The mirror crack’d.... An illuminative evaluation of the use and relevance of reflection in undergraduate Dental Care Professionals education

By

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The thesis is submitted in partial fulfilment of the requirements for the award of the degree of Doctor of Health Science of the University of Portsmouth
Declaration
Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.

Signed:

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<table>
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<th>Description</th>
</tr>
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<tbody>
<tr>
<td>CPD</td>
<td>Continued Professional Development</td>
</tr>
<tr>
<td>DCP</td>
<td>Dental Care Professional</td>
</tr>
<tr>
<td>FA</td>
<td>Framework Analysis</td>
</tr>
<tr>
<td>FTP</td>
<td>Fitness to Practice</td>
</tr>
<tr>
<td>GDC</td>
<td>General Dental Council</td>
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<tr>
<td>NHS</td>
<td>National Health Service</td>
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<tr>
<td>PD</td>
<td>Professional Doctorate</td>
</tr>
<tr>
<td>PRP</td>
<td>Professional Reflective Practice</td>
</tr>
<tr>
<td>PSA</td>
<td>Professional Standards Authority</td>
</tr>
<tr>
<td>RJM</td>
<td>Reflective Judgement Model</td>
</tr>
<tr>
<td>RP</td>
<td>Reflective Practice</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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Glossary

*Dental Care Professionals* – Registered professionals that fall within this group are Dental Nurse, Dental Technician, Dental Therapist, Dental Hygienist, Orthodontic Therapist and Clinical Dental Technician.

*Enhanced Continued Professional Development* - This scheme comes into force in 2018, aiming to ensure that post-registration verifiable educational activity is firmly embedded in the professional life of Dental Care Professionals. It is intended to support registrants in undertaking regular, targeted development activities, in accordance with the General Dental Councils standards and scope of practice (GDC, n.d.¹).

*Independent practice* - Working with autonomy within the General Dental Councils Scope of Practice, and own competence, once registered. Independent practice does not mean working alone and in isolation, but within the context of the wider dental and healthcare team (GDC, 2012)

*Mindfulness* - The ability to see things for what they are, without distortion (Johns, 2010)

*Professional reflective practice* - A way of standing outside oneself to examine how we are involved in creating social or professional structures counter to our espoused values. It enables awareness of the limits of our knowledge and how our own behaviours are complicit in our organisational practices (Bolton, 2010). Reflective practice should not be confused with reflection as it is not a solitary or relaxed meditative process, it is a challenging and demanding process (Osterman and Kottkamp, 1993).

*Safe beginner* - A rounded professional who, in addition to being a competent clinician and will have the range of professional skills required to begin working as part of a dental team and be well prepared for independent practice. They will be able to assess their own capabilities and limitations, act within these boundaries and will know when to request support and advice (GDC, 2012).

*Verifiable educational activities* - Developmental activities that are undertaken which have clear quality controls in place i.e. that the activity has educational aims and clear outcomes, and an opportunity for participants to give feedback. Educational activities must provide supporting documentation that is open to scrutiny, providing evidence that knowledge and skills are contemporary (GDC, n.d.²).
Dissemination

Publications


Summary of contributions

Insight of the use and relevance of reflective practice in a unique primary care dental education setting, resulting in the identification of pre-requisites for creating a positive educational experience within a primary care setting.

Original strand of research in relation to the value of professional reflective practice in General Dental Councils Fitness to Practice conditions cases, opposed to studies that have focused predominately student perspectives.

Proposed a new theoretical framework pre-requisites required for professional reflection to occur in primary care dentistry generated from an amalgamation of the three aspects of this research.
For my family;

wherever you are, there shall my happiness be
Abstract

This research project explored the use of reflective practice by a Bachelor of Science (BSc) cohort in a United Kingdom (U.K.) dental training establishment following the publication of Preparing for Practice by the General Dental Council (GDC) in 2012, which identified the Learning Outcomes for the Dental Team registration in the U.K.

The research reviewed the evolving role that professional reflective practice has in student education by capturing students’ experiences as they transitioned through the preclinical (simulated) aspects of their programme and onto their final year when they actively treat patients on the clinical floor and in various outreach locations. The final aspect moved away from the educational arena, focussing on the realms of GDC Fitness to Practice cases. Thus adding an element of context and meaning to the realities of professional reflection in the real world, highlighting the potential consequences of failing to nurture future professional reflective practice activities as a GDC registrant. An aspect which is particularly pertinent with the advent of Enhanced CPD on the horizon in 2018.

The drivers for reflective practice to occur is twofold; with an onus on the need of personal development and insight, alongside the broader pre-requisites from formal educational bodies and statutory regulatory authorities. These authorities may well favour the benefits that reflective practice brings by facilitating a shift of responsibility, away from educational decision makers, onto the registrant to self-manage and develop their own awareness. Meeting both of these aspects is feasible, providing that the registrants have the skills, support, time and a clear understanding (definition) of the term professional reflective practice and what this should mean to them in the context of their professional practice.

The research findings demonstrate that the main role of reflective practice in primary dental care settings is to gain insight by facilitating pondering, thinking, discussion or asking questions (of oneself or one another). By reviewing the positive and negative experiences that they had encountered, students were then able to work things out (making sense of things), in turn, allowing them to learn from experience and therefore implement meaningful development opportunities for the future.
Chapter 1

This chapter begins with a personal introduction to the catalyst behind this Professional Doctorate. Moving on to an overview of the background information regarding the role of reflection in dental education, including exploration of the regulatory stakeholders: The Professional Standards Authority, The General Dental Council and the National Health Service. Following on from this there is exploration of the requirements for registered practitioners to be able to demonstrate Continued Professional Development throughout their careers, including identification of Fitness to Practise processes and the development of Enhanced Continued Professional Development which will commence for registered Dental Professionals in 2018. Culminating in setting the scene for the chosen research topic area.

My journey begins

Many years ago one of my patients would regularly refer to me as *The Lady of Shallot* (Tennyson, 1832), stating that I was “forever condemned to be looking into my dental mirror at teeth all day”. I had forgotten all about these comments, only returning to them when I began my teaching career. It was at this point that I began exploring reflective practice and its role in student education. As I further honed my new academic skills I often pondered on Tennyson’s poem; visualising how the Lady of Shallot would spend hours focusing on weaving her web (via reflection) without seeing the reality of the world around her.

Bolton (2014, p.17) describes how practitioners should use “through the mirror reflection”, that is, reflection that is not a self-indulgent looking back at ourselves, but a step in which we “bravely face the discomfort and uncertainty of attempting to perceive how things are”. Over time I have come to realise whatever happens as dental professionals we should not aspire to become like the *Lady of Shallot*; solely weaving a web of personal and professional development that best fits our internal image of oneself. As practitioners’, if we are to grow and develop, we must be brave enough to have the courage to share our experiences with the dental team that surrounds us. By taking the time to gather the influences of our formal discussion with peers (much like
the Knights of the Round Table), we can enable ourselves to become empowered by viewing our professional world as it really is. By taking the time to determine our strengths and weaknesses, we allow ourselves the opportunity to become professionally and knowledgeably aware of what we do (reflecting in action (Schön, 1983)) and why we do it (reflecting on action (Schön, 1983)).

I believe reflection is a key ingredient in developing the skills required for lifelong learning and it is from this viewpoint that I chose to set sail on my reflective river, a journey that I cordially invite you to share with me......

Willows whiten, aspens quiver,  
Little breezes dusk and shiver  
Thro’ the wave that runs for ever  
By the island in the river  
Flowing down to Camelot.  
Four grey walls, and four grey towers,  
Overlook a space of flowers,  
And the silent isle imbowers  
The Lady of Shalott.  

(Tennyson, 1832)

The role of reflection in dental education

Reflection is now regarded as an important component of dental undergraduate education and post-registration practice (Trico, Wolford, & Escuderier, 2015) and although, on the surface, reflection sounds like a simple and straightforward undertaking. In reality it is a complex minefield that requires skilful facilitation to ensure that the act of carrying out reflection contributes to learning in a meaningful way at any point of a professionals’ career.

Historically dental education was solely focussed on the undertaking of a practical procedures and techniques (Sweet, Wilson & Pugsley, 2009). With only limited amounts of time being devoted to developing the underpinning cognitive and psychosocial skills
which are required to meet the complex demands of modern dentistry. This is all set to change in 2017, when the General Dental Council (GDC, n.d.\textsuperscript{1}) will transition to new Continued Professional Development (CPD) rules. The new Enhanced CPD scheme is intended to support all U.K. dental registrants in identifying appropriate and verifiable CPD activities, via a four stage process; Plan, Do, Reflect, Record.

In order for Enhanced CPD to become a truly effective activity there is now a need for a richer, deeper exploration of the factors that influence the complexities of one’s own personal and professional, deep rooted, views and values to occur. Dental education providers have an ever-increasing responsibility to provide meaningful opportunities for effective reflective skills development, by ensuring that dental undergraduate programmes produce a safe beginner who is endowed with the qualities that will enable them to face the challenge of viewing their personal actions and interactions with others, in a positive and meaningful way.

The focus of this research was to establish the antecedents required for the development of professional reflective practice (PRP) to occur. The terms reflection, reflective practice and professional reflective practice are littered throughout the literature in nursing, social work, education and in the professions allied to medicine. However, there are aspects of professional reflective practice that require further investigation as Ixer (1999, p.521) states, “If reflection is to be regarded as a core facet of individual professional competence, then we need to know far more about its structure, substance and nature”. With the advent of Enhanced CPD by the GDC on the horizon there is a now a need to define the reflective qualities and processes that should underpin dental education, in both pre and post registration arenas.

By gaining insight into the antecedents that are required for effective and meaningful undergraduate dental education to occur, dental training establishments will be provided with the advantage of developing a suitable curriculum that develops fledgling practitioners’ reflective armoury. A curriculum which should be capable of nurturing the skills required for CPD activities that will support future registrants throughout the journey of their future working lives.
Standard setting and regulation

The Professional Standards Authority (PSA) oversees nine healthcare regulators in the United Kingdom, which includes the GDC. The PSA’s role is to ensure that professional regulators are regularly reviewed and accredited against the PSA’s Standards of Good Regulation (PSA, 2016).

In December 2015 the PSA made a response to the consultation ‘A National Guardian for the NHS- your say: improvement through openness’ (Care Quality Commission, 2015) suggesting that one way to optimise patient care would be to enable staff to speak with one another via the formation of formative ‘reflective spaces’ (PSA, 2015, p.4) in workplaces. These spaces would facilitate an opportunity for staff to challenge the performances of their colleagues, alongside their own actions. However, the PSA is also keen to air an element of caution between their (the PSA’s) recommendations and the roles and responsibilities of individual healthcare regulators in the standard setting and monitoring of their own bodies of registrants (PSA, 2015, p.2).

There are three main stakeholders in the standard setting and regulation of the undergraduate dental hygiene and therapy curriculum; The General Dental Council, The National Health Service and the University (where the undergraduate teaching takes place). They are all intrinsically entwined and before the use of reflective practice can be explored, the context of these stakeholders will now be reviewed.

The General Dental Council (GDC)
The publication of the General Dental Councils (GDC) dental education curriculum document ‘Preparing for Practice’ (GDC, 2012a) identified the Dental Team Learning outcomes required for registration. This is a key document as the GDC are the statutory regulatory healthcare authority for the Dental Team in the UK. Failure to register with the GDC on completion of training would render students unable to practice their chosen profession in the UK.

Barnett, Parry and Coate (2001 p.438) describe a curriculum as a ‘dynamic set of forces which represent a balance of interplay of separate interests’. This is particularly significant, in this instance, as the students have a requirement to not only acquire sufficient academic attainment to graduate from the University, but they also have the
additional prerequisite of meeting the GDC’s learning outcomes required for registration, in order to gain their practicing rights.

It is very clear from the GDC Preparing for Practice (GDC, 2012a) document that an ability to carry out clinical reflection is considered a key skill for current and future clinical practice. Indeed, the GDC have identified seven overarching principles which identifies skills that students are expected to demonstrate during their pre-registration and training. One of these prerequisites is for students to be able to, upon registration;

accurately assess their own capabilities and limitations, demonstrating reflective practice in the interest of high quality patient care and act within these boundaries (GDC, 2012, p. 11)

Preparing for practice has heralded a more holistic approach to the attainment of educational outcomes required for registration, including for the first time an emphasis on dental team working as a whole, which encompasses four domains; clinical, communication, professional, also management and leadership. Professionalism is placed at the heart of the agenda. Stating that;

the scope of what the GDC requires of students goes beyond academic achievement, and incorporates the attitudes, values and behaviours’ required for registration. (GDC, 2012, p.8)

The GDC (2012, p.6) is explicit in its expectations of registrants describing how a fundamental aspect of independent practice is to be able to “recognise the responsibility”, by becoming a “rounded professional” who is “able to judge one’s own limitations and work within them”. The GDC have made clear the that an essential element of education and training is that the provider

must prepare students to carry out reflective practice and self-directed learning to keep their knowledge and skills up to date throughout their professional lives (GDC, 2012, p.7)

The ability to be able to reflect and consider ways of improving should be a part and parcel aspect of daily life for an experienced practitioner. However, the impact and implication of using clinical reflections as evidence of attainment in student education is complex, and when doing so consideration should be given to how reflective skills
develop. In 1974 Argyris and Schôn identified two different theories of action, which are conceptualised as ‘Espoused theory’ and ‘Theory in-use’. The dichotomy between these two theories is ultimately the identification that there is a gap between what is preached and what is practised, which education providers should be mindful of when introducing reflective activities into the dental curriculum.

The requirement to demonstrate reflection throughout a professional’s practising career is further reinforced in the GDC document ‘Continuing Professional Development for dental professionals’ (GDC, 2013), with the recommendation that time is made to reflect individually or with others on what you have learned following each Continuing Professional Development activity (GDC, 2013, p.14).

Despite the ‘newness’ of the GDC publications, these documents are already subject to scrutiny (GDC, 2014) as direct response to the publication of the Mid Staffordshire NHS Foundation Trust Public Enquiry Report (Francis, R., 2013). Following the findings of this Report the GDC have been keen to embrace the recommendations made into its educational programmes, alongside the professional CPD requirements post-registration. With a view to ensuring that all dental team members are provided with the skills and opportunities to approach their roles with openness, transparency and candour; elements which inherently underpin the process of reflective practice. The GDC (2013) describe the purpose of training and education is to produce an individual who can meet the outcomes required for registration. In order for this to be achieved they identify that those involved in education should have “attained the highest standards in terms of knowledge, clinical and technical skills and professional attributes” (GDC, 2012, p.4). These ‘professional attributes’ include ensuring that patients’ needs are put at the fore at all times. The GDC are very clear that initial registration is only the first stage in the development of a DCP and it is part of the role and responsibilities of the education provider to “prepare students to carry out reflective practice” (GDC, 2012, p.7) since continuation of this skill must remain throughout their professional career, in order to ensure that their knowledge and clinical skills remain contemporary.
The regulation of education and training is a key function of the GDC and during the inspection of training providers it looks to ensure that the environments in which students study and train in is safe for patients, that there is a culture within the establishment which allows students and educators to raise concerns, and to ensure that any concerns raised are acted on and shared with relevant bodies accordingly. The importance of reflection was reinforced in the GDC Standards document (2015) which identifies that an education provider

*must support students to improve their performance by providing regular feedback and encouraging students to reflect on their practice*

(GDC, 2015, p.7)

The primary role of the GDC is to protect patients and aims to do this via a number of different routes; by producing outcomes for dental team members training (for education providers to follow), by conducting inspection and regulation of programmes that are responsible for the training and continued education of members of the dental team, by working with various governing bodies to identify current and future oral health needs and identifying standards that all dental care professionals are expected to adhere to. If a complaint is made by a member of the public or fellow professional regarding a registrants’ ability to work effectively and safely, within their scope of practice, the GDC will review this via their Fitness to Practice panel, which consists of dental care professionals, lay-persons and subject specialists (if appropriate).

**Fitness to Practice**

Should a registered DCP fall short of the standards expected of them, a member of the profession or general public may raise concerns. When this happens, the GDC will follow a four stage complaints procedure (GDC, n.d.²) as overviewed in Figure 1:1.

The GDC Fitness to Practice process is pivotal in aiding an understanding of the relevance of reflective practice in modern dental practice. Indeed, since 2010 there has been a 110% increase (GDC, 2014) in FTP cases. The need for practitioners to ensure that they are able to demonstrate their ability to practice dentistry has never been more relevant.
The GDC also funds a Dental Complaints Service (GDC, n.d.\textsuperscript{3}) which can be accessed by DCP’s and members of the general public to resolve complaints involving private treatment.

Despite the frequency of background errors (including near misses), occurring in healthcare settings, there is a distinct gap in the literature in relation to both the types and causes of errors that commonly occur in the dental environment (Obadan, Ramoni and Kalenderian, 2015). If awareness can be increased to ensure practitioners have an appropriate preventative armoury to use to strengthen and develop their reflective skills to improve their personal practice, in turn, patient safety should increase.
The National Health Service
In 2012 the NHS identified that dealing with the aspirations of consumers of dental care had been a particular challenge (DOH, 2009, p.35), especially as dentistry had been on the periphery of mainstream NHS development (DOH, 2009, p.31). So with a view to
addressing these issues from 31st March 2015 the GDC began a formal agreement with NHS England. This agreement was established to promote direct engagement with NHS employees, patients and stakeholders to improve oral health outcomes for people in England. The engagement between professional regulators working collaboratively is a direct result of the publication of Patients First and Foremost (Department of Health, 2013) which is the initial Government Response to the Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry (2013), colloquially known as The Francis Report, which marked the dawn of a period of increased scrutiny for professional regulators.

The findings of the Francis Report (p.1256) identified how “The system of regulation and oversight of medical training put in place ....failed to detect any concerns....of exceptional significance’ which demonstrates that opportunities were missed during student education which could have made a difference to the quality of care provided to patients”. The GDC acknowledges its own role in ensuring quality of education and training during the monitoring of dental education environments in the UK, where GDC Quality Assurance Inspectors are required to “gather information which is relevant to an organisations compliance with fundamental safety and quality standards” (Rowland, GDC, 2014).

In 2015 the Department of Health updated the NHS Constitution (DoH, 2015) which sets out the seven key principles that guide the NHS. Underpinning these are the NHS core values which are; working together for patients, respect and dignity, commitment to quality of care, compassion, improving lives and everyone counts. The core values are used in the dental undergraduate selection process which uses a values based assessment approach to select students, via a Multiple Mini Interview process which is designed to assess the NHS core values, alongside aptitude and manual dexterity tasks. Value based recruitment has now become a formal requirement for all Higher Education Institutions delivering NHS funded training programmes from April 1st 2015 (Health Education England, 2014, p.10). This approach demonstrates the continued drive for constructive alignment (Biggs, 1999) to occur across healthcare professions by ensuring that personal values and behaviours align across all disciplines that are situated within the NHS.
Continuing education

The need to continually evolve and progress throughout one’s professional career is of paramount importance. If registrants fail to review and correctly identify areas for future professional development, they are in breach of GDC standard 7.3;

You should take part in activities that maintain, update or develop your knowledge and skills. Your continuing professional development activity should improve your practice (GDC, 2013, p.67)

Professional development activities can be summarised as anything that a professional does that contributes to their own understanding, knowledge base or practical skills whereby there is an opportunity to develop and change as a result of these activities (Jasper and Mooney, 2013, p.21). Therefore, continued professional development is a continuum with ‘formal academic qualifications at one extreme and personal reflective activity at the other’ (Jasper and Mooney, 2013, p.22). The GDC’s view on the use of reflective practice to aid in development is identified in its Standards for the Dental Team booklet (2013), where it states

We also recommend you make time to reflect individually or with others on what you have learned following each CPD activity, what you will do the same or differently as a result and whether your on-going learning needs have changed. (GDC, 2013, Page 14)

Laverty (2011, p.138) describes the impact of working alongside integration of reflective practice, identifying how healthcare practitioners are often faced with poorly structured and complex challenges, requiring immediate response, on a daily basis. Working in this way leads to a restriction on the choices that are made in the real-world realities of working daily in a healthcare environment. It is at this point where experience and ability to reflect on one's actions is pivotal in the development of sound moral judgement, however, not every situation allows the time required to reflect. Indeed, in clinical situations there is a need for continuity of care, a time when professionals are ‘in action’ (Schön, 1983), a moment when actions and decisions are made synonymously. It is at this point where intuition and experience are able to lead the situation “bridging the gap between prior moral reflection and present moral action” (Schön, 1983).
In amongst all of the above considerations acknowledgement needs to be given to the abundance of accessible media which supports learners in both the pre-and post-registration arenas, as Hieck (2012) points out, there is an inexplicable “shift towards the fluid and formless nature of information” describing how the generation of knowledge is not “a static silhouette” but has become a “perpetually oozing honey” that has a variable value conjured up from research, experiential learning and intellectual ecology. Highlighting the pivotal requirements of both academic (in the ability to critically appraise information) and professional (by practising in an evidenced based manner) skill development to occur as part of the lifelong learning cycle.

The GDC intend to roll out their Enhanced CPD initiative (GDC, n.d.) in 2018, which specifically requires all CPD to be verifiable CPD, opposed to the registrant choosing between verifiable and non-verifiable options in the current system. This change is as a direct result of findings by the GDC in April 2015 who stated that 70% of compliant CPD was non-verifiable (GDC, n.d.). The GDC has also changed the emphasis from CPD to move from a ‘Do and Record’ model to a four stage: Plan, Do, Reflect, Record model. The reality of these changes is that practitioners must be in a position to independently plan and undertake tailored CPD activities. This approach to PDP requires a new set of skills; it is no longer enough to just follow a set of rules or principles to remain a registrant, practitioners need to have a disposition that enables them to become a self-aware practitioner avoiding the pitfalls of a doctrinaire approach to developing personal practice.

Shifting the balance

The move to decrease verifiable CPD and place emphasis on registrants to be responsible for identifying their professional development needs is part of the GDC’s non-legislative regulatory reform proposals (Shifting the Balance) which were launched in January 2017, of which Enhanced Continuing Professional Development (ECPD) is part of.

From January 2018 (for Dentists) and August 2018 (for DCP) the GDC will require registrants to produce a Personal Development Plan which must be linked to GDC
Learning Outcomes, a detailed log of activity, with associated certificates, which will need to be declared on an annual basis (GDC, 2017). This move requires registrants to identify suitable activities to undertake as part of their CPD, which does not consider individual practising constraints; such as lone working practitioners who may not have access to a critical friend to help them identify suitable CPD activities, or the loss of earnings that occur if the access to a suitable CPD events is limited.

There is also a paucity of definition of reflection from the GDC; what is their interpretation and expectation from this? Should registrants be expected to follow a reflective model? Or is it sufficient for registrants to state that they have ‘reflected’? The test of this will no doubt evolve as the reforms from the Shifting the Balance consultation permeate into regulatory reform.

Setting the scene for this research

The publication of Preparing for Practice by the GDC in 2012 heralded the inception of this study. Kamler and Thompson (2006, p.67) state the importance for doctoral researchers to be clear about why they have chosen their particular study. There is no doubt that the timeliness of the publication of the learning outcomes for registration in Preparing for Practice, which includes increased emphasis on reflective practice, was the catalyst for this work which, in turn, has been given increased relevance with the introduction of Enhanced Continued Professional Development on the horizon in 2018.
Chapter 2 Literature review

The primary aim of this chapter is to present the findings of a systematic literature review which guides the reader through a variety of key texts that underpin the labyrinth of literature related to reflective practice; the various definitions, perceived uses, and relevance to dentistry. Resulting in the identification of the research questions which underpin this professional doctorate research.

The chapter is divided into nine distinct sections:

1. Systematic review of the literature: Formulation of search terms, bibliographic database search screen, search term strategy, inclusion and exclusion criteria and review methods.

2. Demonstration of findings related to the use of reflective practice in education including discussion on the following aspects: the role of reflection in large organisations, the reflective learning cycle, use of reflection in and on action, tacit and explicit knowledge, mindfulness, the nature of memory, professional attitude and behaviour and critical thought.

