



Electronic Preparation for Professional Practice

A Summary Evaluation of the introduction of ePortfolios 2015/2016

This is a summary report of the early findings of an evaluation project of the introduction and piloting of an ePortfolio by the ePrePP network.

ePrePP executive group: Catherine Burke, Caroline O'Connor, Eileen O'Leary, Eirin O'Connell Henry Smithson, Bettie Higgs and Grace O'Leary LTU, University College Cork National University of Ireland July 2016

www.eprepp.ie



Introduction

Three health science disciplines in University College Cork; medicine, nursing and pharmacy, in conjunction with the Office of the Vice President for Teaching and Learning, came together with a shared vision to use digital technologies to enhance the transition for students from the classroom to clinical placement to professional practice. Clinical placements are an essential component of health science programmes and are designed to prepare students for professional practice. However, the quality of the student experience on placement can vary, with not all students gaining the maximum benefit from the opportunity. The ePrePP project has focused on facilitating the transition for students to professional practice through clinical and work-based placements in undergraduate programmes, aiming to foster an improved and more consistent experience. The project gained competitive funding from the National Forum for the Enhancement of Teaching and Learning to develop and deliver 4 work packages:

1. Enhance the achievement of competencies on placement
2. Select and pilot an ePortfolio to facilitate competency mapping, assessment and feedback on placement
3. Develop a suite of digital resources for placement
4. Encourage inter-professional learning

ePrePP is overseen by an executive group from UCC and delivered in collaboration with a network of partner institutions (ITT, TCD, UL, UCD and NUIG).

This report is a summary evaluation of the piloting of an ePortfolio (work package 2). This work was carried out by nursing and pharmacy departments at UCC, ITT and TCD. The introduction of an ePortfolio to collect and store evidence of competency status before, during and after placement involved identifying an ePortfolio that met the requirements of an undergraduate programme and could be used after graduation as a continuing professional development tool. Appropriate modules were identified in UCC, ITT, and TCD and in two disciplines (nursing and pharmacy) for the pilot implementation. In some cases students acted as partners to pilot the ePortfolio alongside a paper-based portfolio, and/or presented their experiences for debate at conferences. International experts were enlisted to give advice on implementation.

The implementation and evaluation of the ePortfolio included

- a. Choice of ePortfolio
- b. Evaluation of the pilot implementation using
 - i. Online surveys of participating students and tutors to provide quantitative and qualitative data
 - ii. Focus groups and interviews to gain additional qualitative data from students and tutors

a. Choice of ePortfolio:

A needs analysis was carried out by the Learning Technologies Unit and the ePrePP Executive at UCC to identify the key requirements of an ePortfolio to be used by health science students, bearing in mind the focus on improving the experience on clinical placement. These key requirements include:

- Security of information (including privacy and confidentiality for both students and patients).
- Sharing of certain information with selected tutors and peers
- Continuing access and use of the ePortfolio after study is complete to facilitate CPD.
- Up-to-date technology with intuitive manipulation for building and managing resources
- Single sign-on point for student through integration with the institutional Virtual Learning Environment (VLE)
- Access via lap top, phone or tablet

These requirements are intended to not only replace but to augment the traditional paper-based process, of which the purpose is to:

- Support ongoing learning and professional development thus supporting the transition from student to professional.
- Support formative and summative assessment in both theoretical modules and clinical placement modules
- Support future employment by having a readymade CV for future employers to view
- Motivate students to express their own voice in the portfolio.

Having reviewed a number of traditional paper portfolios and a number of ePortfolio platforms using criteria set out above and in Appendix 1, PebblePad was chosen as the pilot ePortfolio for this project.

Traditional portfolio	Adding technology
Collecting	Archiving/ data storage and back-up
Selecting	Linking/making connections
Reflecting	Incorporating digital artefacts
Projecting	Collaborating
Celebrating	Publishing
	Facilitating prompt feedback
	Compatible with existing VLE -mobile device capability, 24/7 log-on accessibility,

Adapted from

[\(Reynolds and Patton 2014\)](#)

Within the health care sciences there has been some use of the Campus Pack ePortfolio facility, available through the Blackboard VLE, by the School of Dentistry, but in 2015 this School felt that the tool did not address their needs. The Learning Technologies Unit (LTU) at UCC were asked by the ePrePP executive to assess the currently available ePortfolio platforms that met the needs of the project and PebblePad was chosen for the project. (Appendix 1).

