to develop reflective practitioners and sow the seeds to develop a generation of lifelong learners. To do this, the practitioners felt that e-portfolios allowed the learners to make links between learning acquired while in the institution and skills developed while in placement. However, not all respondents felt that e-portfolios should be the only method for students to complete these aims.

The main aims identified for PDP and those undertaking teacher training with the departments surveyed included developing reflective practitioners and meeting standards. Examples include:

> 'evidence based learning is ongoing and progressive throughout career.'

> 'Meeting the standards –professional focus and targets from feedback sheets – meeting these'
>
> 'Evidence against competence model. More reflection on progress as a teacher. Support mechanism during placements.'
>
> 'Generate a portfolio sharing their development as a trainee with evidence'
>
> 'Building an understanding of professional studies. Linking the work done in the department with the work done in school.'
>
> 'To develop reflective practitioners with commitment to lifelong learning, professional ethos and appreciation of inclusion and diversity.'
>
> 'to gain QTS and then to support the CEPD'

The ambition of practitioners to utilise e-portfolios as a tool to develop lifelong learning is reflected in the literature. However, in order for e-portfolios to afford all of the learning objectives practitioners hope to achieve, e-portfolios need to be implemented and embedded into the curriculum thoughtfully in the first place. The tool itself is not self sustaining, it requires students to have more control (Siemens, 2004) and needs to be transferable into different learning situations (Whitsed, 2005).

Respondents identified benefits for the learner when using e-portfolios as part of their PDP in teacher training to include:

> 'Streamlining ITE, induction, EPD, CPD, etc ideal world. Currently it encourages the use of ICT in teaching and promotes self evaluation and reflection against teacher competencies. Records experience on placement.'
>
> 'Understanding of new e-learning expectations and requirements.'
>
> 'the reflection done in choosing what to include and saving paper!'

Reflection V's Assessment

With the current literature based debate on whether reflection should be assessed, it is interesting to find that 59% of respondents stated that their e-portfolios were currently being used for reflection and assessment, while the remainder (41%) stated that e-portfolios were used for reflection only. Not surprisingly, no respondents stated that they used their e-portfolios for assessment only, particularly when considering the number who felt the design of e-portfolios made them more difficult to assess than traditional portfolios.

When identifying the type of assessment taking place 54% stated that they assess their e-portfolios using formative assessment, 46% using a combination of formative and summative assessment, with no respondents replying that they used summative assessment only. Respondents provided examples of how the use of e-portfolios as a tool for PDP is currently assessed:

> 'Pilot study so focus is on manageability of time to complete it and also technical issues – access, file storage, interoperability etc.'
>
> 'As university based evidence with comments and targets, and as an assessed task (for undergraduates).'

> 'Formative assessment by staff'

Issues of assessment raised by respondents highlighted implications raised when using e-portfolios as an assessment tool. Reflections of the respondents included not only the time consuming nature of marking e-portfolios but also the type of evidence which e-portfolios could hold and which could provided more variety that the traditional portfolio model. For example, comments include:

> 'Staff have found the process time consuming and difficult.'

> 'More evidence available as it is too easy to store information electronically. Good students weave evidence together and can see relationships so very detailed e-portfolios. Lever arch file has a maximum capacity! More enjoyable to read e-portfolios but more time consuming too.'

> 'How do you manage 200 e-portfolios for students on a 1 year PGCE course? How much evidence needs to be validated to be considered for assessment purposes?'

One respondent commented on a pilot their PGCE students participated in, stating:

> 'Anecdotally there was no evidence that the electronic system supported reflection and target setting in ways that were different from or better that the paper-based system.'

Another respondent commented on the benefits of the technology:

> 'Incorporation of multimedia files, easy to update, accessible at all times by tutors and mentors.'

Identified issues of assessment and e-portfolios can be summarised as follows:

- e-portfolios are time consuming to assess;
- Unclear learning objectives held by students, lack of understanding of the task;
- Unclear marking guidelines for the staff.