3. This research is embedded in education, as such papers surrounding the use of reflection in the context of an educational setting were then discussed, specifically looking at: approaches to learning, group reflective activities and the use of reflection for assessment purposes.

4. Following on from this, a section on the potential barriers to reflection to identify problematic aspects in relation to the use of reflection.

5. Use of reflection in dental education, including peer involvement in dental assessment and the identification of risk in dentistry.

6. The limitations of reflection were divided into six specific aspects: fuzzy definitions, deposition, consequential elements, confinement within a consequential spiral, environmental constraints and personal perception.

7. Developing oneself; exploring the statutory regulatory authority expectations of practitioners.
8. The authors interpretation of reflection underpinning this thesis and their conceptualisation of professional reflective practice.

9. Identification of the research aim, associated questions and objectives underpinning this professional doctorate research.

There she weaves by night and day
A magic web with colours gay.
She has heard a whisper say,
A curse is on her if she stay
To look down to Camelot.
She knows not what the curse may be,
And so she weaveth steadily,
And little other care hath she,
The Lady of Shalott.

(Tennyson, 1832)

Review of the literature

Reflective practice is already well established in many professional groups such as nursing and teaching, with primary research in Dentistry less readily available by comparison (Jonas-Dwyer, Abbott & Boyd 2012, Koole, Christianens, Cosyn & De Bruyn 2016). Consequently, the literature included in this review is derived predominately from the professional bodies where reflection has been enshrined. However, endeavours have been made to include relevant literature from dental research, where possible, with a view to contextualising how reflection is utilised contemporary dental education.

Worked example of a bibliographic database search strategy

In order to demonstrate how primary research articles were identified for inclusion in this literature review, a worked example of a database search has been provided below.
This worked example is looking specifically into the barriers to reflective practice, the results from this search are discussed on page 48.

*Formulating search terms prior to bibliographic database search*

A structured mnemonic was chosen to aid the formulation of search terms that were used to inform the search interface strategy. An example of this is shown in table 2.1:

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Students</td>
<td>As these were a group that were potentially involved in receiving education involving reflection</td>
</tr>
<tr>
<td>Intervention</td>
<td>Reflection</td>
<td>This represents the aspect of interest in the database search</td>
</tr>
<tr>
<td>Comparison</td>
<td>No comparator</td>
<td>No comparator was implemented for this search example, as if the participant group were not exposed to reflection they would be excluded from the search</td>
</tr>
<tr>
<td>Outcome</td>
<td>Barriers</td>
<td>This was one of the search terms selected for incorporation into the database search, which aimed to explore why students may not engage with reflection/reflective practice</td>
</tr>
</tbody>
</table>

*Bibliographic search interface*

Initially the EBSCO Discovery Service was accessed using an advanced search screen. The Discovery service for the University of Portsmouth encompasses the majority of bibliographic databases that the library subscribes to including; Web of Science, CINHAL and PsycInfo. In addition to this separate searches were also conducted to establish the literature in PubMed and NIHR which are not included in the Discovery database.

The search technique incorporated a variety of strategies including use of Boolean operators, truncation techniques, thesaurus and cited author searches. An example of the search terms used are overviewed in Table 2.2 alongside an example of the search parameters, which is provided in Table 2.3. Truncation of keywords was deployed as part of the search strategy as it enabled the search term stem to be included in the search sweep, with a view to optimising the publication yield as much as possible.

A flow chart (Appendix i) provides an example of a database search that was conducted using Discovery. Following the refining process all papers were individually screened to determine their suitability for inclusion in the literature review. Grey literature and cited author searches were also undertaken, where appropriate. During the database search
it became apparent that much of the available literature on reflective practice was opinion, with the evidence base limited to predominately case studies.

Table 2:2 Example of bibliographic database search terms

<table>
<thead>
<tr>
<th>Concept</th>
<th>Search</th>
<th>Retrieval formula</th>
</tr>
</thead>
</table>
| AND     | Reflecti* and Stud*  
          | Reflecti* and Dent*  
          | Reflecti* and Barriers  
          | Reflecti* and Dent* (and Stud*)  
          | Reflecti* and Learn*  
          | Reflecti* and Learn* (and barri*)  
          | Reflecti* and Learn* (and stud*)  
          | Reflecti* and Limit*  
          | Dent* (and Stud*)  
          | Reflecti* (and Stud*) (and Dent*) | |
| OR      | Reflect* or Reflective practice  
          | Reflect* or Critical thinking  
          | “Reflecti* learning” or “Reflect* practice”  
          | “Reflecti* practi*” or “Reflecti* learn*” | |
| NOT     | Reflect* not Practi* | |

Table 2:3 Example of bibliographic database search limiters

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papers written in English language</td>
<td>Review papers (N.B. references in review papers were subject to cited author searches in order to identify relevant primary data sources)</td>
</tr>
<tr>
<td>Papers in Higher Education (undergraduate &amp; postgraduate)</td>
<td>Education papers situated in establishments that were not involved in Higher Education</td>
</tr>
<tr>
<td>Papers situated in health science</td>
<td></td>
</tr>
</tbody>
</table>
Reflection in education

*Introducing reflection*
Reflection, in the context of personal learning, was first identified by Dewey in 1938. Dewey identified that while we cannot learn or be taught to think, we do have to learn to think well (p.108), describing how the procedure of enquiry begins; with an indeterminate situation (i.e. a troublesome event or experience), Dewey (p.119) names these experiences objects of enquiry; pre-determined objects which are a means of attaining knowledge. Dewey suggested that in order to consciously learn from an experience the subject should be “turned over in the mind...giving it serious consideration” (p.102), surmising that this approach would avoid the hit and miss element of learning. Thus providing a conscious aspect whereby thinking to learn would occur.

Demetriou (2000, p.210) describes how reflection is an implicit aspect of human nature which underpins one’s identity via a process of negotiation between our sense of self and the experiences of others. The implied nature of reflection can be therefore difficult to formalise as it is often driven by subjective forces which can skew the understanding and processes that surround it.

*The role of reflection in large organisations*
In 1971 Schön explored the impact of learning on society in his book ‘Beyond the stable state’. In which Schön acknowledges the impact of technology on learning and the threat of change that this potentially poses to historical views of occupations and organisations. Schön describes the response by institutions to the changes in value systems in society, suggesting that the response would be to implement a state of ‘dynamic conservatism’ in order to avoid transformation, which was seen as a threat to the ‘stable state’ which is the belief that uncertainty should be avoided by fostering a state of un-changeability in order to provide consistency in the central aspects of one’s life. Schön reviewed how institutions reacted to change, suggesting that they should embrace transformation in order to progress; ‘our society and all of its institutions are in continuing processes of transformation’ (p.30). Institutions, therefore, have to become capable of transformation without ‘intolerable disruption’ in order to develop and enhance themselves. Although Schön’s text predominately focussed on companies,
governments and social movements in the first instance, Schöen developed the case for a ‘learning society’ to be integrated into one’s own continuing personal learning processes in order to ‘learn about learning’.

In 1974 Schöen and Argyris developed Schöen’s work further, focussing on professional effectiveness and organisational learning. Argyris and Schöen identified that people have ‘mental maps’ which inform how they plan and act in situations.

**The reflective learning cycle**
Kolb and Fry (1975) described a ‘learning cycle’ which may be conscious or unconscious, which with frequent use developed a ‘mental muscle’ that maybe part of an entire cycle or involve isolated elements of it. Kolb’s learning cycle was described as a process of experience, thinking back, formulation of an idea and finally testing of that idea (active experimentation). Kolb suggested that students may have a preference for a certain aspect of the learning cycle, which might influence and limit their ability to achieve the most benefit from an experience and therefore suggested that the learning cycle would allow exploration of a process or event that allowed students to make sense of their experiences.

Kolb (1984, p.21) later formalised this process in the ‘learning cycle’, as demonstrated in Figure 2:1.

![Learning cycle (Kolb, 1984)](image)
Schön (1987) described the uncertainty of professional practice identifying the importance for professionals to develop a repertoire of skills and attributes that supported them through the “swampy lowlands of everyday practice” which he identified as messy, unpredictable, complex, challenging and stressful. This ‘real world’ acknowledgement of the benefits of reflective practice allowed healthcare professionals to hone in on the benefits of formalising their reflective processes.

**Reflection on and in action**

In 1987 Schön built on Dewey’s (1938) stance by describing how greater professional confidence could be achieved by not only reflecting on action as Dewey had described, but also reflecting ‘in action’. This approach encouraged professionals to reflect both on and in action, creating an opportunity to consider and improve knowledge, which in turn would lead to a state of expertise. Paterson and Chapman (2013, p.135) describe how novice practitioners use reflection in action less than those with more experience, and suggest that it is only when the novice learns to look inside themselves to reflect on action that they move upwards towards to become more ‘expert’.

In order to understand further the difference between the process of reflecting in and on action Benner (1984) describes the sequence of events as “life lived, life as experienced, life as told”. By this she describes how a life lived is what actually happens, the life as experienced is the feelings, thoughts and meanings derived from the life lived and the life as told is how the experience is put into context when the event is recounted; the reflection on action aspect. Patersen and Chapman (2013, p.136) describe the difficulty of putting life into a sequence of events when a professional is in the moment opposed to the benefit of hindsight which allows exploration of “intentions, actions, previous experiences” which will create a coherent narrative.

The use of narrative as a reflective process is well documented (Moon 1998, Bolton 2010, Benner 1994) and it is perhaps Brockbank and McGill’s (1998) view that best encapsulates the benefit of creating a reflective narrative;

*Thus telling it like a story is more likely to convey congruence between what we are saying and what we are feeling and what our thoughts really are*

*(Brockbank and McGill, 1998, p.179)*
Moon (1998) suggests that the differences between the varying views of reflection lies within the students’ point of focus (holistic or specific, professional or personal) which is fundamentally shaped by the underlying reason for its use; be it to enhance our processes, meet goals, for assessment purposes, or to demonstrate competency.

In order to ensure that reflection moves from a superficial way of learning, to a deeper more insightful process, there is some requirement for systematic reflection to occur, as Kant (1781) stated “Thoughts without content are void; intuitions without conceptions, blind.”. Alsop and Ryan (1996) attempt to bridge this gap by describing three ‘moments of reflection’; prospective, speculative and retrospective, which should be utilised as part of the reflective process. Alsop and Ryan (1996, p.170) suggest that prospective reflection looks forward providing an opportunity to envisage what a task may look like, speculative reflection looking at where one is now, and retrospective in which one is able to look back at what they have done or achieved.

As previously stated the foundations of reflective practice can be drawn from work by Argyris and Schön (1974), who describe two different theories of action, which are conceptualised as ‘Espoused theory’ and ‘Theory in-use’. This view was developed further by Schön (1983) who identified that a traditional didactic approach to learning is unable to encompass the tacit and reflective nature of clinical professional practice, exploring the concept of ‘reflection on action’ and ‘reflection in action’, thus heralding the emergence of the term ‘the reflective practitioner’.

**Tacit and explicit knowledge**

During 1966 Polanyi identified how human knowledge could be classified into two categories; Tacit and Explicit knowledge. Tacit knowledge was divided into two dimensions; a technical dimension, which is demonstrated by informal skills (know-how) and the cognitive dimension which is constructed by innate beliefs and values which fundamentally shape an individual’s view of the world. Explicit knowledge, on the other hand, is formally articulated and recorded in codes (words, numbers or formulae) and stored in formal ways (e.g. online records, databases, documents and libraries). Polanyi’s work was based on a paradox in Plato’s dialogue known as ‘The Paradox of Inquiry’ (Meno’s Paradox); Dealing with the view that the search for knowledge is absurd as either a person knows what they are looking for (rendering enquiry pointless as the...
answer is already known) or does not know what they are looking for (rendering enquiry impossible as they could not seek something they did not know they were looking for in the first instance). Polanyi argues that if tacit knowledge (subjective insight and intuition, based on personal experiences, ideals and values) are based on the central formation of knowledge, then it would be possible for an individual to both know what they are looking for and have a hunch about additional ways of knowing.

**Reflecting in action**

Schön’s (1983) view that reflection occurs both *in* and *on* action thus raises the question as to at what precise point does reflective thinking occur? Is it realistic to expect that reflective thinking can be easily and explicitly disentangled from our intricate developmental reasoning processes with such ease? Indeed, King & Kitchener (2004 p.5) conducted a longitudinal study that identified the complex reasoning that occurs in late adolescents and adult’s decision making processes, via a Reflective Judgement Model (RJM). The RJM has three distinctive phases: Pre-reflective thinking, Quasi-reflective thinking and reflective thinking. King & Kitchener’s (2004) work described how the impact of age and openness affected student assumptions and judgements, alongside the impact of environmental variables, in addition to changes in brain activity and reorganisation of neural networks (p.11). Most significantly King and Kitchener identify that reflective thinking increases in line with contextual support provided to a student, facilitating higher order thinking and functioning at the end stage of the developmental process.

The quandary regarding whether reflection occurs as part of a beginning or end phase of thinking is an important point to clarify. Indeed, Schön (1983) describes ‘reflection in action’ as being bound by the ‘action present’

*A practitioner’s reflection-in-action may not be very rapid. It is bounded by the ‘action-present’, the zone of time in which action can still make a difference to the situation. The action-present may stretch over minutes, hours, days, or even weeks or months, depending on the pace of activity and the situational boundaries that are characteristic of the practice.*

*(Schön, 1983, page 62)*
Taking into account Schön’s description, there is clearly some disparity regarding the parameters of time that define reflection in action (Canning, 2008). In addition to this, there is no acknowledgement of ‘reflection before action’ (Greenwood, 1998) nor when using ‘prospective reflection’ (Alsop & Ryan, 1996); a moment where practitioners are able to visualise how they envisage an interaction or activity to occur.

In addition, there lies the conundrum of distilling and making explicit exactly what is meant by the term ‘tacit knowledge’. Polyani (1966) has already described how tacit knowledge is a covert and almost incomprehensible element of knowledge, yet Schön asserts that this is an explicit conscious moment that can be held up, looked back on and crystallised.

**Defining reflective practice**

Following Schön’s key text various models (for example; Gibbs 1988, Driscoll 1994, Johns 2009,) have emanated acting as a guide alongside a raft of books, articles, websites and even journals entitled Reflective Practice, with a view to guiding practitioners at varying stages of their practising careers through the somewhat ‘fuzzy’ (Bassey, 1998) minefield of Reflective Practice.

The tranche of information surrounding professional reflective practice can be confusing to novice practitioners, as Finlay (2008) and Moon (2004) have identified, there are multiple and contradictory understandings of reflective practice which are often found within the same discipline, which can make the journey to meaningful reflective practice difficult for inexperienced practitioners to navigate.

In an attempt to unpack and define professional reflective practice Duffy (2007) conducted a concept analysis of reflective practice in nursing education, comparing three reflective frameworks (Johns 2009, Gibbs 1988 and Mezirow 1991), exploring the antecedents required for RP to occur and consequences of each approach, finally concluding with the suggestion that Reflective Practice could be defined as;

> An active and deliberate process of critically examining practice where an individual is challenged and enabled to undertake the process of self-enquiry to empower the practitioner to realize desirable and effective practice within a reflexive spiral of personal transformation (Duffy, 2007, p.1405)
Duffy acknowledges (p.1406) that this definition is likely to change, over time, due to the iterative and complex nature of RP. However, this definition could be perceived as a solo endeavour and as such, for the purpose of this research project, the definition of RP that will be employed is Bolton’s

A way of standing outside oneself to examine how we are involved in creating social or professional structures counter to our espoused values. It enables awareness of the limits of our knowledge and how our own behaviours is complicit in our organisational practices  
(Bolton, 2010, p.xix)

Whilst Duffy acknowledges the need for critical reflection to occur as part of a transformational spiral, Bolton’s definition also takes into account the social and professional influences in which one works, alongside acknowledging the gap between the realities of the actions that actually occur in practice and being mindful that these may not be aligned with organisational or personal expectations that are openly discussed.

**Mindfulness**

Germer (2005) defines mindfulness as a person’s awareness of present experience alongside acceptance. Johns (2010, p.11) mirrors this view with the suggestion that mindfulness is the ability to see things for what they really are, without distortion. However, in accepting an experience, there will on occasions be challenging and uncomfortable elements, indeed the ‘messy’ (Schön, 1987) aspects can often be painful. Germer and Neff (2013) identify that there is a role for self-compassion to occur when looking at oneself in a critical way. Self-compassion is determined as simply allowing ourselves to bekind to ourselves and not using reflection to berate oneself unnecessarily. Johns (2010) agrees with this viewpoint;

To serve truth is an utter requirement even if the narrative is fiction, a finely crafted fiction based on insights. Perhaps this is necessary when the words are too sharp. The ethics of narrative are a swampy field

(Johns, 2010, p.102)

Lovas (2008, p.999) explores the introduction of mindfulness into the dental curriculum, asserting that the “essential qualities of professionalism, such as self-awareness,
acceptance and wisdom, overlap when cultivated through mindful practice”. This concept is echoed by Johns (2009, p.39-40), who cites ‘The Burford Model’ (based on his work at Burford Hospital) as a reflective framework for clinical practice, discussing caring practice as a responsive and reflexive form, within the context of the environment in which it is practised. However, Sandars (2009, p.685) suggests that this approach has its limitations stating “There is little research evidence to suggest that reflection improves quality of care, but the process of care can be enhanced”. Indeed, while the literature is keen to identify the positive contribution reflection makes to sound moral judgement, it rarely addresses the need for the time that is required in clinical situations where there needs to be continuity of care, when actions and decisions are made synonymously. Schön (1983) describes this process as part of professional practice development suggesting that “competent practitioners know more than they can say” that they “exhibit a kind of knowing in practice, most of which is tacit” (Schön, 1983, p.viii), it is at this point that intuition and experience lead the situation; “bridging the gap between prior moral reflection and present moral action”. Reflective practice serves to further enhance one’s awareness of our personal thoughts and professional practice allowing us to grow as professionals.

By engaging with the process of mindfulness a practitioner is able to access their professional habits, generating possibilities to establish aspects of their own practice that may benefit from further development. This ability to create self-knowledge, by placing oneself in a context that is relevant to one’s own environment, via a reflexive cognitive pattern, in turn, transfers itself intrinsically to personal daily practice (Costa & Kallick n.d.).

Thompson and Thompson (2008) acknowledge the need for self-awareness when reflecting and describe how a degree of humility that is involved when engaging with this type of activity, suggesting that being over-confident and self-assured can lead to one having a fixed and dogmatic view of the situations that they are faced with. In essence, there is a need for an element of reflexivity, which should allow one to engage in critical appraisal of our own personal practice. Reflecting on why we frame our practice and any research that we carry out in a particular way, why we investigate our chosen topic in a particular way, and how these approaches lead us to particular kinds of solutions and theories, but not others. Johns (2010, p.102) tries to encapsulate this
process stating that the art of reflexivity is “looking back and seeing self as emerging towards realising desirable practice”.

The nature of memory in reflective practice
Memory is dependent on the passage of time, if life were lived in the constant present we would be unable to recall the past, thus preventing the extraction of what has gone before (Griffiths, 2008, p.289). Memory and the perception of time are both independent elements which are inextricably linked. However, as Griffiths identifies, that “in order to recognise the significance of a memory, past experience has to be identified in terms of the present”. This suggests that if we wish to make some meaning from our past events, we must view our personal recollections through the same lens, in essence overlaying one experience with another to create a current context that can be explored, with a view to identifying a heightened reality.

Implicit memory is unconscious or automatic memory, where past experience enables one to remember events, without directly thinking about them. Cohen and Squire (1980) drew a distinction between the two types of long term implicit memory; declarative knowledge (knowing that) and procedural knowledge (knowing how). Declarative knowledge involves some element of recollection, for example, knowing that fluoride is in toothpaste. Whereas procedural knowledge is unconscious and automatic, for example, knowing how to brush one’s teeth with little awareness of the skill required to do so. Indeed, the ability to repeat a task does not necessarily demonstrate skill acquisition, as in order for skill acquisition to occur there is usually a change that has occurred in a particular process or task due to personal experience (or practice). This ability to learn new ways or improve old ways of conducting tasks is the desirable act that professional reflective practise seeks to achieve.

Professional attitude and behaviour
Over time the term ‘Reflective Practice’ has been subjected to much praise, and indeed criticism, most probably due to the various stakeholders who use reflective practice; to educationalists it is a useful way to gain insight to a novice practitioner’s view of the world. To management it can be a way of demonstrating quality of care, and for the majority of professionals, it is a formal or informal activity that is engaged with in
accordance to our own beliefs and traditions, it is how we make sense of the activities we undertake in our world.

Interestingly, Horan (2005) suggests re-defining the term reflective practice, that it should be simplified, in order to create frames that can be used to pre-frame an experience before it happens, frame an experience as it happens and after it has happened (Schön, 1983). Indeed, it is Horan’s view that the creation of mental images in order to understand our practice is more likely to depict the reality of what has occurred. This would allow easier recall, by allowing practitioner to create ‘processable snap shots’ of practice, creating (in literal terms) the art of practice.

Horan (2005) suggests this art is created by taking cognisance of the following aspects; that tacit norms and appreciations underlie a practitioners’ judgement, exploration of strategies and theories that are demonstrated by an implicit pattern of behaviour, Exploration of the practitioners’ feelings on a situation, the action taken within a situation, and the way that the practitioner framed the situation in order to solve it, underpinned by the practitioners’ role in the situation and broader organisational context. Once a practitioner has framed a situation they can then use a questioning approach (who?, what?, why?, where?, when?) or the Five Whys (NHS, n.d.) to make sense of the situation, allowing exploration of the ‘river of practice’, which Horan describes as ‘sometimes calm, sometimes parched and at other times torrential flood’.

**Critical thought**
Critical thinking facilitates the opportunity to learn from experience, it is a process of unearthing deeper meaning and assumptions surrounding the way we do, feel and think about the practical experiences that occur in our professional and personal lives (Schön, 1983). By developing accountable knowledge, a practitioner is able to reflect on their own role and beliefs in the construction of knowledge (Lee, 2009).

Thompson and Thompson (2008, p.158) describe the need for self-awareness to be developed, which involves a degree of humility and recognition of the dangers of being too self-assured or over-confident, qualities that are reflected in the NHS Core Values (DOH, 2015).
Critical thinking serves us in two ways; critical depth, whereby underlying assumptions are identified and addressed, and critical breadth, in which the practitioner aims to avoid becoming mechanistic which can cause them to lose focus and move away from the broader social and political contexts of practice (Thompson and Thompson, 2008, p.155).

Education providers therefore have the complex task of ensuring that safe and intellectually risk free learning opportunities are provided for students, allowing higher order thinking and conversational skills to be developed.

Blooms Taxonomy of Educational Objectives (1956) provides a framework of cognitive functions to promote higher order thinking, via a multi-tiered scale that identifies the level of expertise required in order to monitor measurable student attainment. Critical thinking is part of the higher order set of skills and is not an automatic process, but instead activated. Reflection can therefore become useful vehicle in facilitating this type thought development (Johnson, B, 2015).

How students learn

In order to understand how we can best educate students there is a prerequisite to have some insight into how students learn. To try and uncover the differing learning styles of students Honey and Mumford developed their learning styles questionnaire (Honey and Mumford, n.d.) which basically determines the preferences that people have when they learn and how this in turn affects how best they will learn. By identifying individual learning style preferences, students are able to then select learning opportunities that best support their learning style. This is underpinned using a constructivist stance. The learning styles in their broadest of terms are; Activist (focus on practical having-a-go type of approach), Reflectors (prefer to look before they leap, or observe opposed to taking the lead in a situation), Theorists (require logic, organisation and assurance) and Pragmatists (prefer demonstration). With the advent of online technology utilised in student education Salmon (2002, p.29) revisited these learning styles, adding ‘lurker’ to Honey and Mumford's four style preferences. This addition was a result of Salmons experiences’ of working on online learning programmes, where she identified seemingly passively engaged students who would ‘lurk’ in the background feeding off of the ideas.
of others, reading the ideas and comments of others, watching mistakes being made, providing no comment or feedback but nonetheless using the information that they have gleaned. Most learners will have characteristics of more than one of the types identified by Honey and Mumford and discovering which preferences an individual has can be a useful way to aid the student learning journey.