The decision to go with PebblePad (PP) ePortfolio was taken in June 2015. A 2-day general training course was carried out in Cork by a PebblePad trainer in July 2015. This was attended by the ePrePP executive, LTU at UCC, Programme Directors from ITT, and others from health sciences interested in the PebblePad platform. Two hundred and fifty student licenses were in place by August 2015.

Since this ePortfolio platform was chosen, there have been a number of upgrades from various other ePortfolio suppliers creating a rapidly changing environment.

b. Evaluation of the introduction and pilot implementation of an ePortfolio (see appendix 2 for protocol)

Students of Pharmacy, Nursing and Dentistry were introduced to the new approach to assessment, feedback and competency mapping at the start of Semester I (Sept. 2015). A significant amount of engagement has taken place since then by staff and students in familiarising themselves with the software and understanding its context over the course of their degree programme.

The first module roll-outs with students were in Sept 2015. These were followed by modules starting in January 2016 and June 2016.

The process of introducing an electronic portfolio for use in undergraduate health care settings was evaluated in order to produce guidance for institutions and departments.

The objectives of the evaluation were to

1. Collect baseline quantitative and qualitative data from students and tutors on the introduction of an ePortfolio system in respect of their expectations and understanding of the system
2. Collect ongoing qualitative data from students and tutors using focus groups and/or interviews
3. Collect quantitative and qualitative data on the experience of students involved in the pilot study at the end of the relevant module using a questionnaire adapted from a published survey instrument (McNeil and Cram, 2011)
4. Analyse the data from the on-line questionnaires, focus groups and interviews, in order to make recommendations for future implementation.

Study population

To date (2015/2016) the ePrePP project has been piloted with over 400 students from 16 modules 30 academic tutors and 208 work-place tutors from UCC, ITT and TCD, from the first 3 years of programmes in nursing and pharmacy. The type of assessments have varied, with some modules awarding achieved/not achieved, while other modules having a fully graded 30 European Credit Transfers (ECTS). Class sizes varied and placement length varied from one day to eight weeks.

i. Online surveys

Survey instruments were developed (adapted from McNeill & Cram, 2011) to collect quantitative and qualitative data and gain insights from students, academic tutors and professional work-place tutors. This data, relating to the introduction of ePortfolio, was collected in a variety of ways:

- **A student baseline survey** (n=66) to establish the IT skills and familiarity with ePortfolio of students registered for the pilot modules. This provided background data on the students' expectations and understanding. The intention was to 'start where the students were at'.
- **A tutor baseline survey** (n=16) to establish the IT skills and familiarity with ePortfolio. This discovered what level of training and support the module coordinators and course tutors would require.
- **A student end of module survey** (n=116)
- **A tutor end of module survey** (to be completed)

Survey Monkey was used to carry out the online surveys and the questions were informed by a literature review (see Appendix 3 for copy of questionnaires).

Findings

The baseline survey found that almost all students had internet access at home but 30% did not have access at work. All but 6% were confident in using MS Word and the internet and four out of five were confident in using MS Excel. Prior to the introduction of an ePortfolio, over 70% were aware of ePortfolios but were split about 60:40 on whether an ePortfolio would enhance learning. A majority of 70% thought an ePortfolio would prepare them for professional practice.

A small number of tutors also completed a baseline survey, and revealed that all had internet access at home and at work and were confident in using MS word, MS Excel and the internet. Less than half the tutors had used an ePortfolio at all and only 13% had used one for CPD. There was general agreement that ePortfolios could change student learning and prepare students for practice within the tutor cohort.

An end-of-module survey was completed by students who piloted ePortfolio in September (ITT, nursing and UCC, pharmacy) and in January 2016 (TCD, pharmacy and UCC, pharmacy). Of 116 students who completed the survey 83.7% reported that they managed to log in and complete the tasks assigned. 44.7% agreed that technical difficulties had limited their use of the ePortfolio, and 47.3% felt that they had had sufficient support while completing the module. The survey revealed that with the ePortfolio approach 75% of students felt they could collate their work and 70% found it helped reflection on learning. However, 60% of students in the first cohort found PebblePad to be a complex tool and not easy to use.

