

## **The Development of Holistic Professional Competence through assessment - Applying Constructivist and Reflective Assessment Practices In A Teacher-Training Programme**

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### **Abstract**

Traditional forms of assessment such, as essays and end of term examinations, are still widely used in higher education in Ireland as the sole assessment methods. These forms of assessment, while they may be valid and reliable methods for collecting evidence of acquisition of theoretical knowledge, they rarely afford students the opportunity to apply knowledge to key professional scenarios.

The authors draw on their experience as Lecturers and course designers for the module “Curriculum Assessment” which is offered to both, traditional full-time undergraduates and part-time professional educators. This paper describes the introduction of an assessment portfolio designed with the aim to promote the development of professional competence among teacher students and foster professional development among more experienced teachers and trainers in relation to assessment theory and practice. The authors of this paper view research as an integral part of teaching and learning. Therefore a constructivist approach to both teaching and learning and conducting research is essential. Using a mixed methodology approach the authors’ research was conducted using both quantitative and qualitative tools. A primary focus of the research used student reflection to generate relevant data suitable for triangulation; this was then coupled with the module evaluations and statistical data. The introduction of a new assessment format needs to be carefully planned and evaluated. The suitability of the assessment format should be evaluated in terms of the student population, the learning objectives and the learning.

## **Introduction**

The introduction of a new assessment format needs to be carefully planned and evaluated. The suitability of the assessment format should be evaluated in terms of the student population, the learning objectives and the learning context, but it should also be firmly grounded in the enhancement of the learning experience and the sustainability of such learning even beyond the academic context (Boud, 2000).

It is proposed that predominant traditional forms of assessment, used in Teacher Training programmes in Colleges of Education and Higher Education, often do not make sufficient use of reflection on practice or give sufficient relevance to the critical application of knowledge to key professional scenarios. The authors draw on their experience as Lecturers and course designers for the module “Curriculum Assessment” - which is offered to both, traditional full-time undergraduates and part-time professional educators - and show that a portfolio based assessment developed for the teacher training module on Curriculum Assessment can offer a valid means for assessing while at the same time developing students’ professional competence.

While it is acknowledged that lecturers and students engaging in portfolio assessment are treading unfamiliar territory that may lead to resistance, non-completion and student and lecturer overload (Tisani, 2008), the learning outcomes achieved through this form of assessment appear to out-weigh some of the common problems associated with this form of assessment. The structure of the portfolio for this particular module has allowed students to become assessment designers, markers, and self and course evaluators. The research findings demonstrated that through reflective process and constructivist teaching methods learners were engaged in a deeper form of learning which aided their scope for professional development and development of professional competencies required for their future careers as educators. It is argued that this model not only fosters reflection on practice but also initiates a reflective process for future practice.

## **Context of the research and student profiles**

The research presented in this paper is based on a redesign of an assessment strategy for a module within a teacher education programme at Dublin City University (DCU), Ireland. The BSc in Education and Training, is designed for those already in the area of teaching and training and for pre-service teachers and trainers. The programme is delivered through a dual delivery mode: fulltime and part-time. The student profiles within both modes differ quite considerably.

Part-time students join the course to support their continuing professional development with the provision of knowledge and skills to enhance their professionalism and help them gain a recognised qualification. The majority of the full-time student respondents were made up of school leavers with little or no experience managing assessment practices as educators. Figure 1 & 2 outline the diversity of experience of using and administering assessment in professional contexts between the two student bodies.

