2015

Participatory Action Research: Effect of Emphasising Graduate Attributes on Work-Placement Reflection

Julie Dunne

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Participatory Action Research: Effect of Emphasising Graduate Attributes on Work-Placement Reflection

Julie Dunne

MA in Higher Education

2015
I hereby declare that the material, which is submitted in this thesis towards the award of **Masters (M.A.) in Higher Education**, is entirely my own work and has not been submitted for any academic assessment other than part-fulfilment of the above named award.

The material contained in this thesis may be used in future research on condition that the source is acknowledged in full.

Signed..................................................  Date......................................................
Abstract

This project aimed to investigate what the effect of activities to promote awareness of graduate attributes development introduced during 2014/15 would be on the quality of reflection displayed in student pharmacy technicians’ work-placement blogs. The project was undertaken in response to a deficit in critical reflection shown in earlier years. The work-placement blogs from 2013/14 were used as a comparison for this study.

The theoretical perspective included a constructivist ontological position and an interpretivist epistemological position. The methodology was participatory action research involving the Pharmacy Technician students as co-researchers.

The cycles of action and research aligned to three research objectives, namely student knowledge development about graduate attributes, prioritisation of graduate attributes for the pharmacy technician programme based on stakeholder input, and analysis of reflective writing through coding of work-placement blog assessments using NVivo.

The findings revealed that the students’ baseline knowledge and confidence in general about graduate attributes was initially quite low, however the activities to develop their knowledge were successful. Following an online survey of pharmacy stakeholders a set of graduate attributes was prioritised. Based on these a range of activities was identified for the students to complete, and included a bespoke ethical debate and online self-evaluations. The influence of the participatory action research activities on the quality of student reflective writing in their work-placement blogs was determined through analysis of the coded data. This found clear evidence that the incidences of reflection on graduate attributes had increased compared to the previous year. Furthermore, data queries also showed that the explicit articulation of graduate attributes was directly linked to higher order critical reflection.

The study has been successful in demonstrating that work-placement reflection can be expanded and improved through highlighting graduate attributes, and this approach would be readily transferable to other programmes involving work-placement. However, research indicates that a more holistic programme wide approach to graduate attributes development and assessment is required. This will further allow students to better articulate and evidence their skills and consequently improve their employability. Introduction of an ePortfolio to document student development should be considered in future curriculum review. Likewise, the integration and quality assurance of career management and civic engagement in the curriculum would be valuable. The role of support services within such a curriculum, along with resource implications, could be considered at Institute level.
Acknowledgements

I would like to thank my supervisor Dr. Jen Harvey for her assistance with this project. Her leadership role over the strategic direction of Teaching and Learning in DIT has influenced the research focus of this project inextricably and the feedback provided was very valuable in completing the dissertation. Together with Jen, I would also like to thank Dave Kilmartin of the DIT careers service, who provided encouragement and inspiration as well as expertise and resources.

I am very grateful to all the programme team of the MA in Higher Education, who have provided me with excellent teaching, including exceptionally detailed feedback over the course of the curriculum. This has allowed me to develop the skills to undertake this research project, and to develop more generally as a researcher. In this regard I would especially like to thank Dr. Claire McDonnell who has been encouraging to me beyond the MA and continues to be a great support, a valuable advisor and a very generous colleague. I would also especially like to thank Dr. Roisin Donnelly who is, in short, inspirational and has an exceptional knack for articulating the academic writing process. I am likewise very grateful to the in-depth knowledge brought to the research process by Dr. Claire McAvinia – who laid the foundations to understanding the ‘ologies’ of social science research – no mean feat. A particular word of thanks to Orla Hanratty, who provides timely insights, action research experience, and super company on trips away. Although not directly involved with this dissertation, I want to also take the opportunity to thank the technology team in the LTTC, who have been of great practical support, and in this regard a special mention of thanks to Dr. Frances Boylan for all her help and advice with using blogs. Additionally, I would like to thank Ben Meehan for excellent training and support in using NVivo.

I was very fortunate in being in a class group of wonderful peers, who have provided a supportive and interesting learning environment over the last few years. A particular word of thanks goes to my good friend and colleague Dr. Barry Ryan for all his help from piloting the survey to sample coding blogs– we form a little community of practice that has been integral to my professional development for
the last five years. Barry is a known techie, but is also a PA of notable skill, and this should be acknowledged.

I am also very fortunate to be so well supported by my School management team - Dr. James Curtin, Dr. Jesus Frias, and more recently Dr. Christine O’Connor. They have found ways to encourage and allow me to develop as a researcher and practitioner, and I endeavour for this to be a two-way street and will benefit the School.

I would like to acknowledge the support of the Pharmacy Technician programme team, especially Dr. Seana Hogan, who always responds positively to my suggestions, and provided the expertise to run the ethical debate. I would also like to thank all the stakeholders who completed the survey and have thus influenced the later cycles of action research. I would also especially like to thank the students of the Pharmacy Technician programme who engaged positively with this project. I hope they have benefitted from the process.

Finally, I would like to thank my loving family. My husband Eoin has given me the time and space to get this project over the line, while my children Saibh and Caoimhe have put up with my laptop as a constant accessory during the writing stage. I now look forward to switching it off…
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<th>Description</th>
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<tbody>
<tr>
<td>AMNCH</td>
<td>Adelaide and Meath Hospital Dublin</td>
</tr>
<tr>
<td>BERA</td>
<td>British Educational Research Association</td>
</tr>
<tr>
<td>CG</td>
<td>Control Group</td>
</tr>
<tr>
<td>CPD</td>
<td>Continuing Professional Development</td>
</tr>
<tr>
<td>HE</td>
<td>Higher Education</td>
</tr>
<tr>
<td>HEA</td>
<td>Higher Education Authority</td>
</tr>
<tr>
<td>HEI</td>
<td>Higher Education Institute</td>
</tr>
<tr>
<td>IACPT</td>
<td>Irish Association of Community Pharmacy Technicians</td>
</tr>
<tr>
<td>IBEC</td>
<td>Irish Business and Employers Confederation</td>
</tr>
<tr>
<td>MAPP</td>
<td>Motivational Appraisal of Personal Potential</td>
</tr>
<tr>
<td>MPSI</td>
<td>Member of the Pharmaceutical Society of Ireland</td>
</tr>
<tr>
<td>NAHPT</td>
<td>National Association of Hospital Pharmacy Technicians</td>
</tr>
<tr>
<td>NEO</td>
<td>Neuroticism-Extraversion-Openness</td>
</tr>
<tr>
<td>OSCE</td>
<td>Objective Structured Clinical Examination</td>
</tr>
<tr>
<td>PAR</td>
<td>Participatory Action Research</td>
</tr>
<tr>
<td>PDP</td>
<td>Personal Development Planning</td>
</tr>
<tr>
<td>RG</td>
<td>Research Group</td>
</tr>
<tr>
<td>S1/S2</td>
<td>Survey 1 / Survey 2</td>
</tr>
<tr>
<td>SLWC</td>
<td>Students Learning with Communities</td>
</tr>
<tr>
<td>STEM</td>
<td>Science Technology Engineering Mathematics</td>
</tr>
<tr>
<td>WWHAM</td>
<td>Who, What, How long, Action, Medication</td>
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1 Introduction, context, aims & objectives, and rationale

This research aims to investigate what the effect of emphasising graduate attributes within a curriculum will have on students’ work-placement reflections. The increasing importance of generic skills, or graduate attributes, of Irish graduates towards 2020 was clearly highlighted in the 5th Report of the Expert Group on Future Skills Needs (Forfás, 2007). This report focussed on the changing skills need of the Irish economy, wherein employees in all jobs would increasingly be required to acquire a range of generic and transferable skills including people-related and conceptual/thinking skills. Predicting that work would be less routine, with a requirement for flexibility, continuous learning, and individual initiative and judgement, the report concluded that the following should be included in a generic skills portfolio:

- Basic/fundamental skills — such as literacy, numeracy, IT literacy;
- People-related skills — such as communication, interpersonal, team-working and customer-service skills; and
- Conceptual/thinking skills — such as collecting and organising information, problem-solving, planning and organising, learning-to-learn skills, innovation and creativity skills, systematic thinking.

In order to realise this graduate skills portfolio, following a wide ranging consultation process in 2013, Dublin Institute of Technology (DIT) identified a suite of skills which is outlined in its Graduate Attributes paper (DIT, 2013). These are shown in Figure 1 and align to the DIT ethos and mission. They are grouped under 5 ‘E’s: Engaged, Enterprising, Effective, Enquiry based, and Expert; and are further broken down within each ‘E’ (Figure 1).
In its compact with the HEA, DIT has committed that all programme committees consider how these skills (together with professional body recommendations) are being developed and assessed in their programme curriculum (DIT, 2014b). It further requests that all programme documents have a clear statement elucidating these skills.

In tandem with this, scholarship has been carried out during a DIT Teaching Fellowship into the use of blogs as a reflective assessment and as a tool to foster a Community of Learning for pharmacy technician students on work-placement (Dunne & Ryan, 2013). This work has already gone through several cycles of informal action research and these can be viewed as part of the reconnaissance for the current, more formal action research. Earlier cycles have identified that a workshop on reflective writing has improved the students understanding of what good reflective writing looks like, however they continue to struggle with the practice of reflective writing as evidenced by their own opinions as well as their reflective assessments.
Taken together, this thesis proposes to investigate if a better appreciation of graduate attributes may help the students to frame their experiences and consequently improve their reflective writing.

Based on the above, the main research aim can be expressed by the following research question:

*What is the effect of activities to promote awareness of graduate attributes development on the quality of reflection displayed in student pharmacy technicians’ reflective assessment blogs compared to previous years?*

The research will seek the opinions of industry stakeholders to define the appropriate graduate attributes to focus student activities upon. The rationale for this is at the heart of the Engagement agenda of the National Strategy for Higher Education 2030 (Hunt, 2011), that explains a Higher Education institute (HEI) must provide a learning environment which is engaging for students, and this requires the institute to be ‘engaged’ with industry, community and society, while also delivering excellent teaching and learning, and high-quality research. This Engagement is explicitly articulated in the DIT Mission, which includes the statements that DIT is ‘engaged with and within our community’ and ‘contributes to technological, economic, social and cultural progress.’ Engagement manifests itself in DIT through the various strategies and policies, which in turn influence best practice within the institute. Chief amongst these is the DIT Learning, Teaching and Assessment Strategy 2011-2014 (DIT, 2011) in place during this research. This highlights ‘External & Internal Engagement’ as one of six strategic priorities, with associated areas of focus relating to Professional and Industry Bodies, Work-based learning, and Community Engagement. This External and Internal Engagement is further elaborated in the DIT Student Engagement Strategy 2012-2015 (DIT, 2012). Among its key objectives are to increase the number, range and quality of student enrichment and engagement opportunities to enable students to be active and engaged citizens. This includes career-focused activities that encourage engagement actively and creatively in learning, for example, industry visits, field trips, SLWC projects, workplacements and internships, etc. This is in line with the strategic objectives of the Irish Higher Education Authority (HEA) Higher Education System Performance report (Hennessy, 2014). Under Objective 1 *Meeting Ireland’s human capital needs –*
higher education responding to the jobs crisis the report explains that over half of the institutions have indicated in their compacts that they are planning to increase their already extensive provision of structured work-placements, internships and service learning, in line with their particular mission and profile. Locally the DIT compact has identified a performance indicator that 25% of programmes will include a work-placement by 2016 (DIT, 2014b). These activities are also fundamentally linked to employability of graduates. According to the HEA System Performance report a large number of the institutions have included in their compacts objectives relating to improved employability of their graduates. Meanwhile the DIT Graduate attributes paper identifies both employers and professional bodies as stakeholders for whom a transparent description of graduate attributes is of benefit. Thus the rationale for seeking industry stakeholder opinion in the current research project is explicit.

According to the National Strategy 2030 (Hunt, 2011), the articulation of the engagement mission in ‘practical terms’ includes the closer involvement of external stakeholders in curriculum design. In practice, this involvement can entail a wide range of interactions between HEIs and Industry, ranging from local informal relationships between academics and industry acquaintances, co-hosting of conferences, connections developed through work-placement management, formal industry advisory panels, engagement through professional bodies, problem-solving and consultancy services, etc. To ensure the industry voice is captured, the National Strategy 2030 proposed that a ‘National Employer Survey’ should be carried out on a regular basis for many reasons including: gathering information about the perception of graduate quality and the relevance of graduate skills; strengthening engagement between higher education and enterprise; and identifying the opportunities and barriers to student work-placement. In the 2012 the IBEC National Survey of Employers Views of Irish Higher Education Outcomes report was published (McGann & Anderson, 2012). It found that 40% of Science, Technology, Engineering, and Mathematics (STEM) employers use relevant work experience as a factor when employing graduates, which was the highest of all minimum entry standards (including grade or programme completed). It also found that 50% of companies do not feel there is adequate engagement between industry and higher education. Participating in work-
placement programmes and answering questions/surveys were seen as the most important areas to engage on. In its conclusions, it recommended better communication between both sides is required to improve links between HE and industry. Therefore, if the conclusions are implemented, it should ensure industry influence in curriculum design down to programme level and guarantee currency and relevancy of graduate skills. Based on this rationale, it is an objective of this research to implement a strategy to capture the views of industry stakeholders in order to define relevant graduate attributes for the programme under study.

Work-placement and the role of reflection and community of learning

Work-placement is a period of planned work-based learning or experience, where the learning outcomes are part of a programme of study. To be considered eligible for academic credit it should have defined learning outcomes and should be associated with a formal assessment (European-Commission, 2009a, 2009b). Common to best practice recommendations is the notion that students should actively participate in reflection, which is key to turning experiences into learning (Boud, Keogh, & Walker, 1985). Smith, Clegg, Lawrence, and Todd (2007) argue that the academic benefits of work-based experiences depend largely on the extent to which students reflect on them and relate them back to knowledge gained in theoretical modules. It seems therefore that good quality reflection can be the key to unveiling high quality professional competencies based on explicit knowledge from an academic context. In addition to the use of online environments to facilitate reflection during work-placement, there are reports of their use to foster ‘online learning communities’, for example in blog-based teaching portfolios (Yang, 2009). As mentioned previously, this current research will continue to build on previous work through a DIT Teaching Fellowship that aimed to support students on work-placement to actively reflect on practice, whilst also sharing experiences.

Overall, the reconnaissance work for this action research project has identified the requirements for good quality online blog assessments to foster a community of learning, and has recognised the need for reflection during experiential learning. The previous iterations of the activities and assessment have been successful in fostering a learning community, in improving the quality and quantity of peer
interactions, and have assisted students with recognising good quality reflection. Returning to the main research question, it is proposed that focussing on graduate attributes during activities ahead of work-placement, including involving students in research with industry to define and identify the most important attributes to focus upon will improve the depth of their reflections during work-placement and thus add further value to the placement whilst also benefitting their career development. In practice, the research question can be broken into three principle objectives or sub-research questions:

Sub-question 1: What is the current level of understanding of graduate attributes for pharmacy technician students, and what learning activities are suitable to promote student awareness of graduate attributes development?

Sub-question 2: What are the most relevant graduate attributes for DIT pharmacy technician students, and how can these be developed?

Sub-question 3: What change if any in the quality of reflection occurs in comparison to previous years?

The following Literature review chapter will seek to underpin these objectives through a critical examination of the literature around reflection (including analysing reflective writing), and graduate attributes and related topics.

The outcomes of this research will include

- an informed prioritisation of graduate attributes for the Higher Certificate in Pharmacy Technician Studies, in line with the DIT HEA compact
- highlighting to students the importance of developing and articulating their graduate skills
- highlighting to relevant stakeholders DIT’s commitment to involving them in programme review
- short-term curriculum improvement to enhance the development of the prioritised graduate attributes
- evidence to support the relationship between graduate attributes, reflection and professional development during work-placement
• recommendations for longer term curriculum design relating to employability, work-placement and graduate attributes based on the findings

Implementation and dissemination of these outcomes will fulfil the DIT HEA compact for the programme under consideration and may also be beneficial to other programmes that include a substantial work-placement component. It may also add to the body of knowledge relating to student reflection during work-placement.
2 Literature Review

2.1 Graduate Attributes
Higher education programmes have moved to specify knowledge outcomes in subjects. Discipline specialist lecturers do not find it problematic to assess such learning outcomes, and quality assurance around these outcomes can be easily documented. However, in recent years, higher education has been required to also determine learning outcomes in more generic skills, attributes and competencies. A strategic focus of HEIs is to provide work ready graduates able upon graduation to step up into the professional role for which they have met the educational requirements (James, Lefoe, & Hadi, 2004). This is also important so that students can articulate their skills and enhance their employability. Hillage and Pollard (1998) describe employability in terms of three abilities:

• gaining initial employment

• maintaining employment

• obtaining new employment if required.

They argue that gaining initial employment requires the correct skills and qualifications, but also the ability to present them to an employer in an appropriate manner. Inability to articulate relevant graduate attributes thus reduces employability.

The HEA Employability Skills review advises that HEIs can help to close the skills gap, perceived or otherwise, by offering students the opportunity to develop an ability to articulate generic and other employability skills that can be applied in a professional capacity to address challenges (Toland, 2011). It discusses the role of professional bodies in defining such discipline specific transferable skills, and furthermore, it advocates that students need to be supported to become aware, and take ownership of, these skills through, for example, monitoring and recording skills developed in a portfolio.
In Europe, as part of the Tuning Process to link the political objectives of the Bologna Process to the higher educational sector, a study was undertaken on the transferable skills identified as most important by graduates, employers and academics. Graduates and employers emphasised skills associated with analysis and synthesis, capacity to learn, problem solving, applying knowledge, adapting to new situations, concern for quality, managing information, working autonomously and teamwork. Academics’ perceptions were similar, except they placed greater weight on basic general knowledge, and less on information technology (ICT) and interpersonal competences ("Tuning Educational Structures in Europe," 2010). Further afield, a review of 39 Australian university graduate attribute statements and policies distilled the main graduate attributes into clusters around applying knowledge in the professions, and generic skills. These have been outlined in Table 1 (Beverley Oliver, 2015). Other attributes mentioned less frequently were associated with leadership, self-reliance and confidence, scholarly integrity and numeracy.