Respondents aim to provide the learners with assistance in the use of e-portfolios in PDP, including providing training to develop the use of e-portfolios in the curriculum. Example included:

> 'In future, all PGCE students will be required to develop and maintain an e-portfolio of evidence against teacher competencies and include reflection on personal experiences, goal setting etc during placement. Ability to share elements of their e-portfolios with potential employers – interview panel.'

> 'Training and access to some resources, such as Mp3 recorders.'

Respondents felt students were deriving benefit from using e-portfolios to assist in the PDP process, primarily the development of a self reflective practice. Examples include:

> 'Increased awareness of teacher competences and level of progress in personal development as a teacher. Increased use of ICT for storing evidence. Better vocabulary when reflecting on experiences – awareness of what a reflective practitioner is!'
>
> 'I hope it generates autonomous learners and opens up opportunities for all via online discussion'
>
> 'Possibly greater awareness of e-capability in data handling.'
>
> 'Collating information and evidence in multimedia format that allows them to reflect on the professional development.'
>
> 'Sharing of ideas/resources through, including when on placements, greater reflection'

Interestingly, while identifying how the lack of I.T. skills hindered students ability to create a successful e-portfolio, respondents also commented on the development of I.T. skills by students creating e-portfolios.

The scoping study gave respondents the opportunity to raise any issues or concerns they have with the implementation of e-portfolios into the field of education. Examples of issues raised include:

> 'Movement of NQTs in England, Scotland, Wales, NI and the lack of continuity in e-portfolios for all teachers – different requirements, platforms, expectations etc. How do we support teachers from other areas?'
>
> 'Much PDP work is already conducted, but not in e-format. This is because many incoming text streams are taken from "live" – I.E. placement settings. The Placement issue of education students does make e-portfolios generation a bit more challenging.'
>
> 'What is the basis for suggesting that e-portfolios are a good pedagogy for everyone?'
>
> 'The system here does not support the use of e-portfolios – too many glitches in the system and not enough capacity.'
>
> 'The need for continuity and interoperability across institutional contexts (university, local education authority, professional body etc) is particularly important in our view.'
>
> 'We are trying to ensure that they link with appropriate pedagogical and assessment positioning so are currently revisioning a number of courses to bring in e portfolios. We don't want to see them as a 'bolt-on'.'

In summary, respondents felt the key issues involved in implementing e-portfolios into teacher training programmes within HEI's included:

- lack of continuity throughout the UK
- technical problems
- need for Interoperability
- not currently fully embedded in the curriculum
- issues with e-portfolios and assessment

Concerns highlighted by respondents supported the key issues raised in the literature, highlighting anxieties about the gap between expectations and reality when implementing e-portfolios into the curriculum.

Conclusion

The findings of the survey highlight that although there is a level of e-portfolio practice taking place in teacher training courses in HEI's, it is still a new and developing initiative, with only a third of respondents reporting that they are using e-portfolios. However, this may also be a reflection of people's interpretation of what an e-portfolio actually is, and what tools actually constitute an e-portfolio. The results suggest that respondents feel very positive at the possibilities of e-portfolios within their teacher training programmes. However, it is equally clear that consideration needs to be made at the planning stage in order to effectively implement a fully embedded e-portfolio system into the curriculum. These considerations highlighted from the respondents are summarised as follows:

- I.T. training for students imperative for all in the beginning of the course;
- Course Priorities – e-portfolios need to be fully embedded into the curriculum for all students and staff to understand the importance behind it;
- Student choice – in order to support the flexible nature of e-portfolios;
- Time consuming – instructors need to clearly outline the requirements of the e-portfolios to both students and other staff members;
- Instructors have strong aims of what they would like the e-portfolios to achieve;
- Technical implications – planning between instructors and administrative staff on technical support for e-portfolios needs to take place.

Interestingly, the findings from the survey do reflect common themes from the literature identifying problems associated with the integration of e-portfolios. This in turn suggests that this survey has provided a valid snapshot of current practice which is in turn yielding evidence to support the current literature.

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Appendix 1: Data Collection Tool

ESCalate E-portfolios in Teacher Training Survey 2007

This survey aims to report on current use and integration of e-portfolios on Education courses delivered within Higher Education Institutions.