**Figure 1:** Part-time students’ experience of assessment in Education & Training

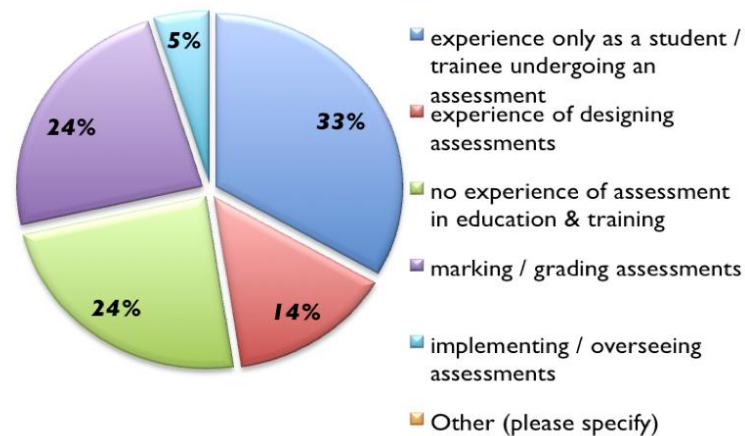
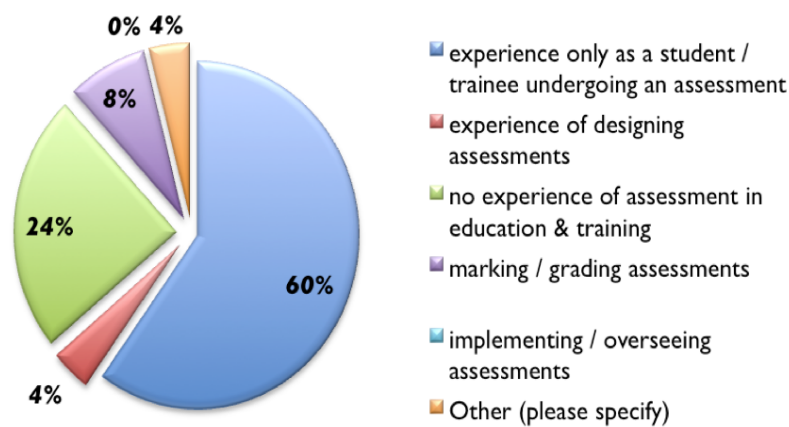


Figure 2: Full-time students' experience of assessment in Education & Training



### Research methodology

The authors of this paper view research as an integral part of teaching and learning. Using a multi-method research approach, both the quantitative data and the qualitative data were used to determine attitudinal and behavioural changes over this period. Each respondent involved in the study, submitted three pieces of assessment evidence per module and their academic opinions and attitudes were recorded and analysed throughout the process. As a primary focus of the research was the development of professional assessment competence through reflection, students' reflective diaries were collected to generate relevant data suitable for triangulation; these were then coupled with observations of performance and behaviours and finally with online questionnaires and evaluations. This mixed method design (Creswell et al 2003) excels at bringing insights derived from diverse methods to the analysis of a given phenomenon. In this

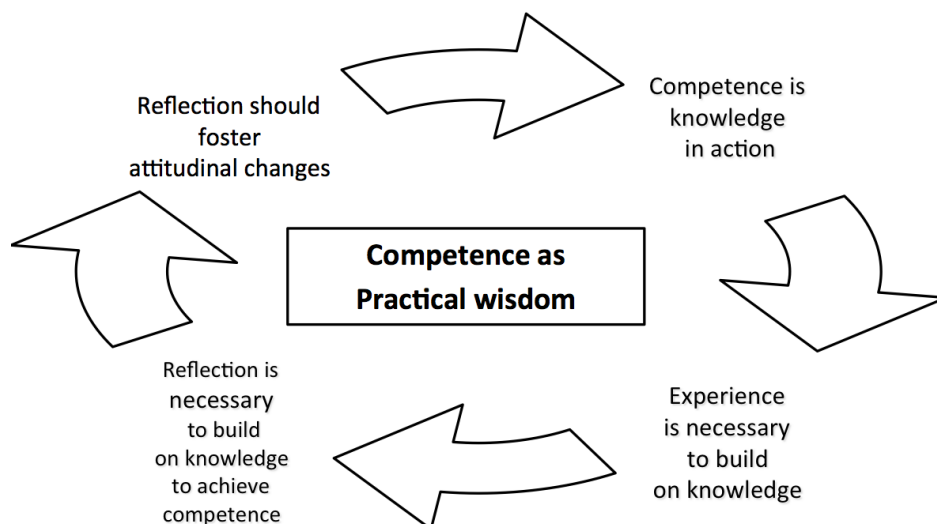
research, the indicators themselves, such as research diaries, observations and responses to survey questions may be examined and compared across the different respondents thus offering some kind of comparison. Mixed methods are therefore central to the development and testing of theory (Sieber 1973).