*Table 1: Clusters of Graduates Attributes from review of Australian Universities (up to 2011)*

<table>
<thead>
<tr>
<th>Graduates Attributes clusters</th>
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<tbody>
<tr>
<td>Written and oral communication</td>
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<tr>
<td>Critical and analytical (and sometimes creative and reflective) thinking</td>
</tr>
<tr>
<td>Problem-solving (including generating ideas and innovative solutions)</td>
</tr>
<tr>
<td>Information literacy, often associated with technology</td>
</tr>
<tr>
<td>Learning and working independently</td>
</tr>
<tr>
<td>Learning and working collaboratively</td>
</tr>
<tr>
<td>Ethical and inclusive engagement with communities, cultures and nations.</td>
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</table>

This report also highlighted the difficulties in designing activities to develop learning outcomes, and assessments to measure student achievement. Specifically it articulates challenges in setting standards, and in determining to what extent these standards are being met by students. Hughes and Barrie (2010) have further elaborated this difficulty in their study of the influences on the assessment of
graduate attributes in higher education. They have drawn upon the Australian National Graduate Attribute project to address the significant challenge faced by universities in assessing the graduate attributes they intend their students to develop as a result of the higher education experience. Unlike previous reports that have addressed the difficulty of assessment of graduate attributes in relative isolation from other systemic issues of university practice, they argue that it is ‘inextricably connected’ with many other key systemic factors that also influence the success of an institution’s efforts to achieve graduate attributes. These factors include

Conceptualisation: perceptions of the very nature or character of graduate attributes are central to the ways in which they are taught and assessed.

Stakeholders: the influence of academic leaders and teachers, institutional marketing units, employers, professional associations, institutional and national quality assurance agencies and past, present and future university students.

Implementation strategy: Converting the rhetoric of policy claims of graduate attributes into actual outcomes through effective implementation strategies needs to move beyond curriculum mapping and requires fundamental examination of what is being assessed in the curriculum.

Curriculum approach: Graduate attributes are developed throughout a programme, not in the timeframe of a module. Integration of ‘high-impact activities’, capstone tasks, and whole-of-programme assessment planning is required to assess the development of graduate attributes, for example in a portfolio.

Staff development: While much of the staff development related to assessment of graduate attributes remains focussed on assessment techniques or methods, the approach of providing ‘toolkits’ of practical techniques for how to teach and assess graduate attributes is of limited benefit unless the users have a fundamental understanding of teaching and learning and a clear understanding of the underlying basis for assessment, as well as opportunities to develop their assessment expertise.
Quality assurance: Outcomes-based approaches to assure development of graduate attributes are rarely used for institutional quality assurance processes, but rather to improve assessment practices. Curriculum maps, student survey perceptions of their development of graduate attributes and actual data from assessment and self- and peer-assessment tasks – can be combined to explicitly assure the development of graduate attributes, but this is still under-utilised.

Student-centeredness: One of the main limitations of current practice is that graduate attributes are assessed for rather than with students. Graduate attribute assessment plans will not accomplish their aim if students are not made aware of their objectives and if students are not actively involved as partners in the assessment process. The most successful approach requires the collection of evidence of progress in relation to specific attributes, as well as active discussion about improvement with teachers and peers. Of key importance is the reflective process that underpins this approach to the understanding and development of graduate attributes. This is in agreement with Oliver (2011), who also suggested student portfolios as having potential to supply evidence for achievement of graduate attributes.

Hughes and Barrie (2010) conclude that individual lecturers can continue successfully with their endeavours to assess graduate attributes, however they warn that these will be limited by institutional practices over which individuals have no control.

There have been many literature reports in various fields wherein attempts have been made to make more explicit within the curriculum the development and assessment of graduate attributes. Following constructive alignment best practice in higher education, Treleaven and Voola (2008) recommend that graduate attributes are expressed as learning outcomes and aligned with assessment criteria. They emphasise that students’ awareness of graduate attributes and their value must be developed and put in the context of their future careers, that ample opportunities for practice in developing generic skills is offered, that formal and informal feedback from lecturers and peers is provided, and that a program-wide approach to developing and integrating graduate attributes is adopted. The have shown how the constructive alignment is documented, including exams, activities
and assessments, and they advocate the use of reflective journals to allow students to document and evidence their progress. In a case study in the field of accountancy, Sin and McGuigan (2013) discuss integrating the Macquarie University defined graduate attributes into the curriculum. They agree with Oliver (2011) that the requirement to provide increasingly more detailed evidence and assurance for student learning and development of such attributes is challenging for academics, especially in fields normally associated with examination based assessment. They also argue that curriculum-mapping exercises, while important for transparency, are not sufficient to provide evidence of achievement of graduate attributes learning outcomes. Drawing on trans-disciplinary theories and principles of best practice in higher education assessment they have created a framework for developing and assessing complex graduate attributes by embracing social constructivism theory. They have integrated the elements of self-regulated learning, critical self-reflection, cooperative learning, sustainable feedback and formative assessment into a context-based-learning group project. Nicol (2010) has also included self-regulated learning in the development of graduate attributes, and reasons that students need opportunities to develop the ability to critically evaluate the quality and impact of their own work, which requires both self-assessment and peer review. The involvement of peers has been especially highlighted by Stracke and Kumar (2014), who advocate the use of peer support groups as a bottom-up effort to enhance the top-down embedding of graduate attributes for research students.

In relation to the current research project, the most pertinent best practices relating to graduate attributes that can be managed at a local level include; focusing on student activities and assessment, highlighting to students the importance of developing and articulating graduate attributes, providing opportunities to engage in discussion with peers, and including active critical reflection of attributes development. Consideration of the current curriculum and the opportunities to develop skills is of relevance, and this will be briefly discussed in the next section. This will be followed by literature focussing more generally on reflection.
2.1.1 DT425 Pharmacy Technician skills and selected graduate attributes

Preliminary discussions by the pharmacy technician programme committee in 2013/14 to identify graduate attributes that are relevant for technicians using a ‘Diamond 9’ prioritisation were based on an earlier breakdown of the 5 ‘E’s shown in Figure 1. The outcome of this can be translated broadly into the newer list to include excellent communicator, ethical, motivated self-starter, active team player, work related learner, digitally literate, and disciplinary knowledge.

These are useful to indicate the types of skills that are likely to be relevant to this study, and it is useful to consider some of them further at this point, including where they may integrate into a pharmacy technician curriculum.

2.1.2 Communication
Communication skills, and especially oral communication, are emphasised considerably in the taught component of the programme in Pharmacy Practice modules and are also explicit in the core competencies of the work-placement module assessment. This skill is recognised as essential given the importance of explaining to customers how medication should be taken, as well as listening to patients so that diagnosis and medical advice can be administered, or related accurately to the pharmacist or to the doctor by telephone. A technique known as the WHHAM methods is used, whereby a series of questions is used to identify the pertinent information. Written communication is also developed through use of prescription case studies, and pharmacy records management and accounting.

2.1.3 Ethical
Ethical practice is a very important given the nature of the pharmacy work-place, where controlled drugs are commonplace, personal data and medical records are stored, and profitability is increasingly important. All these aspects are discussed in Pharmacy Practice modules through the use of case studies, however they are not currently explicitly documented in the curriculum from an ethical perspective. Academic debates can be useful to tease out ethical issues, as well as developing critical thinking and oral communication (Kennedy, 2007). This may be useful to consider further during the action research activities in this study.
2.1.4  *Active Team Player*

In an academic setting group work has gained popularity and can be used to mimic team-work in a professional setting. Excellent achievement comes more frequently from cooperative groups than from isolated individuals competing with each other or working alone (Johnson & Johnson, 2004). The cooperative learning dynamics of group based learning provides valuable opportunities for sustainable feedback practices, critical reflection and formative assessment, and according to Sin and McGuigan (2013) cooperative learning experiences have also been reported to have enhanced the types of skills that are valued by employers and professions. In the pharmacy technician programme there are many opportunities for group work, including group assessments and group activities and projects throughout the curriculum, both in professional modules such as pharmacy practice, as well as support modules such as in chemistry practicals.

2.1.5  *Digitally literate*

As information and knowledge in the digital age is created, managed, and communicated in increasingly varied ways, students and graduates need to be adept in using an ever broadening set of technologies, and also have the information literacy skills to be able to select, critique and evaluate the information (DIT, 2015b). Increasingly the use of technologies for literature searching, document preparation, numerical and scientific processing, teaching and learning management, pharmacy management and accounting, and for communication and reflection through blogging are all features of the pharmacy technician programme curriculum both in taught, practical, assessment and placement activities. However, there may be scope to increase the education of students in terms of their digital presence both to improve their employability, for example using LinkedIn and other online career management tools (Beverley Oliver, 2015), and also to recognise the impact of social media on their personal and professional reputation using the DIT careers service (DIT, 2015a).
2.1.6 Disciplinary knowledge and work-related learning
A skill that is quite particular to the role of the Pharmacy technician is accuracy in dispensing whilst working under pressure. This falls under disciplinary knowledge and work related learning. Accuracy is developed in Pharmacy Practice and Formulation modules during the taught component of the programme, but is also emphasised within the core competencies of the work-placement module. In pharmacy education more generally, the Objective Structured Clinical Examination (OSCE) has gained popularity. In their article on the development and design of OSCEs in undergraduate pharmacy education in a new School of Pharmacy in England, Evans, Alinier, Kostrzewski, Lefteri, and Dhillon (2011) report that OSCEs offer the opportunity to assess students in their handling of real life pharmacy practice scenarios, and thus permit students to develop and refine communication and problem-solving skills. An example of an OSCE set-up is shown in Figure 2. For pharmacy technicians, a similar approach that could be adapted to emphasise the accuracy of dispensing under a certain amount of pressure (e.g. time pressure with a peer or tutor onlooker) could be developed, but has not yet been for the programme under consideration in this study.

![Figure 2](image_url)  
*Figure 2* Example set-up for Objective structured clinical examinations (Evans et al., 2011).
This particular attribute is also related to a current pharmacy discussion, in Ireland and elsewhere, relating to the changing role of both the pharmacist and the technician in pharmacy provision and services. For example, in a comprehensive study in New Zealand entitled ‘Could it be done safely? Pharmacists’ views on safety and clinical outcomes from the introduction of an advanced role for technicians’, thematic analysis of a large survey and a series of focus groups by Napier, Norris, and Braund (2014) found that many of the respondents were very confident in the technicians’ ability to perform the mechanics of dispensing with a high level of accuracy, particularly if it was their primary function and they are less likely to be interrupted by other issues. Although in Ireland there is no formal role of accredited technician yet, in the UK there are training programmes that provide pharmacy technicians with the skills and knowledge to confirm the dispensing accuracy of any prescription that has been clinically screened/approved by a registered pharmacist. It is likely that Ireland will follow suit, and even if it does not, it is clear that there should be a large emphasis on accuracy of checking for all pharmacy technicians. In their conclusions, Napier et al. (2014) recommend the use of clear and strict guidelines and standard operating procedures to ensure that safety standards are maintained.

2.1.7 Motivated self-starter
Motivation is an attribute that is perhaps more intrinsically linked to personality than some of the other graduate attributes. The many salient aspects of personality can be described by a five-factor model of personality, often referred to as the ‘Big 5’ (Boudreau, Boswell, & Judge, 2001) and include neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness. The latter is most closely linked to intrinsic motivation, as it involves the two related facets of achievement and dependability, and has been found to be the major component of integrity. While it would not be desirable to alter personality type, a curriculum nonetheless can assist students to identify their personality type, for example using the extensively validated NEO Personality Inventory (Costa & McCrae, 1992) and consequently provide them with a more informed decision about the most suitable career-path. This is turn could lead to improved job-satisfaction, which is considered important for extrinsic motivation (Boudreau et al., 2001). However, evidence suggests that students do not maximise the
opportunities to develop their careers, with a survey by Pierce cited in Watts (2006) showing that in most cases only a ‘tiny’ fraction of students generally choose careers management skills modules when they are offered. In the UK, in response to the Dearing Report (Dearing, 1997), Personal Development Planning (PDP) was encouraged in all Higher Education Institutions, with a view to assisting students to identify their achievements and to provide information about these achievements to others. Watts (2006) discusses the role of expanding careers services to facilitate this, however in quoting Yorke and Knight (2006), it cautions the ‘impact will be muted if the service lacks a curriculum presence’.

2.1.8 Emotional Intelligence

An attribute that was not in the original DIT list (and therefore not used by the programme committee) is emotional intelligence. However at the 2010 National Association of Hospital Pharmacy Technicians conference, staff of AMNCH Tallaght pharmacy department ran a workshop in a role-play format dealing with developing emotional intelligence in a situation relating to collaboration between nurses, doctors and the pharmacy team (Dalton, Davin, & Gowing, 2010), demonstrating the importance placed upon it by the pharmacy technician profession. It is therefore of interest to consider this attribute further at this point. Emotional intelligence was first proposed by Mayer and Salovey (1993), who argued that it is a type of social intelligence that involves a person's ability to monitor their own and others' emotions, to discriminate among them and to use that information to guide their thinking and actions. A recent report by Por, Barriball, Fitzpatrick, and Roberts (2011) into the relationship between emotional intelligence, and stress and well-being in student nurses suggests that an increased feeling of control and emotional competence assists student nurses to actively assume effective coping strategies to deal with stress, thus increasing their subjective well-being. They conclude that emotional intelligence should be incorporated into healthcare curricula to develop a well-balanced workforce. A related article based on empirical, experiential and anecdotal evidence points to reflection as a pedagogy to develop this learned skill and produce emotionally-competent nurse leaders (Horton-Deutsch & Sherwood, 2008). This, along with the others mentioned above may of relevance to the research in this study, as they
are likely attributes to be more formally prioritised during the early stages of this research.
2.2 Reflection
Armed with the desire to promote better awareness in learners of the possibilities of learning, to take ownership of their own learning, and to become more actively involved in the process, Boud et al. (1985) asked themselves what it was that turned experience into learning. What enables learners to maximise the benefit from work experience or practical work? How can learners apply their experiences to new contexts? Why do some learners benefit more than others? They concluded that it is ‘reflection’ which allows learners to maximise the outcome of experiential learning. They discuss three stages of learning: preparation, engagement in an activity, and processing of what has been experienced. Learning can be enhanced through strengthening the link between the experience and reflecting upon it (Boud et al., 1985), for example in a diary or through debriefing. Students cannot make the most of individual experiences if several new experiences follow each other without a break. Reflection must be considered a purposeful activity that is pursued with intent, and involves an inter-relationship between feelings and cognition. Kolb and Fry (1975) have presented a learning cycle that captures this thinking (Figure 3).

Figure 3 Kolb’s description of the learning cycle (Kolb & Fry, 1975)

Boud et al. (1985) have broken the reflective process into three stages, as outlined in Table 2. Reflective writing is a form of actively promoting these processes, and
setting aside time for them. New perspectives, changes in behaviour, and willingness to act on the new ideas follow the outcomes of these processes.

Table 2: Reflective processes (Boud et al., 1985)

<table>
<thead>
<tr>
<th>Stages of reflection</th>
<th>Actions involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning to the experience</td>
<td>Remembering it</td>
</tr>
<tr>
<td></td>
<td>Documenting it without judgement</td>
</tr>
<tr>
<td>Attending to feelings</td>
<td>Utilising the positives</td>
</tr>
<tr>
<td></td>
<td>Dealing with the negative ones to remove obstructing feelings e.g. laughing at</td>
</tr>
<tr>
<td></td>
<td>embarrassment, crying, anger</td>
</tr>
<tr>
<td>Re-evaluating the experience</td>
<td>Associating it with what is already known</td>
</tr>
<tr>
<td></td>
<td>Integrating it by seeking relationships</td>
</tr>
<tr>
<td></td>
<td>Validation of the authenticity of the ideas or feelings which have resulted</td>
</tr>
<tr>
<td></td>
<td>Appropriation, that is, making the knowledge one’s own.</td>
</tr>
</tbody>
</table>

Assisting with the process of reflection can help learners to accelerate the learning process. This help can be from a tutor, although significant benefits arise from peer-assisted learning (Boud et al., 1985). During the early stage, the students can be assisted to describe the experience objectively. Following this, students can be encouraged to be aware of the feelings and bring these to their consciousness. The techniques of co-counselling can be effectively introduced through peer-to-peer interactions. In the final re-evaluating stage, tutors can assist learners by using their technical skills as a resource for the students, asking supportive questions, as well as continuing to offer encouragement.

2.2.1 Online reflection

The same basic principles of reflection also apply for reflective assignments in an online environment. Teaching innovations in this area include online technologies (e.g. blogs) which provide a virtual space for reflection which can be accessed by peers and tutors alike (Chretien, Goldman, & Faselis, 2008). A recent review of the supports for student reflection in technology-enhanced learning identified that
pre-defined guidance and human-intervention guidance can both act as a positive support for high-quality reflection (Kori, Pedaste, Leijen, & Mäeots, 2014). The review advises that some kind of mechanism should be designed to guide learners in focusing on critical points while engaging in reflective practice.

2.2.2 Work-placement reflection
Common to best practice recommendations for work-placement is the notion that students should actively participate in reflection, which is key to turning experiences into learning as discussed above. This has been commonplace, for example, in teacher education, with the concept of the ‘Reflective Practitioner’ (Schön, 1983), and has also gained popularity in other professions, for example nursing and other health related areas (Owen & Stupans, 2009; Williams, Wessel, Gemus, & Foster-Seargeant, 2002). Smith et al. (2007) argue that the pedagogical benefits of work-based experiences depend largely on the extent to which students reflect on them and the extent to which they take understandings derived from an academic context and relate these to the workplace. They discuss the difficulties students face when conceptualising work in terms of academic knowledge. The reverse process of transforming experiential/tacit knowledge from the workplace into a form they can verbalise is also challenging for students. Meanwhile Sykes and Dean (2013) maintain that reflection as a subsidiary practice is ontologically inseparable from the integrated practices necessary for students to achieve workplace competence, and is so it is impossible to separate it from the integrated practices themselves. It seems therefore that good quality reflection can be the key to unveiling high quality professional competencies based on explicit knowledge from an academic context. An example of supports to improve the quality of student reflection in work-placement journals has been reported by Hume (2013) who has described the use of ‘Shulman’s framework for good science teachers’ as a focal point for reflection. She found that in addition to a framework, additional pre-placement workshops and activities, along with time to practice reflective writing, use of exemplars, and clear assessment criteria were important to help with reflection while on placement.

In addition to the use of online environments to facilitate reflection during work-placement, there are reports of their use to foster ‘online learning communities’, for example in blog-based teaching portfolios (Yang, 2009). Tutors may also
participate in a learning-community, simply as a facilitator (or administrator), or interactively providing guidance and feedback. Tang and Lam (2014) have discussed how to build effective online learning communities using student blogs, and highlight a high level of student participation in the blog, and the importance of emphasising high-quality interactions between community members (via commenting on peer blogs) as being the two most significant factors for meaningful and sustainable learning.