**Approaches to learning**

In order to actively engage students in the learning process dental education providers regularly use problem-based scenarios and simulation to demonstrate real-world problems (Basir, Sadr-Eshkevari, Amirikohheh and Karimbux, 2014). The value of this type of active learning is that it stimulates higher order thinking skills, alongside the opportunity to develop practical and communication skills whilst following a student-centred approach.

Various methods have been advocated to facilitate reflective processes. Moon (2004) suggests that reflection, in its most simplistic form, is the ‘mulling over’ and ‘reorganising’ of ideas and discovering how these will fit into our patterns of work, with a view to improving practice. This approach to the process of learning is echoed by Opfer and Pedder (2011) who state that although students will share the same teaching space what each student experiences and learns is unique, even within the same setting. In order to enrich and develop the student experience Mezirow (1997, p.11) suggests that students are provided with an opportunity for discourse, allowing them to transform their ‘frames of reference’ by introducing reflective insight into their personal practices and allowing critical assessment of it. Dreyfus and Dreyfus (2005) build on this approach, adapting Benner’s (2001) model (Novice to Expert) to exemplify the stages of unfamiliarity through to experience, as a practitioner, and suggest how this model can be used to aid reflection in the context of a professional group setting.

Accepting that how theoretical knowledge is delivered to students is largely dependent on who has designed the lesson/session and how this is then, in turn, interpreted and reconstructed by the individual student. Some consideration should be given to the influences of the current Higher Education landscape. Since the introduction of University course fees has occurred the marketisation of academic programmes and advent of the ‘student as the consumer’ (Molesworth, Scullion & Nixon, 2011) has
evolved. Within this sphere consideration must be given to the impact and expectations of ‘Generation Me’ (Twenge, 2014) students, who have distinct preferences in relation to Technology Enhanced Learning (TEL) (Shahoumian, 2014) and its role in the learning milieu.

Laurilliard’s (2002) model of conversational learning draws on the integration of TEL as part of the learning experience, focussing on the on-going student-teacher interaction. Laurilliard’s model (2002) is formulated from a constructivist stance (i.e. learning is constructed and teaching is supporting the construction, rather than transmission of knowledge), set within the boundaries of professional responsibility and accountability. The use of scaffolding to support student learning is embedded within Vygotsky’s Zone of Proximal Development (ZPD), which is explored by Puntambekar and Hubscher (2005, p.10) who give consideration as to how online learning can be orchestrated to meet the requirements of the multiple ZPD using an online, evolving, medium. However, they are keen to highlight a requirement of ensuring that the theoretical features of scaffolding, such as ongoing diagnosis and calibrated support, are not overlooked during online delivery. This view is mirrored by Biggs (2003) who describes how some students have the ability to spontaneously engage in study, whereas others will need support and direction. Ultimately the process of enhanced learning occurs through internal motivation (Rohwer, Rehfuess, and Young 2014), underpinned by the acknowledgement of gaps in knowledge facilitated by a reflective approach to learning.

Bolton (2010) describes how a strategy of through the mirror reflection (p.8) can be implemented, suggesting that a written narrative is produced by students, which allows the reader to share in their observations, descriptions and exploration of their personal perspectives, which in turn, should provoke reflective and reflexive processes, by the tutor overseeing this process. This provides an opportunity for shared understanding and insight into a student’s personal actions. Bolton states that this type of reflective practice should help tutors to consider experiences from a range of viewpoints, without assumption;

*professionals need to face the uncertainty of not knowing what is round the corner, where they are going, how they will travel, what they will meet*  
*Bolton, 2010, p.211*
One aspect that should not be overlooked though is the misconception that reflective practice is fun or comfortable, as Platzer, Blake and Ashford (2000) describe, students can sometimes feel “unwittingly mislead by the process”, which is often compounded by the formality of being required to participate and record their reflective activities. Laverty (2011) outlines the need for students to commit entirely to the “time consuming and challenging” process of reflective practice, identifying that comfort does not always encourage novel thought.

In order to meet the personal and professional developmental requirements to grow and develop one’s practice Kolb (1984) suggests that in-depth reflective writing will enable the outcome of reflection to be taken back into practice, facilitating further improvement and development. It is this fundamental viewpoint that is pivotal to any reflective practice activity. It would appear that regardless of how the reflective process is captured, the most crucial element is the process of doing.

**Group reflective activities**

Group reflection is a regular activity, which can be used formally and informally in student dental education as a useful way to air and share students’ views and experiences; providing a vehicle in which to endow undergraduates with the attributes required of graduates (Cameron, Binnie, Sherriff & Bissell, 2015, p.267). Reflective practice, within this sphere, should not be confused with reflection (Osterman and Kottkamp, 1993, p.9) as it is not a solitary or relaxed meditative process, it is a “challenging and demanding process”, making it “difficult to develop a critical perspective on our own behaviour”. Which is therefore why they suggest that analysis undertaken in a collaborative and co-operative environment, allowing practitioners to develop a greater level of self-awareness about the nature and impact of their performance. It is this awareness that creates opportunities for professional growth and development, acknowledging both the emotional and rational dimensions of change (Osterman and Kottkamp, 1993, p.12).

Dreyfus and Dreyfus (2005, p.790) reviewed the benefits of group reflective activities, stipulating that learning depends on “taking responsibility for the mistakes of the team and especially for one’s role in whatever went wrong”. This demonstrates how important it is to establish an ethos of acceptance of failures as well as successes within
a group. In addition to this, there is exploration around the concept that the perceived ‘expert’ will often use intuitive judgement, rather than reflective calculation, when acting on a clinical incident as it occurs. Johns (2009, p.102) suggests that practitioners should acknowledge this phenomenon as it occurs, utilising “The being available template” (p.108) when acting as a “student guide”.

Platzer, Blake and Ashford (2000) describe how post registration nurses and midwives struggled to be open to sharing ideas in a group setting, voicing their concerns regarding how they would be perceived by the other members of the group, which directly impacted on their participation due to fear of criticism and judgement by others on their personal actions. Laverty (2011) also noted this phenomenon giving consideration to the potential ethical dilemmas that surround group discussion such as; anonymity, confidentiality, professional competence, conflicting loyalties and interpersonal conflicts. Laverty felt that these elements became part of a cost-benefit analysis, which students covertly undertook prior to sharing experiences, whereby an element of weighing up personal hurt against professional gain occurred. In exploring this, Laverty suggests that anxiety of assessment can be reduced by the facilitation of an academic and student team, who work together in a collaborative way to identify goals, ensuring that the student experience is a supportive one. This view is echoed by Brockbank and McGill (1998, p.201) who describe how the use of emotions during reflective dialogue as the ‘fuel for adventure’ in double loop learning, stating that there should be no right or wrong, that students should not be required to repress their experiences, but instead these emotions should be harnessed in order to sustain the momentum of the learning cycle.

If reflection is an intrinsic part of the learning process, there is also a requirement to consider the role of reflection in the assessment process.

**Reflection for assessment purposes**

Whilst Bolton (2010) is keen to extol the benefits of continued reflection, she also airs significant ethical considerations concerning reflective practice and submission for assessment (p.59), using a quotation from a student nurses experience to postulate the dilemma faced by professionals in grading a student’s personal reflection. Bolton
acknowledges the reality of this type of concern, suggesting that it could be addressed using experienced and knowledgeable facilitation, at a level appropriate to the students learning, which would enable students to find reflection and reflexivity useful, rather than be seen as an intrusion. Johns (2009, p242) mirrors this stance when he discusses the contradictions between reflection used as a “surveillance system” and the opportunity for practitioners to “develop, reflect and monitor their own performance”. Johns is clear that reflection in a clinical environment must occur without an agenda, to allow the integration of reflection in a positive way, enabling the most crucial phase of any student practitioners’ development; a move from a surface to a deep approach to learning.

Although the benefits extolled by the literature all point to the positive aspects of teaching and assessing reflective practice, concerns are also raised (Carrol, Curtis, Higgins, Nichol, Redman and Timmins, 2002) regarding the practical, legal, ethical and moral implications surrounding its use in assessment. Instead, Carrol et al (2002) propose that the focus should not be on reflection as a distinct topic area but using critical thinking and analysis, self-awareness and problem solving to demonstrate professional attributes alongside skills within a curriculum. This is also a tricky aspect to capture and assess as ultimately although we all experience the same reality, how it is perceived and interpreted will inevitably vary from person to person.

Moon (2004) surmises that educators should “develop ideas about learning that fit best our view and our practices” with the caveat that “if we have a variety of views about learning, so does the learner”. This stance mirrors some aspects of Carrol et al (2002) with regard to setting a requirement for educators to assist learners to become aware and critical of their own assumptions and the assumptions of others, as part of the transformative learning (Mezirow, 1997) process. Thus, allowing students to become empathetic and open to the views of others. This in turn makes the reflective process much more superficial, opposed to students unpacking and reflecting on more mundane procedures, which could be of more benefit to them at a later date.

In addition to this is a need to approach capturing reflection on an equitable basis within the classroom. One way of trying to safeguard this can be to facilitate the stating of clear aims and objectives (Moon 2004), this method allows the student to identify the
associated learning outcome they are expected to demonstrate at each stage of their learning journey.

It has been suggested that the minimum end-point for undergraduate learning is when the disciplinary content reaches a minimum alignment with that of colleague’s expectations (Laurilliard, 1993). In this instance expectations have already been set by the professional statutory body (GDC) and education providers are expected to ensure that they incorporate their own academic regulations into their programmes, to ensure that all stakeholders’ requirements are met. The downside of such a ridged and formal approach to learning is that it facilitates a “bottom line approach” (Coverston, n.d.) whereby students become predominately concerned with the acquisition of formal knowledge (data) in order to pass an assessment artefact, which in turn discourages the development of critical and reflexive processes, which are difficult to assess and process.

The skills that are used to assess students are often lost when working in the real-world post-registration arena, where Mantzoukas and Jasper (p.930) noted that professionals abandoned any sincere form of reflection in order to meet the demands of others. This concern is echoed by Laverty (2011) who suggests that the emphasis should be on establishing the requirement for continuous professional development to occur throughout a career, opposed to becoming a self-limiting process that only has value during a programme of academic study.

One way of enhancing the student experience would be to empower the student by creating opportunities for the student to believe that their success has arisen from their own efforts, opposed to regurgitating the views of their tutors (Oliner, n.d.) as their learning journey progresses. Rees (2007) acknowledges that reflective skills develop over time, echoing Johns requirement for reflection without agenda, stating that educationalists need to consider how reflective skills are facilitated in order to avoid ‘academic game playing’, whereby reflective processes only occurs to provide evidence in order to meet course outcomes. The use of reflection for assessment purposes is an area of potential criticism for education providers, as there is limited research into reflective practice and hindsight bias (Reece-Jones, 1995). From the student perspective, knowing the final outcome of a situation could be utilised to demonstrate and influence their academic attainment, depending on how the apprehension of an event is used.
Barriers to reflection

Whilst the many perceived virtues of using reflective practice in student education are extolled alongside the more formal requirements to undertake and evidence reflective practice, there was a low yield from the bibliographic database search when it came to identifying the potential barriers to reflective practice (appendix i). Indeed, it would be useful to ascertain an understanding of the factors that hinder student reflective processes, this would enable academics to be better placed to develop teaching, and indeed the curriculum to better meet the student’s learning requirements. This, in turn, would assist them to achieve their full potential in developing their reflective skill acquisition.

Thompson and Thompson (2008, p.13) identified six concerns that they feel are ‘representative of the many obstacles, both real and perceived’ to reflective practice (Thompson and Thompson, 2008, p.131) which are; time constraints, waning commitment, organisational culture, lack of appropriate skills, anxiety, fear or low confidence, and misunderstanding the nature of reflective practice.

Time would appear to be the key ingredient in laying the foundations of reflective processes and in facilitating reflective practice. The aspects that are influenced by time are not just time to undertake the reflective processes themselves, but also the provision of the time to develop these skills effectively. Rees (2007) identified how meaningful and authentic learning requires more privacy than previously identified in the literature, echoing the stance taken by Glaze (2002) who found that time and a ‘safe’ environment was required to foster effective reflective development. Glaze (2002) also identified that there was a requirement for students to become familiar with the reflective literature stating that this was a ‘major milestone’ in engaging with the reflective process.

Laverty (2007) has extolled the benefits of allowing students to read one another’s reflections, asynchronously, to aid their reflective learning, arguing that although some students preferred face to face reflection with a critical friend, the benefits of being able to reflect online, at a time to suit them personally, outweighed any disadvantages.
Reflection in dental education

Historically dental education was solely focussed on the undertaking of practical procedures and techniques (Sweet, Wilson and Pugsley, 2009). Although there has been a growing trend for incorporating reflective learning activities into the undergraduate dental curriculum (Woodman, Pee & Davenport, 2002) which has led to the view that reflection is now considered to be an important component of undergraduate dental education and post-registration practice (Trico, Wolford & Escudier, 2014). There remains a deficit of literature exploring the underpinning cognitive and psychosocial skills which are required to meet the demands of modern dentistry (Jonas-Dwyer, Abbott & Boyd 2012, Koole, Christianens, Cosyn & De Bruyn 2016). In addition to this, the numbers of participants in the published studies specifically related to dentistry remain low, for example: Tang 2012 (n=17), Quick 2016 (n=32), Trico, Wolford & Escudier 2016 (n=22) and is most likely due to the uniqueness of the educational setting in which the studies have been situated. Alongside the paucity of literature situated within UK dental training, there is also an identified aspect of ‘mediocrity’ which has been identified by Massod, Thaliath, Bower & Newton (2011) and Innes (2012) in relation to qualitative dental research. These factors mean that generalisations can be somewhat limited. Nonetheless they are useful in so much that they contribute to increasing understanding and comprehension of reflective practice within the dental profession.

Peer involvement in dental assessment
Trico, Wolford, & Escudier (2016) explored the involvement of peers in assessment and feedback, finding that provided that students are given regular opportunity to engage with peer review activities (the authors state that a minimum of 10 peer encounters occurring during an academic year) this will significantly increase the students’ ability to critically reflect. However, these findings may be skewed by the effect of using peers in the assessment process, which, as Quick (2016) identifies peer assessment grading is ‘consistently higher’ than assessment reviewed by the academic and clinical team. This does not mean that peer involvement is not effective as both Trico, Wolford, & Escudier (2016) and Quick (2016) note that the positive effects of peer-involvement outweigh
any disadvantages, a stance which is echoed by Koole et al (2016) who have identified the value of mentor groups in promoting reflection.

Identifying risk in dentistry

Once a student is able to demonstrate that they have met the minimum learning outcomes set by the GDC for registration they are then, in turn, able to begin working as an independent practitioner: working with autonomy within their own competence and scope of practice (GDC, 2012, p.15). This does not mean that they should be working alone and in isolation, instead they are expected to integrate themselves as part of a dental (and healthcare) team.

It is at this point that the GDC views the new registrant as a safe beginner who should be capable of assessing their own capabilities and limitations, which can be demonstrated by the competency model, Figure 2:2, which combines the work of Broadwell (1969), Benner (1982), and De Bono (1990).

Performance

![Competency model](image)

Figure 2:2 Competency model (based on Broadwell (1969), Benner (1982) and De Bono (1990).
Despite the broad range of competency levels shown above a registrant “on the first day of practice is expected to work to the same standards as someone with 20 years’ experience” (Dental Protection, 2014, p.21). This is compounded by the fact that a demonstration of competence at qualification will not necessarily be a reliable indicator of real world performance. Nor will it serve as a guarantee of continued compliance throughout a professional career “especially when someone has failed to keep in touch with contemporary clinical practice” (Dental Protection, 2014, p.21), clearly demonstrating that although the regulators determine the minimum standard required to practice, it remains the responsibility of the registrant to ensure that the standards continue to be upheld.

Aligning professional standards within a workplace context is easier said than done due to the diverse scope of practice and skill mix that exists within a dental team. This will inevitably vary depending on an individual’s role and experience, with each team member working within various levels of competence, which may themselves be hidden due to the Dunning-Kruger effect (1999); whereby less skilled people will tend to over-estimate their level of competence and expertise opposed to those with more experience who may underestimate their level of expertise. Conversely, it is also possible for an expert to be caught in the ‘intelligence trap’ (De Bono, 1990, p.160) where they are unable to view the world from a novice practitioners perspective and feel that they have a sense of superiority. Thus leading them to believe themselves right and clever, which can in turn lead to a reluctance to make negotiating a change in their viewpoint or practice a difficult process.

Consideration should also be given to the socialisation of a new registrant into a workplace setting where, on entering a new environment, novice practitioners may choose to accept or reject the culture that is already established there (Spouse, 2003, p.142). If the registrant chooses to reject the cultural norms, they will place themselves on the periphery of the community and may lose much needed support of the already established members of the dental team. Once a practitioner is inducted into a working environment there are also risks surrounding the stressful situations that registrants are practising in. Dentistry has been identified as one of the most stressful health care professions (Dental Protection, 2016, p.2), due to the intricate manner practitioners are expected to work, within one of the most sensitive and confined parts of the body, in
addition to the requirement to ensure that they meet the requirements of an increasingly demanding body of patients and professional bodies (Dental Protection, 2016, p.3).

Limitations of reflection

Although the literature on reflection predominately identifies the accepted advantages surrounding the attributes of reflective practice, there is also a need to supplement this by scrutinizing its limitations in relation to student education. Most importantly, there must be acceptance that no formal research has demonstrated the effect of reflection on practice and if (or how), this has directly improved patient outcomes (Mann, Gordon & MacLeod 2009, p.613, Sandars 2009, p.685). This is most likely due to the fact that reflection is a non-visible activity. As such there are inherent difficulties surrounding the disentanglement of the complex and multi-faceted aspects of reflection and how this can be effectively measured with regard to assessing outcomes related to its use.

In addition to this there are also other predominant limitations which command consideration. These factors have been grouped into the following categories: the fuzzy definitions of reflection, the disposition required to effectively reflect, consideration of the consequences, confinement within a reflective spiral, environmental constraints and personal perceptions, which are explored below:

Fuzzy definitions of reflection

There is a lack of ‘common language’ (Rodgers, 2002, p.843) surrounding reflection, which means that practitioners find themselves using terms that are common, yet hold different or overlapping meanings. A view that is echoed by Finlay (2008) who describes how multiple and contradictory understandings of reflective practice can be found within the same discipline, making the route to meaningful reflective practice problematic for practitioners on their journey from novice to expert (Benner, 2001).

With the existence of an imprecise common language, reflection can inadvertently be dismissed. In turn becoming too difficult to measure or observe, and as such, almost
impossible to research. It is this deficit of clarity, which in turn reduces the focus of reflective activities, as Finlay (2008) describes;

The term ‘reflective practice’ carries multiple meanings that range from the idea of professionals engaging in solitary introspection to that of engaging in critical dialogue with others. Practitioners may embrace it occasionally in formal, explicit ways or use it more fluidly in ongoing, tacit ways. For some, reflective practice simply refers to adopting a thinking approach to practice. Others see it as self-indulgent navel gazing. For others still, it involves carefully structured and crafted approaches towards being reflective about one’s experiences in practice. (p.2)

Finlay’s description encapsulates the diverse interpretations that reflective practice spans, highlighting the need for novice practitioners to be given a clear understanding of what is expected, alongside motivating students sufficiently to see the value of engaging in the reflective process, advocating vehicles for capturing their thoughts and experiences with a view to achieving professional mastery within their chosen profession.

Reflection as a disposition
Learning is not a singular phenomenon but an amalgamation of values, practices, perspectives and values that are situated within a social context. Learning is essential in our development, informing what we do in any given situation, underpinned with instinctive insight into how feel we should act. Jarvis & Watts, 2012, p.361 identify how the learning process has participation and practice ‘at its heart’ differentiating the most basic difference between the ‘mundane sense of just getting through the day’ and the desire to move towards the ‘value-laden’ process of ‘living a worthwhile life’. Echoing Maslow’s perspective on the dichotomy between ‘striving’ and ‘being-be-coming’ (1954, p.62) ultimately leading the path towards self-actualization.

Ghaye (2011, p.40) describes reflection as a disposition; a commitment to develop one’s own professional mindset, enabling practitioners to make even wiser and more ethical judgements. However, there are some challenges to this, such as how does one know that the process of reflection is occurring? As Harvey and Knight (1996) state;
This viewpoint suggests that there needs to be an element of transformation occurring, the ability to use experience to change ideas, opposed to solely adding to existing information and thoughts. It is this quality that Brockbank & McGill (p.100) state is the significant turning point. A point where not just thinking occurs, a space where reflection is used to explicitly inform and demonstrate personal development. It is clear that in order to demonstrate this attribute a reflective dialogue is a necessity, an opportunity to be open to the views and perspectives of others.

**Consequential elements of reflection**

Reflection may be interpreted as a threat or used in a negative way, which was exemplified by the case of a junior doctor’s written reflective log being released and used against them in a legal case (Matthews-King, 2016), leading to a recommendation for professionals to record their written reflections in an anonymous way. Furmidge (2016) suggested that the ‘fear’ of reflections being used in this way would undermine the written reflective process, leaving reflections to become ‘watered down’ and ‘non-controversial’, written in such a way that there could ‘be no risk of comeback’. In a move to address this, there has been clear guidance from the professional regulatory authorities that the need for reflective activities must continue, despite the concerns;

> ‘Fear of litigation must never diminish the value of reflecting on, and learning from, experiences during training as a clinician. Improving patient safety must remain at the heart of any training programme. It is a step backwards in the post Francis era of transparency, if the learning culture is in any way slowed or eroded by trainees worrying that their reflections will be used against them.’
> (Perkins, 2017)

Assuming that Perkins (2017) statement is read in an assured fashion, there is a continuing requirement to be seen to engage with reflective activities. With a view to addressing the understandable caution surrounding the use of written reflection Davis & Kremer (2016) have identified what they consider to be the ‘fight or flight’ response, which occurs when a stressful moment arises in professional practice; Davis & Kremer describe how professionals that does not want to change will ‘fight’ their reflections by
contradicting all criticism and attacking the criticiser. Conversely, the professional that seeks ‘flight’ from the situation will accept unnecessary criticism and do everything they can to withdraw for the situation. Neither of these responses are the ideal, with the authors making the case for striking a ‘balance’ between the two extremes, under the guidance of a critical and trusted colleague.

That said, even in a situation where learning is facilitated, the outcomes are influenced by the support provided. Nor does clinical supervision automatically lend itself to harnessing an emancipatory process (Johns, 2010). Indeed, it is a process where we should seek to facilitate students to become the best possible version of themselves, opposed to solely regurgitating the view of supervisors in a bid to progress through their academic programme swiftly and easily. Fowler & Chevannes, (1998, p.380) propose that reflection should not be forced in to a pre-formed model but must be tailored, describing how a ‘minority’ of defensive learners will not respond to reflection in a positive way. This view also translates to some supervisors who perceive reflection as ‘alien’ to their way of thinking.

Confinement within a consequential spiral
Working within a healthcare setting is complex. ‘There is no such thing as simple cause and effect. There is no one person to blame, or take credit’ (Wheatley, 2002). Inexperienced, or unconfident practitioners can be tempted to use reflection as a statutory recommended process, a vehicle for facilitating an opportunity to justify or improve their confidence. Thus, enabling rationalisation of their actions with the additional benefit of potentially shifting the burden of responsibility to others (Charalambous, 2015). The distortion of the process of reflection may lead to a stagnant situation, which fails to meet its potential. Practitioners must be encouraged to review their own values and beliefs, as Kollmus & Agyeman (2002) have identified; the stronger our values, the greater our belief in our own views and as such this can lead to strong emotional reactions in a given situation. This is where the necessity to facilitate an open and transparent culture in relation to reflective practices should exist, one that allows the exploration of one’s personal influences via acknowledgement of reflexivity in the process.
**Environmental constraints**
Mantzoukas and Jasper (2004) explored in the influence that environment and workplace culture has on the reflective process, identifying how a qualified nursing team abandoned any sincere form of reflection in order to meet the demands of others by adhering to carrying out tasks in a routine and ritualistic manner. There is also the consideration of departmental expectation or professional requirement to reflection on an incident after it has occurred, as part of formal reporting of Near Miss, Prevented Incident or adverse events recording protocol, which in the daily realities of a busy workplace has the potential to become the main source of reflective activity. When using reflection in this way consideration should be given to the impact of hindsight bias (Reece-Jones, 1995); by recalling events, once the final outcome of a situation is known, there is the potential that the comprehension of the event may become skewed depending on who has interpreted the situation in and in what way.