### Forming reflective teachers: holistic professional competence or competencies?

The issue of teachers' professional competence is a thorny one. While often presented in an unproblematic fashion, the concept of competence is closely related to core considerations regarding what the teacher role should and will entail in specific work environments. In a European context, the identification of common professional standards to facilitate work mobility has, to some extent, led to emphasizing more objectively observable and quantifiable characteristics of the teaching profession. This model has been driven by concerns with employability of graduates and visibility of institutions (Lemaitre et al., 2006) and has emphasised the efficient delivery of comparable learning objectives as a means to increase accountability. On the strength of this market-driven orientation, since the late 1960s and 1970s a competency-based model of teacher training has increasingly gained currency (Van Huizen et al., 2005). Competency or rather competencies constitute the skill base and essentially represent the technical dimension of the teaching profession. Lyotard warns against the risks of Universities becoming subservient to the best *performativity* of the social system (1992, p.48) and teacher education embracing a market driven orientation can irreparably lead to the narrowing of concept from teacher competence and equating it exclusively to a fragmented set of competencies.

Nel Noddings (2004, p. 161) argues that 'it is not the job of teachers simply to secure demonstrable learning on a pre-specified set of objectives' and that the teacher role cannot be reduced merely to a set of skills. Hogan (2004, p. 20) adds that teaching is to be understood as a 'human practice, not just as a repertoire of competencies to be mastered, transmitted and shared'. Skills and competencies should be an essential component of teacher education but a more holistic approach should be taken to ensure that attitudes and personal values are also cultivated. Pre-service teachers should be offered the opportunity to experience professional scenarios that in addition to the development of specific skills helping them to function effectively in the day-to-day teaching activities also challenge their perceptions, foster awareness of their own values and cause attitudinal shifts. It is therefore important that pre-service teachers are introduced to scenarios that reproduce real life contexts that allow them to reduce the 'practice shock' (Van Huizen et al., 2005). Such learning scenarios should require them not only to perform skilfully but also to express their creativity, individuality and most importantly their principled judgement. Integrated learning environments and whole learning tasks replicating authentic situations (Janseen-Norodman, 2006) in a structured and sequenced fashion may serve this purpose. Reflection is therefore an essential ingredient of this process, not only for its power to identify evaluate and address problematic aspects of practice, but also to shape future practice. Figure 3 outlines the theoretical model that the revised Assessment Framework is based upon. It demonstrates how knowledge, expericene and reflection can help enable the development of competence as practical wisdom.

Figure 3: Competence as practical wisdom



Assessment portfolios, provided that they are not constructed simply as a collection of artefacts assembled together (Tisani, 2008), but rather as a 'purposeful collection of student work that tells the story of the student's efforts, progress or achievement in a given area' (Arter & Spandell 1992, p. 36) represent the most suitable form of assessment to develop knowledge, skills and attitudes progressively and reflectively at the same time (Regehr & Norman, 1996).

### **Redesigning the assessment framework – *Constructivist & Reflective practice principles***

Many teacher education programmes in Ireland have an over emphasis on substantial direct instruction in theory and practice, quite often without complementary opportunities for inquiry, discovery, or self-examination. This research examined how a content-heavy subject, 'curriculum assessment' could be delivered in a more learner centred format thus placing the emphasis on the learning processes, and in turn aiding the students to grasp the fundamental aspects of the module/subject content. A constructivist approach to the design of the portfolios was chosen for its emphasis on the developmental processes and incremental and co-operative construction of knowledge by students and teachers. The overarching challenge constructivism presents to teachers and teacher-educators is the formidable task of translating a learning theory into a theory of teaching (MacKinnon & Scarff-Seatter, 1997: pp.38-55). The specific subject had an additional layer of complexity as the process inbuilt in the portfolio had a dual purpose, namely fostering assessment competence while assessing students through the very same means by which they were developing such competence.