2.2.3 Assessing reflective writing
This project will require a means to judge if levels of reflection have improved, as well as if focusing attention on graduate attributes have influenced what the students write about. It will be more straightforward to compare previous reflective writing to the current cohort in terms of the latter, however the former will require a more in-depth analysis. In their project to test the reliability, feasibility, and responsiveness of a categorization scheme for assessing pharmacy students’ levels of reflection during internships, Wallman, Kettis Lindblad, Hall, Lundmark, and Ring (2008) have used a categorisation scheme that is outlined in Table 3. In the scheme, the categories build upon each other as the students reach higher levels, increasing from Habitual action to Premise reflection. Levels 4 to 6 are non-reflective, while levels 1 to 3 are reflective. This method of assessing reflective writing appears to be straightforward. An expanded explanation of each level of reflection is given in Appendix 1.

Table 3. Categorisation scheme for assessing pharmacy students’ reflection

<table>
<thead>
<tr>
<th>Categorisation of reflection</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Premise reflection</td>
<td>Reflective</td>
</tr>
<tr>
<td>2. Process reflection</td>
<td></td>
</tr>
<tr>
<td>3. Content reflection</td>
<td></td>
</tr>
<tr>
<td>4. Introspection</td>
<td></td>
</tr>
<tr>
<td>5. Thoughtful action</td>
<td>Non-reflective</td>
</tr>
<tr>
<td>6. Habitual action</td>
<td></td>
</tr>
</tbody>
</table>
Bell, Kelton, McDonagh, Mladenovic, and Morrison (2010) have further evaluated this model in the context of business students’ reflective writing, and they found it reliable. They also found it useful to add an additional category of ‘content and process’ reflection because there were examples of reflection where the two were inextricably linked.

Wong, Kember, Chung, and Yan (1995) have also investigated assessment of students’ reflective journals. They have developed methods of coding at two levels, one more advanced than the other. They align to the Boud et al. (1985) description of reflection as described in Table 2. At a more basic level, they found that it was reliable to distinguish between the three stages of reflection. However, they found it was not possible to reliably distinguish between the actions involved within each stage. Based on this they proposed that it is possible to sort students into three categories, namely non-reflector, reflector and critical reflector. The process of allocating students to the three categories proved reliable. Critical reflector describes a student who attained the actions of validation and appropriation, whereas reflection is associated with the actions of integration and association. This appears to be also a straightforward means to assess the level of student reflection. In fact, it could be argued that both of these models amount to the same thing, in that both categorise the levels of reflection into a higher and lower order of reflection. The lower order focuses on reflecting on the content or knowledge related aspects of the experience and how it relates to prior knowledge, and also to the immediate response to the experience. Meanwhile the higher level of reflection relates more to the personal development of the reflector and the capacity to change future actions based on reflecting on the experience.
2.3 Action Research and Participatory Action Research

The methodology chosen for this investigation is Action Research. This is appropriate because a specific problem has been identified through somewhat less formal Action Research on previous iterations of the curriculum, as discussed in the preamble to the thesis. Cousin (2009) suggests that the best way to understand a problem is to try and change it because the conversations, observations and activities carried out while implementing the change give rise to further theoretical and practical understanding, which is central to the approach in Action Research. Participatory Action Research (PAR) has been identified by Reason and Bradbury (2008) as an approach that seeks to create a learning environment that connects theory and practice with action and reflection as an outcome of participating with others. Crucially, it is research that is carried out with participants not on them Baldwin (2012). To be effective, Minkler (2000) identified the following project requirements: it is participatory; a joint process occurs that engages community members enabling an equal contribution; there is a co-learning process; systems development and capacity building occurs; and participants are enabled to increase control over their lives by nurturing participant strengths and problem-solving abilities. Finally, there is a balance between research and action. As in action research there are fluid and overlapping cycles. During all stages of the PAR there is collection and analysis of data, and reflection and knowledge generation (Somekh, 2008). Engaging in a PAR project enables students to share responsibility for all aspects of the project (Fowler et al., 2014). The rationale for the use of PAR in the current project will be further elaborated in the Methodology section of the Research Design chapter.
3 Research Design

3.1 Theoretical Perspective
Our ontological assumptions are concerned with what we believe constitutes social reality (Blaikie, 2000, p. 8 in Grix (2002). In the case of research into the awareness and development of graduate attributes, my ontological position is that these cannot exist in isolation to the student, but rather are intrinsic and singular to the individual. How an individual defines and relates to them will depend on how they have experienced the pharmacy technician curriculum and the meaning they make from the experiences in the context of their wider social reality. I believe that the students and I will together develop an articulation of what particular graduate attributes may mean for them as trainee pharmacy technicians. Through these interactions themselves each contributor will develop their own understanding of the concept of graduate attributes. Therefore my constructivist ontological position asserts that these understandings will be produced through social interactions and will be in constant state of revision and will differ depending on the perspective of the individuals. Concepts about how graduate attributes are perceived and developed by the students through their curriculum are not there to be discovered, but rather will be constructed through dialogue and reflection.

My epistemological position therefore follows that I cannot research how students perceive graduate attributes development in the context of their curriculum, and articulation of these, through observation or experiments that do not take into account the differences in individuals. On the contrary, it will be through interpretation of our discussions and their reflective assessments that I will be able to develop an understanding of their perceptions. Through this process, the students themselves will also develop their knowledge and understanding. This interpretivist epistemological position will require a flexible research design.
Methodology

The methodology chosen for this investigation is Action Research, as mentioned in the Literature Review chapter, and is appropriate because a specific problem has been identified and as Cousin (2009) suggests that the best way to understand a problem is to try and change whilst monitoring the impact and engaging in dialogue which will give rise to further theoretical and practical understanding. I aim to improve practice through generating a fresh understanding of the pharmacy technician curriculum by emphasising relevant graduate attributes and implementing new learning activities. Thus the implementation of a change is central to the research, and the research process will require reflective thinking by everyone involved. This places the students at the centre of the research as co-researchers who will benefit through the development of a deeper understanding and articulation of graduate attributes and how they relate to the curriculum. It is hoped that this will assist them in the challenge of reflective writing by providing an improved structure for reflection and increased intellectual development, and this gives an emancipatory perspective to the research in accordance with Cousin (2009). Additionally, Action Research is appropriate because I (as the teacher researcher) expect to learn as much as the students from the research process. Or, as Cousin (2009) suggests, I as well as the students, will be transformed. For me, this may lead to a change of emphasis/review of aspects of the curriculum in the medium term, or it may simply require changing the way the programme team think about the curriculum and how it can allow students to verbalise or articulate the development of graduate attributes, and how we can support them in this process. More specifically, this approach can be aligned to a Participatory Action Research methodology, as discussed in the Literature review. This methodology has been applied in a somewhat similar capacity by Fowler et al. (2014). In that research, community nursing students were participants in a project to implement a Parenting Young Children in a Digital World. Three individual and distinct cycles of PAR were involved in the study, each involving the repeating components of planning, action, and reflection. The individual cycles were: needs identification; skills development; and parent programme implementation. Participating students were provided with literature and other supports to enable
them. Methods for data collections included students meetings, questionnaires, and interviews with parents.

For my project I will also have three cycles of PAR aligned to the research sub-questions introduced previously:

Cycle 1: Knowledge development.

What is the current level of understanding of graduate attributes for pharmacy technician students, and what learning activities are suitable to promote student awareness of graduate attributes development?

Cycle 2: Graduate attributes prioritising

What are the most relevant graduate attributes for DIT pharmacy technician students and how can these be developed?

Cycle 3: Reflective assessment of work-placement

What change if any in the quality of reflection occurs in comparison to previous years?

The planning, actions, and methods of evaluation for each of these cycles will be described in detail in the Methods and Implementation sections below.
3.3 Methods
The methods of analysis used in this research were:

- S1 and S2: simple paper surveys to establish students’ current knowledge and confidence in articulation of graduate attributes (Appendix 2 and Appendix 3). S1 was designed to establish what terminology and ideas the students had about graduate attributes or generic skills for higher education graduates in general and also specifically for their own programme. Following this, S2 provided them with the terminology of the DIT graduate attributes and asked them to define or provide keywords to explain the terms, and also to indicate how confident they would be to discuss the attribute. An example situation of a job interview was used to give the student a context to consider their confidence to discuss each attribute.

- A Bristol online survey to determine stakeholder prioritisation of attributes (see Appendix 4); For robustness, the questions and format were developed based on the validated Australian Graduate Attributes Indicators Survey (B. Oliver, 2013) (see Appendix 5)

- A researcher diary recorded using the ‘Notes’ function in an iPhone to document the researcher thoughts and insights during the action research; and

- Template analysis (King, 2014) for thematic coding and analysis of control group (1314) and research group (1415) assessments based on a hypothesis driven confirmatory approach using the a priori codes of Reflection and Graduate Attributes. Independent double blind coding of a random sample of assessments was carried out.

The utilisation of these methods has been elaborated in the Implementation section below.
3.4 Implementation
This section outlines how the three cycles of planning-action-reflection were implemented with the Higher Certificate in Pharmacy Technician Studies DT425 Stage 2 class between October 2014 and May 2015. There were 29 students in the cohort. An overview of the Implementation, showing the balance of Action and Research is shown in Table 4.

Table 4 Overview of Implementation of Action Research

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Cycle 1: Knowledge development</th>
<th>Cycle 2: Graduate attributes prioritising and development</th>
<th>Cycle 2: Reflective assessment of work-placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions</td>
<td>Three Face-to-face tutorial sessions</td>
<td>Development, implementation and analysis of graduate attributes stakeholder survey</td>
<td>Work-placement blogging</td>
</tr>
<tr>
<td></td>
<td>GoogleDocs Spread sheet</td>
<td>Online self-evaluation exercises</td>
<td>Online communication skills exercise</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ethical debate</td>
</tr>
<tr>
<td></td>
<td>Pre-workshop reflective activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>Surveys (S1, S2)</td>
<td>Graduate attributes stakeholder survey</td>
<td>Phase 1: Blog data extraction the data</td>
</tr>
<tr>
<td></td>
<td>Researcher Diary</td>
<td></td>
<td>Phase 2: NVivo ‘Open coding’</td>
</tr>
<tr>
<td></td>
<td>Researcher Diary</td>
<td></td>
<td>Phase 3: NVivo ‘Coding on’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Phase 4: NVivo matrix queries</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Phase 5: Sample double coded analysis</td>
</tr>
</tbody>
</table>
3.4.1 Cycle 1: Knowledge development (October 2014).

The development of knowledge required a baseline evaluation of the students’ initial understanding and confidence in explaining graduate attributes. In a series of three face-to-face one-hour tutorial sessions, this baseline was established:

Session 1:

A short in-class survey S1 was used to ascertain the baseline level of prior knowledge the students had on graduate attributes in general as well as those skills they articulated as important for pharmacy technicians. Students required five minutes to complete this survey. After the session the data from the summary was collated in a Google-spreadsheet to draw together the main trends (see Table 6 in the Findings and Discussion: Cycle 1 Knowledge development chapter).

A short in-class survey S2 was used to determine if students could define the DIT Graduate Attributes and to ascertain the students’ confidence in being able to discuss each attribute, for example at an interview. Students required fifteen minutes to complete this survey. These were gathered and after the session the most useful contributions were emphasized using a highlighter pen, so they could be discussed with students in a future meeting. The data from the summary was collated in a Google-spreadsheet to draw together the main trends (see Table 7 in the Findings and Discussion: Cycle 1 Knowledge development chapter 4).

The main findings, along with my thoughts on the student engagement in the first session were recorded in the researcher diary.

The Google-spreadsheets were shared with the students through the GoogleDocs site.

Session 2:

The highlighted survey S2 belonging to each student was returned to its owner. An in-class discussion around each attribute was held. During this session students were encouraged to share their examples from survey S2, especially the highlighted contributions. Students were then formed into five groups with a leader for each group. Each group was allocated one of the DIT Graduate
Attributes categories. The students were requested to individually consider their category and commence to prepare definitions for the following week. The students were each furnished with several relevant examples of Graduate Attributes definitions to assist with this process. These included information from the University of Sheffield careers service ("Description of Skills," 2014), the HE STEM Employability Skills Review (Toland, 2011), the Open University careers service resources, and resources from the University of Aberdeen Centre for Academic Development (Aberdeen, 2014).

Session 3:

A face-to-face session was held during which each group collaborated to define short graduate attribute definitions. These were then shared with the class for comment. After the session the leaders of each group uploaded the definitions to the Google-spreadsheet. The Head of the DIT Careers Service, and the Head of Teaching and Learning then reviewed these definitions. Some minor changes following this review furnished the final DIT Graduates Attributes definitions that are presented in Table 8 of the Findings and Discussion: Cycle 1 Knowledge development chapter 4.

3.4.2 Cycle 2: Graduate attributes prioritising and development (November 2014 – February 2015)

To discover what the most relevant graduate attributes for DIT pharmacy technician students are, a DIT Graduate Attributes survey for Pharmacy Technicians was developed using Bristol Online Survey (see Appendix 4). The survey was based on the Australian Graduate Employability Indicators survey (Appendix 5) modified with the DIT Graduate Attributes definitions that were developed in Cycle 1 and presented in the Findings and Discussion: Cycle 2 Graduate Attributes Prioritising chapter 5 Table 10. The survey was piloted by an independent academic staff member and by the student researchers. Following this pilot a face-to-face feedback session with the students led to some minor changes. The pilot was also useful to determine which graduate attributes the students considered to be most important. These results are also presented in
Table 10. Purposeful stakeholder sampling was carried out by sending the link to the survey to: the chairs of the pharmacy technician associations (IACPT and NAHPT); the Head of Professional Development of the Pharmaceutical Society of Ireland; and the chair of the Hospital Pharmacists Association of Ireland. In addition, previous DIT graduate technicians who are practicing, along with pharmacists, pharmacy chain operations managers, Human Resources managers and recruitment specialists in the pharmacy area known through DIT workplace arrangements were conveniently sampled. It is not possible to determine the response rate, however the total responses and the breakdown of category or responder are presented in Table 9 of the Findings and Discussion: Cycle 2 Graduate Attributes Prioritising chapter 5.

The complete results of the survey were presented to the students in a face-to-face session. The results shown to them are presented in Table 10 (stakeholder and student survey) of the Findings and Discussion: Cycle 2 Graduate Attributes Prioritising chapter 5.

Based on these the top graduate attributes were identified by reviewing the statistics of the survey that are calculated in the Bristol Online Survey instrument. In addition, a discussion was held around the responses to the Open Questions in the survey, which are listed in Table 11 of the Findings and Discussion: Cycle 2 Graduate Attributes Prioritising chapter 5.

Once prioritised, a series of activities to highlight the important graduate attributes was carried out with the students. The Assuring Graduate Attributes website (Beverley Oliver, 2015) was used to identify suitable activities.

The activities chosen were:

- A series of online self-evaluation exercises to allow students to determine their strengths and weaknesses in skills to date. The links to self-assessments from the University of Kent ("Analyse your Employability Skills," 2015; "Employability Skills Exercise," ) and were sent to the students to complete in their own time.
• A link to communications resources from the University of Kent ("Communication Skills: Speaking and Listening," 2015). The link to the survey was sent to the students to carry out in their own time.

• An ethics debate centred on a short ethical case study relevant to the role of the pharmacy technician. Dr. Seana Hogan (DIT) MPSI, created the case study (see Appendix 6) and the debate was organised based on a modified version of the ‘think-pair-share’ format reviewed in (Kennedy, 2007). The students were instructed to read the case and make notes of potential positions (10 minutes). They were then paired to share their positions (10 minutes). Thereafter, they were grouped into fours and asked to nominate a recorded list of all possible positions the group devised. This was recorded back to the class, with each group in turn giving one option, but not outlining any detail. This gave rise to five distinct positions; do nothing, confront John immediately, confront John the next day, report the situation to the pharmacist, do further investigation. Students were then randomly assigned a team (1-5) and given one hour to prepare a five-minute pitch in support of their position. They were also instructed to consider a rebuttal of the other positions, and likely defence of their position against rebuttal from the floor. After the hour, each group in turn proposed their position and defended it against rebuttal from the floor. Thereafter, students were given expert opinion from Dr. Hogan, including data protection legislation, and retail theft prevention guidance from An Garda Siochana. The researcher diary recorded comments on the level of engagement apparent.

• A pre-workshop reflective activity to map prioritised Graduate Attributes to previous experiences, curriculum and opportunities in placement. The students were requested to complete the Table in the activity presented in Appendix 7 in advance of the annual placement assessment preparation workshop. During the workshop, a review of each box in the grid was held in the form of a class open discussion. The workshop reflective writing practice activity was based on the content of the student’s Table, as well as the normal reflection on the workshop activities themselves (Appendix 8).
The students were instructed to select about three graduate attributes to elaborate on in a practice blog.

3.4.3 Cycle 3: Reflective assessment of work-placement
What change if any in the quality of reflection occurs in comparison to previous years? (May-June 2015)

While qualitative research is not given to mathematical analysis, it is nonetheless systematic in its approach to data collection and analysis. In this research, the process involved breaking down the data into discrete ‘units’ and coding them to categories according to pre-defined \textit{a priori} codes. Coding of previous years’ reflective assessments and those of the year under consideration was carried out using NVivo software to support the qualitative analysis. While the researcher carried out the hermeneutic task, NVivo was used as a tool for efficiency and transparency. NVivo does not in and of itself conduct analysis and draw conclusions, but it does produce an audit trail that is the key to the trustworthiness and plausibility of a study. This coding sought to look for evidence of increased emphasis on graduate attributes in student reflection, and consequent improved quality of reflection. The codebook for the analysis is given in Table 5.

The phases of the analysis were as follows:

Phase 1: Extracting the data from individual blog posts from the research and control groups into individual Microsoft Word documents (circa 180 in total) and uploading these as sources in NVivo. These were linked to their authors, who were inputted as ‘case nodes’ (circa 60 in total).

Phase 2: ‘Open coding’ each blog post into the primary NVivo ‘nodes’ of Reflection and Graduate Attributes according to the NVivo Codebook in Table 5.

Phase 3: ‘Coding on’ the primary nodes into sub-nodes, according to the NVivo Codebook in Table 5. Note, during the early analysis phase, a further coding-on was carried out to reduce the explicit references to graduates attributes into ‘explicit but unnamed’, and ‘explicit and named’.
Phase 4: Running matrix queries on the coded data to establish trends and relationships relating to the research question, and structuring the findings in a coherent manner for the discussion chapters.