**Personal perception**
The need to make meaning of events that have occurred is an ageless concept, ranging from Kierkegaard’s (1843) ‘life can only be understood backwards, but must be lived forwards’ to Wheatley’s (2002) ‘without reflection, we go blindly on our own way, creating consequences, and failing to achieve anything useful’. Confirming the basic premise of Jarvis & Watts (2012) that humans require more than just *making it through the day*, but instead prefer the challenges of *living a worthwhile life*. Having reviewed the various literature related to reflection and reflective practice throughout this chapter, there must be an acknowledgement of the meandering entanglement of these two philosophical concepts; reflection and reflective practice, which are inextricably linked to each other. Therefore, it must be a requirement for the person(s) engaging in any reflective activity to make explicit their interpretation of reflection/reflective practice, as ultimately the only reality is the subjective view of the person who interprets and engages with them.
Developing oneself
Ultimately the term *reflective practice* is ensconced within the foundations of student (pre-registration) and lifelong learning (post-registration), epitomising the requirement to continually develop and grow throughout one’s practising career in order to ensure that patient care is optimised by the use of contemporary, evidenced-based best practice. This approach should be an effective strategy throughout a registrants’ working life. As Patterson and Chapman (2013) state, there is a requirement within numerous professions for self-management to occur, due to the sheer numbers of registrants involved. The policing of these practices are monitored by professional bodies for example, in dentistry The General Dental Council, who require annual Continued Professional Development activity evidence of verifiable activities alongside a Personal Development Plan, complementing the broader monitoring undertaken by independent regulatory bodies such as the Care Quality Commission. Jasper and Mooney (2013, p.54) describe how “reflective practitioners function as independent professionals at all levels of their practice” contributing to the “developing status of the profession in both the public’s eyes, and those of other professions” encapsulating the fundamental role that PRP plays in lifelong learning.

From the literature review it is apparent that the drivers for reflective practice is twofold, with an onus on the need of personal development, alongside the broader pre-requisites from professional bodies, who may well favour the benefits that reflective practice brings by facilitating a shift of responsibility, away from educational decision makers, onto the registrant to self-manage and develop their own awareness, which is perfectly acceptable, providing that they have the skills, support, time and a clear understanding of what PRP should mean to them.

In summary, PRP has been widely muted as a positive way to develop and maintain healthcare workers’ skills within their chosen profession. With this comes an expectation for reflective processes to be demonstrated in both pre and post registration arenas, as set out by various governing bodies. Ultimately, the re-capturing of experiences in order to become more self-aware of one’s own personal practice is a pivotal element at the heart of a life-long learning journey, which if conducted effectively, provides affirmation, improvement and development of personal professional practice.
Interpretation of reflection underpinning this thesis

Accepting that there is a requirement for a ‘common language’ (Rodgers, 2002, p.843) a definition of reflection is required to underpin this thesis. Bolton’s (2010) definition of ‘through the mirror’ reflection is the accepted exegesis of reflection that underpins this work (Figure 2:3, page 60) as Bolton’s view incorporates the multiple interacting influences and environments that comprise a professional’s reflective arena. Bolton (2014, p.16) describes reflection as *purposeful* not the musings that ‘one slips into when driving home’ nor is it the rumination that can invade into our consciousness causing ‘distressing yet absorbing negative thoughts’. Bolton (2014, p.17) describes how reflective practice is about facing the realities of ‘attempting to perceive how things really are’, which is initiated by having an open and enquiring mind; walking ‘through the mirror’ to a new consciousness, one that lead to intentional learning. As healthcare professionals, we have a responsibility to pack a reflective toolkit during our reflections, which allows us to interpret multiple perspectives of ourselves in a moral, empathic and ethical way.

The theoretical interpretation of reflection (Figure 2:3) captures the four main aspects that Bolton’s model of reflection draws together; creation, knowledge, behaviours and organisational (environmental) practices. Bolton’s view has been amalgamated with Rodgers (2002, p.845) distilled criteria (included in the thought bubble) which Rodgers has based on the work of Dewey (1910 & 1933). The author of this thesis has made the decision to perpend these two definitions of reflection, which span one hundred years, as in their view this epitomises the metamorphosis that reflection has taken during its evolution, whilst acknowledging the various definitions that carousel and inform the individual interpretations of reflection and reflective practice within this literature review.
‘A way of standing outside oneself to examine how we are involved in creating social or professional structures counter to our espoused values. It enables awareness of the limits of our knowledge and how our own behaviours is complicit in our organisational practices’

(Bolton, 2010, p.xix)

Creating (Meaning making)

Reflexivity (Johns, 2010)
Tacit knowledge (Polanyi, 1966)
Evidenced based practice
Transformative learning (Mezirow, 1997)
Theory-in-use (Aygryis & Schön, 1974)
Point of focus (Moon, 1998)
Perception of risk

Knowledge (ways of thinking)

Interpretations of reflection
Clinical portfolio
Critical thinking
Evidenced Based Practice
Tacit & Explicit knowledge (Polanyi, 1997)
Memory (Griffiths, 2008)
Scaffolding (Vygotsky, 1987)

Meaning making process

Systematic, disciplined way of thinking
Occurring in a community (with others)
Attitudes and values that encourage growth of oneself (and others)
Rodgers (2002)

Organisational (community) Practices

Community of Practice (Wenger, 1998)
Relationship with others
Feedback & Feed-Forward
Professional development (Patterson & Chapman, 2013)
Lifelong learning (Jasper & Moony, 2013)
Identification of risk

Behaviours (attitudes, values and growth)

Espoused values (Aygryis & Schön, 1974)
Personal insight
Improvement
Mindfulness (Johns, 2010)
Confidence (under/over)
Duty of Candour
Engagement
Self-actualization (Maslow, 1943)

Figure 2:3 Theoretical interpretation of reflection
Conceptualisation of professional reflective practice

The author’s supposition of reflection derived from the literature is demonstrated in Figure 2:4. Accordingly the conceptual framework sets out to demonstrate how the theoretical elements discussed in this chapter metamorphoses into reality. The conceptual framework aligns Maslow’s (1943) Hierarchy of educational needs, which incorporates the influence that psychological needs (Mantzoukas and Jasper, 2004) have on personal development, alongside the progression of skill acquisition identified by Benner’s (2001) transition from Novice to Expert; a process that should, in essence, chart the hierarchical development of procedural practice. However, this movement has the potential to deteriorate, should a student or registrant’s professional development fail to flourish at any position in the process.

The initial phases of both Benner (2001) and Maslow’s (1943) development are distinguished using orange symbols, and as the advancement of competency progresses, this is denoted by the flow of colours to yellow and then finally green.

Adjacent to these processes, there is also identification of the place that the curriculum holds in informing the delivery of reflective practice. Ensconced within this process is the opportunity for experience, which can be strongly influenced by covert understandings and personal interpretations: values, beliefs and culture (Kollmus & Agyeman, 2002) that act as barriers, hindering the development of reflective experiences.

By providing a theoretical interpretation of the literature (Figure 2:3) the author has shared the aspects that they assert influences construction of the curriculum, within the educational setting in which they are situated.

The conceptual framework then aggregates and assimilates how the development of reflection evolves, with a view to conducting research that gathers new understanding as to where reflective practice in dentistry is positioned.
Figure 2.4 Conceptual framework

Maslow's Hierarchy of Educational Needs (1943)

Reflective Practice in dentistry

Curriculum
- Identified & regulated by GDC
- Interpreted by UPOA

Professional registration phase:
Moving from the competent into the proficient and expert domains
Independent CPD required to maintain skill

Clinical demonstration phase:
Moving from advanced beginner (safe starter) into the competent (safe beginner) domain
Clinical supervision required to aid skill acquisition

Initial development phase:
Moving from novice into the advanced beginner domain
Continuous support and monitoring required in order to demonstrate attainment of skill

Barton (1970)
Gibbs (1988)
Driscoll (1994)
Taught Reflective Models

Experience
Values
Beliefs
Culture

Expert
Novice
Benner (2001)
Research aims and objectives underpinning this professional doctorate

The initial two phases of this research project were designed to explore the student perspectives and assumptions of reflective practice as they undertook a three year BSc (Hons) programme in Dental Hygiene and Dental Therapy.

The final phase of this project was to compare and contrast the students’ perceptions and expectations with those of the GDC. This was achieved by formally reviewing GDC documentation regarding Fitness to Practice cases during 2012-2015, providing a different lens to view the requirement for reflective practice in a real world context.

There is an identified deficit of literature relating to the use and relevance of reflective practice in dental education (Jonas-Dwyer, Abbott & Boyd 2012, Koole, Christianens, Cosyn & De Bruyn 2016). As such this professional doctorate research set out to review the perspectives of the use and relevance of reflective practice for undergraduates studying under the Preparing for Practice (GDC, 2012) learning outcomes set by the GDC.

It was anticipated that the recommendations from this research would not only provide insight into the student's learning experience, but by placing an aspect of this research into exploring the failure of GDC registrants there was opportunity to identify the potential relevance of reflective practice in dentistry via a real-world lens.

These lenses would then be used to identify the relevance of reflection in primary care dental education, which will aid in informing how education is delivered for future undergraduates.

This research study, therefore, aimed to explore the following questions:

1. What types of event prompt undergraduate dental hygiene and therapy students to engage in professional reflective practice activities?
2. What preferences do undergraduate dental hygiene and therapy students have in the way they conduct their professional reflective practice activities?
3. How comfortable are undergraduate dental hygiene and therapy students in capturing their professional reflective practice activities?
4. What difficulties do undergraduate dental hygiene and therapy students encounter in relation to their professional reflective practice activities?

5. How regularly do undergraduate dental hygiene and therapy students engage with their personal professional reflective practice?

6. In what ways could the undergraduate dental hygiene and therapy student experience of professional reflective practice be enhanced?

7. What relevance does professional reflective practice have in future professional conduct?

In order to address the research questions, the following objectives were addressed, following formal application to the UofP Science Faculty Ethics Committee (SFEC):

1. Critically analyse reflective reports from the 2012/2013 BSc (Hons) Dental Hygiene and Dental Therapy cohort, which were an assessment artefact of pre-clinical unit of study, in order to gain insight into the students perspective of the use of reflective practice as part of their initial (simulation only) training phase.

2. Critically analyse data from an online questionnaire which had been distributed to the same cohort of students during their final year of study (2014/15 academic year) with a view to exploring perspectives and views of the relevance of reflection in their current practices.

3. Conduct a critical analysis of General Dental Council Fitness to Practise cases that were considered and either reprimanded or given conditions (restrictions) during January 2012 - December 2015, identifying relevant emergent themes and actions.
Chapter 3 Methodology

The aim of this chapter is to initially introduce and contextualise the educational environment that is being researched as part of this professional doctorate. Consideration is then given to how the research methodology was selected, including exploration of the role of the insider as a researcher. This leads on to the epistemology underpinning the research, followed by the relevance of illuminative evaluation in educational research and how this has been interpreted to inform the research architecture associated with the environment under review.

The process of analysis of the data using a framework approach is then mapped, stage by stage, in order to provide clarity to the reader as to how data was managed during each of the three research phases. This is an important element to articulate as a framework approach was utilised, as the consistent form of data analysis, encompassing all three phases of this doctoral research.

The final aspect of this chapter looks at the ethical review process and identifies how data management occurred.

\[
\text{And moving thro' a mirror clear} \\
\text{That hangs before her all the year,} \\
\text{Shadows of the world appear.} \\
\text{There she sees the highway near} \\
\text{Winding down to Camelot:} \\
\text{There the river eddy whirls,} \\
\text{And there the surly village-churls,} \\
\text{And the red cloaks of market girls,} \\
\text{Pass onward from Shalott.}
\]

\text{(Tennyson, 1832)}
Research project introduction

*The University of Portsmouth Dental Academy*

The School of Professionals Complementary to Dentistry (SPCD) opened as part of the University of Portsmouth (UofP) in September 2004, providing training for Dental Care Professionals (DCP’s). Since its inception the school has forged strong links with King’s College London Dental Institute, from which a collaborative project developed which led to the construction of an outreach facility which supports the clinical activities of eighty final year dental undergraduates, alongside the already established programmes that were operating at the UofP; BSc (Hons) Dental Hygiene and Therapy, Foundation Course in Dental Hygiene and Therapy and Cert. H.E. in Dental Nursing. This heralded the closure of the University of Portsmouth Training Limited in June 2010 with the emergence of the University of Portsmouth Dental Academy (UPDA), in September 2010.

The aim of the UPDA was to develop a unique, innovative, team based approach to dental education, allowing undergraduate students to share in the experience of working together in a primary care setting, opposed to the more traditional secondary care setting that occurs in the majority of dental training establishments.

The move to the new undergraduate team based model of dental care coincided with the changes to the undergraduate curriculum delivery for UPDA’s core educational programmes as part of the UofP’s Revised Academic Structure (RAS) in 2012, alongside the publication of the GDC’s dental education curriculum document ‘Preparing for Practice’ (GDC, 2012a). The new Dental Teams Learning Outcomes for registration were designed around four domains (Clinical, Professionalism, Communication and Management and Leadership), replacing the previous learning outcomes required for registration which were predominantly related to practical skills-based acquisition. This change in the purpose of dental team training and education came as a direct response to the findings and recommendations of the Mid-Staffordshire NHS Enquiry (Francis, R., 2013) alongside the increasing threat of public complaints and litigation. The number of FTP cases received by the GDC has increased annually, most noticeably during 2011 to 2012 when a 44% (GDC, n.d.) increase in FTP cases was confirmed.
The integration of dental undergraduates, who are on outreach from Kings College Dental Institute, into the UPDA has resulted in the formation of four Practice Teams. These Practice Teams each has a consistent skill mix of not only students, but also academic and support staff. The Practice Team works closely on clinic together, with students in each team grouped together, supported by members of their team and also encouraged to refer patients to one another depending on the patient’s individual treatment requirements in relation to the skill progression of the student or staff member. The Practice Team then meets on a weekly basis to discuss their individual teams’ performance and progress, identifying audit and student research project opportunities whilst facilitating reflective discussion about the week and identifying any shortfall or areas of good practice in relation to patient management. This opportunity to discuss and reflect on experiences with the full range of dental team members allows exploration of concerns, successes and failures from a 360-degree perspective.

The implementation of Practice Teams at the UPDA has generated a unique opportunity for students to share their thoughts, ideas and experiences with, not just their peers, but also the wider dental team, in essence, creating a Community of Practice (Wenger, 1998). This opportunity for regular planned discussion and reflection allows individual team members to review the impact that their own actions have elicited during their contribution to the patient journey. Historically research by Csikar, Bradley, Williams, Godson and Rowbottom (2009, p.530) had already identified that two-thirds of practising Dental Therapists in the UK were concerned that patient referrals from Dentists did not meet their expectations, and it is possible that an unseen benefit of this model of practice team working, could be an effective way of addressing this particular issue.

It was hoped that the changes to the curriculum (following the requirements of RAS and the GDC), alongside the implementation of the regular practice team discussions and personal clinical reflection should facilitate the development of the student’s reflective skills, both in and on action (Schön, 1983). Capturing, and acting as a record of the student learning journey, which, in turn, are used in the formative and summative processes at UPDA.

It should be noted that the BSc cohort were selected for invitation to participate in this research project as they were the only students who attend UPDA over a three-year
Considerations prior to selecting research methodology

**Qualitative research**

Qualitative research is principally concerned with text and meaning (Langdridge, 2004, p.15). It recognises the subjective experience of participants, allowing insights about human nature via an open-ended inductive approach. Thus enables an insider perspective on differing social worlds. Ultimately, it must be acknowledged that people are not a static and passive phenomena waiting to be measured, but they are active agents who continually evolve over time and potentially will change their perceptions of their views of the world (Langdridge, 2004, p.252). As a result, any data collected must also be viewed as being a *snapshot* which is subject to the feelings that the participants had at a particular moment in time.

Frost (2011, p.135) describes the suitability of qualitative research in answering the ‘how does it work?’ or ‘what does it mean?’ type of questions. A qualitative approach does have its limitations however, mainly due to the uniqueness of studying people as part of a research method, which can make generalisation difficult. In order to address this, the data analysis should be richly described which will, in turn, allow the ‘relatability’ (Bassey, 1981) of the findings to be realised by similar disciplines or establishments. Cohen, Manion and Morrison (2007, p.256) suggest a weakness of this research approach is the difficulty in cross-checking data. Stating that there is a possibility that researchers can become selective making the research subject to personal bias. However, one way to address these limitations is for the researcher to assert their moral and ethical responsibility in the research process at the outset. By ensuring that the chosen research methods and processes are clearly stated which in turn increases rigour. Cohen (1997, p.139) describes how this type activity will serve to not only improve the participants’ experiences but also lead to empowerment. Reasserting the pivotal role that ethics has to play in research by ensuring that researchers acknowledge their personal stance towards the topic area throughout the research process.
In 1986 Lincoln and Guba (p.74) identified their Evaluative Criteria which they felt should be considered when reviewing the rigour of research; Credibility, Transferability, Dependability and Confirmability. Each of these aspects should in turn be clearly articulated to the reader thus improving the quality of the research undertaken.

**Quantitative research**
Foss and Ellefsen (2002) suggest that a quantitative approach to research can provide a “broad, general, overview of the surface” which, in turn, offers breadth to the research, which increases the external validity; allowing the findings from the research to be useful for populations of participants in similar settings (creating generalisations). The depth of the research must therefore be encapsulated by the formulation of a robust research question combined with clearly articulated research architecture which is appropriate to meet the research aims and objectives. Quantitative methods can also help to identify if regularities that have been suggested by qualitative data collection are real or coincidental (Ayton, 2013).

**Using mixed methods**
Bennett (2003, p. 28) describes how IE allows researchers to capture quantitative aspects during data collection, with the caveat that it should be seen as ‘less important and informative as qualitative data’. Bryman (2006, p.97) states that the use of mixed methods research (i.e. combining quantitative and qualitative data) has become increasingly acceptable, describing its use in research as “unexceptional and unremarkable”. Indeed, Bryman (2007) suggests that the use of both quantitative and qualitative data allows a sense of completeness, facilitating a comprehensive account. However, researchers do have a requirement to ensure that they are mindful when presenting evidence gained using both methods, that they ensure equitable interpretation of both methods in order to prevent criticism (Brannen, n.d.).
Research in educational settings

Discipline centred research in student education aims to critically inform understanding of phenomena within an educational setting (Bassey, 1999, p.39) and evaluative research is enquiry conducted that seeks to understand and evaluate (Bassey, 1999, p.40). Clarke and Dawson (1999, p.55) describe how the traditional focus of education evaluation was to identify objective outcome measures, which could be limiting as this type of measured approach does not allow exploration of programme activities. Bassey (p.40) suggests that one of the advantages of evaluation in educational settings can be that it allows the complexity and interactions that occur within these establishments to be encompassed. However, Bennett (2003, p.35) also provides a note of caution identifying the dichotomy of the role of an educator in the research process, whereby they hold a position of ‘power distribution’ in so much that there is a requirement for a degree of rationality in the conclusions made following evaluation, which balances the tightrope between a professional role as an educator, alongside the political dimension which pays homage to various stakeholders (decision makers) in the learning milieu. This view is echoed by Holloway, (2005, p.239) who suggests the role that researcher in determining who the stakeholders are, and that the researcher should endeavour to reflect on any tensions or power struggles may have impacted on the direction of the research project. Parlett and Hamilton (1972, p.11) describe how if managed effectively research in educational settings can have an enlightening effect on the entire academic community by identifying educational activities that have desirable results.

The role of the insider as a researcher
Schön (1983, p.39) describes how practitioners are often faced with the challenge of dealing with multiple contexts when conducting their research, opposed to a single concept, stating that ‘In real world practice, problems do not present themselves to the practitioner as givens’ instead they must be ‘constructed from the material of problematic situations’. Therefore, by researching a familiar workplace the insider researcher is in a unique position which enables them to ‘make sense of and act on’ the reality that is presented to them (Frost, 2011, p.134).
The advantages of insider research are that the researcher is working within a familiar setting. This allows the researcher to be explicit in their research aims by creating a situated methodology which builds on the shared understandings and professional knowledge that the researcher has of the workplace environment. Conversely, the researcher also needs to be aware that they need to ensure that any familiarity does not taint their critical perspective on the research process or its findings or adversely influences participants. One way of addressing this is to ensure that the research process is open and transparent, underpinned by a clear decision trail. As Smith (2009) identifies, a fundamental role of the practitioner researcher is to state clearly how the data have been interpreted. Smith (2009, p.66) states that ‘all research is contaminated, for all research entails relationships that may influence the researcher and subject. The aim is not to remove this influence, but to know it’.

**Impartiality**
The research virtues (Macfarlane, 2010) are characteristics that should be adopted to ensure that reflexivity is taken into account during the research process. This can be achieved by ensuring that the reader understands why a particular research method has been selected and rationale should be provided as to why this is the most appropriate approach, making clear how the research instruments will be administered. MacFarlane (2010) is clear that; courage, respectfulness, resoluteness, sincerity, humility and reflexivity are the desired qualities of any researcher. Reflexivity is an important aspect as it ensures that the research process is as transparent as possible so that a researcher is accountable for their individual actions, by framing why a topic is investigated in a particular way, and how these approaches lead to particular kinds of solutions and theories, but not others.

As Kipling neatly describes;

*I keep six honest serving men (They taught me all I knew)*

*Their names are What and Why and When*

*And How and Where and Who* 

(1902, p.83)
Epistemology underpinning this research

The aim of this research project was to explore the opinions and views of a cohort of BSc undergraduate students as they progressed through their programme, alongside reviewing the comments made by the GDC’s Fitness to Practice Panel on those registrants who had been subject to conditions following investigation. As this research encompasses a wide range of views, based on understanding attitudes, processes and their perceived impact, an interpretive approach to the research project was undertaken. The interpretive paradigm holds an ontological and epistemological position that acknowledges the complexities of individuals and sets out to investigate how people perceive and make sense of their own subjective world (Phothongsunan, 2010, p.1). This leads interpretivist researchers to approach data collection using more open-ended types of research questions, from which they intend to interpret meanings; with a view to attempting to understand the phenomena that appears before them.

Qualitative research is a multi-method form of social enquiry that explores the way people interpret and make sense from their individual experiences. It is a naturalistic approach that allows study of the participants within their normal setting. Human behaviour is significantly influenced by the setting in which it occurs and as such an insider-researcher is well placed to conduct this research, due to the already established understanding of the physical and cultural setting in which the research is situated.

The role of an insider-researcher as the primary instrument (Siegle, n.d.) for qualitative research facilitates an empathetic understanding of the research participant’s comments and views as they are already situated within the physical setting that the research is carried out in. This allows the researcher to possess a uniquely developed insight into the internalised norms, traditions, roles and values of the setting that is being researched, which in turn, leads to inductive development of the data.

In collecting data, the researcher took great effort to ensure that they remained as objective and neutral as possible in the gathering, interpretation and presentation of the qualitative data. In order to minimise the influence that the research had on the responses from the potential participants the decision to avoid the use of interviews and focus groups was deliberately made. The impetus for this approach was the direct contact time that this student cohort had had with the researcher: in excess of 260 hours.
in 2012/13 (Level 4) academic year and over 100 hours in the Level 6 (2014/15) academic year. This power-balance was personally perceived as too high, and a reflexive stance was taken regarding the potential impact of the participants’ own motivations for participating which may well have skewed the data if it had been collected via face to face contact. Therefore, research instruments that allowed a self-regulatory approach (Miller, 2012) to be taken, were selected with a view to optimising the objectivity attached to this project.