When redesigning the assessment aspect of DCUs' 'Curriculum Assessment' module we examined how students had previously performed within the module. Student's evaluations and past grades showed that many students simply reverted to how they were expected to approach assessments in the past. This was 'learning by rote', i.e.: memorising the module content and feeding this back during a written examination. It was essential to rethink the assessment strategy in order to ensure that it would facilitate understanding of the module content through deep-learning and acquisition of knowledge applicable to our students' current and future teaching environments. Hence a sustainable reflection process had to be initiated that would address not only current attitudes towards assessment but also allow student-teachers to develop an enhanced understanding of assessment that they could enhance their future professional practice.

The literature on discovery learning, knowledge creation, experiential learning and especially at the work of people such as Piaget (1972) and Freire (1970) influenced the redesign of the assessment format. John Dewey (1916, 1938) suggested that knowledge emerges only from situations in which learners have to draw them out of meaningful experiences. Further, these situations have to be embedded in a social context, such as a classroom, where students can take part in manipulating materials and, thus, forming a community of learners who construct their knowledge together. The obvious implication of Dewey's theory is that students must be engaged in and reflect upon meaningful activities that encourage them to apply the concepts they are trying to learn.

It became obvious that a constructivist approach to the assessment of this module was the way forward. Constructivism is an epistemology, a learning or meaning-making theory, which can pose an explanation of the nature of knowledge and how human beings learn (Cannella & Reiff, 1994: pp.27-38). Reflection and Constructivism go hand in hand. A reflective environment presents the learner with opportunities to help them build on prior knowledge and understand how to construct new knowledge from authentic experience. Constructivism maintains that individuals create or construct their own new understandings or knowledge through exploring what they already know and believe as well the ideas, events, and activities with which they come in contact (Richardson, 1997, pp.3-14). On these bases the redesign of the assessment for this module needed to be process-oriented, practical and meaningful to all the learners.

### **Using portfolios & reflection in assessment**

Following on from constructivist principles the method of assessment used within the redesigned 'Assessment' module was portfolio assessment. The literary meaning of the term "portfolio" is a collection of past work. However, in the context of assessment, portfolio does not represent only a mere collection of the past work but rather a cyclical collection of evidence including reflection. Portfolio

assessment stems from a constructivist theory of knowledge (Biggs & Tang, 1998) and is based on the premise that meaning cannot be imposed or transmitted by direct teaching but created by the students through their learning activities. Also it encourages the learners' ability to review, revise and re-do. Teachers and learners need the time and space to actively reflect upon the content as well as the context. It is this reflective element that allows learners to work at their own pace without the time constraints usually associated with assessment. Since meaning is constructed, students should therefore provide evidence from their constructions of knowledge to show that the desired learning has occurred. In practice this method allows greater individual learning flexibility but also requires greater management of the process by the assessor / lecturer.