Phase 5: Comparison of sample double coded assessments for agreement of coding.
**Table 5 NVivo Codebook for open coding and coding on for thematic analysis of control and research blogs**

<table>
<thead>
<tr>
<th>Open code</th>
<th>Sub-code</th>
<th>Code description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflection</td>
<td></td>
<td>All references to reflection at any level</td>
</tr>
<tr>
<td>Level of</td>
<td>Thoughtful action or Introspection</td>
<td>References to reflective comments that are better described as thoughtful action or Introspection (Wallman, 2008)</td>
</tr>
<tr>
<td>Reflection:</td>
<td>Non-critical reflection</td>
<td>References to reflective comments that are non-critical in nature, as per 'content reflection' (Wallman, 2008)</td>
</tr>
<tr>
<td></td>
<td>Critical reflection</td>
<td>Higher order reflection, Process reflection and premise reflection (Wallman, 2008)</td>
</tr>
<tr>
<td>Graduate</td>
<td></td>
<td>All references to graduate attributes explicit and implicit</td>
</tr>
<tr>
<td>attributes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific</td>
<td>Communication</td>
<td>References to communication based graduate attributes</td>
</tr>
<tr>
<td>attributes:</td>
<td>Emotional intelligence</td>
<td>References to emotional intelligence based graduate attributes, including discussion on ones own feelings, and ones perceptions of others.</td>
</tr>
<tr>
<td></td>
<td>Motivation</td>
<td>References to motivation based graduate attributes, including taking initiative.</td>
</tr>
<tr>
<td></td>
<td>Work related learner</td>
<td>References to work related learning graduate attribute, including CPD, on the job learning, and standard work skills such as organisation, time-keeping.</td>
</tr>
<tr>
<td></td>
<td>Collaboration</td>
<td>References to collaboration based graduate</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Team work</strong></td>
<td>References to team work based graduate attributes, including organisation and time keeping. Accuracy and precision.</td>
<td></td>
</tr>
<tr>
<td><strong>Innovator</strong></td>
<td>References to innovation</td>
<td></td>
</tr>
<tr>
<td><strong>Critical thinking</strong></td>
<td>Reference to critical analysis and problem solving</td>
<td></td>
</tr>
<tr>
<td><strong>Ethical</strong></td>
<td>Reference to ethical practice</td>
<td></td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>References to specific graduate attributes not listed</td>
<td></td>
</tr>
</tbody>
</table>

**Statement type:**

- **Implicit**: References to graduate attributes that have been interpreted by the researcher rather than explicitly labelled by the blog author.
- **Explicit**: References to graduates attributes that have been explicitly acknowledged by the blog author, either by using the Graduate attribute term itself or clearly alluding to the skill as has been defined for this project. Interpretation by the researcher was not required.
3.5 Limitations and Delimitations

This research was delimited to the students in DT425/2 2013/14 as the control group for comparison.

The study was unfunded and was delimited to a single primary coder, namely the author of the study, with a representative sample of double coding by an academic unrelated to the project for rigour. In addition, the level of coding and analysis was delimited to that which is considered, through previous studies discussed in the literature review, to be reliably reproducible (Bell et al. (2010); Wong et al. (1995); Wallman et al. (2008)).

The study is limited to the cohort of students registered to the module FTIP2001 Pharmacy Work-placement DIT (N=29). The study is also limited by the engagement of the students in this participatory action research and their attendance and participation in the various activities outlined in the Methods and Implementation sections of this chapter.

The stakeholder survey is limited to those who responded to the anonymous survey. A limiting factor also is that respondents will have differing understandings of the graduate attributes they are being asked to prioritise, even if a definition is provided. However, due to the time-scale and resources available, a more in-depth investigation was not be possible and this limiting factor is not considered fundamental to the outcome of the research.
3.6 Ethical consideration

Ethical considerations are important to protect both the researcher and researched, and also to give credibility to the research as it demonstrates thoughtful conduct of research process (Cohen, Manion, & Morrison, 2007). For this reason early consideration of ethics was considered during choice of methods. In line with the Ethical Guidelines for Educational Research (BERA, 2011), the research project has been undertaken with an ethic of respect for myself and all co-researchers and other persons involved in the research methodology, for knowledge, for quality of Educational Research, and for Academic Freedom. This has involved:

Responsibilities to participants:

The research has been operated within an ethic of respect for the students and for the stakeholders surveyed, including freedom from prejudice of any type. They have been informed of the aims of the research, and their voluntary consent without any duress obtained (BERA Guideline no. 10, (BERA, 2011). The process in which they have been engaged has been explained, including why their participation was necessary, how their input was to be used, and how and to whom it would be reported (BERA Guideline no. 11, (BERA, 2011). My role as teacher has not impacted on the research due to the Action Research nature of the project, however I was mindful of any potential tensions arising for this dual role (BERA Guideline no. 12, (BERA, 2011). All participants were aware of their right to withdraw for any or no reason (BERA Guideline no. 15, (BERA, 2011). No person under the age of 18 participated in the research. In the case of stakeholder surveys, privacy of participants’ data was achieved through confidential and anonymous data gathering (BERA Guideline no. 25, (BERA, 2011). In the case of DIT student co-researchers, all data was recorded in an anonymous manner. All data will be stored according to the DIT Ethical Guidelines (DIT, 2014a).

Responsibilities to the Community of Educational Researchers and DIT:

The integrity and reputation of education research has been withheld by carrying out the research to the highest possible standards (BERA Guideline no. 44, (BERA, 2011). I have not falsified evidence or findings, ‘sensationalised’
findings, distorted findings by selectively publishing some aspects and not others, or criticized other researchers in a defamatory way. In this way, I have sought to protect the good reputation of DIT.

The project has received ethical clearance from the DIT Research Ethics committee (Ref no. 14-68).
4 Findings and Discussion: Cycle 1 Knowledge development

In Cycle 1, the objective of the research was to determine ‘*What is the current level of understanding of graduate attributes for pharmacy technician students, and what learning activities are suitable to promote student awareness of graduate attributes development?’*

In face-to-face session 1 a baseline evaluation of the students’ initial understanding and confidence explaining graduate attributes was established through a short in-class survey S1. This survey asked them to ‘List below all the skills and attributes you think employers will look for in third level graduates:’

The responses to this question were collated and grouped as best as possible to fit into the DIT Graduate Attributes, as shown in Table 6. The skills are grouped into generally important graduate skills, and ones perceived as important for pharmacy technicians.

*Table 6. Mapping of desirable graduate skills listed by students to DIT Graduate Attributes*

<table>
<thead>
<tr>
<th>DIT Graduate Attribute</th>
<th>In general</th>
<th>For pharmacy technicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent communicators</td>
<td>Communication including listening, written and oral</td>
<td>Communication including listening/comprehension/interpretation</td>
</tr>
<tr>
<td>Disciplinary knowledge</td>
<td>Knowledge</td>
<td>Knowledge (including health and safety, numeracy)</td>
</tr>
<tr>
<td>Motivated self-starter</td>
<td>Independence/motivated/initiative (self-thinker)/proactive</td>
<td>Motivated/independent/initiative</td>
</tr>
<tr>
<td>Work related learning</td>
<td>Quality work / carry out tasks/attention to detail/observant/punctual/professional/tidy/health and safety/knowledge of role/efficient/organised/meet deadlines/prioritise</td>
<td>Quality work / carry out tasks/attention to detail/observant/punctual/professional/tidy/health and safety/knowledge of role/efficient/organised/meet deadlines/prioritise</td>
</tr>
<tr>
<td>Resilient</td>
<td>Confidence/determination/adaptable</td>
<td>Confident/adaptable</td>
</tr>
<tr>
<td>Attribute</td>
<td>Emotionally Intelligent</td>
<td>Ethical</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td>Helpful/approachable/friendly</td>
<td>Trustworthy/responsible</td>
</tr>
<tr>
<td></td>
<td>Helpful/patience/approachable/understanding/empathetic (understand people)</td>
<td>Trustworthy/honest/confidentiality</td>
</tr>
</tbody>
</table>

Evidence for the following DIT Graduate attributes was not found in any of the students descriptions: problem solver, decision maker, innovator, global citizen, entrepreneurs and strategic thinkers.

Comments from the researcher diary following reading S1 surveys indicates that the vast majority of students mostly describe what can be considered ‘employability skills’ in terms of being a reliable, trustworthy, caring and hard-working employee. The sense is that they conceive of their role in terms of the core competencies they have developed in college and how these can be put into practice effectively. While there was some evidence or better understanding by some students, the majority of them did not seem to have a more comprehensive or sophisticated concept of what employers seek in graduates, beyond the disciplinary based knowledge and practical competency skills of the role of the Pharmacy Technician. Communication skills are the exception to this, as all
students mentioned these to some extent. This is unsurprising as it is integrated into the curriculum in the Pharmacy Practice modules. As these students have already completed more than a year of Higher Education, and are more than halfway through their programme of study, it is important from a curriculum development perspective to note that there is a low level of articulation of many of the other graduate attributes in this cohort. The curriculum to date has focussed on core competency modules and the scientific modules underpinning them. While the students have had a short session on CV and interview skills with the careers service, this was not integrated into the curriculum, nor was it assessed. There is certainly scope to reconsider the curriculum in terms of development of graduate attributes from the earliest stages or the programme. By taking the advice of Treleaven and Voola (2008) as discussed in the Literature review, placing an emphasise on students’ awareness of graduate attributes and their value, and putting them in the context of their future careers should equip them with a wider concept of employability skills. This will require a programme team based outlook to providing ample opportunities for practice, assessment and peer- and tutor-feedback in developing generic skills in a program-wide approach.

The initial confidence that students felt in their understanding of the DIT Graduate Attributes was captured in survey S2. This survey essentially asked the students to provide a definition, some keywords, or brief explanation of what the listed skill or attribute meant to them, and to tick the box which best described their ability to discuss this skill, for example at a job interview. The result of the tick box element of the survey is displayed in Figure 4. The data has been condensed into either

- **Confident** (Very confident and quite confident) or
- **Not confident** (Not very confident and Don’t know).
Figure 4. Initial self-confidence in understanding of Graduate Attributes

The results from this survey show that there was a considerable lack of confidence in understanding by many students in regard to many of the attributes. Therefore it can be argued that at this point in their development, students who attend for either a work-placement or employment interview will struggle to articulate their skill-set in the language typically used at interview and in job advertisements, as shown in Figure 5.
Furthermore, this lack of understanding will prevent them from mapping their experiences and knowledge onto graduate attributes, thus hampering their preparation for the interview process. This essentially reduces their employability, if it is considered in terms of the definition given by Hillage and Pollard (1998).

As discussed earlier, the HEA Employability Skills review advocates opportunities to develop an ability to articulate generic skills and students need to be supported to become aware, and take ownership of, these skills through, for example, monitoring and recording skills developed in a portfolio (Toland, 2011).

The information extracted from the researcher diary following review of the open questions on Survey S2 (Appendix 3) that asked students to explain what they understood by each attribute is summarised in Table 7.
Table 7. Researcher diary extracts relating to survey S2 open questions to define Graduate Attributes.

<table>
<thead>
<tr>
<th>Graduate attribute</th>
<th>Summary from open-questions on survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Citizen</td>
<td>Very few had any input on this. But there was some mention of understanding world around you, and other cultures.</td>
</tr>
<tr>
<td>Ethical</td>
<td>Summarised as understanding right from wrong and choosing right.</td>
</tr>
<tr>
<td>Motivated self-starter</td>
<td>There was a very good understanding of this.</td>
</tr>
<tr>
<td>Excellent communicators</td>
<td>There was a range of ability to articulate this: some just thought it was about speaking clearly and 'being able to communicate to others'. However some discussed about being able to get your message across in a way others can understand it.</td>
</tr>
<tr>
<td>Innovator</td>
<td>Good understanding by some students of this. Creative thinker, think outside the box. Find new better ways to do something, including cost and efficiency</td>
</tr>
<tr>
<td>Collaborative workers</td>
<td>Mostly related to team-work as opposed to true collaboration, but some ideas around putting heads together and sharing ideas.</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>Quite a good understanding of this. Risk taker, sees profitability, business, etc.</td>
</tr>
<tr>
<td>Leader</td>
<td>Can motivate others, lead by example, delegation of tasks.</td>
</tr>
<tr>
<td>Critical thinker</td>
<td>No student was correct in his or her understanding of this. Mention of logical thinker, but no clear articulation.</td>
</tr>
<tr>
<td>Problem solver</td>
<td>Some good understanding of this. Finds effective solutions. Identifies problems. Think outside box. Based on knowledge.</td>
</tr>
<tr>
<td>Creator of new knowledge</td>
<td>Very little understanding of this. Some mention of research.</td>
</tr>
<tr>
<td>Decision maker</td>
<td>Good understanding of this. Ability to make decision under pressure. Stand over decision, responsibility.</td>
</tr>
<tr>
<td>Emotionally Intelligent</td>
<td>Poorly understood. Some mention of empathy.</td>
</tr>
<tr>
<td>Active team players</td>
<td>Good understanding of this, although not very broad in terms of defining. Works well with others, respects others.</td>
</tr>
<tr>
<td>Strategic thinkers</td>
<td>Poorly understood. One mention of seeing consequences.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Resilient</td>
<td>Generally poor understanding, but some mention of bounce back, taking criticism in positive way, confidant.</td>
</tr>
<tr>
<td>Disciplinary knowledge</td>
<td>Only one correct in terms of intended meaning of this. All others thought that it meant discipline in terms of reprimanding or knowledge of the standards and regulations.</td>
</tr>
<tr>
<td>Work related learning</td>
<td>Good understanding of on the job learning, learning from experience, willing to do CPD and stay informed.</td>
</tr>
<tr>
<td>Reflective practitioners</td>
<td>Some understanding of this. Looking back, learning from mistakes.</td>
</tr>
<tr>
<td>Digitally literate</td>
<td>All related to use of computers and IT. None relating to sourcing literature online, effective use of search engines, etc. (i.e. information literacy)</td>
</tr>
</tbody>
</table>

The information in Table 7 is unsurprising when taken in the context of the lack of confidence shown in Figure 4, as the former clearly demonstrates that for several of the graduate attributes there is incomplete understanding of the concept of the skill, and indeed in the case of ‘disciplinary knowledge’ there is a misunderstanding. This shows that education and resources were needed to improve the cohort’s ability to define the graduate attributes for the next phase of action research.

The Graduate Attributes definitions created by the students following Cycle 1 Knowledge Development Session 3, reviewed with minor changes by the Head of the DIT Careers Service, and the Head of Teaching and Learning, are presented in Table 8. These were used to develop the DIT Graduate Attributes survey for Pharmacy Technicians using Bristol Online Survey.
Table 8. DIT Graduate Attributes and corresponding definitions created during the Knowledge Development cycle.

<table>
<thead>
<tr>
<th>DIT Graduate Attribute</th>
<th>A graduate who can demonstrate ....</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engaged:</strong></td>
<td></td>
</tr>
<tr>
<td>Global Citizen</td>
<td>Respect for human diversity, and can work within a multicultural setting, with an appreciation of international social, political and economic issues.</td>
</tr>
<tr>
<td>Ethical</td>
<td>An awareness of moral issues, and an ability to work within an accepted Code of conduct of their chosen discipline or profession.</td>
</tr>
<tr>
<td>Motivated self-starters</td>
<td>An ability to work on their own initiative without constant supervision, whilst having an enthusiastic and positive attitude to work.</td>
</tr>
<tr>
<td>Excellent Communicators</td>
<td>An ability to identify the most effective way to convey their message orally and in writing at an suitable level, using appropriate media, and who displays a willingness to listen to others to assess their understanding.</td>
</tr>
<tr>
<td><strong>Enterprising:</strong></td>
<td></td>
</tr>
<tr>
<td>Innovators</td>
<td>Ability as a creative initiator and improver of concepts and ideas, with the capacity to invent solutions to current issues and challenges.</td>
</tr>
<tr>
<td>Collaborative workers</td>
<td>Willingness to pool resources with others and understand the benefits of a collegiate working environment to reach a common goal.</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>A willingness to take risks, and to seek and identify opportunities to develop and apply an enterprising mind-set to new initiatives.</td>
</tr>
<tr>
<td>Leaders</td>
<td>An ability to influence, enable and empower others towards making a vision a reality in a respectful, confident, approachable and trustworthy manner.</td>
</tr>
<tr>
<td><strong>Enquiry-Based:</strong></td>
<td></td>
</tr>
<tr>
<td>Critical Thinkers</td>
<td>An ability to question and analyse data from many sources, to challenge ideas, and apply logical reasoning to formulate arguments.</td>
</tr>
<tr>
<td>Problem Solvers</td>
<td>An ability to identify and analyse problems from a variety of standpoints to clarify and overcome barriers in order to implement effective solutions.</td>
</tr>
<tr>
<td>Creators of New Knowledge</td>
<td>Creative and innovative qualities, and whose curiosity motivates their desire to conduct research in order to establish new information and understanding.</td>
</tr>
<tr>
<td>Decision</td>
<td>An ability to make confident and unbiased decisions based on</td>
</tr>
</tbody>
</table>
The set of high quality definitions produced by the students once given appropriate resources and the opportunity for discussion is impressive, and is an example of the power of a social constructivist approach to learning (Jordan, Carlile, & Stack, 2007), as well as the successful use of a Google-spreadsheet to manage a student class-group project. It also shows that use of group activities based on various graduate attributes resources are suitable to develop students awareness of graduate attributes development. The following chapter will discuss:

<table>
<thead>
<tr>
<th>Makers</th>
<th>appropriate data and accepts responsibility for the outcomes.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effective:</strong></td>
<td></td>
</tr>
<tr>
<td>Emotionally Intelligent</td>
<td>Use of emotional and social skills to control their feelings when faced with challenges, to develop and maintain relationships with others, can show empathy and be aware of how other people are likely to react.</td>
</tr>
<tr>
<td>Active team players</td>
<td>Full participation in their team, who can give and receive feedback, and who keeps the team's interests in mind and focuses on the team's goals or end result.</td>
</tr>
<tr>
<td>Strategic thinkers</td>
<td>Use of a logical and objective approach to information, who is able to plan ahead, considering the long term objectives and consequences.</td>
</tr>
<tr>
<td>Resilient</td>
<td>A mind-set and behaviour to enable them to persevere when faced with personal or professional difficulties, to manage and mitigate the impact of challenges while moving to a position of greater control</td>
</tr>
<tr>
<td><strong>Expert:</strong></td>
<td></td>
</tr>
<tr>
<td>Disciplinary Knowledge</td>
<td>Can demonstrate theoretical knowledge and apply skills with precision in their chosen subject at internationally-recognised standards at the level required by their qualification.</td>
</tr>
<tr>
<td>Work based/work related learners</td>
<td>Application of disciplinary knowledge and skills to the workplace, can learn from on-the-job training and context based activities, and who demonstrates interest in on-going continuing professional development (CPD) throughout their career.</td>
</tr>
<tr>
<td>Reflective Practitioners</td>
<td>An ability to review their performance, evaluate it against suitable criteria (e.g. regulations, theory) and allow this evaluation to influence future performance.</td>
</tr>
<tr>
<td>Digitally literate</td>
<td>An ability to recognise when information is required, and locate, evaluate and use information appropriately, whilst being proficient in the use of a range of ICT packages as well as discipline specific technology.</td>
</tr>
</tbody>
</table>
the finding in relation to the prioritisation of these attributes. It will compare how industry stakeholders and students prioritise each attribute, and also relate the findings to the earlier programme committee ‘diamond 9’ prioritisation outcome.
5 Findings and Discussion: Cycle 2 Graduate Attributes Prioritising

The objective of Cycle 2 of the Action research was to find ‘What are the most relevant graduate attributes for DIT pharmacy technician students and how can these be developed?’ In the below section, the outcome for the prioritisation will be discussed and related to short and longer-term curriculum needs.