Students gained support from a variety of sources during the module, with individual guidance from tutors and peers being most used at 50.7% and 81.2% respectively. The lowest source of support reported was from IT services at 19.3%. Online documentation was considered supportive by 53.5% of student respondents while 48.6% reported that they didn't look for support and just worked it out for themselves.

ii. Focus groups and interviews

- **Five student focus groups** were conducted to gain richer insights into the experiences of students during the ePortfolio pilot implementation, and learn lessons for future implementation
- **Interviews with students** (n=7). These students completed both an ePortfolio and a paper based portfolio and so were in a position to compare the two.
- **Two tutor focus groups** were conducted to gain richer insights into the experiences of tutors during the pilot ePortfolio implementation and learn lessons for future implementation
- **Interviews with work-based placement tutors/preceptors** were conducted to gain insights into their experiences and perceptions of ePortfolio in the workplace

Analysis of the feedback received in the focus groups identified emerging themes for consideration as follows:

a. Training of students and tutors

There were many comments on timing and appropriateness of training, with both students and staff reporting varying levels of satisfaction with training. An introductory day long training course was provided by PebblePad for those academics who would be piloting the ePortfolio. Subsequently those academics delivered training to other tutors. Training by tutors was delivered to groups of students or, in some cases, delivered on a one to one basis. Instructions were made available to students online and as paper-based resources.

For students, provision of initial training and on-going support varied from course to course. Initial pre-placement training of students by module coordinators or IT services staff was not always appropriate. Students would have preferred hands-on training rather than a lecture. The first group of students to begin implementation showed the most signs of anxiety and stress in the focus groups. They felt that subsequent groups benefited from the lessons learned and received more appropriate initial training. This may explain why students who were involved in later implementation were more favourable about the PebblePad ePortfolio and the opportunities afforded.

Ongoing support was reported as varied and patchy. The institutional IT services provided some ongoing support for students in one institution but not in the others. Even in this one institution, students felt the IT support resource needed to be increased.

Ongoing IT support was appreciated by students but is needed at the right time. Some module coordinators arranged weekly tutorial sessions in response to initial student feedback. In others, IT Services were available and though appreciated, were considered not sufficient or at the right time for students.

Another module lead provided a short instructional video that was valued by students and is available on the ePrePP web site. (www.eprepp.ie)

A small number of students could not see the benefits of using an ePortfolio. This suggests that a pilot implementation of a new initiative should ideally involve agreement about the purpose and timing of introducing an ePortfolio between tutors and students. There should be small managed steps towards change, so that problems can be dealt with as they arise and students and staff feel well-supported and not over-whelmed.

Tutor support was found in the form of Facebook and self-help groups. Tutors reported meeting up and helping each other. Recommendations on training of future cohorts were made by students. These included “starting in first year” and “more appropriate and timely training”. These were recommendations of all focus groups.

“I would have liked to have had more training.... a video intro to PebblePad would have helped”.

“I got the basic knowledge on the training day, it is then all about you exploring PebblePad”

“It was easy once you got the hang of it”

All students felt that the tutors needed more training and that some course coordinators were unfamiliar with the platform. A large number of students felt that preceptors needed more training as the lack of preceptor experience limited the utility of the ePortfolio. They liked the ‘Date, Save and Feedback’ function as it meant less signing off for both student and preceptor. Lack of familiarity by course coordinators was an issue. Timing of training was an issue and it needs to be timely and appropriate.

"I felt I had enough information to use it but preceptors did not fully understand it"

"Preceptors should be better informed so that they can complete the assessment and use the feedback tool".

"More information sessions for staff so that they are more comfortable with what they have to do when signing us off"

"Get all of the wards on board. Have a two-day preceptor training".

In relation to implementation, it is important to note the following:

Buy-in from department heads and module coordinators is essential for sustainability and success. During the implementation of new initiatives resistance from students can occur and so it is important that the benefits are evident and that students are aware of the purpose of the initiative. This will encourage students invest time and energy into making the initiative work for them. As mentioned in the results above, over half of the students figured out how to use PebblePad for themselves and almost another 50% relied on peer support. Where this departmental support did not exist, implementation was less successful.