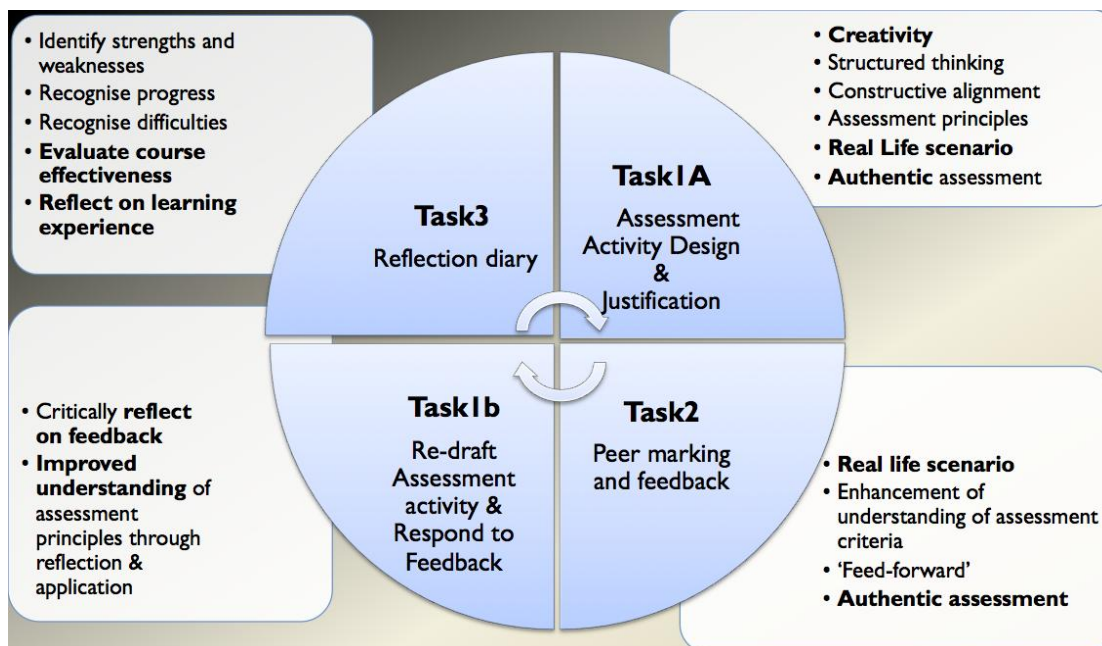
All too often students are judged on the basis of a single test score from a test of questionable worth (Darling-Hammond & Wise, 1985: pp.315-36, Haney & Madaus, 1989: pp.683-687). Portfolios can be thought of as a form of "embedded assessment"; that is, the assessment tasks are a part of instruction. Teachers determine important instructional goals and how they might be achieved. At the heart of assessment theory is the concept of reliability and validity. Therefore portfolios are ideally suited as they can often provide a basis for challenging formal test results based on testing that is not authentic or reliable.

Reflection in teacher education is important in the development of existing knowledge and as an aid to critical thinking. As Schön (1983) suggests reflection is key in order to facilitate the improvement of practitioners' professional judgments and their understanding of new situations. DCU's School of Education Studies hopes, through its revised assessment approach, to develop the learners understanding of the principles underlying Schön's idea of continuous reflective practice. This reflection-in-action coupled with reflection-on-action are key features of the portfolio assessment approach used in the redesign of the Curriculum Assessment module. Furthermore both forms of reflection are seen as central to developing professional competence of teachers working in or intending to work in educational settings. These reflection methods aim to enhance trainee teacher's knowledge, skills and attitudes to delivering assessments in their future educational environments therefore leading to reflection-for-future action.

### **The revised Assessment Framework**

Revised assessment framework was a portfolio consisting of four tasks as shown by Figure 4. The model was designed to experience different elements of assessment from the perspective of the teacher as well as that of the student. A dialogical cycle between assessment design and improvement of the design via responding to the feedback received informs the design of the portfolio model. The response to feedback is a reflective exercise that encourages the student to critically consider his/her strengths and weaknesses and identify options for improvement.

**Figure 4:** Assessment Framework



Task 1 is subdivided into two tasks, Task1a and Task1b. Task1a is the first task students complete and consists of the design of an assessment activity for a syllabus and a potential group of students identified by the students themselves. This task requires students to match the learning objectives for the chosen syllabus with an assessment activity that it is suited for the specific group of students. Students are asked to prepare guidelines, design and structure an assessment activity and specify assessment design choices, guided by specific marking criteria. This task simulates a real life scenario and allows students to express their creativity. It also raises students' awareness of key assessment concepts such as transparency, clarity and fairness and also constructive alignment and validity. By designing an assessment activity these concepts are embedded in practice and the experience gained enables students to transfer the knowledge acquired to current and future professional contexts. Task1B is a re-drafting activity in response to the feedback received from peers as part of Task 2. The redrafting of the assessment activity requires students to react constructively to the feedback received and to reflect on the advice in order to decide what changes should be made to improve the quality of the original assessment design. For Task 2 students mark and provide feedback to peers on their Task1a. They bear the responsibility for giving useful advice and ensuring that their evaluation is fair and transparent. This task enables students to assume a dual role at once: that of teacher and of student. This task in particular appears to cause attitudinal shift and the unease with such shift generally occurs. Students need to be mindful of the wellbeing of their peers while at the same time ensuring that reliability of marking. Nevertheless marking is a daunting task for many students and since their skills and knowledge are still developing and the quality of feedback they are able to provide is still relatively limited and directly linked to their level of understanding of assessment theory and practice. For this reason Task1b is not a straightforward task. Students receiving feedback advising them on how to redraft their assessment activity are not simply asked to implement the recommendations received, but to first make a decision on the pedagogical soundness of the advice received from peers and then to implement what, on reflection they consider appropriate. The structure is intrinsically dialogical, as it requires active engagement and a critical response to feedback.