The definitions in Table 8 from the previous Knowledge Development cycle were used to create an online survey using Bristol Online Surveys.

An independent academic staff member in the School of Food Science and Environmental Health initially piloted the survey for clarity and usability. Other than minor changes to the appearance or layout of the survey, no significant changes were required.

The link to the edited survey was sent to various stakeholders in Pharmacy Technician education and the profiles of respondents to the Stakeholder survey are shown in Table 9. It is clear from the profile of the respondents that there is a good range of stakeholder participation. This includes those who could be considered employers of graduate technicians, namely community and hospital pharmacists, HR recruitment specialists, and retail and operations managers. It also comprises graduate technicians working in both hospital and community pharmacy.

Additionally, a link to a second identical survey was sent to the student technicians involved in the project as researchers, in order to ascertain the level of agreement between them and the stakeholders.
Table 9. Profile of respondents to Stakeholder survey.

<table>
<thead>
<tr>
<th>Role</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community pharmacist (up to 5 years’ experience)</td>
<td>4</td>
</tr>
<tr>
<td>Community pharmacist (more than 5 years’ experience)</td>
<td>6</td>
</tr>
<tr>
<td>Community pharmacy area manager</td>
<td>2</td>
</tr>
<tr>
<td>Senior community Pharmacy technician</td>
<td>4</td>
</tr>
<tr>
<td>Community pharmacy technician</td>
<td>10</td>
</tr>
<tr>
<td>Pharmacy HR recruitment</td>
<td>4</td>
</tr>
<tr>
<td>Hospital pharmacist (up to 5 years’ experience)</td>
<td>0</td>
</tr>
<tr>
<td>Hospital pharmacist (more than 5 years’ experience)</td>
<td>9</td>
</tr>
<tr>
<td>Senior Hospital Pharmacy technician</td>
<td>2</td>
</tr>
<tr>
<td>Hospital Pharmacy technician</td>
<td>5</td>
</tr>
<tr>
<td>Pharmacy Technician student</td>
<td>1</td>
</tr>
<tr>
<td>Other* (please specify)</td>
<td>5</td>
</tr>
</tbody>
</table>

*Other*: Chief Pharmacist, Operations and HR Manager, Registered Pharmaceutical Assistant and pharmacy lecturer, Retail Manager, Technician and MSc Pharmacy student

The results from the student and stakeholder DIT Graduate Attributes survey for Pharmacy Technicians are displayed in Table 10, which shows the rankings based on the statistical analysis from the Bristol Online Survey package.
Table 10 Prioritisation by stakeholders and students

<table>
<thead>
<tr>
<th>Graduate attribute</th>
<th>Stakeholder Priority (N=45)*</th>
<th>Student Priority (N=20)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent Communicators</td>
<td>0.91</td>
<td>0.91</td>
</tr>
<tr>
<td>Active team players</td>
<td>0.91</td>
<td>0.71</td>
</tr>
<tr>
<td>Collaborative workers</td>
<td>0.77</td>
<td>0.71</td>
</tr>
<tr>
<td>Motivated self-starters</td>
<td>0.77</td>
<td>0.59</td>
</tr>
<tr>
<td>Emotionally Intelligent</td>
<td>0.77</td>
<td>0.71</td>
</tr>
<tr>
<td>Ethical</td>
<td>0.77</td>
<td>0.71</td>
</tr>
<tr>
<td>Work based/work related learners</td>
<td>0.77</td>
<td>0.67</td>
</tr>
<tr>
<td>Digitally literate</td>
<td>0.63</td>
<td>0.63</td>
</tr>
<tr>
<td>Resilient</td>
<td>0.63</td>
<td>0.63</td>
</tr>
<tr>
<td>Disciplinary Knowledge</td>
<td>0.63</td>
<td>0.71</td>
</tr>
<tr>
<td>Problem Solvers</td>
<td>0.63</td>
<td>0.63</td>
</tr>
<tr>
<td>Strategic thinkers</td>
<td>0.63</td>
<td>0.56</td>
</tr>
<tr>
<td>Reflective Practitioners</td>
<td>0.56</td>
<td>0.56</td>
</tr>
<tr>
<td>Decision Makers</td>
<td>0.56</td>
<td>0.67</td>
</tr>
<tr>
<td>Global Citizen</td>
<td>0.56</td>
<td>0.59</td>
</tr>
<tr>
<td>Innovators</td>
<td>0.45</td>
<td>0.50</td>
</tr>
<tr>
<td>Critical Thinkers</td>
<td>0.45</td>
<td>0.53</td>
</tr>
<tr>
<td>Leaders</td>
<td>0.45</td>
<td>0.45</td>
</tr>
<tr>
<td>Creators of New Knowledge</td>
<td>0.42</td>
<td>0.50</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>0.37</td>
<td>0.42</td>
</tr>
</tbody>
</table>

*The priority has been assigned based on the Bristol Online Survey ranking.

The most substantial disparity between the high-priority attributes between the two groups is with ‘motivated self-starters’, which was placed considerable lower by the students, compared to the Stakeholders.
However overall there is a very good agreement between the top rated attributes, which is indicative of the progress made by the students towards a better appreciation of the desirable skills for their future profession, compared to earlier in the action research, as discussed in the previous chapter for the results from survey S1. There is also good agreement between the prioritisation from this study and the sentiment from the previous work by the programme committee in its ‘diamond 9’ exercise.

The responses to the Open Question for the Stakeholder survey ‘What other graduate attributes do you feel are important for this discipline/profession?’ are listed in Table 11.
Table 11 Stakeholder responses to the Open Question ‘What other graduate attributes do you feel are important for this discipline/profession?’

<table>
<thead>
<tr>
<th>Additional important graduate attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Able to prioritise tasks and organize time. Helpful attitude. Know the limits of the job role when necessary</td>
</tr>
<tr>
<td>2. Always willing to learn, and listen to advice from the pharmacist about how to improve things. Dealing with the public in a professional manner is very important. Technicians often the ones speaking directly to patients about their medication, have to have a nice manner, respect people’s privacy speaking to them away from the counter when necessary, be able to deal with all types of people, including not so friendly people!</td>
</tr>
<tr>
<td>3. An understanding of the skill mix available in the pharmacy team and a respect for other roles and responsibilities.</td>
</tr>
<tr>
<td>4. Business acumen is a large attribute desired by a lot of employers at present. The ability to recognise and seek out business development opportunities is key as Pharmacy is becoming more commercial.</td>
</tr>
<tr>
<td>5. Conscientious and confidentiality attributes required</td>
</tr>
<tr>
<td>6. Excellent attention to detail. This is critical to acquire before developing speed. Then ability to work under pressure and to multitask. Finally the wisdom to know when to ask for help.</td>
</tr>
<tr>
<td>7. Flexibility in role with a willingness to adapt to a variety of tasks</td>
</tr>
<tr>
<td>8. Friendly personality and positive attitude</td>
</tr>
<tr>
<td>9. Good communication skills, willingness and enthusiasm fused with knowledge and experience.</td>
</tr>
<tr>
<td>10. Highly organized, team player, attention to detail</td>
</tr>
<tr>
<td>11. Key attributes that I look for in a technician are team players who have an ability to work independently when required but always with the teams goals as a focus. They should be good communicators and always aware of their own limitations. A demonstration of willingness to learn at a level appropriate for their stage of learning is desirable.</td>
</tr>
<tr>
<td>12. Personal organisation - turn up on time, to the right pharmacy.</td>
</tr>
<tr>
<td>13. Team-working and communication are essential. Planning, managing and organising their workload, planning for and adapting to change would also be important.</td>
</tr>
<tr>
<td>14. The ability to work in a systematic way, but then to be able to raise questions whenever variances in demand occur, i.e. a sort of 360 degree flexibility!</td>
</tr>
<tr>
<td>15. They are very familiar with technology, Facebook, etc. They are IT savvy and can interpret and create Dispensary reports, including, purchasing reports, KPI'S, and some knowledge of how a business runs, including costs, margins etc. Also, they need to have wide OTC knowledge and not be afraid to recommend OTC products to patients. They need to be confident in going out to the front of the shop to meet people...not just to 'Hide in the Dispensary'</td>
</tr>
<tr>
<td>16. They need to have experience in the industry, strong concentration levels and strong information retention levels.</td>
</tr>
<tr>
<td>17. Time keeping/ time management Empathy Business minded</td>
</tr>
<tr>
<td>18. The only difference between a good technician and a great technician is initiative</td>
</tr>
</tbody>
</table>

Arguably, many of the above comments relate to the graduate attributes that have been prioritised to some extent or another, with communication skills, team-work,
collaboration and knowing the roles within the pharmacy, motivation and positive attitude to work all featuring in some guise in many of the comments. It is interesting that several of the comments refer to having business acumen, and yet ‘Entrepreneurs’ was the lowest rated attribute whilst ‘Innovators’ was also not highly rated. Perhaps the definition for Entrepreneurs; ‘A willingness to take risks, and to seek and identify opportunities to develop and apply an enterprising mind-set to new initiatives’ does not suggest the type of business acumen suitable for the level of a Pharmacy Technician, who by definition must always work under the supervision of a pharmacist and therefore cannot open a business in their own right, which is alluded to by the term Entrepreneur. The curriculum does take into account this need for the technician to see opportunities for example for link sales of vitamins and supplements with prescription sales. But perhaps more could be included, for example merchandising in Community Pharmacy and logistics, procurement and supply chain management in Hospital Pharmacy. Perhaps future reviews of the Programme could consider this, under a related graduate attribute of an ‘Intrapreneurial’ mind-set.

Another attribute that is alluded to in the above skills is accuracy in dispensing, and appears regularly in job advertisements for technicians. Although the Objective Structured Clinical Examination (OSCE) outlined in the Literature review may be useful in the longer term to develop this skill, it is not feasible to include such an initiative in the timeframe of this action research project. However, based on the success of such assessments in developing and evaluation of several key skills relevant to pharmacy (Napier et al., 2014), it could be considered in the future. This would also support the change of direction the role of the technician may take to include accredited checking task, as discussed earlier. The clear and strict guidelines and standard operating procedures to ensure that safety standards are maintained could be introduced to the curriculum and assessed for accuracy of dispensing during OSCE exams (Napier et al., 2014).

Such longer-term curriculum initiatives would compliment the initiatives that have already been introduced to the Higher Certificate in Pharmacy Technician Studies including the use of blog assessments for professional development on placement (Dunne & Ryan, 2013), as well as the short-term initiatives that have been introduced as part of this Participatory Action Research project to highlight
ethical awareness though debates, as outlined in the Implementation section of the Research Design chapter.
6 Findings and Discussion: Cycle 3 Reflective Assessment of Work-placement

The objective of Cycle 3 was to determine ‘What change if any in the quality of reflection occurs in comparison to previous years?’ The following chapter will discuss the outcome of the analysis of the blog assessments, and will consider if there is evidence to support the proposition of the main research question that emphasising graduate attributes would have a positive effect on the quality of reflection.

The control group comprised of 26 students and 78 blog sources, while the research group consisted of 29 students and 87 blog sources. For anonymity when using extracts from their blogs, the students have been assigned the codes CG1-CG26 and RG1-RG29 respectively. It is noteworthy that there is therefore more material in the research group assessments, and this must be taken into account in any analysis of the results. Whilst there is some numerical aspect to the analysis, it is not intended that the findings be analysed in any strict numerical sense. For example there will be no statistical analysis of the results, nor has the coding been analysed with regard to word count being an indicator of level of discussion in relation to any of the given topics. The data will instead be used to uncover broad trends in the assessments, to gain an understanding of any changes that may have occurred in the blog writings of the research group compared to the control group. This is appropriate owing to the qualitative nature of the study, as well as for robustness given the delimitation that only a random sample of the data has been double blind coded. This aligns to the ethical approach to the research, in line with the considerations outlined in the Research Design chapter.

The blog sources were individually coded, initially for the a priori codes of graduate attributes and reflection. Any reference to either code, whether explicit or implicit and at any level was coded using the NVivo software. Many references were coded to both categories, whilst many more were coded to one category only.
In the below sections, firstly the findings in relation to references to Graduate Attributes are presented. These will be discussed in terms of initial open coding according to the Codebook explained in the Research Design, and afterwards the coding-on into specific attributes will be considered. Extracts from the blogs will be included in the findings, and will bring context to the discussion. Results from queries in relation to the data will be outlined, to uncover broad trends and variances between each cohort.

Following the presentation and discussion of findings in relation to the Graduate Attribute coding, the references in the Reflection category will be similarly discussed. Finally, any trends that arise from the overlap of two the a priori code areas will be considered.

### 6.1.1 Graduate Attributes

The total references made to graduate attributes by the control and research groups combined, which amounted to 131 sources and 282 references, is shown in Figure 6.

![Figure 6 Overall references to Graduate Attributes](image)
It is clear that the most frequently alluded to attributes are communication and emotional intelligence. It is unsurprising that communication has been widely discussed, as it is a skill developed explicitly in the curriculum. All students pointed to communication as an important graduate skill generally, and particularly for pharmacy technicians (Table 6). Additionally, there was initially a high level of confidence in students understanding and appreciation of the concept of communications, as shown in Figure 4. On the other hand, the concept of Emotional intelligence was not one that the students were confident in their understanding off (Figure 4). However, the initial survey (S1) did indicate that students did appreciate the importance of aspects of emotional intelligence (Table 6), despite not being aware of the terminology. It is therefore not surprising that there is a considerable amount of discussion relating to it.

The next most frequent attributes referenced related to motivation and work related learner. The former is particularly noteworthy because it is the attribute that there was the greatest disparity in prioritisation by the stakeholders and the students (Table 10). It is possible that the participatory nature of the action research methodology, wherein students are aware of the outcome of the prioritisation cycle, have had access to the stakeholder comments from the open questions (Table 11), and have had an opportunity to consider that they themselves did not rank motivation as highly as future employers and professional technicians, may have had an influence. It may have stimulated them to reflect on this skill. To investigate this further, results from a query breaking the data in Figure 6 down into references to each attribute made by the research group and the control group is presented in Figure 7.
An examination of this data does indeed indicate a trend that there is a considerably higher volume of discussion relating to motivation in the research group blogs, by comparison to the control group. This is not to say that they have shown greater motivation and initiative whilst on placement, only that they have shown a greater inclination to reflect on it.

The trends indicated by the data in Figure 7 suggest that there has been little difference in references alluding to emotional intelligence or communication attributes between the control and research groups. However, there is a perceptible albeit small increase in references alluding to ethical behaviour, innovation, problem solving and critical thinking.

While these findings do suggest a greater awareness and breadth of attributes being reflected upon, returning to the description of employability by Hillage and Pollard (1998), it is also important that there is an ability to explicitly articulate skills and map their experiences appropriately to a future employer. It is interesting therefore to investigate to what extent the graduate attributes are being explicitly discussed, compared to implicitly. As described by the Codebook in the Research Design chapter, the open coding references to graduate Attributes were coded on into statements that were made explicitly or implicitly. Explicit
statements naturally included those that named the attribute directly as well as those where a skill development had been identified by the blog author and there was very obviously a reference to a graduate attribute development or demonstration. Examples of each type are discussed below. Implicit references were coded for when it was the researcher coding the blogs that identified the development or demonstration of a graduate attribute, as opposed to the blog author identifying it.

Figure 8 shows to what extent the statements of Graduates Attributes were made explicitly, compared to implicitly.

![Figure 8 Overall statements of Graduate Attributes](image)

As can be seen in Figure 8, the statements relating to graduate attributes have been made far more frequently by implicit insinuation, compared to overt statements related to skills development or demonstration. The difference between these two types of statements can be illustrated by reviewing references from each category.

For example, the following blog, which relates to increasing prices for medical card prescriptions, there is reference to graduate attributes as it is possible to identify emotional intelligence in the authors writing, but this has not been identified or elaborated upon in the blog:
‘Exasperated, the man said it was getting difficult for him to afford his medication each month. I sympathised with him and asked the pharmacist if there was anything we could do. The man appreciated this gesture and I was struck by how much it meant to him to save such a small amount [of money]. This would be of particular concern to me for people like old age pensioners. These people may be living on their own, and have very limited means. I would fear that, in an attempt to live on a very limited budget, these people would cut back on their recommended medication.’ [CG1]

In another instance of an implicit reference to graduate attributes in a blog relating to advising a customer on cessation of smoking, there is also implicit reference to emotional intelligence and communication, but again these have not been identified:

‘The stages of changes [of smoking cessation] are pre-contemplation, contemplation, preparation, action and maintenance. It was clear the customer was preparing and ready to take action. After discussing if the customer was a regular or non-regular smoker and how many cigarettes he smoked a day, I had a better idea of what would suit him best. I explained the gum should not be used less than 15 minutes after eating or drinking.’ [CG2]

Another example where communication skills have been demonstrated, but not directly referenced can be seen in the following blog relating to dispensing hospital prescriptions in the community pharmacy:

‘The pharmacist explained to me that the prescription was not brought in within the 24 hour limit. I informed the customer of this and she explained that she had not been informed of this by the doctor in the hospital. I informed the pharmacist and she agreed I could dispense the prescription for the patient due to the fact that there were only a few hours in the difference.’ [CG3]

On the other hand, examples of blogs to which the author has made explicit reference to the demonstration or development of a graduate attribute can be seen in below.
In this first blog, describing a situation where a customer had to be informed of potential dangers of medication interactions, there is explicit reference to graduate attributes:

‘I realise that I used my emotional intelligence to tell the lady there was a possible interaction but I saved her the stress by not telling her how harmful the interaction may be.’ [RG1]

Whilst in the following example relating to the sale of near out-of-date stock, there is a clear indication of reference to ethical behaviour. Even though ‘ethical’ is not mentioned directly, it is still an explicit reference to the demonstration of a skill:

‘As a friend I would rather have said nothing to the Pharmacist so that the other technician didn’t get in trouble but as a technician I felt that I couldn’t knowingly hand out almost expired medication. To me, this was a moral issue. Should I look out for my friend’s interests even though it meant going against the store’s code of conduct? I knew that my job as a technician came first, even if the other technician was annoyed over my actions. I had to put personal feelings aside and go with what I knew was right. [RG2]’

To understand if there is any noticeable difference in blogging behaviour in relation to the manner in which graduate attribute statements are being made, the results of a query that breaks the explicit and implicit references up into the research and control groups is shown in Figure 9. This data shows that the control group’s statements are mostly made implicitly, whereas the research group are much more likely to make explicit statements with these being made as frequently as implicit ones.
This suggests that the research group appear to have developed a greater capacity to be able to frame an experience in terms of skills development and thus refer to it explicitly in their reflective writing. Presumably, as per the findings for the increase in the breadth of skills being referenced (Figure 7), this increase in likelihood for explicit reference is also as a result of the action research project that placed a greater emphasis on graduate attributes including activities to support their development, compared to the control group’s experience.