As a naturalistic interpretivist approach was used for this study, the focus was on the way that the students had made sense of their subjective reality. Exploring the experiences surrounding the use of reflective practice, over the course of their programme. Thus, allowing insight and exploration as to how they have attached meaning to this. Resulting in the generation of empathetic findings that are person centred and holistic.

Illuminative evaluation

Illuminative Evaluation (IE) was developed by Parlett and Hamilton in 1972, when they surmised that it was not possible to match and measure groups for research purposes in an educational setting due to the uniqueness of students educational experiences (1976, p.147). Parlett and Hamilton (1972, p.7) described the difficulties that researchers would encounter using traditional research methods, when trying to replicate the same experience for differing groups of participants, as ultimately an educator cannot control all of the variables that could impact on the educational setting and claimed that if an attempt was made to do so the artificiality of such a contrived situation would render the research as irrelevant. Therefore, Parlett and Hamilton created a new approach to research which explored an educational context, without the requirement for parallel control groups (Bennett, 2003, p.26) to occur.

IE is a general research strategy, designed to be flexible and adaptive, allowing the problem to define the research methods used and not vice versa (Mathison, 2005, p.193). Indeed, the choice of research ‘tactics’ should be derived from the best available method. This allows the research process to become adaptable and eclectic (Parlett and Hamilton, 197, p.17) using differing methods to illuminate commonality.
The primary concern of the illuminative approach is to describe, interpret and understand what is happening, opposed to measuring and predicting what is likely to occur (Mathison 2011, p.192, Wadsworth 2011, p.166). Green and South (2006, p.143) describe using evaluation as a research instrument as ‘acting like a lens’ which will bring some aspects into sharp focus. By using IE as a research strategy the perception and experiences of individuals within a programme (Clarke and Dawson, 1999, p.55) can be explored in greater depth. Hamilton (2011) has reviewed his work on IE, with hindsight, acknowledging how it ‘can be read in various ways’ and as such IE is open to interpretation. Hamilton (2011) describes how IE was ‘offered as a resource, not a template’ and it is down to individual researcher to confirm its use within the diversity of each setting. Asserting that ‘Evaluation, like education, is a practical science. It is about creating knowledge about practice’ with the illumination component assuming ‘insightful knowledge’ (Hamilton, 2011). By using evaluation in this way it is possible to identify the areas for future development for the dental curriculum, identify areas for future staff development and enhance the educational experience of dental professionals.

Central to IE are two concepts; the instructional system and the learning milieu. For the purposes of this research the learning milieu is the social-psychological and material environment in which students and educators work with one another, in this instance UPDA, and the instructional system which is the formalised instructional system which is represented by the GDC.

Mathison (2005, p.193) identifies three distinct, but overlapping stages to IE, which are; observation, further enquiry and seeking to explain:

**Observation**
The observation aspect of IE allows the researcher to begin identifying aspects which become part of an ‘information profile’ (Mathison, 2005, p.193) which is collected, collated and then further refined during each phase of the research process.

**Enquiring further**
Sloan and Watson (2001, p.666) describe how no research method is endorsed from research dogma, but suggest the use of multiple research instruments in order to throw ‘a brighter light on the phenomenon under investigation’.
Seeking to explain
Parlett and Hamilton (1972) use the analogy of the theatre in order to give the process of IE some context. As such, it should be acknowledged that the instructional system (in this instance the educational stakeholders) becomes much like the manuscript for a play; with the student experience becoming the performance and the clinical staff that support them becoming the critics that are readily watching and critiquing the performance as it occurs. Parlett and Hamilton (1972) describe that in order for the play (performance) to work there is a prerequisite for the director (academic staff) and the actors (the students) to interpret the play (performance) in the correct way. Ultimately it is the critics (educational stakeholders and clinical supervisors) view of the play (performance), who decide if it is a success or failure as in essence the critics are only concerned with the outcome aspects of the play.

Illuminative Evaluation within UPDA
As Hamilton (2011) has already identified, it is the responsibility of the individual researcher to confirm its use. In order to address the research aims attached to this thesis Mathieson’s (2005) three areas of IE: Observation, Enquire Further and Seek to explain, have been combined with Borton’s (1970) three stage model of reflection: What?, So what? and Now what? Heralding the three distinct phases, which the research was administered in, as outlined below;

1) Phase one: What? (Observation) This aspect of the IE research process involved analysing data from the 2012/13 student cohort reflective essays, which were written as part of a pass/fail summative assessment for their pre-clinical unit of study. This was to capture the starting point of the pre-registrants journey. The ‘novice’ (Benner, 1984) or initial development (orange) stage of the Conceptual Framework.

2) Phase two: So what? (Inquire further) In order to gain further insight it was important to collect further data from the students based around their reflective activities once they had progressed onto the live patient based clinical floor. To address this topic an online questionnaire was formulated which enabled triangulation of the students’ perspectives; a move from their
expectations prior to the commencement of working in a clinical environment as occurred in Phase 1, to the actual reality of being within the clinical (learning milieu) itself. The movement from the initial development phase (orange) to the clinical demonstration (yellow) phase in the Conceptual Framework.

3) **Phase 3: Now what? (Seek to explain)** The purpose of conducting this third aspect of IE was to allow information to be gathered which gains an additional perspective of the requirement for professional reflective practice in the real world (the final curtain in the IE ‘play’), where registrants are expected to critique and manage their clinical skill development as part of their commitment to life-long learning, which in turn sheds a different lens to illuminate this research topic. Via review of the GDC fitness to practice cases from 2012-15: what is the role of PRP on these cases? What happens if a failure to flourish occurs at the professional registration (green) phase of the conceptual framework?

Despite the GDC Fitness to Practice cases (GDC, n.d.) being ‘Phase 3’ of the research process it should be noted that the cases refer to the 2012-2015 documentation produced by the GDC, so in essence the data for this aspect was collected from a similar snapshot in time as the other research instruments as, as Figure 3:1 demonstrates.
A more detailed overview of the research phases can be found in Appendix ii. Mathison, 2011, p.193 describes the subjective nature of IE as a research strategy as inevitable, and thereby lends itself for use by insider researchers, with the caveat that researchers should not distort the process or findings of the research topic. To address this Mathison (2011, p.193) suggests researchers should ‘be unobtrusive, without being secretive, supporting without being collusive, and non-doctrinaire without appearing unsympathetic’, by taking this approach the researcher can yield usable insights that can be ‘extended to the overlapping phenomena that accompany teaching, learning and innovation’. The role of IE is to provide a comprehensive understanding of a complex reality surrounding a programme, which is achieved by allowing a more flexible and open ended approach to occur, that which seeks the views of participants involved in order to gain a ‘communal awareness about a programme’ (Gray, 2004, p.163). This disentangling of the complexities that fundamentally shape the learning journey of the student experience (Parlett and Hamilton, 1972) allowing a unique insight into the realities of the day to day learning, which in turn, influences and is influenced by the learning outcomes that are associated with the students’ educational experience.
Analysis of data using the Framework Approach

The use of a Framework Approach (FA) was implemented to analyse the data provided. The FA was developed by the National Centre for Social Research (NatCen, n.d.) in the 1980’s, initially in the context of applied policy research (Lacey & Luff, 2001), and is now an accepted and widely used method for qualitative data analysis (NatCen, n.d.) as it creates a flexible audit trail, allowing the researcher to analyse information by case and theme, as part of an organised process. It is suitable for evaluative research processes (Newbold, Hard, & Bing 2013, Richie & Spencer 1994).

Heath, Cameron, Rashid & Redwood (2013, p.8) describe how the FA has ‘no allegiance to either inductive or deductive thematic analysis’ instead how the data is managed is entirely framed by the research question(s) posed. Dixon-Woods (2011, p.1) exemplars this flexibility stating that an important feature of the FA is that it allows themes or concepts to be identified ‘a priori’; to be specified as coding categories from the outset, which in turn can be combined with additional themes or concepts that emerge ‘de novo’ by subjecting the data to inductive analysis.

Ward, Furber, Tierney and Swallow (2013, p3) suggest that the use of a FA is a method of data analysis opposed to a research paradigm, sitting within a thematic methodology that is straightforward, providing transparency of results which can be linked back to original data. However, although Gale et al (2013, p.7) agree with the way that a FA is a systematic way of organising data moreover they identify that it can still be difficult to make analytic and interpretive strategies visible and auditable.

The analysis of qualitative data using a FA is ‘not a simple or quick task’ relying on the ‘skill, vision and integrity of the researcher’ (Pope, Ziebland and Mays, 2000, p.115). The stages of a FA are identified by Richie & Spencer (1994) and Pope, Ziebland and Mays (2000, p.114) as; familiarisation (immersion in the raw data), identification of a thematic framework (to reference key issues, concepts and themes), Indexing (application the framework to textual data), charting (ordering the relationship of data, synthesising its meaning), mapping and interpretation (defining of concepts, looking at the range and associations between naturally occurring phenomena), which were administered for the analysis of the data provided.
A FA was conducted for each of the three phases of the research project; on the reflective essays, the free text data from the online questionnaires and in the GDC Fitness to Practice case reports. This approach ensured internal consistency in the management of the data; by aligning the same methods to interrogate the data at each distinct phase. A secondary person was asked to review the decision trail for each stage of the FA (inter-rater reliability, Krefting, 1991) in an effort to provide consistency and transparency to the FA process, by ensuring comparable conclusions had been fairly arrived at and no underlying themes were missed.

An important feature of FA is that it allows themes or concepts to be identified a priori, which in this case was particularly useful as it enabled the researcher to focus on the research project questions (pages 63 & 64). By enabling the research questions to be incorporated into the initial themes, a topic centred analysis of the data could occur. Following this the data was then subjected to inductive analysis, which allowed additional themes to emerge de novo, reflecting the dynamic nature (Smith and Firth, 2011, p.53) of a framework approach, opposed to using a purely inductive method as is seen in other approaches such as grounded theory.

In order to denote the lucidity of this process, an overview of how the data was managed, at each stage of the FA, has been overviewed below:

**Familiarisation with the data**

To promote familiarity and immersion with the data hard copies of data were printed off, given a numerical identifying code and read, on multiple occasions. This facilitated the identification of the key phrases (using colour coding, via a selection of highlighting pens), which were in alignment with the research questions (Figure 3.2). Comments were annotated on the printed data to identify aspects that required further review, which also aided transparency when data were reviewed by a secondary researcher at a later stage in the process.
Identification of a thematic framework

Following this, the identified key phrases were placed into a Microsoft Excel worksheet, using a priori coding matrix headings (Figure 3.3). During the familiarisation with the data, additional themes and ideas began to emerge which were highlighted and included as part of the data collation process. To ensure that data were not lost during this process, mutually inclusive coding occurred across all categories.
The inclusion of in-vivo (participants’ words) codes into the matrix is identified as a means of staying ‘true’ (Richie & Lewis, 2003, p.259) to the data. Clarity of individual participant data is achieved by ensuring each set of participant comments are visible, on the same line, across the entire dataset. The purpose of the initial phases of the FA should be focused on organising and managing the dataset, opposed to interpretation of the data (Parkinson et al, 2016).

**Indexing**

The themes created during the identification of the thematic framework were reviewed and the interview transcripts were then re-read to ensure that data relating to emerging subcategories had not been overlooked. The initial strategy of using colour coding on the printed hard copies of the data ensured that the text remained in context, which was useful when returning to review the data. Data were then placed into a new matrix and each subcategory was reviewed for commonality across the participants.

**Charting**

The aim of the charting phase is to allow the data produced from the identification of a thematic framework and indexing stages to be organised into a more manageable
This was then overviewed, allowing the indexed data within the initial categories and subcategories, to be refined and developed further.

**Mapping and interpretation (Themes)**

Parkinson et al (2016) state that mapping and interpretation ‘involves finding patterns and articulating one’s own sense-making of the data’. Themes are defined as patterns of interest. As such, this phase further refined and explored the initial categories by reducing the data into manageable summaries, in relation to each of the research questions, culminating in the identification of final themes and the development of an over-arching theme. This approach facilitates an opportunity for the researcher ‘to move beyond data management and towards understanding it’ (Parkinson et al, 2016). Requiring an intuitive and imaginative stance, which can be difficult to articulate (Richie & Spencer, 1994). Miles & Huberman (1994) state that human beings are ‘skilled meaning-finders’ and, as a result, will find meaning in even the most chaotic data sets. The challenge therefore lies in how others perceive their usefulness and what interest the findings provoke (Denzin, 1989). How each of the themes was identified during the data analysis is identified in the subsequent chapter.

**Ethical approval process**

In order to complete phases 1 and 2 of this research project ethical approval was sought via the University’s Science Faculty Ethics Committee (SFEC). Due to this project reviewing the 2012/13 BSc cohort, which spanned a three-year period, ethical approval was sought via SFEC on two occasions; once in 2013 in order to conduct a Framework Analysis on the reflective reports submitted for assessment (Appendix ii) and the other in 2014 to request approval to recruit service users from the 2013/14 cohort and to administer the online questionnaire to the 2012/13 cohort in the final year of their programme (Appendix vi).

SFEC approval was not required for the final phase of this research project as the GDC cases are published and available for open access via the internet. However, this does not negate the need for consideration of those GDC registrants who have been reviewed by the Fitness to Practise process. Indeed, information regarding FTP case identities
were removed during data collection to ensure that individual identification could not occur, bearing in mind the principle of non-maleficence; do no harm (World Medical Association, 2013). Individual disclosure of personal identifiers would not have contributed to the richness of the findings of this project in any way.

**Informed consent**

MacFarlane (2009) states that ‘ethics is about deposition, not just following rules or principles’, in designing the research architecture much consideration was given to the potential research participants and during the recruitment process potential participants were provided with information sheets that outlined their role in the research, the potential risks and benefits of participating, alongside how personal data would be managed and stored. All participants were made aware that their participation in this research project was on a voluntary basis, and it was made clear to any participants that the responses or comments they made would not affect the participant’s relationship with the UPDA in any way. This was achieved by adopting a consequentialist approach to both Phase 1 (the Framework Analysis of reflective reports) and Phase 2 (online questionnaire). The data from the participant’s responses was interrogated to ensure that individual identification could not occur. The need for beneficence (action that will benefit others) and non-maleficence (do no harm) was clearly addressed in the participation information alongside details of the intended routes of dissemination following the completion of this research project.

**Data protection**

The data collected during this research project was subject to data protection (Data Protection Act, 2003). Therefore, all electronic data was stored in a staff only swipe card access academic office, on a secure password protected hard drive and not placed onto any transferrable data source. Any printed questionnaires or associated paperwork were kept in a locked drawer, due to a shared academic office environment.

The next chapter aims to review each of the three research phases (as shown in Figure 3.1, page 76) in turn.
Chapter 4 Data analysis and discussion

This chapter provides an unfolding narrative of each of the Professional Doctorate research phases as they occurred, in order to seek answers each of the seven research questions:

**Phase 1**

1. What types of event prompt undergraduate dental hygiene and therapy students to engage in professional reflective practice activities?
2. What preferences do undergraduate dental hygiene and therapy students have in the way they conduct their professional reflective practice activities?

**Phase 2**

3. How comfortable are undergraduate dental hygiene and therapy students in capturing their professional reflective practice activities?
4. What difficulties do undergraduate dental hygiene and therapy students encounter in relation to their professional reflective practice activities?
5. How regularly do undergraduate dental hygiene and therapy students engage with their personal professional reflective practice?
6. In what ways could the undergraduate dental hygiene and therapy student experience of professional reflective practice be enhanced?

**Phase 3**

7. What relevance does professional reflective practice have in (potential future) professional conduct?
Each of the distinct phases for this professional doctorate research had differing nuances regarding initial participant recruitment processes, which is outlined as part of a forward narrative. Following on from this the findings for each individual phase are presented and then discussed, in turn. Exploration of the specific limitations surrounding the findings, alongside discussion regarding possible alternative understandings.

Following analysis of research phases 1 & 2, there is a short section which combines the findings from these two phases, which encompassed the same research participant groups at the end of their simulation phases of education and during their final year of study, prior to flying the academic nest. These findings are reviewed and expanded on further during Chapter 5.

The culmination of this chapter illustrates the process of developing the overarching theme of this doctoral research, encompassing all three research phases, as derived from the identified research questions.


But in her web she still delights
To weave the mirror's magic sights,
For often thro' the silent nights
A funeral, with plumes and lights,
And music, went to Camelot:
Or when the moon was overhead,
Came two young lovers lately wed;
"I am half sick of shadows," said
The Lady of Shalott.

(Tennyson, 1832)
Phase 1: Reflective essays

Phase 1 of the research process was designed to meet research questions 1 and 2;

1. What types of event prompt undergraduate dental hygiene and therapy students to engage in professional reflective practice activities?

2. What preferences do undergraduate dental hygiene and therapy students have in the way they conduct their professional reflective practice activities?

In 2013 ethical approval was sought via the Science Faculty Ethical Committee (SFEC) to request access to the level four BSc (Hons) Hygiene and Therapy Cohort 2012/13 (n=24). These students had each submitted a 1000 word reflective essay as part of a pass/fail summative assessment in May 2013, which was attached to their pre-clinical unit of study.

As the students submitted this piece of work for assessment purposes there was no opportunity to conduct a pilot of this element of the research project.

Once ethical approval was granted (Appendix iii) the students were contacted, via their University email accounts, and invited to send their reflective reports to the researcher. All 24 students were sent a participant information sheet attached to the email (Appendix v) outlining that participation was voluntary and that anonymity could only be assured to a certain point, as initial identification would occur when the data was submitted to the researcher. However once received the participants name would be removed and the papers numbered. Following this only numbers would be used when scrutinised by a secondary researcher (inter-rater reliability) and any quotes used following the Framework Analysis would be reviewed to ensure that participants could not be identified on an individual basis.

Potential participants were also provided contact details for the researcher and the Associate Head of Education (who had peer-reviewed the ethics paperwork prior to submission by SFEC) should they wish to ask any questions. Non-respondents were followed up via a second reminder invitation two weeks later. All students were made aware that they were under no-obligation to participate in the research.
research participants profile

The 2012/13 Level 4 BSc(Hons) Dental Hygiene and Dental Therapy cohort (n=24) were invited to participate in Phase 1 and Phase 2 of the research. Table 4:1 overviews the gender and ages of the students invited to participate in this research.

Table 4:1 Participants profile

<table>
<thead>
<tr>
<th>Level of cohort</th>
<th>Male</th>
<th>%</th>
<th>Female</th>
<th>%</th>
<th>Under 19</th>
<th>19-21</th>
<th>Over 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2</td>
<td>8.33</td>
<td>22</td>
<td>91.67</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>4.76</td>
<td>20</td>
<td>95.24</td>
<td>0</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>

Although half of the cohort was under the age of 21 at the commencement of the programme, the remaining half were over 21 years of age. This is due to the fact that a third of this cohort had accessed the programme via a professional progression course (Dental development Programme in Science and Dental Therapy: No practice rights). This programme runs for 23 weeks part-time and covers core dental-related topics, allowing successful participants to progress to further study on the BSc(Hons) Dental Hygiene and Therapy programme. The foundation route students were all previously working as Dental Nurse Registrants.

Data analysis

Each of the students’ reflective essays was approximately 1000 words and was submitted as a summative assessment artefact in May 2013. The essay brief required students to identify their reflective model of choice, alongside identifying areas they felt were personal strengths and weaknesses and how they would utilise or address these areas once they were working on real patients on the live clinical floor (commencing in June 2013). In total 75% (n=18) of the cohort submitted their reflective essays to be included in this research.

In order to gain familiarity with the reflective essays, these were initially read and re-read to allow the researcher to familiarise themselves with the data. During this phase a coding matrix was developed using the following headings; Reflective model utilised,
indication of past experience (as eight students had accessed the BSc programme via the foundation route) and then the headings from Borton’s (1970) three stage reflective framework; what (perceived weakness)?, so what (does this mean to them)?, and now what (future practice)?. This reflective framework was selected as it was originally devised for use in educational settings and also lends itself to the process due to the broad headings, allowing as much pertinent data to be captured as possible. In-vivo codes (participants’ own words) were then placed into this basic coding matrix, using Microsoft Excel to identify the initial categories and themes. During this process additional themes began to emerge, which were also highlighted and included as part of the data collection process. To ensure that data were not lost during this process, mutually inclusive coding occurred across the categories and from this a table was developed that identified the final themes (Table 4:3).

It is important to note that the interconnected stages of the FA process are not a linear one and each stage should be seen as a scaffold to guide the analysis; forward and backward movement between the data can occur (Smith and Firth, 2011, p.60). The aim of FA as an approach allows the data and findings to be articulated to the reader via a transparent process, thus enhancing the credibility of the findings.

Phase 1 findings and discussion

Initially the reflective essays were reviewed to identify which reflective models the students had used. As part of their personal tutorial programme the students have an opportunity to discuss in small groups the use of reflection in their future professional practice. Three models were discussed during this session; Gibbs (1988) reflective cycle, Johns structured reflective model (1995) and Driscoll’s questioning approach (1994). The reflective model of choice fell into six categories, as demonstrated in Table 4:2.

The students, both with and without past dental experience, identified six different models of reflection for their essays, with no reflective model being the favoured model of choice for those students with or without previous Dental Nursing experience. The most popular choice was Gibbs (1988) however, this was equally split between both groups of students. This may be down to the fact that this reflective model encourages
systematic thought about each phase of an experience, using clear headings which are able to be easily understood by the novice practitioner. Gibb’s model also clearly identifies a requirement to consider both positive and negative aspects of an event, which also may be very appealing, particularly to undergraduate students who may feel more comfortable in identifying their perceived achievements, in addition to identifying the aspects that also require revision and improvement. Interestingly, none of the students chose to use John’s structured reflection model, despite the fact that this was one of only three models discussed with them by their personal tutor during group tutorials.