Issues raised by students and tutors relate more to skill at reflective practice (how to reflect; adding evidence; linking learning) rather than the vehicle used for reflection. Students made reference to repetition and workload and some assignments were overly burdensome and pointless. This requires training not only on how to use the technology, in this case PebblePad, but training and support on how to become a reflective writer interlinking classroom based learning with practice.

Utility of the chosen ePortfolio platform:

PebblePad has high functionality when building and sharing resources, giving feedback, recording achievements/marks/grades, and offering security and confidentiality relating to student records, etc. However, the early focus groups revealed that students found PebblePad was not intuitive when compared with systems that they were used to, such as MS Word, Facebook, etc. Some students commented that they felt that they learned more of its functions when they spent time working with it themselves. All felt they would have had less stress with more appropriate and timely training. Some tutors found it easy to use but some found it difficult.

Tutor x: as a tool I found it easy to use

Tutor y: it was a steep learning curve

Students who undertook the pilot in Jun/July 2016 were noticeably more positive about PebblePad and the ePortfolio approach though one referred to the limited copy and paste function of PebblePad and there were some that felt that IT issues restricted their use of the ePortfolio. The opportunities of ePortfolios were appreciated by students who were able to get the most out of the change, perhaps due to smaller cohorts of students and because lessons about implementation had been learnt.

S5 'it is straight forward to complete and the layout is good'

S1 'a very good learning tool because you can add readings, policies, articles and pictures; it is hard to paint a picture only in words'

S2 'you can do more with the ePortfolio on placement than with paper based logs'

S3 'being able to add documents was very helpful because it provided evidence of what I learned'

The initial steep learning curve and teething problems were recognised by some module co-ordinators (MC) who nevertheless appreciated the medium term benefits.

MC1 "initial templates take time." "I started by reproducing existing paper-based workbook" "Preceptors could not always see students' workbook in Atlas. This was resolved by contacting PebblePad support and asking for a solution. The PebblePad support team proved invaluable in resolving issues".

MC2 "I am in control of the template – can change it myself, without assistance from IT services"; "This is important as it resonated with our lecturers, having control and ability to make changes themselves gave the academics more confidence and freedom. Once trained initially the platform is easy to manipulate and to design templates to suit each academic's individual requirements, e.g. including peer- or self-assessment or just tutor-assessment or a combination of assessors. Having the control of your own templates without needing extensive programming knowledge is a very important bonus of PebblePad"

MC3 "Need a system that will direct preceptors to the current part of the workbook submitted by the student (registering for either student or tutor when work is done)"

b. Infrastructure

Some significant infrastructure challenges to the implementation of any comprehensive ePortfolio exist when dealing with work-placement in the health sciences. Ironically, placement is where the maximum benefit of ePortfolios for preparation for professional practice could be leveraged.

The challenges have manifested themselves in hospitals. Hospital structures are from varying decades and may not be up to date technologically. Access to the internet, and Wi-Fi facilities are variable. Within the wards/units computer availability (with wired internet access) is also varied. On the hospital wards, the computers (1 or 2) are available for hospital business and are not located in private areas suitable for student's assessment by work based tutors, and access to these computers is at the discretion of a hospital staff member.

S6 "Internet access is a huge problem. Some wards did not have access, and PebblePad did not work due to technical issues. These issues restricted my use of PebblePad"

Solutions to most of these issues were found on a case-by-case basis.

MC1 “Difficulties in hospitals – no Wi-Fi; no time; but preceptors are up for it. So solutions have been found to some difficulties. E.g. old hospitals where individual solutions were found. Some areas have Wi-Fi or Eduroam. Some students used their own phone as a hotspot for an iPad so that they could carry out the assessment process with their preceptor. Some students were allowed to use a staff computer with wired access to the internet. Through negotiation the students were able to access the PebblePad website on the computer.

Tutor w “students went to another building to use preceptors computer” and so relying on individually negotiated solutions or were given use of a “private room with internet access”.

Conflicting themes emerged under infrastructure. The culture on hospital wards is to not use mobile phone technology (a technology that could be very useful for students and preceptors/tutors). This is for a number of reasons, such as patient confidentiality, infection control, concerns about using social media inappropriately during time when caring for patients. However, both the work-place tutors and students agreed that using ePortfolio in relation to work placement was the way forward.