Finally Task 3 is a reflection diary in which students are asked to record after the completion of each task their thoughts on what they have learnt from the specific task, what difficulties they have encountered and what aspects of the tasks the felt should be improved for further presentations.

## Research Findings

In this phases of the research the multi-method approach to this research was generated from student reflection (reflective diaries), observations and online questionnaires and evaluations.

### Analysis of reflective diaries

As part of the assessment portfolio for module students were required to complete a reflection diary. After each task students were asked to reflect on the difficulties they had encountered, on their strengths and on what they had learnt from preparing the specific task. At the end of the module they were also asked to reflect on the module as a whole and to offer advice on improving its structure and design. Considering that the reflections were contributing to the overall module mark, the reliability of the information collected from this source could be questioned and for this reason the information collected from diary was triangulated with data collected from questionnaire and from the analysis of performance patterns.

Reflective diaries are often filled in an either perfunctory or compliant fashion when their scope and value is not fully appreciated by students. Yet, the overall picture that emerges from diaries from both groups is that of an honest – albeit mostly emotional – response to a challenging learning process. On the whole the data collected from reflective diaries reconfirm the positive view expressed in relation to the learning experience in the online questionnaire, but also provides further detail to identify further specific differences between the two groups.

Not surprisingly only part-time students have made comments linking their professional practice with the outcomes of the module. The comments on this theme emphasise the transferability and applicability of the knowledge they have acquired to their professional contexts. In relation to comments linking theory and practice full-time students focus on the cross-curricular relevance of this module Part-time students use the learning theories they have been presented with at lectures to explain how they have experienced the link between theory and practice and emphasise of their improved ability to design assessment activities. Feedback seems to elicit very similar reflections from both groups. Comments highlight an enhanced understanding of the value of feedback but also an appreciation of the difficulty in giving and receiving criticism. Personal development appears to be a stronger feature of comments by part-time students. All students in this group were adults returning to education, in some cases, after a long absence from formal learning environments. The confidence-building and empowering dimensions of the learning experience appear to be valuable aspects of the module for these students.

Finally, perhaps the most significant reflection outcome is the emergence of attitudinal changes in both groups. The portfolio tasks required students to embrace the teacher and student roles at the same time and the comments seem to confirm that engagement with both roles has happened and has caused attitudinal changes.

The comments by full-time students denote awareness of the complexity of the teacher's role as planner, assessor and mentor providing constructive criticism and support. Part-time students question their beliefs in relation to the role of assessment and how it impacts on students and they also acknowledge the need for becoming an empathetic teacher who designs instructions for the benefit of students and is careful about how feedback comments are received and interpreted is expressed in the comments by this group of students.

There appears to be general consensus between both groups in terms of the difficulties they have encountered. In relation to the course delivery and structure both groups felt overwhelmed by the quantity of work involved and the complexity of the structure. However the puzzling complexity that could have resulted in a great level of unpredictability and confusion for both students and lecturer (Biggs, 1999) did not prevent the majority of students (94.7% of full time students and 89.2% of part-time students) from successfully completing all the portfolio activities. The lecturer invested time and energy in providing guidance and this -while well-intentioned -resulted in an information overload, expressed particularly by part-time students. The difficulties encountered however seem to indicate that students have engaged with the tasks and experienced a "practice shock" normally witnessed in authentic work environments. The anxiety caused by being asked to let go of the student role is expressed in comments emphasising the lack of experience or being "unqualified" for taking on a professional role.