The essays were scrutinised repeatedly and the data capture was refined using the FA process, until the initial categories were identified and summarised in Table 4:3.
<table>
<thead>
<tr>
<th>Model</th>
<th>Model overview</th>
<th>Number</th>
<th>Past experience</th>
</tr>
</thead>
</table>
| Borton (1970) | This is a simple reflective cycle, originally used in educational settings, which is composed of three key questions;  
> What?  
> So what?  
> Now what? | 1 | n=1 Experience |
| Kolb (1984) |  
> Concrete experience (active involvement)  
> Reflective observation (stepping back and reviewing )  
> Abstract conceptualisation (framing comparisons from textbooks and own actions)  
> Active experimentation (putting what has been learnt into practice) | 1 | n=1 Experience |
| Gibbs (1988) |  
> Description (what happened?)  
> Feelings (what were you thinking and feeling?)  
> Evaluation (what was good and bad about the experience?)  
> Analysis (what sense can you make about the situation?)  
> Conclusion (what else could you have done?)  
> Action plan (if it arose again what would you do?) | 8 | n=4 No experience n=4 Experience |
> Having an experience  
> What? (description of the event)  
> Reflecting on selected aspects of the experience  
> So what? (analysis of the event)  
> Discovering what learning has arisen from the process of reflecting  
> Now what? (proposed actions)  
> Actioning the new learning from the initial experience | 1 | n=1 No experience |
| Rolfe (2001) | This model uses Borton’s (1970) three stage framework, alongside a questioning structure which aims to explore a situation, the types of questions suggested by Rolfe are overviewed in the brackets below;  
> What? (Describing the situation)  
> So what? (Theory & knowledge building)  
> Now what? (How to improve the situation) | 5 | n=3 No experience n=2 Experience |
| Reflective Spiral (Jasper, 2003) |  
> Experience  
> Reflection  
> New perspective  
> Action (and so on.....repeating the four key stages) | 1 | n=1 No experience |

**Table 4:2 Phase 1 Reflective model overview**
### Table 4:3 Phase 1 initial categories and final themes

<table>
<thead>
<tr>
<th>Initial question (Coding categories from the FA)</th>
<th>Examples of student comments underpinning the initial categories</th>
<th>Initial categories</th>
<th>Final themes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What?</strong></td>
<td>‘I felt nervous and apprehensive’</td>
<td>Fear of failure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘The idea of having control was intimidating’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘I panicked’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘trickier than I had imagined’</td>
<td>Frustration in completing practical tasks</td>
<td>Uncertainty</td>
</tr>
<tr>
<td></td>
<td>‘it did not come very easily to me’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘I put unnecessary pressure on myself’</td>
<td>Caution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘Worrying due to the thought of this happening on a real patient and the consequences of it’</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>So what?</strong></td>
<td>‘I feel I have hindered my progression by having high self-expectations.’</td>
<td>Inner critic</td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td>‘Maybe this is because of my previous clinical background or perhaps I am generally too hard on myself’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘I felt quite deflated and felt that I wouldn’t be any good at this’</td>
<td>Confidence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘Because I watched a dentist for varied procedures for so long, my expectations were too high’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘I wanted to be good at everything and do well’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘However, as time went on my confidence level began to drop’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘I put unnecessary pressure on myself’</td>
<td>Peer-pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘As time went on my confidence level began to drop. I felt I was the slowest’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘On the whole I would say that this is my biggest weakness and to improve this I would need to keep practicing’</td>
<td>Improvement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘The more I practice the better I will become’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘I need to recognise when I require help and understand that it is fine to ask for it’</td>
<td>Candour</td>
<td></td>
</tr>
<tr>
<td><strong>Now what</strong></td>
<td>‘Be kind to myself and not beat up on myself for not completing a task perfectly’</td>
<td>Development</td>
<td>Improvement</td>
</tr>
<tr>
<td></td>
<td>‘having watched others techniques, I altered mine’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘I am constantly learning, training and applying theory to practice to prepare and plan for making the right choices in the future’</td>
<td>Anticipation</td>
<td></td>
</tr>
</tbody>
</table>
What?
The first aspect of the FA looked at the ‘What?’ (Borton, 1970) stem question. With the comments taken from the first stages of the students reflective reports. By approaching the data in this three phased way it was possible to mirror how the students envisaged their own personal journey, during their first year of study. The initial categories arising from this segment of the students’ reports were: Fear of failure, frustration in completing practical tasks and caution.

Fear of failure
This was a strong theme, with nearly all the participants directly expressing their worries regarding their development of underpinning knowledge, in addition to their ability to undertake manually dexterous tasks ‘I felt nervous and apprehensive’ (P9) and ‘I did not want to fail’ (P6).

There was also acknowledgement of the anxieties of the shift of expectations from being an observer to conducting procedures (either as a Dental Nurse, or from a practice visit; which all potential students are suggested to undertake before applying for a place on the programme). With several of the participants making comments regarding this shift in dynamic ‘The idea of having control was intimidating’ (P7), with P12 expanding on this ‘As a Dental Nurse I have observed Clinicians treating patients for ten years and wished I could have a go myself…..I thought it would come easily, the professionals made it look so natural. It didn’t.’.

Frustration in completing practical tasks
All of the participants described their difficulties with the practical elements. When considering why the development of their clinical skills is so important, one of the students made their thoughts clear ‘To me it was part initiation of my career as a DCP’ (P7), whilst to other participants their concerns were based on their self-perception of the complexity of tasks they had been asked to undertake ‘I felt frustrated that I couldn’t achieve a simple technique’ (P1). P2 identified themselves as ‘not being able to learn complex tasks’ (P2) which was built on further by P3 who described the process as leaving them ‘infuriated…Irritated’. However, P16 seemed more accepting in their view,
describing how clinical tasks were ‘trickier than I had imagined, as it did not come very easily to me’.

**Caution**

The majority of participants understandably identified the need for caution as they honed their new skill set. ‘Because of my conscientious manner, I find myself trying to do the best I possibly can, which in turn means taking up a lot of time’ (P1). New tasks required additional time and effort ‘I found that as long as I kept my concentration I was able to control it’ (P18), which could be frustrating at times, as P4 stated ‘Dentistry is unpredictably [sic] and I am a perfectionist. I do not think the two go together very well’. This caution was not just related to the interests of themselves, but this was also underpinned by the requirement for that a caution in their care of future patients ‘I understand that given the scenario of seeing a patient that this may not be acceptable’ (P13).

**Final theme from the initial What? category: Uncertainty**

It would appear that there may be a requirement to take the time to further unpack and address the uncertainties of the students as they occur. The data suggests that the use of professional reflection could be used as a vehicle to explore the students’ own views and assumptions as they make their first tentative move towards the realisation of their first patient contact on the clinical floor. It is at this crucial point that the positive synergy of reflective practice and reflexivity could be allowed to shine through, illuminating the student experience.

**So what?**

The next set of comments looked at the ‘So what?’ stem of Borton’s (1970) framework. This produced the largest number of initial categories emerging from the FA: Inner critic, confidence, peer-pressure and improvement.
Inner critic

Analysis showed that the students were generally aware of the impact of their inner critic had on their performance, with P4 describing how they intend to ‘lower my expectations and not be too hard on myself.’ whilst also sharing some considerable insight of their own personality ‘Dentistry is unpredictable and I am a perfectionist’ (P4) and also by P2 ‘I can be very critical of myself even before starting to do anything’. Some of the students shared their internal monologue in their writing ‘Although I initially believed that perfectionism would be a strength, I have come to realise that this is actually going to be a weakness…..I feel I have hindered my progression by having high self-expectations. Maybe this is because of my previous clinical background or perhaps I am generally too hard on myself’ (P12).

This critical view of oneself seemed to be strongest in those who had previously worked as a Dental Nurse ‘Because I watched a dentist my expectations were too high, I somehow felt I should be able to do anything, because in theory I know exactly how it is done’ (P18) and reinforcing this view further ‘Because I watched a dentist for varied procedures for so long, my expectations were too high’ (P18). Other students were more accepting of their situation despite prior Dental Nursing experience (which could be ascertained from the FA, via the case by case element of the analysis). An example of this is P7 who describes how they need to ‘Be kind to myself and not beat up on myself for not completing a task perfectly. I wanted to be good at everything and do well. I was not being realistic’.

Several of the participants’ comments straddled more than one category. P13 illustrates this well, when they described how they aspired to be more confident in themselves, whilst acknowledging the influence of their inner-critic in their personal development ‘I must endeavour to be confident in my abilities and not be too critical of myself’ (P13).

Confidence

The theme surrounding confidence covered how, as time progressed the students’ confidence started to wane. P12 described how during the latter half of the academic year they ‘felt quite deflated and concerned I would never be any good’. P7 echoed this view ‘However, as time went by my confidence began to drop’, with P10 recounting ‘Being unable to complete tasks in the allocated time made me feel frustrated and affected my confidence’. P6 appeared to have felt quite impotent, expressing ‘I do not
think I could identify any improvements for myself’ (P6). The drivers for this apparent lack of confidence and frustration is difficult to ascertain due to the privateness of these cognitive emotions, as ultimately these are uniquely individual and grounded in one’s own personal emotions, memories, images, thoughts and sensations (Harris, 2011, p.49). Harris (2011, p.50) suggests that a student would need to address the following aspects in order to increase their confidence; being able to handle thoughts and feelings effectively, being empowered to take control of their actions (even though this is likely to be difficult and uncomfortable at times) and finally, to ensure that they are fully engaged in whatever they are doing (irrespective of their own personal thoughts and feelings).

Peer pressure
As the cohort continued on their pre-clinical journey there was evidence that students also began to feel some pressure from one another, with P5 describing ‘As time went on my confidence level began to drop. I felt I was the slowest.... began to feel somewhat overwhelmed’. Likewise, P17 was aware that ‘I felt pressured by comparing myself to others that were ahead of me’. This under-confidence also appeared to encompass the peer-pressure related to the students in their grouped Practice Team with P7 portraying how ‘I felt I was the slowest in my practice team and began to feel somewhat overwhelmed’.

Failure to discuss their feelings at this point in time is an opportunity missed. If the developing students had a trusted academic or formal peer mentor that they could turn to, they would have been enabled to share their awareness of what was happening, which may have helped to alleviate the pressure felt by some. The inability to put a formal strategy in place to address these individual personal development needs allowed the remainder of the cohort to stand back; which inadvertently may have aided in positively reassuring those who were perceived to be quicker. Whilst leaving the student that is left behind to become, at best vulnerable and worst still isolated. If the Dental Team vision truly exists, a culture of no-one left behind needs to be developed.
Improvement

As the end of their first academic year approached, the students began to identify the continuing need to practice their clinical skills in order to acquire the techniques for safe practice ‘To improve I think I would have to practice this’ (P6), alongside appearing to acknowledge that they had begun to feel more comfortable in seeking the support they required ‘I need to recognise when I require help and understand that it is fine to ask for it’ (P16).

There were clear comments regarding the need for improvement which were underpinned by the development of the ability to look at their practice in a critical yet positive way ‘On the whole I would say that this is my biggest weakness and to improve this I would need to keep practicing’ (p14) with P8 describing how ‘I think it is important that I tackle this issue quickly so that I can improve’ and P3 consolidating their view commenting how there is ‘A lot of room for improvement’ reiterated by an intention to ‘continue to improve….ensure that they remain strengths and do not turn into weaknesses’.

The course tutors were another source of scaffolding knowledge construction, but not all students were keen to access them at first, as P10 writes ‘I felt afraid of asking ‘silly’ questions’. P17 expressed their surprise when seeking help from the course tutors ‘I was hesitant in asking for help, believing that the tutors thought I was incapable……in reality they were happy to help and others were in a similar situation. It surprised the Tutors that I was hesitant…. they reassured me that they were always happy to help’.

Candour

Although some of the students had prior experience of working within dental settings, this may have caused them to make an assumption before trying out different techniques and approaches ‘I thought this would be arduous, painstaking and a waste of time as no-one really uses it in practice, after trying it for myself I would no longer think of it as something to avoid.’ (P16). By making this statement P16 has demonstrated their developing responsibility towards being open and honest in their practice. An aspect which was echoed by several of the other students in their reflections ‘I want the
patient to have confidence in me’ (P2) and P16 denoting ‘Problems will be dealt with quickly and patients will be pleased’ (P16)

Although the number of participant’s comments did not always directly refer to candour, it was still included as an initial category due to the aspiration demonstrated by the students to be open and honest in their reflections, giving acknowledgement to their responsibility to their patients. As the general themes arising from the FA is echoed by the research on the Duty of Candour, published by the GDC (2016) which identified the following themes: acknowledgement of an issue, need to apologise, agree a remedy, consideration of the patient perspective, and learning from mistakes.

**Final theme from the initial So what? category: Knowledge**

The penultimate stage of the FA culminated in the development of the theme knowledge. Despite an initial phase of low confidence, an awareness appeared to be developing surrounding what the students anticipated they needed to know in order to progress. This transition from continual support and monitoring, became an opportunity to garner knowledge in a safe and secure environment. There was a sense (from the textural data) that the students’ emotional needs were starting to be met, within the confines of the simulated environment in line with Maslow’s Hierarchy (1943).

**Now what?**

The final aspect of Borton’s (1970) stem questions represented the dawning of comments surrounding hope and aspirations for their future practice, with the initial categories being ones of development and anticipation.

As the pre-clinical unit drew to a close student confidence increased. The students became bolder and more outspoken in their statements ‘I will get there. I will need to learn to walk before I can fly. By having these experiences, I have been able to recognise things about myself, I can now improve and alter things to help me achieve better results’ (P12), alongside P13 who described how a particular activity had become ‘a proud
moment and showed a true reflection of my efforts in linking theory to practice. It showed me that a challenging situation can be less so if a contribution of effort is made’.

This phase aided the students in seeing the value of using reflection, looking back at past events ‘Reflecting on my progress…I have gained awareness of my weaknesses and I am confident that I am aware of how I can improve them and prevent myself making the same mistakes in the future.’ (P15). P5 shared her view of reflection ‘the purpose of being a reflective clinician is learning how to apply theory to practice at the same time as knowing your own limitations’ with P11 describing its role as ‘integral in order to evaluate my own ability and skill set’.

There was also evidence, in a few cases, of participants acknowledging how distinct their experiences were ‘I realised that I was on my own unique journey of education, made me comfortable…in my own way’ (P10).

**Development**

As the students newly found skills began to mature they appeared to move away from their competitive anxieties that were seen in the peer-pressure aspect of the So What? phase. Now evidence was coming to the fore regarding the developmental support they felt able to offer to one another, with P9 writing ‘After kind words and wisdom from my colleagues…. having watched others techniques, I altered mine’. This informal peer-mentoring support was routinely referred to in this phase, with students seeking help from various sources with P16 identifying how they ‘observed my buddy in the year above’ and furthermore ‘peer learning and review is an important part of team working’ (P16). P14 stated how they had been ‘watching...how other students practice, gaining advice on how I could improve’ and P3 reiterating the team training element ‘In our practice teams we help each other’ (P3). By taking the time to share and peer review one another’s practice the students were able to incorporate another deeper level of richness to their educational experience.
Anticipation

All of the participants anticipated the need for either development and improvement in their skill acquisition, describing their perceived responsibilities in their future careers. ‘It is imperative to reflect on and identify my own personal learning needs for future clinical practice, then address what area of skills or knowledge need to be focussed on in order to improve the quality of treatment delivered and maintain my professional knowledge and competence.’ (P14) others summed this up more simply ‘It is important that I keep improving’ (P2). P15 described how they ‘have gained awareness of my weaknesses and am confident that I am now aware of how I can improve them and prevent myself from making the same mistakes in the future’. With P1 affirming the role of continued practise ‘I need to understand at this stage only more practice will achieve better results’.

Final theme from the initial Now what? category: Improvement

The journey of discovery that the students have undertaken during the academic year was also clear ‘The experience taught me the importance of being able to explain and justify what I was doing and why, instead of just carrying out instructions’ (P10) demonstrating the move from a surface to a deeper understanding of their learning.

Over two thirds of the participants described their expectations of their future educational experiences ‘The knowledge I have learnt this year has pushed me and given me an insight into my future practising. Whilst this has taught me much I understand I have much to develop on’ (P9). Thus, signalling the evolution from their Initial Development Phase (signified by the orange brackets) in the Conceptual Framework (Figure 2:4) towards the Clinical Demonstration (yellow) Phase. As P13 states ‘I am constantly learning, training and applying theory to practice to prepare and plan for making the right choices in the future’.

The role of reflection was also embedded within many the participants’ expectations for the future, with P11 exemplifying ‘Most importantly, I am going to continue to reflect throughout my practice as a dental care professional’.
In summary

From the essays written by the students during this snapshot of time, a moment when they are on the cusp of transition from the pre-clinical (simulated) environment, moving forward to their first tentative steps as novice practitioners it is clear that there are three dominant themes (as demonstrated in Table 4:3, p.87) which are uncertainty; of the road ahead, knowledge; what they have learnt and what they envisage they need to know and improvement; how they anticipate they will manage themselves in the future. These three terms are part of the developmental cocktail (Bogdan, 2009) which students embark on with a view to gaining competence within their chosen profession.

During their undergraduate journey, students will be exposed to numerous variables (a diverse range of patients, requiring different procedures and Tutors; who will aim to share and impart knowledge construction in various ways), each experience will be a unique moment in time that will affect and challenge an individual student's understanding and experience of that particular situation. Other variables will occur such as the students’ ability to study, the rate at which they learn, numerous emotional and social aspects that will contribute to their daily professional development. What is certain is that the students’ ability to reflect on each situation and their role within it, will undoubtedly shape and scaffold how they manage future events.

Limitations of phase 1

Although the number of participants is low (n=18), this is predominantly due to a small cohort size (n=24) and reflected in the change in focus that occurs after the assessment period, where no formal teaching is delivered and the contact between students and the educational provider is significantly reduced. Students were sent a reminder invitation, to try and increase uptake, but they were invariably caught up in celebrating their successes or attempting to prepare for their forthcoming academic year and may not have wished to have revisited this assessment artefact.

Indeed, that fact that the reports were submitted as an assessment artefact means that they most likely will have been influenced by some elements of hindsight bias (Reece-
justified by perceived requirement for academic game playing, which may have been underpinned by the time required for reflective skills to develop (Rees, 2007).

There were several comments from the reflective reports that would have benefitted from further development and exploration, which the nature of the research instrument did not allow for, which are discussed below:

**Historical experience of the participants**
Initially some of the students (who from their comments identified themselves as having had past Dental Nursing experience) described their feelings at the start of the academic year; P10 identifies they had felt ‘eager and willing to dive in’ and P7 could hardly contain their excitement ‘I can recall thinking ‘this is it, I’m on the other side now, not the dental nurse’, and ‘we are on our way’. This view of moving up the skills escalator encapsulates the possibilities that lay before the skill mix that has evolved over the past decade within the dental team (Reid, 2009). These comments were not included as a theme in the initial categories due to the low numbers. However, this does not mean that this wouldn’t be a valid aspect to explore in a future studies. Indeed, Harris, Wilson, Hughes & Radford (2017, p.24) researched a similar population within the same setting (UPDA), finding that students with Dental Nursing qualifications had felt ‘frustration at their restricted role in patient care’ leading to feelings of unfulfillment in their historical roles, followed by an ‘overwhelming desire to feel needed and train’. Which is typified by the comments from the 2012/13 cohort.

**Learning styles of the participants**
P10 discussed their learning style ‘I need to embrace my learning style’ which was an aspect not referred to in any of the other reflective reports, but may well have been a useful aspect to consider, particularly if a preference for a particular learning style had impacted on the students’ attainment of a practical task, depending on how the associated learning was packaged by the academic team.
Access to peer support
Comments surrounding access to various types of peer support within the theme of Development (p.95) occurred, to which consideration of creation of an initial category was considered, but disregarded due to the inconsistency of varying sources of support (e.g. differing levels of study, practice teams) in favour of a more generic initial category heading to ensure that this theme was not too distilled. There clearly was a transition from peer learning comments which surrounded peer pressure in the So what? phase to the benefits of support that were expressed in the Now what? phase, which would be an interesting dynamic to explore in the future.

Sources of support and development
There were also some slightly worrying trends developing with inexperienced students suggesting that ‘I intend to watch others and mimic them’ (P5) and ‘I intend to watch YouTube videos’ (P6). Whilst this may well be a valid way of garnering oneself with new techniques, it also must be met with a degree of caution, as indeed copying the techniques of others as an inexperienced practitioner, may not always afford one the best practice way of undertaking an activity. Students need to be capable of critically determining robust sources of real-life and online support. Hearteningly P13 appears to understand the link between understanding both theory and practice ‘I am constantly learning, training and applying theory to practice to prepare and plan for making the right choices in the future’, mirroring P5 comment ‘I felt that having underpinning knowledge helped me to fully understand how to be most successful’.
Phase 2: Online questionnaire

The use of a two-phased approach to generate first and then second order data serves to deepen the understanding of what is occurring for the research participants (Wiebe, Durepos and Mills, 2010, p.741). The online questionnaire at level 6 used level 4 data analysis findings to construct the questions asked during the final year of the 2012/13 cohorts programme, with a view to exploring research questions three through to six;

3. How comfortable are undergraduate dental hygiene and therapy students in capturing their professional reflective practice activities?

4. What difficulties do undergraduate dental hygiene and therapy students encounter in relation to their professional reflective practice activities?

5. How regularly do undergraduate dental hygiene and therapy students engage with their personal professional reflective practice?

6. In what ways could the undergraduate dental hygiene and therapy student experience of professional reflective practice be enhanced?

Service user involvement in pilot questionnaire

Due to the low number of potential participants (n=21) at level 6 of the programme, a decision to incorporate an element of ‘service user’ involvement to establish that the research questions were written in a way that would assist the student cohort by using familiar language and to also ensure that the cohort were recruited in an appropriate way.

The ‘service user’ involvement consisted of student representatives who were invited from the level 5 BSc cohort (who were not participating in this research). The level 5 (2013/14 intake) service user volunteers reviewed the Phase 2 participant information and following this the entire level 5 cohort were also invited to participate in the pilot questionnaire. This approach aimed to maximise the number of students able to participate from the 2012/13 BSc cohort. The uptake of student representatives from
the level 5 cohort was good with 16 out of the 25 students participating in the pilot questionnaire.

The pilot questionnaire enabled consideration of the following areas; identification of the amount of time required to complete, ease of navigation and student understanding of the questions produced, with a view to providing an indication of the potential amount of data that would be collated, and if it was likely to be of the quality or depth required, enabling appropriate adjustments to be made to the survey design. The information provided by the pilot questionnaire participants was then reviewed to ensure that the questions utilised gathered the type of information required to meet research questions 3, 4, 5 & 6.

**Invitation to participate**
Following deployment and analysis of the pilot questionnaire, the 2012/13 BSc cohort (n=21) were contacted via their weekly UPDAte email (student communication) in November 2014. The invitation to participate included an attached participant information sheet (Appendix vi) and a link to the online questionnaire. Once accessed, the online questionnaire ensured that informed consent was gained (i.e. participants were made aware of what was involved by participating, how information (data) generated from their involvement would be stored (and how long this would be retained for) and how the data from the questionnaire would be used. Potential participants were also made aware of who was conducting this research, advised that there was no expectation for them to take part and an overview of the risks and benefits of participation was given, alongside details of the SFEC approval number. Contact details of the Principle Investigator were made available to allow questions from the participants to be answered. The details of the UPDA Academic Student Voice Lead were also made available, should a potential participant wish to raise any concerns or ask any questions via a third (independent) party.

**Online questionnaire design**
Initial closed questions were used to gain quantitative data regarding the respondent's position. This was followed by more open style questions and an opportunity for expression of their personal stance, using free text boxes, thus providing some
qualitative data for analysis, which although raw (Cohen et al, 2007, p219), aimed to add some richness and depth in relation to the student experience. The use of ordinal scale questions, based on Likert (1932), was also deployed.

All research questions were carefully reviewed from the responses during the pilot phase, with a view to minimising ambiguity from the written questions. The survey was designed to ensure that a respondent was unable to progress through the questionnaire without answering all of the questions, in order to ensure a sense of ‘completeness’ (Cohen, Manion and Morrison, 2007, p.348) occurred. Once a respondent had completed the questionnaire a thank you page was displayed and a security measure set in place to prevent individual respondents from completing the questionnaire on more than one occasion, ensuring consistency across the entire cohort and preventing collected data becoming skewed by duplication. Individual participant email addresses were not visible to the researcher from the completed questionnaires. A reminder email was distributed inviting the cohort to participate in the online questionnaire, via the UPDAte student communication approximately two weeks later.

**Online questionnaire analysis**

The use of quantitative methods in this research was limited, initially data were collected in order to gather descriptive information regarding gender, alongside the use of a Likert (1932) scale to encompass attitudinal aspects of the student experience.

The key phrases from the data recorded in the open text boxes were subjected to a Framework Analysis, using a coding matrix with headings that were created from research questions 3 to 6. Mutually inclusive data was used when retrieving text for each specific question, to ensure that no data were lost during this process.

Phase 2: Findings and discussion

The aim of the level 6 survey was to explore the student perspectives as they moved towards the transition to *safe beginners*. It is at this point that the students have been working on the live clinical floor for approximately 18 months and are beginning to prepare to *fly the academic nest* and begin their independent lifelong learning journey
in the real world. The pivotal moment when they are expected to progress from the *amber* into the *professional registration (green) phase* of the Conceptual Framework (Figure 2:4)

During their final year this cohort had an opportunity to work in outreach locations where they began to network and observe experienced registered DCP’s in a diverse range of healthcare settings. Where they briefly observed and occasionally provided direct care to a broad patient base which included: children, elderly, and special needs patients under the guidance of experienced Supporters of Learners in Practice.

The results of the closed data responses are discussed in turn below. Data from the entire questionnaire were reviewed and amalgamated in to initial categories and themes followed by examples of the participant’s free text quotes, which are shown in Table 4:4.