The survey is completed anonymously and takes around 10 minutes to complete. Once completed please enclose in the postage paid envelope provided.

'''All data collected in this survey will be held anonymously and securely. No personal data is asked for or retained.'''

If you have any further queries please do not hesitate to get in contact with the research team at escalate@stir.ac.uk

Section 1: Existing e-portfolio software packages in Education

1. Is your department currently using an e-portfolio software package as part of your Education (i.e. PGCE, ITE,ITT) Programmes? (*Please tick*)

Yes		No	

2. If so, which e-portfolio software package is your department currently using?

3. If the answer to question one was yes, how long has your department been using e-portfolios on it's Education programmes?

4. If your department is not currently using any e-portfolio software packages are there any plans to do so in the future? (*Please tick*)

Yes		No	

5. Is your department using an add-on to an existing Virtual Learning Environment Package to support e-portfolios? (*Please tick*)

Yes		No	

6. If the answer to question 5 above was yes please describe or give details about the add-on package.

7. Within the current curriculum e-portfolios are (*please circle*):

Fully Embedded Partially Embedded Not Embedded Other *(please specify)*

8. Please use the space below to describe any changes, modifications or innovations to the software which have been carried out or initiated within the department.

9. How do you incorporate PDP using e-portfolios into the curriculum?

10. Was the department responsible for initiating e-portfolio practice into the institution or were e-portfolios introduced at an institution level previously?

11. Do you feel the use of e-portfolios within your department currently meets the needs of (*please circle*):
Learners Staff Management Other *(please specify)*

12. Please comment on why you think e-portfolios are or are not meeting the needs of the various stakeholders.

13. Comments or further information you would like to provide in this section.

Section Two: Reflective Learning

14. Please identify which of the following you feel is achieved using your current e-portfolio package.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a. Students critically reflect on their own learning					
b. Students critically reflect on their own behaviours.					
c. Students critically reflect on their own achievements.					
d. Students are more independent as learners.					
e. Students are more effective as learners.					
f. Students are able to value their own capability through improved self-awareness.					
g. Students are more self motivated as learners.					
h. Students are aware of how they can apply their learning in contexts other than the academic curriculum.					
i. Students enhance their ability to present themselves to others.					
j. Students enhance their employability.					
k. Students are encouraged to adopt a positive attitude to lifelong learning.					

15. Upon reflection of the question above, what do you feel (if any) are the main restrictions that limit the students in always achieving these areas of the framework?

16. Do students still use e-portfolios while on placement (*please tick*)?

Yes		No	

17. Are e-portfolios mainly used within your department for:

Reflection Assessment Both

18. If e-portfolio's are used for assessment is it (*please circle answer*):

Formative Summative Both

19. Is the design of an e-portfolio easier to use as an assessment tool rather than a traditional portfolio (*please tick*)?

Yes		No		N/A	

20. Please expand on your answer to the question above.

21. Comments or further information you would like to provide in this section.

Section Three – Learning and Teaching

22. What are the learner requirements for PDP currently in place for those undertaking teacher training with your department?

23. What are the main aims for PDP for those undertaking teacher training within your department?

24. Does the use of e-portfolios assist in attaining those aims (*please tick*)?

Yes		No	

25. If the answer to question 24 is *yes*, please give further details.

26. If the answer to question 24 is *no*, please give further details.

27. Are learners required to use e-portfolios as part of their PDP (*please tick*)?

Yes		No	

28. If the answer to question 27 is *yes*, please give further details?

29. What are the identified benefits to the learner of using e-portfolios as part of PDP in teacher training?

30. How is the use of e-portfolios as a tool for PDP currently assessed?

31. What opportunities does your department provide for the use of e-portfolios to assist PDP for learners in teacher training?

32. What benefits do you feel students are deriving from using e-portfolios to assist the PDP process?

33. Comments or further information you would like to provide in this section.

34. Please raise any issues, highlight any points, or comment in general about e-portfolios within the field of Education.

35. If you are willing to participate in a further telephone interview regarding the use of e-portfolios
within your department or issues raised in this questionnaire please complete your contact details here:

Thank you for your participation!