To investigate this still further, the explicit references were further coded depending on whether they were actually ‘named’ or whether the attribute was ‘unnamed’ despite the direct intimation to the attribute in the reference. A query to investigate if there was a trend in the behaviour between the research and control group in relation to the likelihood that they will expressly name a skill being developed was run, and the results are shown in Figure 10.
This query shows a very obvious trend, specifically that the control group’s explicit reference to skills development is not concurrent with the overt use of the name of the graduate attribute, whereas the opposite is true for the research group, who have made considerably more references where skills have been transparently named.

To gain a more complete understanding of the types of attributes being explicitly referenced by both groups, a series of queries were run which catalogue the data in Figure 9 according to individual attributes.

As has already been elaborated above (Figure 7), communication and emotional intelligence skills are most frequently discussed by both groups, and can be seen below in Figure 11 and Figure 12 respectively, they have most commonly been implicitly insinuated.
Figure 11 Communication reference statements by research and control group

Typical implicit references to communication are shown below, and really reflect the student retelling of the day to day events of the pharmacy which involve their interaction with customers, and other members of the pharmacy team:

‘Just to make sure that it would be suitable with the antibiotic I double checked what I was giving to the girl by telling the pharmacist what the problem was and what I suggested for her to take.’ [CG4]

‘I told him that a generic version of a medicine may be a different size or shape, have different colours, flavours or combinations of non-active ingredients compared to the original product, but that none of these differences affect the way the medicine works.’ [CG1]

Whilst characteristic explicit references include the following, which fall into named and unnamed categories respectively:

‘While looking back on the situation I realise how important communication skills are especially when dealing with the elderly as things need to be explained clearly and examples must be shown if necessary’ [RG3]
‘I am strongly of the opinion that as healthcare professionals, we need to know the audience to whom we are delivering advice to. It is important to alter the way you deliver information to each individual.’ [RG4]

It is apparent that the statements that have been made explicitly in these typical cases also appear to be more analytical in nature. It will be therefore be interesting to see if this pattern continues, and to what extent there is overlap between incidences of critical reflection and explicit attributes later in the findings.

**Figure 12** Emotional intelligence reference statements by research and control group

Examples of typical implicit references to emotional intelligence are:

‘Sometimes, I try to envision what it must be like for them [methadone patients] living with this addiction every day and still having to fulfil tasks, such as raising children and arriving at their places of employment as many of these patients work and have respectable jobs.’ [CG5]

Whereas a similar reference to the one above, but in the explicit category is:

‘I feel that this situation allowed me to develop some emotional intelligence. I could understand why the customer [methadone patient] felt the way he did.'
Perhaps he has felt he has been treated differently by people because he was a drug addict?’ [RG5]

Here the student's ability to monitor their own and others' emotions, to discriminate among them and to use that information to guide their thinking and actions has been demonstrated, as defined for emotional intelligence by Mayer and Salovey (1993). While the study by Por et al. (2011) into the relationship between emotional intelligence, and stress and well-being involved student nurses, and this study relates to pharmacy technicians who are in a different and probably less stressful environment to nurses, they nonetheless experience challenging situations such as dealing with recovering addicts as outlined in the examples above, and also armed robberies and other criminal activity such as prescription forgery. Continuing to support discussions and reflection as a pedagogy to develop this learned skill should assist in producing emotionally-competent graduates (Horton-Deutsch & Sherwood, 2008). Additional deliberation on how reflection can be further utilised to enhance the development of emotional intelligence could be considered in curriculum review such that students are better prepared to actively reflect on this attribute while on placement. Perhaps early stage volunteering or community based learning would provide such an opportunity.

The next attribute to be considered is motivation, and the query to identify the breakdown by type of reference statements to it by each group are shown in Figure 13. This shows a considerably higher rate of explicit discussion of motivation by the research groups, which as discussed previously, may be related to the disparity in prioritisation of it by the students compared to the stakeholders. Much of the discussion related to students showing initiative, for example:

‘I was pleased with how I used my own initiative to take matters into my own hands and competently handle it. When the pharmacist who had dispensed the medication came back I told him about what happened and he said he was happy with what I did.’ [RG6]
Figure 13 Motivation reference statements by research and control group

Whilst it is encouraging to see students reflect on incidents where they could demonstrate motivation, it is important to recognise that aspects of motivation, especially intrinsic motivation, are linked to personality, which is enduring over time, although environment plays a role (Boudreau et al., 2001). Assisting students to identify their personality type, for example using the extensively validated NEO Personality Inventory (Costa & McCrae, 1992) could consequently provide them with a more informed decision about the most suitable career-path, including in this case whether to opt for hospital or community pharmacy placement. This is turn could lead to improved job-satisfaction, which is considered important for extrinsic motivation (Boudreau et al., 2001). The DIT careers service has extensive resources, including self-evaluation Psychometric profiling tools, and MAPP Self-Assessment of motivation links, which students could be encouraged to utilise for personal and professional development (2015a). As evidence by Pierce cited in Watts (2006) suggests that students do not maximise the opportunities to develop their careers, it may be important to have this as an assessed component of the curriculum. Currently career management is not integrated into the curriculum, is therefore not assessed, nor does it fall under Quality Assurance. Watts (2006), discussing career management and quoting Yorke and Knight (2006), cautions the ‘impact will be muted if the service lacks a curriculum presence’. Watts (2006) has detailed advice on how career management can be integrated into curriculum, and includes active learning.
experiences such as short ‘buzz-group’ discussions within lecture-group sessions, reflective assessments, use of portfolios, direct assessment and peer assessment of CVs, and career action planning including self-audits (e.g. of personal and career management skills), role-play (e.g. recruitment personnel, mock interviews), card-sort exercises (e.g. devising a sequence of decision-making activities) and ‘Snowballing’ activities which begin with pair-based work, progressively combining to produce a larger-group response to the challenge set. Some of these have been in place in the curriculum, such as reflection, role-play (albeit more pharmacy based scenarios), and the activities introduced during this action research (self-assessment and use of the snowballing technique in the ethical debate). But there is scope to increase these activities, which will assist career learning development, as well as enhancing opportunities to develop the remaining attributes described below in the findings. Future review of the programme should consider how to improve the students’ experience of career management learning, and how it can be integrated into the curriculum. Watts (2006) explains that a curriculum model, wherein the careers service is either involved in teaching, or acts as consultancy service designed to support academic departments with incorporating employability and career management skills, is one way the careers service can be utilised. Given the resource implications of the former, a consultancy service is more realistic at the moment in DIT, and the programme team can investigate this further.

Additionally, highlighting to students the importance to employers of a positive attitude to work as reflected in the comments in Table 11 above, as well as providing early opportunities to make choices in the curriculum to allow students to choose experiences that suit their personality could improve their overall motivation. Options to participate in volunteering or community based learning could provide suitable choices.

Work-related learning was another attribute that a query demonstrated a high level of explicit discussion in the research group, compared to the control group (Figure 14). In this case the latter group was also quite inclined to discuss this in an explicit way. Much of the discussion in this area related to the development of accuracy skills in dispensing while on placement, for example:
‘Overall I am happy about my progress in improving my accuracy skills as they are key to being a successful pharmacy technician’ [RG7]

However, there were also several examples of the skill being discussed in a more named sense, for example in relation to hospital weekly cross-departmental discussion meetings:

‘It is my observation that these meetings are very well attended demonstrating an interest in on-going, continuing professional development.’ [RG8]

![Figure 14](image)

**Figure 14** Work related learner reference statements by research and control group

The students of the programme are encouraged to attend at least one annual Pharmacy Technician professional conference (IACPT or NAHPT) during their course. These conferences are a means for formal CPD for employed technicians working in the related areas. Attendance provides students with an opportunity to hear experts speaking about matters of concern to the profession. However attendance is currently not integrated into the curriculum. This could be considered to ensure that all students have an opportunity to prepare for placement, but also to provide material for in-class discussion about CPD. Additionally, the websites for the associations advertise CPD events (including one run in 2012 in tandem with DIT that was attended by students at the time). While students can attend, it is again not integrated, and this could also be
considered in the future so that all students are accustomed to CPD and life-long learning before they graduate. This concept was captured by one student in her blog:

‘I most definitely feel as healthcare professionals we have a duty to Continuing Professional development. There is always new information being released about drugs and it is our job to portray this information to the patients’ [RG4]

Again, the careers service can play a role in consultancy to develop a life-long learning mind-set in students, to ensure any curriculum innovations are not limited to learning and to the present, but have a future orientation that incorporates work and career too (Watts, 2006).

The students generally, and particularly those in the control group, have discussed the remaining graduate attributes considerably less frequently, as was clear in Figure 7.

Nonetheless there were some very insightful comments in the blogs relating to the remaining attributes. A selection of these have been presented below, and the results for queries to reflect how the statement types compare between the two groups under consideration are shown in Appendix 10.

While collaboration was not named as a skill by any of the control group, a small number of references clearly indicate collaborative working, such as:

‘I wrote about this topic as I find it a very interesting task in the pharmacy. It includes ordering stock, maintaining stock levels and talking directly with the dietician and clinical nutritionist.’ [CG6]

Whereas there were several named explicit references to it by the research group, for example a reference similar to that above also discussed collaboration, but this time it is named:

‘I felt I communicated well with the dieticians and pharmacist and worked well under the pressure and multi task well. I could have saved a lot of time had I asked for help. I could have collaborated with my colleagues to get back on schedule rather than allowing things to snowball. This shows how important it is to work as a team and not to take on too much too soon.’ [RG9]
This is yet another example where the student has been actively articulating the development of a skill, and this adds to employability in terms of that discussed by Hillage and Pollard (1998) and Toland (2011).

The research group also more often discussed the related skill of teamwork explicitly, although the numbers of references to this are small, as shown in Figure 7.

Indeed, one blog in particular has captured the essence not just of the concepts of teamwork versus collaboration, but indeed of the participatory action research project broadly:

‘At the start of the college year we worked on a project to decide and assess what the most important graduate attributes were for future pharmacy technicians. This list was then sent around to those in the profession to get their opinion on what they felt a good technician should be. What was valued highly on this list was a ‘Collaborative Worker’. The definition for this is a, ‘Willingness to pool resources with others and understand the benefits of a collegiate working environment to reach a common goal.’ Until recently I found it hard to see the difference between a collaborative worker and an active team player (Someone that takes full participation in the team, keeping the team’s interests in mind and focusing on the end goal). However, within the past week the differences have become much clearer for me…..’ [RG2]

The blog continues to discuss a situation whereby the pharmacy’s very experienced technician employee went on annual leave, leaving the student technician to work alongside a less experienced employee. The blog details the different skillset both had based on their relative previous experiences, and also the anxiety both felt to maintain high standards in the busy pharmacy.

‘It didn't take long before both of us felt the pressure and stress but we realised that by working together and pooling our knowledge, we were a much more productive team. For the rest of the week we have worked in partnership with one another….I see now that I may have been relying too much on the senior technician to help me. Without her there this week though, I have realised that I am more capable than I thought. Now that I have seen for myself how beneficial
being a collaborative worker is in the pharmacy, it has made me think about the other graduate attributes that were voted most important. I have been looking for how I can apply and develop them during my time there. Is anybody else thinking about these attributes or have examples of where they would apply in our work?"

Although few blogs considered the action research project as a whole to this extent, there was certainly a perceptible influence of the project in several blogs. It is important also to remember that the students have access to read all blogs of their peers, and also to comment to one another, and to receive feedback comments from the tutor (which are also available for all to read). While an analysis of the peer interactions, or the feedback on blogs, is beyond the scope of this project, as an example for context the tutor feedback comments for this blog show that the entire class can benefit from reading blogs, but also be reinforced by the tutor feedback comments given:

In relation to her initial confusion over collaboration versus teamwork the tutor comment was:

‘You aren’t alone on this. I can see from reading your blog, that you realise that collaboration requires different strengths to be pooled, whereas team-work could be considered the combined work of several people to get a job done, even if they have the same skills.’

The remaining three attributes were not discussed at all by the control group, and whilst not being a very large area of discussion for the research group, nonetheless show that the cohort have been influenced by the action research project and the stakeholder survey. Blogs included reflecting on examples of solving problems and innovation in the pharmacy, including trouble-shooting software, and redesigning standard operating procedures to make practice more efficient and reduce potential inaccuracies in dispensing. This was a perceptible change from previous years, when blogging predominantly dealt with singular critical events and the student’s immediate response, as opposed to ongoing practice.

Research group blogs also included some references to ethical issues in the pharmacy, and how these were, or could be, dealt with. These include dilemmas
over near out-of-date stock, being aware of the role of the technician and the law
in regard to working under supervision, obeying codes of conduct of the
workplace, and dispensing palliative care medication without a prescription.

Overall, the findings in relation to graduate attributes show that the students have
been influenced by the project to improve their awareness and articulation of their
skills. All students have had the opportunity to reflect and find evidence for the
development of their own skills, but also to discuss and debate with their peers
through the blog commenting forum, which also provided them with additional
peer examples which they can learn from and use to frame their own experiences
in a similar fashion.

In the next section of findings, the coding for levels of reflection will be
considered generally, and following that any influence of discussion of graduate
attributes linked to level of reflection will be explored.

6.1.2 Reflection

As discussed in the literature review, it is well acknowledged that reflection is key
to maximising the benefit from experiential learning, including work-placement.
Evaluating levels of reflection, from non-reflective thoughtful action, through to
reflection, and on to critical reflection has been carried out in this project by
following the methods of Wallman et al. (2008). References have been
categorized only to a level that has been shown in several inter-rater reliability
studies to be consistently reproducible, as discussed in the Research Design, and
Literature Review chapters. To validate this approach for the current study, an
independent academic colleague with a background in science, as well as
scholarship in Teaching and Learning, was furnished with a sample of anonymous
blogs, an example of a coded blog, and the NVivo Codebook shown in the
Research Design chapter, and was asked to code the sample. A comparison of this
sample with the original coded blogs showed a high degree of similarity, with
occasional differences, but not at a level that would compromise the reliability of
the results at the level they are being interpreted for this study, namely that broad
reference statements are being categorised but not quantified in terms of word
count or any other measure. An example of the sample and originally coded blog is shown in Appendix 9.

To gain an overall appreciation of the level of reflection shown in the entire set of blogs analysed for this study, the 367 references have been grouped according to the categories Thoughtful Action (non-reflection), Reflection, and Critical Reflection (Figure 15).

![Pie chart showing breakdown of reflective references by category]

*Figure 15 Breakdown of reflective references by category*

This shows that there is a higher amount of non-critical reflective references, compared to critical reflection. This is unsurprising, because anecdotal evidence based on several years of assessing blog reflective writings suggested that the level of critical reflection needed to be increased so that students could maximize the benefit of experiential learning and consequently reach ‘transformative learning’. This, as suggested by Kalantzis and Cope (2008) in Ryan (2011), is a socio-cognitive process, involving experiencing new ideas, contexts or behaviours and making sense of them in light of what we already know or have experienced, by identifying and theorising about them in relation to our existing schemas; analysing their underlying features and how they sit within the broader context (for example social, cultural, professional), so that we are able to apply this new knowledge in culturally recognisable or creative new ways in different contexts.
The teacher has a pivotal role in developing learning that includes reflective analysis in ways that are appropriate for the disciplinary context (Ryan, 2011).

There are two aspects to consider when aiming to improve reflective assessments, namely the content of the reflection and the structure of the reflective writing. In earlier iterations of this project, as outlined in the Context and Rationale chapter of this study, measures and resources to support reflective writing were discussed. Aspects of these are aligned to the conceptions of Ryan (2011), who has outlined practical supports to enable teachers to assist students with the discourse of reflective writing. In the reflective writing workshop, exemplars are given and matched to an assessment rubric (Appendix 8). Students are encouraged to consider different versions of blogs that relate to the same work-placement scenario. They are also given a schematic to assist with the text types or linguistics of reflection, and to structure reflective accounts. These were created by Portsmouth University (Hampton) and align to the description of text types (Table 12) and linguistic resources (Figure 16) as described by Ryan (2011), albeit they have been simplified for students.

<table>
<thead>
<tr>
<th>Text type</th>
<th>Elements evident in academic reflection</th>
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<tr>
<td>Recount</td>
<td>An experience or event is re-told using temporal indicators, thoughts and initial reactions</td>
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<tr>
<td>Description</td>
<td>Technical vocabulary of the discipline is used to describe the event, compare/contrast to other similar events or experiences</td>
</tr>
<tr>
<td>Explanation</td>
<td>Evidence, appraisal resources and cause/effect indicators are used to reason and explain how and why the event happened the way it did</td>
</tr>
<tr>
<td>Discussion</td>
<td>Hypothesise about different possible responses, actions and future practices</td>
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</table>
These resources were used for both the control and research groups, therefore one could argue that the students are being equally and reasonably well supported in the linguistics and language of reflection, thus any change in level or quality of reflection is not attributed to this aspect.
Regardless of the outcome of the remaining findings of this study, it is noteworthy that there is some very useful addition practical advice offered by Ryan (2011) to improve academic reflective writing, for example designing activities that involve students examining initially exemplary reflective texts, and ultimately students’ own blogs, to identify key linguistic features. These have been included in Appendix 11 and would be useful in future revisions of the reflective writing preparatory workshop, or as a student resource. However, for the time being, it can be considered that any change in level of reflection has more likely been brought about by the action research and its impact on the content of reflection, as opposed to a spontaneous improvement in the structure of writing.

In the next phase of analysis, a query was run to determine if there was any difference in level of reflection between the control and research groups, and the results are shown in Figure 17.