Following this themes from both Phases 1 and 2 were reviewed and combined into Figure 5:1: Pre-requisites for creating a positive educational experience in a primary care setting.

**Research question: 3: How comfortable are undergraduate dental hygiene and therapy students in capturing their professional reflective practice activities?**

![Figure 4:1 I am comfortable with reflective writing](chart.png)

I am comfortable with reflective writing...

1= Strongly disagree
2= Disagree
3= Neither agree or disagree
4= Agree
5= Strongly agree

Figure 4:1 I am comfortable with reflective writing
Only one of the students either agreed or strongly disagreed with the question ‘I am comfortable with reflective writing’, most significantly 50% chose to neither agree nor disagree on this topic. These results indicate that there is a need for students to be shepherded through a curriculum which helps them to become effective at writing reflectively, mirroring six of the quotes in the free text box section which asked ‘I would find it easier to reflect if….’. Bolton (2010, p.204) outlines the powerful educative value of written narratives, describing how in a supportive environment they are able to ‘penetrate our understanding more deeply than our intellect, they engage our emotion. All learning involves emotion’. If educators take the brave step to harness the power of story-writing about the ‘joyous but utterly messy and uncertain complexity of professional life’ (Bolton, 2010, p.219) we are then able to not only understand our own personal story (our role in what happened, what we have taken for granted, what assumptions and uncertainties that have been faced) but we can also learn and share by hearing one another’s stories without fear of missing the plot (the personal and professional culture and society backdrop in which our shared stories are set).

There are countless benefits to using reflective writing narratives in student education (Bolton, 2010, Bolton, 2013, Moon, 1999) and the use of writing activities have a very powerful nature, due to the fact that words can be written (and unwritten) unlike speech, which is difficult to recoil once spoken. The use of are-reading and re-writing one’s own words can be part of a transformational and informative educational process (Bolton, 2010).

Another explanation for the lack of commitment by the students in agreeing or disagreeing with this statement may well be the students limited experience with regard to writing a reflective narrative or poem, which could be incorporated into the undergraduate curriculum allowing them to develop more confidence in their reflective writing.
I am comfortable reflecting verbally in one to one situations with a tutor...

1= Strongly disagree
2= Disagree
3= Neither agree or disagree
4= Agree
5= Strongly agree

Figure 4:2: I am comfortable reflecting verbally in one to one situations with a tutor

When asked how comfortable students felt reflecting verbally in one to one situations with a tutor 93% agreed or strongly agreed. This is most likely due to the perceived safety and support that students feel they have within UPDA. Historically science students have a high contact time with students (Quality Assurance Agency for Higher Education 2009, p8). This familiarity with the tutors, coupled with the fact that the students are regularly supported by their Practice Team tutors (many of whom are part time due to their dual role as practitioners in real world dentistry), brings a sense of reality, alongside the perceived sense of belongingness that the practice team culture facilitates.

The enthusiasm that the clinical tutors have in using their own personal experiences as a springboard for discussion with the students at UPDA is perhaps best encapsulated by Kay and O’Brien (2006) ‘To know that the skills you have garnered in your own clinical experience will be passed on to other generations, and will benefit countless patients, is a supreme joy’. Indeed, there is a general culture within the practice teams of Practice Team Leads (Clinical Dentists and DCP’s) sharing stories of their own personal successes
and failures, much like the elders sitting around a campfire regaling stories of their pasts to a wide-eyed audience.

![Graph showing responses to the question: I am comfortable with reflecting verbally with a fellow student...]

*I am comfortable with reflecting verbally with a fellow student...*

1= Strongly disagree  
2= Disagree  
3= Neither agree or disagree  
4= Agree  
5= Strongly agree

**Figure 4:3 I am comfortable with reflecting verbally with a fellow student**

When considering if they were comfortable with reflecting verbally with a fellow student 85% agreed or strongly agreed. Encouraging a reflective dialogue on clinical activities (facilitated by the clinical tutors) acts as a precursor for one-to-one peer discussion, as Brockbank and McGill (2007, p.6) state ‘when students have experienced reflective dialogue to promote their learning...they will then be in a position to undertake reflective dialogue themselves’. It is possible that the curriculum would benefit from the incorporation of a more formalised approach to peer discussion, which could involve setting out a professional reflection agreement, allowing an exchange of discourse between peer and academic mentors that would offer a slightly more formal but also confidential setting for professional reflection to occur.
I am comfortable reflecting in a group setting...

1= Strongly disagree
2= Disagree
3= Neither agree or disagree
4= Agree
5= Strongly agree

**Figure 4.4** I am comfortable reflecting in a group setting

There was a more mixed response in relation to reflecting in a group setting, but still the majority of students 57% (n=8) remained in the strongly agree/agree category. This mixed response is most likely to be born out of two aspects; one, that students are concerned about discussing their personal reflections with one another and secondly, that there may be an underlying current of power balance in the group setting of the Practice Team. In the first instance (sharing personal reflections) students will inevitably find themselves working within an ‘intermediate zone of practice’ (Lindon, 2010, p.21); an inevitable part of the development of professional practice process where students are still finding their way, as they have neither the appropriate experience or necessary knowledge to consistently deal with problems using a best practice approach. Or in the latter (where there is an underlying power balance), the Level 6 cohort the students could be expected to know more than the cohort members from Level 4 and 5, in
addition to the dynamic that the final year Dental Undergraduates and qualified staff members bring to these meetings.

The respondents also alluded to feeling able to share their reflections with their peers (57%) and tutors (85%, Fig. 4.3), echoing the stance of Dreyfus and Dreyfus (2005, p. 790) regarding how important it is to establish an open ethos of accepting failures as well as successes within a group.

These questions were then followed up by a free text box asking ‘prefer to reflect….’ with the text responses being recorded and represented in Figure 4:5. The preference in reflecting alone, or with friends and family, is presumably underpinned by the safety of thinking things through on one’s own, or by having some discussion in the safer environment the students may feel amongst friends and family. From the text it is unclear if the friends are peers, but from the comfortableness indicated when reflecting with a peer (85%) it is likely that these were part of the ‘talking to friends and family’ group represented in Figure 4.5.

![Figure 4:5 I prefer to reflect](image)

Either way the students generally appeared willing to share their reflections with their work family, suggesting that a sense of belongingness has developed during their time spent studying together. Belongingness has been defined by Levett-Jones and Lathlean (2008) as;
a deeply personal and contextually mediated experience that evolves in response to the degree to which an individual feels (a) secure, accepted, included, valued and respected by a defined group, (b) connected with or integral to the group, and (c) that their professional and/or personal values are in harmony with those of the group. The experience of belongingness may evolve passively in response to the actions of the group to which one aspires to belong and/or actively through the actions initiated by the individual. (p.104)

If opportunities are continued to facilitate and develop a nurturing educational environment for the students, these relationships should enable them to be well placed to continue their educational journey, as they approach graduation and move into registration.

The students were then asked about reflecting on positive experiences and whilst the cohort was predominantly positive about this aspect of reflection there were still some students (n=3) with no strong feeling or in disagreement with this statement. It is possible that this disparity between Figure 4:6 and Figure 4:7 has occurred due to the students limited self-monitoring and self-assessment skills. As the students’ professional identity is further developed during their education and beyond, an awareness of the influences of their own professional values and beliefs should be developed (Mann, Gordon and Macleod, 2009, p.596), which, if nurtured over time, will lay the foundations of a robust self-reporting mechanism which can be used to ensure future safe and effective clinical performance.
Reflective practice helps me to learn from my successes...

1= Strongly disagree
2= Disagree
3= Neither agree or disagree
4= Agree
5= Strongly agree

Figure 4:6 Reflective practice helps me to learn from my successes

When comparing the role of reflective practice in learning from successes and mistakes, the students indicated that the felt the RP was more helpful in situations where mistakes had occurred (Figure 4.6). This is most likely due to a requirement within their curriculum, which requires a personal reflective account to be completed when they have had an adverse clinical event or near miss on the live clinical floor. The use of reflection in these types of events is part of a process that aims to strengthen altruism by capturing behaviours that may not necessarily be captured by conventional assessment (Taylor and Grey, 2015). In parallel to the broader benefits that the students gain in relation to developing their critical depth of thinking (in identifying their own underlying assumptions and arguments in relation to their personal professional practice) and critical breadth of thinking (avoiding the atomistic development of skills. Which is achieved by allowing time to consider the power relations and processes that underpin the context of their clinical experiences).
Figure 4:7 Reflective practice helps me to learn from my mistakes

Reflective practice helps me to learn from my mistakes...
1= Strongly disagree
2= Disagree
3= Neither agree or disagree
4= Agree
5= Strongly agree

Figure 4:7 Reflective practice helps me to learn from my mistakes

Research question 5: How regularly do undergraduate dental hygiene and therapy students engage with their personal professional reflective practice?

In order to answer this question an open question was asked, followed by a free text box. The question was ‘I reflect….’ 12 students responded to this question.

Figure 4:8 I reflect
Interestingly, when comparing the responses from the question ‘Reflective practice helps me to prepare for future clinical situations’ (Figure 4:9) 100% of the cohort agreed or strongly agreed with this statement, however, when asked this question in a less structured format (open text box) only 86% of the cohort indicated that they chose to reflect after clinic or daily. This missing 14% may be attributed to the students (n=2) who did not respond to this free text question, but still does not account for the two students who identified that they were reflecting three times a week or two to three times per year. This may be as a direct result of the reflective journal log which is used as an assessment artefact in the student’s clinical units of study, which has a requirement for three reflections to be completed per year.

![Figure 4:9 Reflective practice helps me to prepare for future clinical situations](image)

Reflective practice helps me to prepare for future clinical situations ...

1= Strongly disagree
2= Disagree
3= Neither agree or disagree
4= Agree
5= Strongly agree

When asked if reflective practice helped the students to prepare for future clinical situations 100% (n=14) students indicated that RP helped them. It was positive that the students acknowledged that their reflective skills will be an ongoing requirement, as part
of their future clinical careers, with no students disagreeing with the use of reflection to aid in their future professional development.

Whilst it is encouraging that the respondents appear to imply general confidence about developing the skills required for reflection at such an early stage in their programme, a degree of caution should occur as the deep reflective, higher order reflective skills that are advocated by Moon (2004), Johns (2009) and Bolton (2010) are unlikely to have been developed sufficiently at such an early stage in their programme and will need to be developed and explored in more depth, during the final year of delivery for the BSc programme, in order to furnish the cohort with the necessary skills required for the professional lifelong learning journey that lays ahead, as John's states:

*Students may prefer to be fed what they need to know, but is that adequate preparation for developing critical thinkers? ......Reflection is about personal growth and the impact on personal growth*” (Johns, 2009, p.23)

In today’s technology savvy learning environments, taking the time to move away from virtual technologies and creating opportunities for effective reflection, provides an opportunity for students to demonstrate the depth and breadth of learning (Colley, Bilics, and Lerch, 2012) complimented by the percolation of their own personal higher order thinking skills which fundamentally influence their personal professional practice.

**Research question 4: What difficulties do undergraduate dental hygiene and therapy students encounter in relation to their professional reflective practice activities?**

In order to discover ways that the student experience could be enhanced a strategy was employed that aimed to explore what aspects the students found most difficult, with a view to problem solving these for future cohorts. Therefore, the following open ended statement was provided for the student participants to complete ‘The aspect I find most difficult in relation to reflection is...’. Students responding to this question identified the
difficulties that they felt they faced in relation to being critical of themselves (n=5) and their difficulties in writing reflectively (n=6).

The difficulties in trying to write effectively were an underlying theme throughout the survey responses; ‘The aspect I find most difficult in relation to reflection is putting true feelings into reflection (written)’, with another student describing their difficulties in reflecting ‘when something goes right. I only tend to reflect on negatives’. Indeed, engaging with the reflective process is a complex undertaking, as Boud, Keogh and Walker (1994, p.11) describe ‘both feelings and cognition are closely interrelated and interactive’.

The students’ comments also appear to demonstrate a lack of self-compassion towards oneself, which was not isolated. Indeed, there was also an element of uncomfortableness in another student’s view of writing about positive experiences ‘I feel like I am just saying how great I am’, followed up by the difficulties in putting personal feelings into words, as outlined by another student, who writes ‘describing how I felt can be awkward, almost like I’m writing a child’s story’. Bulman (2013, p.220) describes how students should be encouraged to ‘nurture a sense of wonder about practice, to grow and learn through your practice, rather than rely on ritual and habit to get you through the day’, by reviewing both positive and negative events we allow ourselves the time to view our actions with an ‘enlightened eye’ (Bulman, 2013), a space where a student is able to develop meaning from their personal abilities, actions and values. By furnishing the students with the necessary skills and time to undertake truly meaningful reflection they should, in turn, be able to see the personal contribution that every student individually makes to a patient’s journey. The richness and reward of undertaking this activity is the wonderment of being able to view the world from a new and enlightened perspective, opposed to just blindly carrying on with practices that often become viewed as the routine *day to day* aspects of clinical care.
Research question 6: In what ways could the undergraduate dental hygiene and therapy student experience of professional reflective practice be enhanced?

The final question in the questionnaire asked students to complete the following sentence (using a free text box) ‘I would find it easier to reflect if....’

Perhaps tellingly the students were more positive about the benefits of discussing their experiences with one another describing how it would be easier to reflect if ‘we did small group reflection after clinic’ and ‘it was more informal and discussed between teams’. This recognition of being part of a group or practice team underpins the importance of a perceived safe environment in which to share experiences, which can be achieved by a sense of belongingness which is underpinned by self-actualisation (Maslow, 1943). However, a word of caution was also aired by one student who suggested that they wanted to ‘discuss more freely with others what happened and what they would have done in the situation without being judged or concerned that the opinion the person has of me may change’. This in all reality is difficult to facilitate as it is inevitable that people’s perceptions of one another will change over time. What could make a difference, is to allow reflections on areas for improvement to be addressed by a culture of supporting and celebrating those people who have been brave enough to identify that they have made mistakes and are willing to air and share them with others in order that everyone can learn from them.

Reflection as an assessment artefact
The question of using reflection as an assessment artefact was appropriate as the students’ perspectives of sharing their personal experiences is fundamental to shaping the future formative and summative assessment experiences of future cohort. Again, a Likert Scale (1932) was deployed in relation to this topic;
Evidence of reflective practice should be used in assessment……

1= Strongly disagree
2= Disagree
3= Neither agree or disagree
4= Agree
5= Strongly agree

Figure 4:10 Evidence of reflective practice should be used in assessment

Of the students 50% (n=7) agreed that reflective practice should be used in assessment, only 14% (n=2) disagreed with this statement and 36% (n=5) were neutrally placed.

There is no doubt of the benefits of being able to capture and formalise a student’s reflective and reflexive processes as part of their programme. As Beveridge (1997, p.41) points out the dilemma faced by academics is that students won’t take reflective practice seriously unless it is assessed, however, serious reflection requires openness and the knowledge that students are safe to share their experiences (Johns, 2009). Moon (2004) has identified the need for clear aims and objectives to be provided, however, Beveridge (1997, p.42) suggests that by creating an assessment criteria spontaneity and individuality will be lost from the reflective process. Perhaps one way of addressing this, whilst being mindful of the students’ right to pick and choose those reflections that they feel safe to share, would be to incorporate patchwork texts (Winter 2003) into the professional elements of the dental curriculum. Winter (2003, p.112) describes how several small excerpts can be taken various moments in time and then woven together to create a retrospective view of what has gone before. The use of a series of patches (texts) demonstrates the student’s ability to accumulate new knowledge or perspective on each patch topic (Trevelyan and Wilson, 2012, p.488),
overviewing their own personal journey which acts as a stepping stone towards a comprehensive and deeper understanding of a topic area.

Bolton (2014, p.181) acknowledges that there is some considerable disagreement concerning the assessment of reflective practice, handing back the responsibility of decision making back to those who develop the individual programme, as in essence, these are the people best placed to consider what (if any) assessment methods should be used and how to incorporate reflective practice into the curriculum to ensure that its use does not compromise the principles upon which PRP is based. A view which is echoed by Ixer (1999, p.521) ‘A particularly loud note of caution must be sounded in relation to the fact that some commentators still inherently endorse reflection as a skill or competence that can be learnt through instrumental reasoning. This leads to the assumption that course planners need only structure assessment in such a way as to encompass a new outcome called ‘reflection’. Within the current curriculum reflective practice is initially ‘taught’ via models, which aim to guide, this is in essence a technocratic approach, a mechanistic ‘this fits everyone’, (do this and you can demonstrate that you have this skill) where in reality, this is not the case, to truly be a reflective practitioner you need the skills of compassion and empathy; the ability to step outside of one’s view of the world and see things from other people’s perspectives. Johns (2009, p.50) clearly suggests a requirement to embed the view in students that ‘models of reflection must be seen as heuristic; a means towards an end, opposed to the end itself’ describing how they act as a pathway to the novice practitioner, opposed to a final destination. By moving away from distinct models students are provided with an opportunity to allow all of their experiences to become available (both positive and negative), by doing so, a novice practitioner is able to bridge the gap between their current reality and their intended vision of future practice.

The opportunity for reflection in a group setting can be a useful way to explore student experience, providing this is carried out in an open and honest environment. Boud, Keogh and Walker (1994, p.102) describe how learning conversations are ‘not idle chatter’ nor are they an ‘exchange of prescriptions, instructions or injunctions’ but rather a ‘dialogue on the learning process’. By allowing the students to explore, in depth, what is right for both the patient, themselves and the team they should in turn be able to identify areas for future improvement and development.
Phase 2 Framework Analysis summary
Table 4.4 captures the initial categories and final themes from the combined data capture from the questionnaires (amalgamating the closed question responses alongside examples of the free text comments) which was used to produce the FA for this research phase. The border of the table encompasses yellow aspects with denotes its alignment with the clinical demonstration phase of the conceptual framework (Figure 2:4).
### Table 4:4 Phase 2 initial categories and final themes

<table>
<thead>
<tr>
<th>Initial question</th>
<th>Examples of student comments underpinning the initial categories</th>
<th>Initial categories</th>
<th>Final themes</th>
</tr>
</thead>
</table>
| **What?**                     | I prefer to reflect with friends  
                              | By talking preferably 1 to 1, at work  
                              | By talking with other students  
                              | By discussion with a small group on my course  
                              | Talking on clinic with a team  
                              | In practice teams  
                              | More informal and discussed in teams  
                              | Work family                                                                 | Belongingness       |
| **(How comfortable)**        | I feel like I am just saying how great I am  
                              | Getting past the embarrassment of having to talk about myself  
                              | we did small group reflection after clinic sessions  
                              | discuss more freely with others what happened and what they would have done in the situation without being judged  
                              | find doing it in a group setting informally much easier and more helpful as you get feedback and suggestions from the other people you speak to | Sharing             |
| **So what?**                  | By running things through in my mind in my own time I feel less under pressure to come up with a solution  
                              | Having time closer to the event and not leaving it until the end of the day, when the emotions have dissipated. This would make it easier to reflect as it would have happened more recently and the feelings would be happening at the time.  
                              | Thinking about how the situation was making me and others feel at the time.  
                              | The 'how could I have prevented this?' aspect                                                                                         | Sense of responsibility | Shared goals |
| **So what?**  
(continued from previous page) | Reflect after clinic  
Tends to be when I do something for the first time  
Using something new  
Difficult procedure  
I did it straight after the event but I do not always have time to do that.  
When things go wrong  
It was more Informal and discussed between teams rather than having to be written down and assessed  
Unexpected outcome of procedure | Culture |
|---|---|---|
| **Now what?**  
(Difficulties and enhancement) | Difficult being critical of myself  
I only tend to reflect on negatives  
Difficulties in writing reflectively  
When I struggle with something or get praise for doing something well  
Areas where I am not clinically confident with making professional judgement for patient treatment  
Finding a solution to the problem, especially when it wasn’t me who identified the fault  
Describing how I felt can be awkward, like writing a child’s story  
Critiquing myself, finding out where I went wrong or made a mistake  
How to move on from an issue or a problem  
To say why a negative situation has happened as there isn’t always a cause | Development of enquiry and insight |
| | Reflection helps me to prepare for future professional development  
Finding what went wrong and then how to correct it  
I put it in writing more. Practice makes perfect! :-)  
Putting true feelings into reflection  
I find reflective writing very difficult but I do always evaluate myself after every experience on clinic | Positive commitment |
Phase 2 categories and themes

As in phase one, Borton’s (1970) three stem questions have been used to frame the initial categories and themes from phase two of the research. Textual data examples (Table 4.4) have been amalgamated with the quantitative data from the online questionnaire to further evidence the decision trail leading to the categories and themes that are identified in Table 4.4:

What?
The first two initial categories in the ‘what?’ phase were work family and sharing.

Work family
The participants clearly felt a sense of security in their educational establishment, as despite the uncertainty in capturing their reflections in writing (Figure 4.1) there was an overwhelming indication from Figures 4.2 & 4.3 which showed how comfortable the participants were in having reflective discussions with their Tutors ‘talking on clinic with [sic] team’ (P12)and their peers ‘By discussion with a small group on my course’ (P8)

Sharing
The only deviation in the participant’s preferences surrounding reflective discussion was when this activity occurred within a group setting. Although the majority of participants were comfortable with this, as exemplified by P10 ‘I find doing it in a group setting informally much easier and more helpful as you get feedback and suggestions from the other people you speak to’ and also P13 who described how ‘It was more informal and discussed between teams rather than having to be written down and assessed’. Conversely there was also a minority of participants who did not find this aspect so comfortable, with P11 describing how they would like to ‘Discuss more freely with others what happened and what they [sic] would have done in the situation without being judged or concerned that the opinion the person has of me may change.’

This shift is most likely to have occurred because the students are placed into practice teams before their arrival at UPDA. Therefore, depending on differing personalities and
group dynamics, the students may feel more restricted in their dialogue. There were also aspects surrounding the issue of having the confidence to speak up and share with others emerging in the students comments with P6 identifying ‘Getting past the embarrassment of having to talk about myself’ (P6) and P7 concerned that ‘I feel like I am just saying how great I am’.

**Final theme from the initial What? category: Belongingness**

Belonginess is drawn from the hypothesis that humans are driven to make and maintain positive and significant interpersonal relationships (Baumeister & Leary, 1995) which is no doubt influenced in the pursuit of living a worthwhile life (Jarvis & Watts, 2012). The comments derived from the FA (Table 4.4) and the quantitative data (Figure 4.5) demonstrate that there is an emotional need to communicate with others within the organisational setting; an involvement which is driven by the need to share experiences and be accepted, within a secure environment. The data reflects research, involving students at UPDA, which resulted in a bespoke definition of belongingness in dental education which is described by Radford & Hellyer as a;

> ‘deeply personal and contextually mediated experience in which a student becomes an essential and respected part of the dental educational environment where all are accepted and equally valued by each other and which allows each individual student to develop autonomy, self-reflection and self-actualisation as a clinician’ (2016, p.543)

**So what?**

The following categories surrounded the sense of responsibility, which was entwined with culture.

**Responsibility**

It is at this point of the programme when the students are transitioning from their ‘advanced beginner’ (Benner, 2001) stage; a crucial transitional phase when they move from acting as a DCP into becoming a DCP, on to the point where they are preparing to demonstrate their competency in completing a broad range of tasks and activities, in readiness for safe beginner status as a GDC registrant. As such, the maturing comments that the participants shared demonstrated their continued commitment to take responsibility for their practice and development, alongside considering the views of
others P1 described ‘Thinking about how the situation was making me and others feel at the time’. Others recounted when the most effective point would be for them to reflect in order to gain the most benefit ‘Having time closer to the event and not leaving it until the end of the day, when the emotions have dissipated. This would make it easier to reflect as it would have happened more recently and the feelings would be happening at the time.’ (P2). Furthermore, a sense of responsibility was apparent in many cases with P12 stating ‘how could I have prevented this?’ and P8 wanting to build on their experiences ‘how I can improve from my mistake’.