Outside of the issues encountered with off-campus placements, there were some general technical difficulties. Access through the institutions VLE was slower than direct access through the PebblePad web page,

S1 “opening PebblePad through Blackboard is a much slower processopening directly from the website is much easier”

S2 “Internet access can be a problem on some wards. The PebblePad did not really work for me due to technical issues. This could be improved to make it more workable”

S4 “It was difficult to find time and find a computer on the ward to do it, it is easier to sit with the [paper-based] booklet”

c. Assessment and feedback

Student satisfaction with the new approach was dependant on the design of their assessment tasks. For the earlier modules, some students felt that too much was being asked of them and that assessment tasks took a disproportionate amount of time. In pharmacy the repetitive nature of the work (reflecting on a large number of competencies and providing evidence of achievement for each) was reported as off-putting. This record of achievement is required by the Pharmacy statutory body. In future it may be necessary to vary the format of assignments and further encourage students to avail of the potential creativity and choice that the ePortfolio offers.

In nursing, familiarity with additional software was required, because certain artefacts had to be created and linked with PebblePad. This was a tall order and added to the complexity of assessment tasks.

Where students saw the purpose of the ePortfolio, on how reflective challenges could be backed up by evidence, they felt it had helped their learning. They had been required to reflect on work placement experiences which added value to their learning. Students were asked to take responsibility for their learning by identifying what they needed to do to be competent in a particular area and to present evidence to demonstrate achievement. They had to think about the competencies and how they were building these.

PebblePad is a comprehensive ePortfolio – allowing secure sharing of work with tutors/preceptors off-site. Each student can use the ePortfolio to document evidence of Continuous Professional Development (CPD). Once a student has graduated PebblePad is available free for the rest of their professional lives.

It is important to support students in the use of the technology, and equally important to make clear the purpose of the change in practice. Students need to be aware of the potential benefits (or other) and implications for their future work.

Recommendations

The ePortfolio approach should be introduced in the first year of an undergraduate degree with 'low-stakes' assessment. This would allow a gentler learning curve and a developmental approach through a programme of study.

- It is suggested that PebblePad training be introduced earlier to the Second Year students to encourage greater participation / take-up of the ePortfolio. A 2.5 hour practical 'hands-on' information session could be a good way to introduce the ePortfolio to the students and allow them to assess the benefits.
- Additional on-going training is needed for students, and additional IT supports for tutors.
- A customised video introduction to PebblePad would be useful.
- More substantial training should be offered to preceptors such as a two-day preceptor training session.
- Some students felt that training staff and students together would be beneficial.
- A more functional copy and paste option should be requested from PebblePad.
- Uniformity across wards and hospitals should be sought with regard to willingness to accept and facilitate the ePortfolio platform and approach
- Wi-Fi and high speed internet access across the wards should be urgently sought.

To conclude:

Many students, tutors and preceptors could see the value of an ePortfolio approach. However, significant challenges arose with the pilot implementation.

The first issue was that sufficient time was not allowed for training and familiarisation of the chosen ePortfolio. With appropriate and timely training tutors and students appreciated the comprehensive functionality. Therefore, appropriate initial training, together with ongoing IT support, needs to be in place for successful implementation. Preceptors and work-based tutors also need appropriate training to improve their familiarity with the chosen platform. This in turn will benefit the students as they will feel supported and encouraged in their use of ePortfolio.

The second main issue resulted from the practicalities of clinical placement. Some placement facilities have limited computers for students to work on, and internet access is frequently unavailable. The benefits of ePortfolio are clear but for the implementation of the ePortfolio in clinical placement to be successful, there needs to be uniformity across wards and hospitals regards willingness to accept and facilitate the ePortfolio and its platform. Wi-Fi and high speed internet access across the wards is also essential to the successful roll-out of the ePortfolio.

Towards the end of the pilot implementation the benefits of the PebblePad platform were being articulated. With little previous expertise in technology, tutors after training and some support could readily build and customise their own templates to facilitate student learning.

PebblePad as a technological platform for reflection on, and documentation of, learning fulfilled the requirements outlined by the ePrePP Exec at the outset.