![Figure 17](image)

**Figure 17** Breakdown of reflection by category between research and control group

These results show that there appears to be an improvement in the quality of reflection, with considerably higher levels of critical reflection in the research group, compared to the control, and somewhat lower levels of thoughtful action.
Ryan (2011) explains that students’ communicative skills in reflection can be developed through group discussions, manipulation of materials in response to a stimulus, simple role-plays or simulated interviews. These can refine reflective skills in a supportive environment, and can lead (amongst other outcomes) to more sophisticated written reflective essays. It is possible that the research group have become more forthcoming in their reflections though the earlier cycles of action research, including discussions to define the graduate attributes, participation in the oral debate, and the pre-workshop graduate attribute mapping exercise.

Returning to the main research question of this project, which was to establish the effect of activities to promote awareness of graduate attributes development on the quality of reflection displayed in student pharmacy technicians’ reflective assessment blogs compared to previous years, it is interesting at this point to investigate if the apparent increase in levels of critical reflection in the research group (Figure 17) can be linked to the increased levels of explicit discussion of the graduate attributes shown earlier in the findings to be the case for this group (Figure 9). The result from a query to determine the level of overlap between the critical reflection references and the graduate attributes statement references is shown in Figure 18. This shows that of the 78 critical reflection references made by the research group, 45 were also coded to named explicit graduate attributes. The breakdown of this by attribute is shown in Figure 19.
Figure 18 Matrix query of Critical reflection references: relationship between explicit and implicit reference statements by control group and research group
Figure 19 Matrix query of Critical reflection references: relationship between explicit and implicit reference statements of individual graduate attributes by control group and research group

An example of this overlap is shown in the following blog extract:

'Reflecting back on this situation, I can see why I felt stressed and my levels of concentration were low as I was put under pressure to perform a task in a short amount of time in a busy and crowded dispensary, knowing the lady is waiting. Since this incident, I have learned to manage my time no matter what the situation in order to prevent errors such as this one and ask for help if I feel under pressure completing a task. It also shows the necessity for accuracy and organisation in order to avoid error. I also wish I had used better communication skills, explaining to the lady that she should collect her medication the following day which would of gave me time, space and concentration to prepare it
correctly. Due to this incident causing a lot of stress and disappointment, I have learnt a lot from it and my mistakes.’ [RG10]

This extract shows critical reflection that has been related to personal development, and describes how future action can be altered based on reflection on the experience and on the graduate attributes, as well as competencies, required to adequately complete the task in the workplace. It also shows the importance of work-placement, as this scenario simply could not be replicated in a college environment using the previously mentioned OSCE assessments. This extract is typical of many in this category, whereby the students have been able to enhance and deepen the reflection of a workplace experience or event by framing the experience in terms of skills, as opposed to knowledge or competencies. Arguably, this change has been brought about by the action research project that has served to raise awareness and improve student articulation of skills, as well as highlighting to them the importance of these skills for their employability.

Having now reviewed the findings from the analysis of the reflective blog assessments, as well as the findings from earlier cycles of participatory action research, the following chapter will draw overall conclusions from the study, and arising from these, make recommendations for further work.
Conclusions and Recommendations

The conclusions from the findings of the Participatory Action Research project that was carried out in the School of Food Science and Environmental Health in 2014/15 with the students from the Higher Certificate in Pharmacy Technician are outlined below, according to the main research aim and objectives. Based on these, the recommendations for further curriculum review and implications for future practice have been drawn.

The findings show that at the onset of this project the level of understanding and confidence to discuss graduate attributes was low, and this impacts on student employability. The activities involved in the first cycle of action research were successful in promoting student awareness of graduate attributes development. As future students will not repeat the activities from this action research project, consideration needs to be given on how to integrate replacement activities. Examples could include group-based creation of definitions based on graduate attributes resources, and then a comparison to the DIT definitions, or simple exercises for matching of definitions to graduate attributes terms. It is likely that such activities could also be incorporated into other programmes within DIT and would equally serve to improve the baseline awareness of graduate attributes in the student body.

Through the stakeholder survey the most relevant graduate attributes for DIT pharmacy technician students have been prioritised as excellent communicators, active team players, collaborative workers, motivated self-starters, emotionally intelligent, ethical, work based/work related learners and digitally literate. These align quite well to the previous ‘diamond 9’ exercise carried out by the programme committee. The main disparity between this list and that which the students prioritised is with the attribute ‘motivated self-starter’. From the stakeholder survey open question comments, business acumen is a desirable attribute despite ‘Entrepreneurial’ not being highly prioritised. Future reviews of the Programme could consider this, under a related graduate attribute of an ‘intrapreneurial’ mind-set. The prioritised list has enabled a graduate attributes
statement to be developed for inclusion in the Programme Document. This will
fulfil this aspect of the DIT compact to the HEA for the Pharmacy Technician
programme, and also somewhat bring the development of graduate attributes into
the DIT Quality Assurance system. A similar approach could also be taken in
other programmes in the Institute, as this study has shown the positive influence
of highlighting the employer perspective on prioritisation of graduate attributes on
student work-based learning. This study has introduced some useful learning
activities such as an ethical debate and self-evaluation exercises to help develop
certain graduate attributes. Discussion at teaching-practice dissemination events,
as well as programme team meetings, about the role of such activities in
developing and assessing graduate attributes may provide others in the Institute
with ideas upon which to base similar activities elsewhere in other programmes.
However there is also scope for the Pharmacy Technician programme team to
reconsider the entire curriculum at modular level in terms of development of
graduate attributes from the earliest stages or the programme. This will better
ensure the quality of graduate attribute learning outcomes, and will require a
programme team based outlook to providing ample opportunities for practice,
assessment and peer- and tutor-feedback in developing attributes in a program-
wide approach. For example, OSCE exams and volunteering/community-based
learning may prove to be useful. Students need to be supported to become aware,
and take ownership of, these skills through, for example, monitoring and
recording skills developed in a portfolio. An e-portfolio would provide an ideal
vehicle for this. Additionally, consideration of how the DIT careers service can
assist with career management development should be prioritised. Given the
resource implications, a consultancy service and provision of resources is
probably the most realistic, and the programme team should investigate this
further. In order to embed career learning in the curriculum more widely, it would
be valuable for the Institute to consider how this could be resourced adequately so
that every programme in the Institute can avail of incorporating career
management into the curricula, and hence bring this into the quality assurance
system. This will require discussion in relation to the role of the careers service in
the more traditionally academic arena of assessment and feedback.
The analysis of the reflective blog assessments shows that there has been a change in the nature of reflection compared to previous years. There has been a substantial increase in the breadth of attributes being reflected upon, with communication, emotional intelligence, work-related learner, and motivation discussed most often. Additionally, these have been explicitly identified considerably more frequently as part of the reflective process compared to previous years. This has served to provide students with suitable examples and experience in articulating their skills, which should enhance their employability. The participatory nature of the action research methodology, wherein students were aware of the disparity in prioritisation of ‘motivation’ may have stimulated them to reflect on this skill particularly.

On the whole, the quality of reflective writing has improved with a considerable increase in critical reflection relating to personal development and consequences for future action. This has often arisen because the students have been able to enhance and deepen the reflection of a workplace experience or event by framing the experience in terms of skills, as well as knowledge. Arguably, this change has been brought about by the action research project which has served to both improve student articulation of skills as well as highlighting to them the importance of these skills for their employability. The nature of the blog assessment allows students to share experiences and application of knowledge through reading and commenting on each others blogs, however the research group have had additional opportunity to discuss and debate with their peers the development of graduate attributes and learn from sharing suitable examples that demonstrate these.

Further support to identify key linguistic features of high quality reflection should be included in future preparation for academic reflective writing, and this should be included at an earlier stage in the curriculum. It is anticipated that the overall curriculum review that is now required, to include opportunities to develop, be assessed and document experiences relating to graduate attributes from the earliest stages of the programme, for example in an ePortfolio, will provide an opportunity for this. Additional activities that involve students examining
exemplary reflective texts that also demonstrate critical reflection through consideration of graduate attributes should be included in the work-placement preparation workshop.

Overall, this action research project has been quite successful in demonstrating that activities to promote awareness and develop graduate attributes can improve the quality of reflection displayed in work-placement assessments. Future work to further investigate the link between graduate attributes development in a curriculum and high quality reflection on work-placement could involve another cycle of action research by analysing work-placement blogs from students who have participated in an ePortfolio module in advance of work-placement. Also, expanding the research to another programme and improving the reliability of the analysis through the employment of a second independent coder could be considered.
References


Costa, P. T., Jr., & McCrae, R. R. (1992). Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor (NEO-FFI) Inventory professional manual: Odessa, FL: PAR.


technicians. Research in Social and Administrative Pharmacy(0). doi: http://dx.doi.org/10.1016/j.sapharm.2014.12.005


Appendix 1 A Categorization Scheme for Assessing Pharmacy Students’ Levels of Reflection During Internships (Wallman et al., 2008)

6. Non-reflection: Habitual action. Habitual action is a unconscious act that takes place without thought and can be performed at the same time as another act. A description of an act performed without thought or having to focus could be, for example, writing using a keyboard (for a skilled typist). A description of the course of events can be categorized as habitual action. For example: “At first, I received the prescription, then I registered it and, finally, I handed over the drug to the customer, while I gave him/her information.”

5. Thoughtful action: Thoughtful action draws upon existing knowledge. The starting point lies in previously existing knowledge, and choices between different alternatives regarding how to perform the task are made either unconsciously or not at all. Why a certain choice is made is not questioned and no interpretation is made. No thought is given to the consequences of the act except according to the previously learned action. An example of this is a description of communication with a customer that corresponds totally to existing theoretical knowledge without evaluation of different options. ‘If a customer comes into the store angry, it is important not to get angry yourself’.

4. Introspection: Introspection refers to thoughts about oneself, one’s own thoughts or feelings about performing a task. There is no comparison between the actual task and/or one’s previous experiences, nor are there any thoughts as to why these feelings occur or what they might lead to. An example of this is a description of how it feels to learn something, or how the student feels in a counselling situation. ‘An angry customer came into the pharmacy, and that felt terrible’.

Reflection. The definition of reflection as it is used below, is that a situation is identified in relation to an actual experience. This problem must somehow be analysed in order for the task to be executable. Previous knowledge is used in the specific situation and is questioned and criticized when necessary.

3. Content reflection: Content reflection pertains to what one perceives, thinks, or feels, or how one acts when doing a task. There should be a questioning or an
interpretation of behaviour in order to be categorized as reflection, otherwise it is most often categorized as ‘5. Thoughtful action’. Content reflection, on the other hand, is based on a person’s previous knowledge or a previous experience and the person consciously thinks of what he/she does in order to solve the actual problem. They do not, however, reflect upon why the action taken works or how their own behaviour developed. What effect the thought, feeling, or act may have should be discussed. For example, ‘When I meet an angry customer, I smile to get a positive reaction in return. It’s usually easier that way’.

2. Process reflection: Process reflection refers to how one performs the functions of perceiving, thinking, feeling, or acting, and to an assessment of how effective the performance is. There should be a proposal for, or an interpretation of, behaviour for a categorization as process reflection. For example, a person smiles to solve the problem, but also thinks further on how he or she thinks it might work out. They also consider how a kind reception from another person can reduce their own irritation. Reflection of process can also contain reflection of how they feel and act themselves when they meet the angry customer, and how this is considered as a problem, as well as how they handle their own feelings. One’s thoughts and beliefs about how the thought, feeling, or act has an effect should be discussed in addition to how others apprehend the act. For example, ‘When an angry customer enters the pharmacy, I often feel that I easily become irritated myself. I know that this won’t improve the situation, so I try to answer with a smile to calm the customer. Most often the customer is not annoyed with me, rather it is the waiting time or something completely different. To answer with a smile is often nicer and I don’t gain anything from getting annoyed myself.’

1. Premise reflection (Theoretical reflection): Premise reflection relates to why one apprehends, thinks, feels, or acts the way one does and the consequences of that existing knowledge sets the framework for how one acts in different situations. This should include an analysis of the whole situation/problem; ‘what’ and ‘how’ should be put into context. Consequences should be considered so that they can be included in a deeper understanding or reinterpretation of the problem. Alternative methods should also be considered, often leading to questioning of prejudice based on a theoretical reasoning. This could lead to a reinterpretation of the situation so that the starting point is different the next time the same kind of
problem occurs, and thus the action becomes different. This can be very hard to identify in written essays; the behaviour must be controlled the next time it happens. For example, ‘When an angry customer enters the pharmacy, I often feel that I easily become irritated myself. I know that the situation won’t be improved by this, so I try to answer with a smile to calm the customer. Most often it’s not me he or she is annoyed with, rather it is the waiting time or something completely different. To answer with a smile is often nicer and I don’t gain anything from getting annoyed myself. I have tried different alternatives and when I get annoyed it’s better to get help from someone else. This takes time, though. However, I have to make sure not to take this personally and let it affect other things that I do and so on. .’.
Appendix 2 Survey S1

Survey S1: Initial consideration of graduate attributes

Name:

List below all the skills and attributes you think employers will look for in third level graduates:

Which skills do you think would be important for a pharmacy technician?
Appendix 3 Survey S2

Survey S2: Initial definitions of skills and attributes

Name:

Please provide a definition, some keywords, or brief explanation of what the following skill or attribute means to you. Tick the box which best describes your ability to discuss this skill, for example at a job interview

1. Global Citizen

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Very confident | Quite Confident | Not very confident | I don’t know

|               |               |                   |                 |
2. Ethical

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3. Motivated self-starters

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4. Excellent Communicators

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5. Innovators

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6. Collaborative workers

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7. Entrepreneurs


8. Leaders
9. Critical Thinkers

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10. Problem Solvers

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11. Creators of New Knowledge

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12. Decision Makers

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13. Emotionally Intelligent

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14. Active team players
15. Strategic thinkers

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16. Resilient

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17. Disciplinary Knowledge

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18. Work based/work related learners

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19. Reflective Practitioners

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20. Digitally literate

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Are there any skills from your original list that you believe are missing from this list (i.e., just don’t seem to fall into any of those listed above), which we should include in our survey to employers of pharmacy technicians?

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Others:
Appendix 4 Stakeholder survey
Appendix 5 Graduate Employability Indicators Employer Survey

Graduate Employability Indicators Employer Survey

Dear Employer

We are contacting you because our records indicate you employ graduates of the **Bachelor of Example**.

We would like to know your views on:

- the capabilities that count for new graduates’ early professional success in professions related to this degree and
- the extent to which you think new graduates generally demonstrate achievement of these capabilities.

Your feedback will be used to help us better prepare our graduates to meet industry and professional needs. You will not be identified in any way in any publications or data arising from this survey. Your participation in the survey indicates your consent for your anonymous feedback being used in this way.

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<th>Item</th>
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<tr>
<td>1. What is your position within your organisation?</td>
<td>Executive Manager&lt;br&gt;Middle Manager&lt;br&gt;Owner of a small to medium enterprise&lt;br&gt;Human Resources Officer&lt;br&gt;Other (please specify)</td>
</tr>
<tr>
<td>2. What type of organisation do you work in?</td>
<td>Small to medium enterprise&lt;br&gt;Public sector&lt;br&gt;Large private sector enterprise</td>
</tr>
<tr>
<td>3. Is your organisation located in</td>
<td>Australia or New Zealand&lt;br&gt;Asia&lt;br&gt;Africa</td>
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<tr>
<td>Sector</td>
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<td>-------------------------------------------------</td>
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<tr>
<td>Agriculture, Forestry and Fishing</td>
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<tr>
<td>Mining</td>
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<tr>
<td>Manufacturing</td>
<td></td>
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<tr>
<td>Electricity, Gas and Water supply</td>
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<tr>
<td>Construction</td>
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<tr>
<td>Wholesale Trade</td>
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<tr>
<td>Retail Trade</td>
<td></td>
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<tr>
<td>Accommodation, Cafes and Restaurants</td>
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<tr>
<td>Transport and Storage</td>
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<tr>
<td>Communication Services</td>
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<td>Finance and Insurance</td>
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<tr>
<td>Property and Business Services</td>
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<tr>
<td>Government Administration and Defence</td>
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<tr>
<td>Education</td>
<td></td>
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<tr>
<td>Health and Community Services</td>
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<tr>
<td>Cultural and Recreational Services</td>
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<tr>
<td>Personal and Other Services</td>
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</tbody>
</table>

5. What is your gender?

<table>
<thead>
<tr>
<th>Gender</th>
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<tbody>
<tr>
<td>Male</td>
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<tr>
<td>Female</td>
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<td></td>
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<td>---</td>
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<tr>
<td>6. What skills, attributes and personal qualities do you consider to be the most useful for new graduates in this field?</td>
</tr>
</tbody>
</table>
7. Which (if any) skills, attributes and personal qualities of new graduates would you prioritise for improvement? [Insert comment]

8. For each of the following, please register one answer in section A and one answer in section B.

<table>
<thead>
<tr>
<th></th>
<th>A. To what extent do new graduates generally demonstrate each of the following?</th>
<th>B. How important do you think each of the following is to the employment success of new graduates of this degree?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very little</td>
<td>To some extent</td>
</tr>
<tr>
<td>Work-related knowledge and skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing clearly and effectively</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking clearly and effectively</td>
<td></td>
<td></td>
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<tr>
<td>Thinking critically and analytically</td>
<td></td>
<td></td>
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<tr>
<td>Analysing quantitative problems</td>
<td></td>
<td></td>
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<tr>
<td>Using computers and information technology</td>
<td></td>
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<tr>
<td>Working effectively with others</td>
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<tr>
<td>Learning effectively on your own</td>
<td></td>
<td></td>
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<tr>
<td>Understanding people of other racial and ethnic backgrounds</td>
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<td></td>
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<tr>
<td>Solving complex, real-</td>
<td></td>
<td></td>
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<td>Topic</td>
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<tr>
<td>world problems</td>
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<tr>
<td>Developing a personal code of values and</td>
<td></td>
<td></td>
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<tr>
<td>ethics</td>
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<tr>
<td>Contributing to the welfare of your</td>
<td></td>
<td></td>
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<tr>
<td>community</td>
<td></td>
<td></td>
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<tr>
<td>Developing general industry awareness</td>
<td></td>
<td></td>
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<tr>
<td>Understanding different social contexts</td>
<td></td>
<td></td>
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<tr>
<td>Overall work-readiness</td>
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</table>
Appendix 6 Ethical case study

You are a pharmacy technician working in a large community pharmacy. You have been working there for several years and enjoy a good relationship with the customers and most of the staff. Recently you have been having some difficulties with ‘John’ who was a sales assistant but has just stepped up to be the assistant manager. You feel since his promotion he has not been treating the staff appropriately and has gotten very big for his boots. This has led to you and John having words on several occasions.