The part-time students are practitioners and, from their entry in the reflection diaries, appear to be less concerned about their lack of experience. However -as their full-time counterparts- they experienced unease with being assessors of their peers. In both cases however the difficulty seems to arise with being asked to take a dual role as teacher and student and being faced with a considerably new learning experience and assessment format (Tisani, 2008). Ball (1993) argues that teaching is made up of many paradoxes with which the teacher must grapple. The format of this portfolio appears to have given a head start to the students in terms of beginning to experience educational decision-making and application of their personal judgment. This was a challenge, but most students, in the overall evaluation of the module, commented positively on the assessment format adopted for this module and acknowledged the learning value of the overall experience.



## Online questionnaire and evaluation

In order to gain an insight into students' professional outlook on Assessment the student respondents were again surveyed. After completion of the module students were asked which mode of assessment would be their preferred choice, both for themselves as learners and themselves as teachers/trainers. Overall 57% selected Portfolio Assessment as opposed to 6.1% who would have preferred an end of semester Written Exam. Interestingly the traditional schools leavers (fulltime students) still had a strong preference for written assignments. In the secondary school sector in Ireland great emphasis is placed on traditional forms of written assessment and students from this cohort were more reluctant to abandon an assessment format they were so used to.

The part time students generally embraced the use of a portfolio for assessment more fully and acknowledged its impact and relevance on their learning and professional development. The following quotes below demonstrate the positive response obtained from the part-time students.

*'I found different aspects of the assignment very challenging (e.g. peer marking, having had no prior experience) though I learnt a lot from this module and the feedback from both lecturers and peers was helpful.'*

*'Its good to have an ongoing portfolio as you can continuously work at it, however not in every subject. I found the group work very good but again not in every subject. Mix these with some smaller assignment.'*

*'Practice and portfolio. I think teaching practice is invaluable and necessary on an education programme. There needs to be more focus on the skill of teaching. There is too much great subject matter which is lost because of ineffectual presentation or teachers'*

Finally, students were asked how their experience of being assessed within this module would help them with their professional development. The following comments give a cross section of opinion in regard to this question.

*'My attitude changed because now I see assessment as a integral step that should be undertaken throughout the learning cycle, and not just a summative action at the end of period of learning'*

*'I realised the responsibility involved in marking someone else's work and I gained a new appreciation for teachers'*

*'I now realise how much work is involved in forming an assessment. Also the feedback is quite difficult'*

*'I feel I now look at assessment in more creative ways and would be more likely to use practical demonstration or presentation as forms of assessment'*

*'Realised the important of matching learning objectives of learning outcomes'*

*'I have far greater understanding of feedback and how it can be used positively and/or negatively. Also a better understanding of the difficulties in developing assessments'*

*'I can understand the importance of feedback especially as I was personally exposed to it during this module and it is something that I will cultivate going forward'*

*'Deeper understanding of theory to practice'*

## Conclusion

Assessment is a powerful driving force behind many forms of learning. Because of its power over learning it is crucial to ensure that assessment promotes rather than hinders learning. Furthermore, learning should continue beyond assessment and it should meet the needs of the present while preparing students to meet their own future learning needs (Boud, 2000, p. 151).

Our research shows that despite the widely documented challenges posed by portfolio assessment, in terms of work-load and unfamiliarity, it may be effective in promoting deeper learning. In our research portfolio assessment offered a framework for the acquisition of knowledge in a structured and applied fashion. Knowledge was not simply transmitted and its acquisition verified through assessment. Students were allowed to construct a personal understanding of the topic studied through experiencing various aspects of assessment and embracing different dimensions of the teaching profession.

The authenticity of the learning scenario, while generating a practice-shock experienced normally by novice teachers, also gave the students the opportunity to relate to the module content in an engaged and personal manner. Students for this module experienced portfolio assessment, but also came to appreciate the value of this form of assessment and in their evaluations indicated that they would be prepared to use it in their professional context.

We therefore argue that being enabled to make sense of knowledge through reflection and professional decision-making and engaging in its application constitute the basis for the sustainability of learning fostered by this module in relation to assessment theory and practice.

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