PebblePad integrated with the Blackboard VLE, offering a single sign-on option for students and staff, although students reported this to be more cumbersome; it facilitates feedback and interaction between tutor and students; it ensured security and privacy of student data; it allowed flexibility in teaching and learning; it facilitated recording of impromptu learning, giving students autonomy over their own learning; it allowed module coordinators to develop templates mimicking the CPD requirements of practicing professionals thus preparing students for professional practice.

Appendix 1

Analysis of PebblePad ePortfolio: Grace O’Leary Learning Technologies Unit UCC 2015

What PebblePad offers	Description	Comments/ remaining questions
Personal learning space	Each account holder has access to this and can customise it to their own liking. Lecturers, tutors (only on invite), students etc... all have access to a personal learning space. Staff can use it to develop and record their own personal learning.	This allows individuals to organise their learning, personalise their learning.
Share learning with individuals or submit for assessment	There is a ‘personal share’ option where the users can share with one or many individuals (peers or tutors) of their choice, make it public, submit for assessment.	Useful for teamwork, collaborative learning, inter-professional learning, interdisciplinary learning. What does making it public mean? Only items chosen by the student are shared with public – the people they wish to share them with) Can you share with people who do not have a PebblePad account – yes e.g. CV to future employer - by giving them password and sharing the sections you wish to share only
Can embed links	Users can embed links to websites they found useful, to a reflective piece that supports their assertion that they have fulfilled a competency, to YouTube resources, other resources etc. The can include links to certificates etc. They have achieved if they feel it is appropriate to the assessment they are submitting or the portfolio they are submitting for assessment. It also allows student to compile a CV as there is a CV section also and this can be shared with future employers.	Useful for showing connectivity of learning – using different resources to support learning and consolidate learning. The embedded links allow you to have continuous flow in assessing the project – the link opens within the document you can have a quick look to see the relevance and move on – increased convenience in assessment as everything is in the one place and in logical order.
Pre-made Templates	Many premade templates are available which can be used as they are or modified slightly to the users’ needs.	Ready-made templates give a great start to a tutor or lecturer and also give good ideas on how to adapt it or design one’s own template.
Option to build your own template	Training is provided on how to build your own template and many options are offered, for free text to limited number of words to tick box style options. Option for students to self-assess in words of graphically using a Likert scale	Allows direct transfer of what is currently assessed in paper format to an electronic document for submission. Again Links to supporting evidence can be embedded in the text the student submits for assessment.
Option to do tagging	This means that if the students complete a task or does extra courses or engage with extra material and put it into practice they can use it to support completion of a number of competencies where appropriate.	Allows for connectivity of learning and gets the student to see where the different modules, workshops, labs, placements, tasks on placements they complete etc. can be used to provide cumulative

	<p>They can present a reflection linked to a number of competencies.</p> <p>Each item that is logged on PebblePad can have a tag attached by the student - e.g. chemistry (all items relates to chemistry can have this tag attached to them (Chemistry) and are stored in the asset folder. All items related to reflection 1st year can be tagged as reflection 1st year and so on. Then if you are looking for items related to chemistry just click on tag and all items appear in the asset folder.</p>	evidence of competency completion.
An asset folder	This allows the students to save any documents, word, pdf, PowerPoint, videos , podcasts etc. that they found useful and want to use and return to for revision or later reference point they can store it in their asset store and it remains accessible to them	Useful for revision purposes or to quickly refresh information. Also they can migrate it if they opt to move from PebblePad as their learning/training management system.
Has a built in help function on top tool bar	This is there to get information over to the end user – it is present in text and video format. There is also the option to use this help and customise and upload it in more detail or with added assistance.	Good for getting started as staff or student – often the buy-in needs to be from the staff end, the functionalities the students are required can be readily explained to them.
There is a new front page in development	The goal of this is to make it easier for the students who are new to PebblePad to navigate. Their tasks will be right there in front of them they will not need to look for them. It will have up-front the workbook they need to fill in and they just need to open it and type!	Helpful for new students and when they get used to it they can become a little more adventurous and we can guide them as required.
Single sign-on facility	Sign into Blackboard and PebblePad is there in front of you	Students don't like having resources in different places and memorising numerous user names and passwords, one point of access and this is available with PebblePad
Integrates well with Blackboard	Marks can be transferred from PebblePad to blackboard and vice-versa, groups can be set up in one and transferred to another, can grade in PebblePad and send grades to UCC Blackboard	Useful as many people have notes and assessment set up on UCC Blackboard currently – this can still be used with PebblePad
Competency Assessment (Student – self assessing and submitting reflection and evidence for competency approval)	Can create a workbook (from template or taken from a paper document), write reflections attach or link evidence and submit for appraisal Submit to academic/tutor etc. for review. Academic or tutor can approve or reject with written feedback or grading or both as required	The forms can be built to suit our needs, if we want feedback and interaction with the student in preliminary stages on drafts, this can be incorporated. If we want written feedback there is an option to for this, if we want to grade it is available, if we want to pass/fail this option is available – it is all linked to how we set the workbook up first day.