Late one evening as you are locking up the pharmacy and getting ready to leave you observe a box of Viagra® in John’s coat pocket. John walks out ahead of you and quickly leaves, saying his bus is coming and he has a chance to catch it.

What do you do??

Individual task [5 -10mins]

List all the options you can think of. What are the pros, cons and potential outcomes for each one?
Paired task [10 minutes]

Join a partner and share your thoughts on the options. List any new options you have discovered.

Make any changes to your previous list of pros, cons and outcomes, if appropriate.

Group of 4 task [10 minutes]

Nominate a recorder to take notes. Repeat the above process in your group and compile a list of options to report back to the whole class. Don’t provide the pros, cons or likely outcomes.
Appendix 7 Pre-workshop activity

This activity should be carried out in preparation for the Work-placement Assessment workshop. Please bring along a copy (soft copy or print out) to the workshop as you will need it for an activity on the day.

Complete the Table below, showing where you can provide evidence for a particular skill, or where you believe you may have the opportunity to further develop it while on placement.

- Life-wide can be any previous experiences outside college, and may be through work, family, volunteering, sports, hobbies etc.

- College can be through any module or activity (including assessments, class work, Larkin project, etc) that allowed you to develop or demonstrate a skill.

- Placement is where you believe you will have an opportunity to develop generic skills in the pharmacy work-place.

Here are the definitions of the top placed attributes, to help with the activity:

**Ethical**

An awareness of moral issues, and an ability to work within an accepted Code of conduct of their chosen discipline or profession.

**Motivated self-starters**

An ability to work on their own initiative without constant supervision, whilst having an enthusiastic and positive attitude to work.

**Excellent Communicators**

An ability to identify the most effective way to convey their message orally and in writing at an suitable level, using appropriate media, and who displays a willingness to listen to others to assess their understanding.

**Collaborative workers**

Willingness to pool resources with others and understand the benefits of a collegiate working environment to reach a common goal.

**Emotionally Intelligent**

Use of emotional and social skills to control their feelings when faced with challenges, to develop and maintain relationships with others, can show empathy and be aware of how other people are likely to react.
<table>
<thead>
<tr>
<th><strong>Active team players</strong></th>
<th>Full participation in their team, who can give and receive feedback, and who keeps the team's interests in mind and focuses on the team's goals or end result.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work based/work related learners</strong></td>
<td>Application of disciplinary knowledge and skills to the workplace, can learn from on-the-job training and context based activities, and who demonstrates interest in ongoing continuing professional development (CPD) throughout their career.</td>
</tr>
<tr>
<td>Graduate attribute</td>
<td>Life-wide</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Active team players</td>
<td></td>
</tr>
<tr>
<td>Excellent Communicators</td>
<td></td>
</tr>
<tr>
<td>Collaborative workers</td>
<td></td>
</tr>
<tr>
<td>Motivated self-starters</td>
<td></td>
</tr>
<tr>
<td>Emotionally Intelligent</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>---</td>
</tr>
<tr>
<td>Ethical</td>
<td></td>
</tr>
<tr>
<td>Work based/work related learners</td>
<td></td>
</tr>
</tbody>
</table>
The aim of this workshop is to introduce a blog assessment for pharmacy technician students to encourage reflection on performance and the development of a learning community for peer support and sharing of experiences, which together are important steps towards lifelong learning.
Part 1: Reflective Writing

It is recognised that the accelerating pace of technological, social, and economic change requires graduates to be Lifelong Learners, and that much of the learning across the lifespan is unplanned, experiential and emergent (Bourner, 2003). The key to this type of learning is reflection, which turns experiences into learning (Boud, D. et al., 1985)

Learning Outcomes

By the end of the workshop you should be able to:

1. Identify examples of good reflective writing
2. Apply an assessment rubric to samples of reflective writing
3. Use the online software to write blog posts and comment on peer blogs

Reflective writing [adapted from University of Portsmouth DCQE]:

Reflective writing is evidence of reflective thinking. In an academic context, reflective thinking usually involves:

1. Looking back at something (often an event, i.e. something that happened on placement).
2. Analysing the event (thinking in depth and from different perspectives, and trying to explain, often with reference to theory from college).
3. Thinking carefully about what the event means for you and your ongoing progress as a learner and/or practising professional.

To help structure reflective thinking into a Reflective writing piece for your blog, it might be useful to consider What? So what? Now what?:

1. **What?** Means a description: a short summary of what happened, only focussing on the relevant aspects of the event
2. **So what?** Is an interpretation of what is interesting, relevant and important about the event; and how this relates to the theory in college. Is the event similar or different to other previous experiences (even outside of a workplace, e.g. in a club, hobby etc)

3. **Now what?** Is a consideration of the outcome of the event for yourself, for now and in your future profession.

Reflective writing is characterised by ‘**revealing**’ personal strengths and weaknesses; and successes and mistakes.

**Ethical considerations**

- Access to blog posts is ‘private’ i.e. restricted to the class and tutor.
- Each student must respect work-placement confidentiality i.e. not to disclose workplace private information for example the name(s) of your supervisor(s), co-workers, customers, doctors and patients. The name and address of your workplace does not need be mentioned.
- Blog posts should contain course/work-placement related content only. Non-course related content is considered not appropriate.
- Blog postings will not be used by the lecturer/tutor without the written consent of the author (student).
**Assessment Rubric:**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Beginning</th>
<th>Developing</th>
<th>Proficient</th>
<th>Strong</th>
<th>Marks Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td>Experiences are poorly described or are not relevant to the course of study or profession</td>
<td>Experiences are reasonably well described and somewhat relevant to the course of study, but not related well to theory</td>
<td>Appropriate experiences are chosen and are well described, but not well related to college theory</td>
<td>Appropriate experiences are well described and related back to college theory</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Reflection</strong></td>
<td>No evidence of reflection on performance or personal response to experiences described</td>
<td>No evidence of reflection on performance but some personal response to experiences described</td>
<td>Evidence of reflection on performance and good personal response to experiences described</td>
<td>Evidence of deep reflection on performance and clear personal response to experiences described, together with statement of learning achieved both from the experience and reflection.</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Comment</strong>s</td>
<td><strong>Frequenc</strong>y</td>
<td></td>
<td></td>
<td></td>
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<td>-------------</td>
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</tr>
<tr>
<td>Lack of comments, or comments of a trivial nature with no evidence of empathy with blog group</td>
<td>Completely insufficient blog posts.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments of a somewhat trivial nature, and showing only slight empathy with the blog group</td>
<td>Sufficient blog posts, but always late.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments show interest and empathy with blog group, requesting further information, and comparing to own experience. Repeating to peer comments and questions is evident.</td>
<td>Sufficient blog posts, rarely late. Comments mostly on time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments show empathy with blog group, requesting further information, making suggestions, and evidence of deep reflection of experience of others, and how this relates to own practice. Repeating to peer comments and questions is evident and very meaningful and purposeful.</td>
<td>Always posts blogs and comments on time.</td>
<td></td>
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</tbody>
</table>

15% 25%
A series of activities to demonstrate the principles of reflection applied to a work-placement experience.

Scenario: A customer asks for Solpadine tablets, and becomes irate when you proceed to ask questions relating to the sale of codeine-containing over-the-counter products.

The following blog and comments would fall into the ‘Strong’ category.

Blogger:

Blog subject: The topic of my blog this week relates to selling codeine containing products.

As I have learned in pharmacy practice and pharmacology modules, codeine phosphate is a mild to moderate painkiller related to morphine and has a weak cough suppressant activity. It mimics the action of natural endorphins by
combining with the opioid receptors in the brain and spinal cord, thus reducing pain. Taking codeine containing painkillers for longer than 3 days or in doses higher than are recommended can cause tolerance and addiction, as well as increasing the risk of other side effects. I have learned about a number of regulations which have recently been put in place to restrict the sale of codeine containing products, and during work-placement this week, I had to implement the pharmacy’s policy for sale of codeine. A customer appearing in a hurry asked for Solpadine. I was aware that I could not sell the product without questioning him, and relating the discussion to the pharmacist. I attempted to use the WWHAM technique I learned in pharmacy practice to commence questioning, however the customer quickly became angry and demanded to speak to the manager. I asked him to wait while I called the pharmacist. In the dispensary, I discreetly explained the situation. The pharmacist spoke to the customer and decided it was appropriate not to sell the medication, explaining to me afterwards that he was not convinced that a codeine containing product was required for the customer’s pain. Initially, while I was a little taken back by the customer’s anger, I was satisfied that I had sufficient knowledge of the regulations for codeine sales, and was working within my remit as a trainee technician and within the law. Subsequently, I considered that a more appropriate approach to the initial questioning of the customer might be to find a way to obtain the necessary information in a friendly manner, rather than to adopt a more interrogating approach. I decided it might be helpful as a professional to have a more comprehensive understanding of the codeine regulations for the future. Therefore I read the Pharmaceutical Society of Ireland’s guideline on sale of Codeine containing products (2011). While I would not undertake to counsel a customer on this topic and would always refer to the pharmacist, I now feel I can be more sympathetic to the situation, and I feel more confident in dealing with this topic with the added knowledge. I am interested to hear if any of you in the class have had a similar situation, and how you dealt with it?

Comments:

Commentator:
I have often experienced customers becoming irate when questioned about codeine sales, and I have to explain to them that it is the law. I wonder if many customers now know the ‘right answer’ to my questions, as I find it hard to determine if they are genuine or not. Do any of you have this experience? At the following links, you can read my pharmacy’s guidelines on the risks of codeine and on helping a customer identify if they had developed a codeine dependency (http://www.hickeyspharmacies.ie/codeine.htm), and guidelines on how to become codeine free (http://www.hickeyspharmacies.ie/downloads/CodeineFree.pdf). Do you have similar policies in your pharmacies? I find it quite upsetting to see customers who have developed a dependency. I worked in pharmacy before the new regulations came in, and I think they are useful in limiting the availability of codeine, and hopefully it will reduce the new cases of addiction. Where do you store the codeine products in your pharmacies?

Activity 1:

Read the blog and comments above, and with reference to the assessment rubric, see if you can identify why this blog would fall into the ‘strong category. To help you with this, you could answer the questions below:

In the blog, can you identify examples of relating the topic to college theory?

In the blog, is the description of the situation itself relatively long or short (Is it concise)? Does it give sufficient information for you to ‘picture’ the situation in enough detail to allow you consider the pertinent issues?

In the blog, can you find reflection on the immediate personal response to the situation described itself?

In the blog, can you find reflection on how a similar situation might be better handled the next time?

In the blog, can you find an example of deeper reflection, self-directed learning or critical thinking to allow further professional development based on the situation?

In the blog, can you identify a ‘statement of learning’ that the author made based on the situation and the reflections?
In the comments, is there evidence of empathy with the blogger’s situation?

In the comments, is there evidence of reflection on the commentator’s similar experiences?

In the comments, are there suggestions made based on the commentator’s experience of a similar situation?

In the comments, is there evidence of seeking further response to specific issues raised by the commentator, arising from the original blog?

In the comments, are the observations meaningful and purposeful?

Is the language usage (in the blog and comments) of high quality and professional? Are there spelling mistakes, typos, or grammar errors?

When you have completed your own blog and comments, ask yourself the same questions!
Activity 2:

Read the alternative blog below. Explain how it differs from the first one. You can use the questions above to help you explain how it differs. Fill out the rubric provided. What category would this blog report fall into? How would you categorise the Comments made on this blog?

Blog:

Today I had to deal with a situation in the pharmacy when a customer asked me for a packet of Solpadine. He was a middle aged man. The pharmacy was very busy at the time, and all the other pharmacy technicians were dealing with other customers. Solpadine contains codeine. The new codeine regulations include the following key points:

• Non-prescription medicinal products containing codeine should be stored in a retail pharmacy business (pharmacy), out of the view of the public, to facilitate the legislative requirement that these products must not be accessible to the public for self-selection.
• Non-prescription ‘combination’ products, containing codeine and paracetamol, aspirin or ibuprofen, should be supplied only as ‘second line’ products for the treatment of pain relief, when single ingredient products, such as paracetamol, aspirin or ibuprofen, have not shown to be effective.
• Non-prescription medicinal products containing codeine should only be used in accordance with the terms of their marketing authorisations, which all state that the product be used for short-term use, no longer than three days.
• Patients need to be fully advised of the correct use of these products and the risks associated with their misuse. It is also essential that patients be facilitated in obtaining medical assistance for any health problems related to their misuse that may arise.
Therefore I needed to determine if non-codeine containing products had been already been tried. So I started to ask the man questions based on the WWHAM questioning technique. I had only started asking him about ‘Who the patient was’ to determine if the Solpadine was for him or for someone else, when he started to become quite angry, and asked me to speak to the manager. So I went into the dispensary and explained to the pharmacist that a customer had come in and had requested Solpadine. I told her that when I tried to find out the relevant information, but that he had become angry. The pharmacist told me that she would deal with the situation. She spoke to the man, and he told her that he had back ache. She asked him if he had tried ibuprofen. He said he had not. So she explained that she would only sell him Nurofen, and if he tried this and it wasn’t effective, to come back. The pharmacist suggested that I read the pharmacy’s policy on sale of codeine containing products, which I proceeded to do. I now feel more prepared to deal with such a situation should it arise again.

Comments:

Comment 1: That sounds quite scary. But it sounds like you handled it appropriately. Well done!

Comment 2: Did the man come back into the shop the next day?

Activity 3:

Read the alternative blog below. Again, explain how it differs from the first one. You can use the questions above to help you explain how it differs. Based on the rubric, what category would this blog report fall into? How would you categorise the Comments made on this blog?

Blog:

Hey everyone. Today this guy came in to the shop lookin for Solfadene and when i asked him who it was for he started yelling at me and i couldn’t believe it cause i’d never seen anyone gettin so mad in the shop! I suppose maybe he hadn’t heard that there are these new rules about selling Solfadine? Or maybe he was addicted and is geting angry because he was afraid we wouldn’t sell him any? I heard that
sometimes they have to go around to loadz of different shops to see if they can get someone to sell them the tablets which must be dead frustrating especially if you are starting to feel withdrawal symptoms that you get when you stop taking it and I suppose I felt a bit sorry for him when i thought about that. Anyway I ran into the dispensary and whispered to the pharmacist about the man and she dealt with him. I think i handled it alrite. i didn’t break the law and sell him the Solphadine 😊 Afterwards i said i better read up a bit more about the rules for selling Solfadene so that I’d be a bit more ready the next time! Did any of u ever have to deal with this?

Comments:

Comment 1: No way, that’s mad! I heard that there are loads of people addicted to Solphadine in Ireland. I’ll ask my pharmacist about it and see if we have a policy, and I’ll let ye know next week.

Activity 4:

In the last blog, there are many grammar, spelling, punctuation mistakes, along with general non-professional language usage. Can you pick out examples of:

1. Sentences which are too long?
2. Bad grammar?
3. Spelling errors?
4. Unprofessional terminology?

Part 2

Activity 5

Watch the first video, and then log in to your blog space. Write a short reflective piece (about 100 – 150 words) on what you learned in the last hour. [20 mins]

Activity 6

Watch the second video, and return to the blog space, and make a comment on the Reflections of one member of your group. [10 mins]
Appendix 1: Vocabulary for Reflective Writing (adapted from Portsmouth DCQE)

So What? Interpretation

For me, the [most] meaningful significant important relevant useful
aspect(s) element(s) experience(s) issue(s) idea(s) learning
was (were)… arose from… happened when… resulted from…

Previously, At the time, At first Initially, Subsequently, Later,
thought (did not think)… felt (did not feel)… knew (did not know)… noticed (did not notice)… questioned (did not question)… realised (did not realise)…

[Alternatively,] This [Equally,] This might be is perhaps could be is probably because of… due to… explained by… related to…

XLIIV
Now what? Outcome

Having
• read...
• experienced...
• applied...
• discussed...
• analysed...
• learned...

I now
• feel...
• think...
• realise...
• wonder....
• question...
• know...

[Additionally,]
[Furthermore,]
[Most importantly,]

I have learned that...

I have
• significantly
• slightly

However, I have not [sufficiently]

developed
improved

my skills in...
my understanding of...
my knowledge of...
my ability to...
References:


http://www.port.ac.uk/departments/studentsupport/ask/resources/handouts/written assignments/filetodownload,73259,en.pdf
Note: the references to relating learning in College to experiences have not been considered in the overall analysis for this project, as these relate to a direct instruction to the students to map experiences to College, and therefore cannot be considered as natural reflection by the student. Where the sample coder has referenced these as premise reflection, it should be ignored.

The sample coding was carried out in Word, not NVivo, and the original coding from NVivo has been transferred to the same system in the second blog here.
XLVIII
Appendix 10 Other Graduate Attribute statement results

Figure 20 Collaboration reference statements by research and control group

Figure 21 Teamwork reference statements by research and control group
Figure 22 Critical thinking and Problem Solving reference statements by research and control group

Figure 23 Innovator reference statements by research and control group
Figure 24 Ethical reference statements by research and control group
Appendix 11 Questions to assist further linguistic and language supports for reflective writing (Ryan)

Key questions are used to highlight the textual structure, for example:

(1) What does the first paragraph do? (Identifies an issue and why it’s important; may use theory to explain relevance; outlines key themes that this piece of writing will address reporting and responding.)

(2) What do subsequent paragraphs do? (Each paragraph introduces a new theme and provides evidence from practice or current literature/theory to explain this theme; introduces multiple perspectives; considers the ethics involved relating and reasoning.)

(3) What does the final paragraph do? (Re-states the issue; re-iterates key points; suggests new possibilities for the future; may explore change that could benefit others reconstructing.)

Probing questions can be used to identify how the language in the text achieves the purpose, for example:

(1) How does the writer indicate that they are reporting on, and responding to, something that they were involved in or observed? (Use of personal pronoun ‘I’; use of thinking and sensing verbs.)

(2) How does the writer indicate how the incident played out? (Use of temporal language, e.g., first, then, afterwards.)

(3) How does the writer show their knowledge of the discipline/subject matter? (Use of technical or subject specific nouns and noun group’s naming words.)

(4) How does the writer relate this incident to other similar incidents or personal experience? (Use of comparison/contrast language; draws on practical examples.)
(5) How does the writer reason and explain why it happened the way it did? (Use of causal language; adverbs and adverbial groups to explain when, where or how things happened; references to literature and practice as evidence.)

(6) How does the writer make judgments about things they observed? (Use of particular kinds of adjectives or describing words to describe the people or the task or the setting.)

(7) How does the writer use succinct language to get their ideas across? (Use of nominalisation turn verb into noun to say more with less words.)

(8) How does the writer show that they are thinking to the future and how they will reconstruct and apply their new knowledge? (Use of future tense; adverbial groups to describe conditions under which something could be done