	All these workbooks come into one area and are there for the assessor to correct	
Competency Assessment (Staff observing and ticking competencies as they are achieved/completed by the student)	Tick achieved or not achieved only or can incorporate qualitative feedback (or both- it depends on how you build the workbook)	Very useful as option to provide qualitative feedback in the cases of not achieved is an important option. Yet the option to provide a tick competency achieved etc. Electronically and not having to put on paper first is a useful function. This is compatible with tablet devices as long as internet access is available – they have some work done on offline templates for areas that have a poor signal – this may be available but at a cost!
Compatible with mobile devices, is available as an app	This is compatible with tablet devices as long as internet access is available – they have some work done on offline templates for areas that have a poor signal – this may be available but at a cost! Is also compatible with smart phones	Quick easy method of assessing competencies, no transcribing form paper to electronic format required, hence reduced possibilities of errors, more efficient use of time.
Facility to change or add to workbook even after it has been rolled out to students	If a spelling mistake or inaccuracy is found after it has been rolled out to 300 students – if you update the template it updates on all 300 workbooks. If you want to pace the release of tasks and only make a portion of the workbook available in semester 1 and the other in semester 2 – you can update the workbook at the end of S1 and it upgrades in all workbooks.	Useful if mistakes are found after new template or workbook is created and you are confident that everyone received the change. Also useful to have the phased release as the students will not be overwhelmed trying to complete everything at once and will focus on the task in-hand.
Can incorporate resources to facilitate competency attainment	Can include video recordings, pdf, links to websites, case studies, embedded YouTube links etc...	Both staff and students can up-load resources to facilitate learning, integration, inter-professional learning and student progression through the competency levels.
Can build template to include action plan	This can be used if a competency has not been achieved, whether the staff or student or both can put together an action plan of what to do to achieve the competency or the competency level required.	Good method of setting/outlining specific tasks. Good at an organisational level from both a staff and student perspective as in a template format – it will guide the plan – i.e. identify goals, methods, timelines and resubmission dates.
Facility to add points of time in	This can be used to clock and keep track of practice hours or CPD points.	Useful way of recording hours and courses completed and keeping information up-to-date.
Workbooks can be embedded inside workbooks	The aim of this is to make it look less cluttered at a glance	Could be useful to keep everything linked – sometimes students study in silos – this could provide an opportunity for integration and suitable assessments in the workshop integrated to show them that learning is not in isolation and needs to be put into context.
Provides analytics	PebblePad will run reports and provide analytics.	Can be useful to monitor engagement, identifying what to

		improve and what is a good resource etc. Can be useful data for publishing if you are conducting a study?
Levels of access available	You decide the level of access, lecturer's access to all info, students to what you give them access to and what they create themselves. Tutors can simply have access via email to approve reflections and competencies and provide feedback through what PebblePad call Atlas – here tutors can have access to tick achievement as well as comment on achievement without having to take out a licence. They are given privileges to the sections they require to support student learners	Important for security of student information.
Groups and students can collaborate on-line	Students can do a personal share (share with those they choose) or as part of a community in the 'atlas community space'. This allows groups to be created, tasks to be identified, inter-professional learning etc...	Excellent way to create on-line network and allow students to collaborate even if they are not in the one location. Much feedback shows that inter-professional learning is difficult to organise from the perspective of resources (time, location, clashes of timetables etc...) – on-line collaborations can facilitate this.
Students have access to their portfolio throughout their degree	Each year builds on the previous year and students have access to all prior information -, access to first year material is not lost in second year etc...	Good for vertical integration of information/learning.
Option to export their information if they move from PebblePad	If a student stores their information on their own page and in their 'asset store' this information effectively belongs to them and can be exported with them when they graduate or move to a different ePortfolio system. If they are migrating to PebblePad in their professional career all their information can be copied directly across, however, if it is a different ePortfolio system it will have to be exported as PDF Competency booklet and all attachments can be taken with them.	Good as students get to retain a record of their learning and have access to it also for reference or revision in their professional career
Free Life-long access	If a student is enrolled for the duration of their undergraduate degree they get lifelong access to PebblePad for documenting and tracking their CPD.	Useful as it is free and competency mapping and CPD monitoring is becoming part and parcel of all professions – option to suggest to respective professional bodies that PebblePad be their ePortfolio system of choice?
Exporting files	Files can be exported to Google Drive, dropbox, sky drive 365 and stored until a new portfolio system is identified	The ability to export directly to the 'cloud' is very useful.

Appendix 2: ePrePP ePortfolio evaluation protocol

Aim

To evaluate the process and outcomes of introducing an electronic portfolio for use in undergraduate health care settings in order to produce guidance for institutions and departments

Objectives

1. To collect baseline quantitative data from students and tutors on the introduction of an ePortfolio system in respect of their expectations and understanding of the system
2. To collect qualitative data from students and tutors using focus groups or interviews
3. To evaluate the experience of students involved in the pilot study using a validated tool at 3 months and at the end of the relevant module

Study population

Students, tutors and academic staff at the Schools of Dentistry, Nursing and Pharmacy at UCC, the School of Nursing at IT Tralee and the School of Pharmacy TCD that are involved in modules where an ePortfolio has been introduced in the academic year 2015-16.

Methods

- Study population: all students who are supplied with an ePortfolio will be invited to complete a baseline survey and validated questionnaires during the course. Response rates will be recorded
- A mixed methods evaluation will collect and analyse activity data from the portfolio software, quantitative collection tools (Survey Monkey) and qualitative tools to collect data at the start of the pilot, midway through the pilot and after completion of the relevant modules. Data collection will progress using the following:
 - a. PebblePad software allows measurement of student and institutional activity. This will be collected and analysed using available software
 - b. Survey Monkey questionnaire: To include demographic data, participants experience of using digital technology, confidence and understanding of ePortfolios and expectations about how they may or may not enhance learning. The survey will include some free text questions subject to thematic review
 - c. Validated ePortfolio questionnaire (TBC McNeil MacQuarrie University Australia): Permission will be sought to use McNeil's published questionnaire adapted to the ePortfolio used by ePrePP departments and partners to collect student's views about the utility and value of an ePortfolio.
 - d. Focus groups: A convenience sample of students from various departments/schools will be invited to join focus groups (the number to be decided by resources and thematic saturation) to collect data about expectations and concerns to triangulate with the survey data
 - e. One to one interviews with tutors and academic leads will be recorded and transcribed to explore experiences, attitudes, expectations and outcomes of using ePortfolios and compare with student views

- f. Free text comments: Comments will be invited by survey respondents on the expectations and experience of ePortfolio use
- Data analysis:
 - a. Activity data will be recorded and matched to the tutor and staff information that describes the introduction process for each department. The data will be compared between departments and also aggregated to determine mean activity.
 - b. Survey Monkey data will be recorded on SPSS statistical software and descriptive stats will be collated.
 - c. The validated questionnaires will be analysed using the tool developers templates and compared between departments and different phases of the study
 - d. Focus group data will be audio-recorded and themes noted by using field notes. A thematic analysis will be performed and used in the triangulation analysis
 - e. Department staff and U/G tutors will be interviewed either over the phone or face to face and the recordings of these interviews will be thematically analysed to identify barriers and levers to success.
 - f. Free text comments will be subject to iterative thematic analysis and used to raise areas for discussion during the focus groups.
- Outputs: The results will inform developmental and introductory guidance that will be available on the web page and the evaluation will be written up and submitted for publication