Participants also made additional comments that acknowledge the responsibility of taking accountability for their actions alongside the reality that there is still much to learn, as characterised by P14 ‘Finding a solution to the problem especially when it wasn’t me that identified the fault’ (P14) and P13 reporting that there are ‘Areas where I am not clinically confident with making professional judgment for patient treatment’.

**Culture**
The culture within the UPDA was that students should make time reflect in their own time. As UPDA is an educational establishment situated within a primary care setting, this may possibly be deemed to be a realistic way to prepare the students for a real-world problem. However, it may also encompass some detrimental elements in that it may hinder the types of activity that the students choose to reflect upon. As P10 typifies they reflect when ‘Using something new’ ‘Difficult procedure’ ‘Unexpected outcome of procedure’ as such, this approach impacts on the culture regarding the types of activities that prompt reflection, as demonstrated by the disparity between the use of reflection for positive events which was less (Figure 4.6) than negative events (Figure4.7) which aligns with the free text comments.

**Final theme from the initial So what? category: Shared goals**
Ultimately, the participants all demonstrated a commitment to their own developing practice, taking responsibility for their actions and looking for solutions to problems, or ways of improving their future performance. The culture of continual development was a shared goal across the cohort, reaffirming the transformation that has occurred whereby the participants are no longer acting as DCP’s, but instead are becoming DCP’s in readiness for becoming GDC registrants as safe beginners.
Now what?
The final categories that unfolded from the second research phase was the development of enquiry and insight that had gathered momentum throughout the programme, alongside the positive commitment displayed by the participants, framed by the willingness, ability and engagement to work within their chosen profession.

Development of enquiry and insight
For registrants to be successful in their chosen profession there is a need to develop effective higher order thinking skills. By achieving this, students are able to evidence that they are no longer solely regurgitating facts and displaying adherence to performing set tasks. In contrast, they should now be able to exhibit how they can evaluate clinical situations, adapting their skills and knowledge in order to produce the best possible outcome(s). The importance of the development of thinking skills has been identified by Paul & Elder;

*Everyone thinks; it is our nature to do so. But much of our thinking, left to itself, is biased distorted, partial, uninformed, or downright prejudiced. Yet the quality of our life and what we produce, make, or build depends precisely on our quality of thought*’ (2007, p.5)

There is evidence to demonstrate that there can be a failure to develop higher order critical thinking skills (Teekman, 2000). Indeed, many of the participants’ comments show how difficult critiquing themselves as part of the reflective process was for them ‘To say why a negative situation has happened as there isn’t always a cause’ (P7) also as P3 describes ‘Critiquing myself, finding out where I have gone wrong or made a mistake’ (P3). Education is a process where fledgling practitioners should be facilitated in developing the autonomy to make their own choices based on informed understanding, analysis and critical thinking (Marry, 2005). The process of being enabled to think critically invites the students to evaluate their own personal learning and create a conscious understanding of how they are making decisions and how this, in turn, is influencing their practice. Therefore, it is essential that educational providers are confident that their students are endowed with these skills, even if this may be uncomfortable to the developing practitioners.
Reflective practice is potentially a useful vehicle to evidence the development of critical thinking skills. By encouraging the students to incorporate peer-review on their own practice, the novice practitioners are able to gain significant insight into their own strengths and weaknesses (Trico, Wolford, & Escudier, 2016), which in turn facilitates critique as part of the reflective process.

One way of capturing this specific skill is to use reflection as an assessment artefact, despite the reticence of the students; as figure 4.10 demonstrates, only 50% of the participants felt that reflective practice should be used as part of an assessment process, which is most likely to have been influenced by the participants who struggled with critically appraising their own actions.

Positive commitment
The voice of the student’s inner critic, which was an initial category in phase 1 was still apparent, lurking in a small number of participant’s comments ‘I find it easier to put myself down.’ (P3) and P9 who felt they had a predisposition to ‘Judge myself’ but these comments were overshadowed by the emergence of far more positive perspectives as P14 described ‘Practice makes perfect! :-(’ and ‘Reflection helps me to prepare for future professional development’ (P1).

Some students expanded on how they use their reflections, with P2 identifying that they used reflection ‘If something went really well - exceeded my expectations, or when something did not go as well as I was expecting - I was disappointed with the outcome’. P4 acknowledged their commitment to reflective practice stating that ‘I find reflective writing very difficult but I do always evaluate myself after every experience on clinic’. Although the commitment to reflect from P4 is encouraging, they do not actually state in what form the reflection takes or how this is captured, so it is difficult to ascertain how the ‘evaluate’ aspect occurs.

Final theme from the initial Now what? category: Willingness, ability and engagement
As the students prepared to move from the amber phase into the green (professional registration) phase of the conceptual framework (Figure 2:4) it was clear that their metacognitive knowledge and awareness of their own thought processes had developed
from phase 1. With the final theme of uncertainty: fear of failure, frustration in completing practical tasks and caution dissipating in strength and being replaced with a positive commitment to do well in their future practice. Reaffirming the commensurate aspect of Radford & Hellyer’s (2016) definition of ‘belonginess in dental education’, whereby all members of the community of practice (Wenger, 1998) are accepted and equally valued, within a context that allows everyone to be autonomous and self-reflective with a view to achieving self-actualisation (Maslow, 1943). In order for the progression from the initial development (orange) to the clinical demonstration (yellow) phase of knowledge, skills and understanding in the conceptual framework (Figure 2:4) the students must be engaged with their chosen profession sufficiently in order have the willingness to persevere with their personal development, alongside the ability to demonstrate safe and effective practice at which point they are able to enter into the professional registration phase (green) of the conceptual framework.

**In summary**
It is clear that there is a synergy that exists between the trust required and the ‘collegiate climate’ (Fook and Gardner, 2007, p.42), which are just as important as the technique and models deployed when undertaking professional reflective practice. If students are allowed to feel reassured when sharing their reflections with one another, the facilitator must be mindful of the element of risk and vulnerability the students face. It may be just as embarrassing, or indeed empowering, for students to be held up as a model of virtue to their peers, alongside the difficulties of exposing one's failures, which runs the risk of being seen by others as ineffective at undertaking particular activities, or worse still to be seen as incompetent. The fine tightrope of balance must therefore be undertaken by a skilled facilitator to ensure that the richness of the learning environment does not become an environment of blame culture.

The combined findings from phase 1 and 2 led to the identification of the prerequisites for creating a positive educational experience are demonstrated in the following chapter (Figure 5:1).
Phase 2 limitations
Invariably, it should be remembered there will be issues around validity in relation to the research participant’s personal self-reflection and interpretation of the online questionnaire. Responses made by the participants will ultimately be subject to their own personal recall and perspective (Reason and Torbett, 2001, p.20). McNeil and Chapman also discuss validity in the context of surveys used, as part of data collection, identifying that one of the primary problems is;

fundamentally, the survey method finds out what people will say when they are being interviewed or filling in a questionnaire. This may not be the same thing as what they actually think or do


Echoing Argyris and Schön’s (1974) view of ‘espoused theory’ and ‘theory in use’ (i.e. there is a gap between what is practised and what is preached). It should also be noted that the data produced by this research project is only representative and reflective of the common themes and preferences of a particular cohort of students, at a particular moment in time.

Denzin and Lincoln (2011, p.15) argue that there is ‘no single interpretive truth’ but ‘multiple interpretive communities, each having its own criteria for evaluating an interpretation’. Identifying the pivotal role that clinical researchers play in creating ‘spaces’ for those ‘who are studied to speak’, in essence becoming ‘the conduit for making such voices heard’. In making voices heard the insider-researcher must uphold the values of academic research enquiry which MacFarlane, B (2009, p.47) identifies as ‘courage, respectfulness, resoluteness, sincerity, humility and reflexivity’, underpinned by the choices that an insider researcher has in making ‘fine grained individual choices which represent the least bad course of action’ (MacFarlane, 2009, p.32).

Privileged learning environment
The students at UPDA are in-placement students, that is, they are situated during their initial and clinical development phases (for both the orange and yellow stages in the conceptual framework, Fig. 2.4) almost exclusively within a primary care setting. As such, this is an extremely unique clinical environment where students are able to form
professional rapport with one another and the academic and clinical teams on a long-term basis, particularly due to the small cohort size. This may be of benefit for some students, especially those who have good networking skills. However, this may also be seen as a disadvantage by those students who may not perceive themselves to be ‘strong students’.

The uniqueness of the UPDA environment means that transferability of the research findings to the wider dental team, or with other allied healthcare professions education could be more limited. Due to the potential of lower contact time dependant on the length and locality of out-placement blocks. However, this would greatly depend on the structure of individual educational programmes and their specific staffing constraints.

**Power within the learning environment**

There also exists a sense of an inability to change a clinical working environment following reflection (Duke & Appleton, 2000). If reflective practice is truly to be seen as an effective vehicle for change, the power balance that precludes the inability to change clinical situations needs to be addressed, how to do this was clearly a challenge for some participants; ‘how to move on from [sic an] issue’ (P12) and ‘finding a solution to the problem’ (P4). As such a supportive and responsive clinical culture, must subsist in order to facilitate change (Bulman and Schultz, 2013, p.1951). Empowering the students to optimise their reflections in a prospective way.
Phase 3; Analysis of the General Dental Council’s Fitness to Practice conditions cases

As already identified, Mathison (2005, p193) suggests that documentary evidence can be utilised as part of the illuminative evaluation process, providing a historical perspective, which can facilitate enquiry and discussion by exposing aspects relating to the research that might otherwise be missed. In this instance there was an opportunity to explore the real-world realities that dental professionals are faced with in the United Kingdom. The purpose of this phase of the research was to meet question 7;

**Research question 7:** What relevance does professional reflective practice have in future professional conduct?

*Phase 3: Context and Framework Analysis*

The GDC is the statutory regulatory body for all members of the dental team in the U.K. The number of registrants at the end of 2014 (GDC, 2015, p.19) is demonstrated in the Figure 4:11:

**Figure 4:11 Total number of registrants on the GDC register**
The GDC investigate cases relating to four distinct areas (GDC, n.d.); criminal offences (where a registrant has been convicted or cautioned in the UK), professional conduct (where a registrant's behaviour puts patients at risk), health (where a registrant's health problems may put patients at risk) and performance (cases where professional performance puts patients at risk). In order to access this data the GDC hearings and appeals list repository was utilised (GDC, n.d.). This repository contains all of the GDC fitness to practise cases since May 2010. Each hearing includes the date, registrant name, registration number, type of hearing and outcome summary.

Following a Fitness to Practise (FTP) hearing any of the following sanctions can be put in place;

- **Reprimand**: Disapproval by the FTP committee, however, no restrictions or further action is required.
- **Conditions**: Restrictions can be placed on the registrants work for a set period of time and may include certain conditions that are required to allow the registrant to improve.
- **Suspension**: The registrant is suspended from work for a set period of time.
- **Erasure**: This means that the registrants name is removed from the register and they are no longer able to work in the UK.

Due to the low number of Dental Hygienists (6%) and Dental Therapists (2.2%) on the register, as demonstrated in Figure 4:11 the published cases from all GDC hearings and appeals list cases from 1st January 2012 to 20th November 2015 were reviewed, as the expected prerequisites are the same for all members of the dental team, with the only difference being their individual scope of practice.

Mathison (2005, p.193) describes the relevance of documentary evidence in the illuminative evaluation process, lending itself to provide a historical perspective, raising areas for further enquiry and discussion by exposing aspects relating to the research that would otherwise be missed.

Table 4:5 shows the numbers of FTP cases alongside their outcome summary on a year by year basis from 1st Jan 2012 to 20th November 2015.
### Table 4:5 Summary of FTP cases and outcomes 1/1/2012 to 20/11/2015

<table>
<thead>
<tr>
<th>Outcome summary</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of FTP cases</td>
<td>34</td>
<td>27</td>
<td>66</td>
<td>335</td>
</tr>
<tr>
<td>Conditions</td>
<td>0</td>
<td>1</td>
<td>18</td>
<td>122</td>
</tr>
<tr>
<td>Suspension</td>
<td>2</td>
<td>8</td>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>Erasure</td>
<td>32</td>
<td>18</td>
<td>33</td>
<td>178</td>
</tr>
<tr>
<td>Reprimand</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>Dismissed</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Adjourned</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

For the purpose of this research only the data from the FTP cases which resulted in ‘conditions’ were subject to review, as these were cases where it was felt that the registrants required improvement to their personal professional practises. Therefore, these would be the most likely sources of information that would meet research question seven and objective three.

Although FTP cases are in the public domain, the information is still sensitive to those registrants, therefore it was not possible to review those cases which were not open to public view. To ensure that individual identification of registrants did not occur for the remaining available to view cases (n=56), each case file was individually downloaded from the GDC website and immediately given an individual numerical identifier prior to conducting the frame work analysis.

Each case report was then read individually, on numerous occasions, to allow identification of key phrases. These key phrases were then placed into a Microsoft Excel document. Once again, Borton’s (1970) three stage framework for reflection was implemented for the initial stages of the Framework Analysis echoing the process used for Phase 1 (student essays) and Phase 2 (online questionnaire free text quotes) of the data analysis. On this occasion, What? Was used to identify the problem, So what? Was used to review the remedial steps taken and the Now what? Reviewed the implications.
for continued registration, by identifying what the GDC expected of the registrant’s future practice. This data was then given to an independent colleague, who reviewed the process to ensure that decisions had been arrived at fairly and no outstanding elements were over-looked.

Phase 3: Findings and discussion

Table 4:6 provides examples of the Fitness to Practice panel report quotes which are derived from the initial research question stem and fed in to the formation of the initial categories and final theme arising from the Framework Analysis. In line with the conceptual framework (Figure 2.4) the table includes green elements, identifying its alignment with the professional registration phase in the conceptual framework.
### Table 4:6 Phase 3 initial categories and final themes

<table>
<thead>
<tr>
<th>Initial question</th>
<th>Examples of FTP panel comments on individual cases, underpinning the initial categories</th>
<th>Initial categories</th>
<th>Final themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>What?</td>
<td>You accepted in evidence that your response has been reactive opposed to proactive</td>
<td>Professionalism- Management of self</td>
<td></td>
</tr>
<tr>
<td></td>
<td>You also demonstrated limited insight into how your learning would be embedded into your practice. Whilst you have done some remediation and demonstrated some insight and reflection into your failings, further training is required to bring your practice to the current standard expected</td>
<td>Professionalism- self-awareness of gaps in knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Committee is therefore not satisfied that your insight is yet sufficient to demonstrate that the lessons arising from this case have been embedded</td>
<td>Professionalism- desire to improve oneself</td>
<td>Awareness</td>
</tr>
<tr>
<td></td>
<td>You must recognise that your qualification for registration was the first stage in your professional education. you lacked insight into your behaviour, how seriously it might have impacted on the patient, and how you would react differently in the future</td>
<td>Insight- Awareness that something is wrong</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you have not fully realised the impact that your failings could have on patients and colleagues. These shortcomings relate to, and arise out of, deep-rooted and attitudinal deviations from safe and acceptable standards of practice</td>
<td>Impact- aware of actions on those around you</td>
<td></td>
</tr>
<tr>
<td>So what?</td>
<td>Recognise the importance of lifelong learning and apply it to practice.</td>
<td>Development planning</td>
<td></td>
</tr>
<tr>
<td>So what? (continued)</td>
<td>You have acknowledged that you were over-confident and did not realise that your practice was of the standard it should have been. Your PDP is limited to one page and is deficient in content and reflection.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>continuously review your knowledge, skills and professional performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>issues identified in this case may theoretically be remediable but are more difficult to remedy that clinical deficiencies Failed to maintain your professional knowledge and competence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>Skill acquisition- Practical</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill acquisition- developing and updating knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Now what</td>
<td>you have not shown any evidence of any direct mentorship which may have helped you to remediate this area of your work in full</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The registrant’s work must be reviewed at least once weekly by the supervisor via one to one meetings and case-based discussion. Maintain a log detailing every case. He must provide a copy of the log to his indirect supervisor, on a monthly basis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reflect on them, and identify your limits as well as your strengths Some of the evidence you presented involves reading journals but there are no reflective logs on the outcome of your learning. PDP must include reflection on impact of academic learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflection</td>
<td>Mentorship</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supportiveness</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reflection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What? (Awareness of the problem)
This aspect of the FA centred predominately around two main areas; professionalism and insight. Key phrases were used in several of the cases ‘You must recognise that your qualification for registration was the first stage in your professional education’ (Cases 3, 15, 20, 42, 48, 51, 53, 55, 56), which is in direct alignment with the GDC’s overarching outcomes in relation to education and training (GDC, 2012c, p.11) ‘Recognise the importance of lifelong learning and apply it to practice’ and was also published in the report Maintaining Quality and Impact of CPD in Dentistry;

No one ever stops learning. The practice of dentistry continues to evolve and develop. New techniques and technologies emerge: patient and public expectations of dental professionals change; ways of working and communicating with colleagues and patients also change, along with the values of society (GDC, 2012c, p.2)

Professionalism encompassed not only practical skill but also attitudes, behaviours and developmental skills a registrant should be able to demonstrate, heralding the move from the older style, practically focused aspects of dental education. Indeed, in several cases registrants were identified as not being able to demonstrate that they had been able to ‘continuously review your knowledge, skills and professional performance. Reflect on them, and identify your limits as well as your strengths’ (C3, C5, C7, C15, C17, C42, C44, C47, C48, C51, C55 and C56) meeting GDC (2013, p.65) standard 7.3. It should be remembered that it is quite possible that some of the registrants that have been taken to FTP may have never experienced any formal education in relation to their reflective skill development, either because they became a registrant prior to the inclusion of reflection into the dental undergraduate curriculum or because they have registered in another country whose scope, practice and expectations of registrants may differ.

C54 further reinforced the need for the development of professional and practical aspects of their practice, with the FTP panel stating that ‘issues identified in this case may theoretically be remediable but are more difficult to remedy than clinical
deficiencies’, demonstrating that it is not enough to be clinically competent at undertaking a clinical task, there is also a prerequisite to possess softer, more emotionally intelligent skills, such as the core values outlined in the NHS Constitution (2013); respect and dignity, compassion and everyone counts, which are applicable in this case. The lack of forward planning was also evident in C2 ‘Much of your previous CPD was not directly targeted…. you have not fully realised the impact that your failings could have on patients and colleagues’.

In other cases, it was clear that there had been no attempt to undertake any professional development activities ‘Failed to maintain your professional knowledge and competence’ (C20) and ‘These shortcomings relate to, and arise out of, deep-rooted and attitudinal deviations from safe and acceptable standards of practice’ (C24).

The impact of a registrant's actions on the public and professional colleagues was also explored, for example in C51 ‘you accepted in evidence that your response has been reactive opposed to proactive’ identifying the need for professional accountability and forward planning to occur in order to protect patients ‘you lacked insight into your behaviour, how seriously it might have impacted on the patient and how you would react differently in the future’ (C54).

C55 clearly showed the impact of DeBono’s (1990) ‘intelligence trap’, with the FTP panel stating that ‘You have acknowledged that you were over-confident and did not realise that your practice was of the standard it should have been.’ Perhaps if the the registrant had been willing to take the time to reflect on (and take accountability for their actions) they may have identified the gaps in the clinical practice that were found and could have avoided the shortcomings that facilitated their poor practice.

So what? (Development)
Although some of the cases had clearly attempted to address their shortcomings, the comments from the FTP panel were clear ‘It considers that the action plan and personal development plan, which merely sets out a list of your GDC continuing professional development (CPD) requirements, do not demonstrate that you are committed to addressing these shortcomings in a meaningful and substantial way’ (C24) and for C41 ‘You also demonstrated limited insight into how your learning would be embedded into
your practice. Whilst you have done some remediation and demonstrated some insight and reflection into your failings, further training is required to bring your practice to the current standard expected’. In C45 the registrant has taken some responsibility for their actions ‘You have revealed a degree of insight by admitting to many of the shortcomings which this Committee has found proved’, but the degree of confidence in this is limited ‘The Committee is therefore not satisfied that your insight is yet sufficient to demonstrate that the lessons arising from this case have been embedded’. For C54 the FTP also extend a note of caution ‘The Committee was concerned that you have not demonstrated sufficient insight into the identified failings, and have not yet remediated these fully. Further, the Committee was not satisfied that you would react in a calm and professional manner when faced with an unknown or difficult situation, rather than panicking as you accept you did on this occasion. The Committee considered that you lacked insight into your behaviour, how seriously it might have impacted on the patient, and how you would react differently in the future’, acknowledging the requirement to develop an ability to reflect in and on action.

There were also positive aspects that had been considered by the FTP, as in C44 ‘The bundle includes your personal development plan (PDP), certificates and particulars of your continuing professional development (CPD), notes of your reflective learning, commentaries on texts and journals that you have read, a significant event analysis, record-keeping and radiographic audits and supporting testimonials.’ However, despite these more positive aspects, a note of caution was aired ‘you have not shown any evidence of any direct mentorship which may have helped you to remediate this area of your work in full’ which helps to underpin that although clinical practice can be in essence an isolating experience, there appears to be an expectation that registrants are able to integrate themselves into a more broader ‘Community of Practice’ (Wenger, 1998) and seeking support from peer mentors to facilitate a return to safe practice.

**Now what? (Reflection)**

In all of the cases conditions were attached to the registrant's practice. Fifteen cases were directly asked to produce reflective logs and a further thirty-eight registrants were requested to submit Personal Development Plans for regular review, either with the Postgraduate Dental Dean (in the majority of cases) or direct submission to the GDC. Either way, there is clear expectation that a written aspect of reflection must be included
‘Personal Development Plan must include reflection on the impact of his academic learning on his day to day clinical practice’. This formalisation of capturing professional reflection is significant as the GDC clearly view evidence of reflection being undertaken as a prerequisite to ‘enable you to properly reflect and develop an improved level of insight into your failings’ (C21). In terms of content, the importance of reflection in the development of learning needs is widely recognised. As early as 1999 Cantillon and Jones conducted a systematic review which sought to capture what makes a personal development activity more effective than others (in terms of influencing clinical practice). In their summary they identified that prior personal reflection on learning needs was found to be an important factor in directing the uptake of effective educational activity.

For some cases, there had been a direct attempt to redress any problems by the registrant, but even though aspects of reflection had been included, it was clear that ‘lip service’ was not enough ‘The Committee determined that in the light of the useful but limited evidence that you have provided, it is not satisfied at this stage that you have fully developed an appropriate level of insight and reflection’ (C55) and again in C56 ‘Your PDP is limited to one page and is deficient in content and reflection. There is nothing to satisfy the Committee that those failings would not be repeated if you found yourself in similar circumstances. You did not articulate to the Committee any real understanding of the risk your failings posed to patients.’ and in C40 ‘must produce a document which demonstrates self-reflection upon the failings’. Bolton (2014, p.30) describes the useful role that reflection has in allowing one to reflect upon emotional situations and help to explore and discover ethical values in practice. Registrants need to be aware that people from cultures and religions different from our own, may well have very different and equally strong needs that we must be mindful of in our daily practice.

**In summary**
Failure is inevitable in dental practice (Newton, 2007) but by enabling registrants to move away from a self (person) centred approach (when in receipt of a complaint, adverse clinical event or near miss), it has the potential to become a strategy in preventing a blame culture from developing. Perhaps an effective way of addressing the
inevitability of clinical failures could be to implement a systems approach to practice, which allows identification of active failures (unsafe acts carried out by unconsciously aware or incompetent registrants) and latent failures (which may be a weakness in the process or system in which clinical activities occur). This would allow the persons involved in an adverse event or near miss the opportunity to review their own role in the incident occurring and allow discovery of the underpinning aspects that allowed the incident to occur. Indeed, had the registrants in the FTP cases had taken the time to reflect on their own strengths and weaknesses and placing themselves in the context of their own personal professional environment they may have afforded themselves an opportunity to ameliorate the effects of their professional actions and activities.

Meetings on a regular basis with the Postgraduate Dental Dean (or similar) were commonplace, varying from weekly ‘The registrant’s work must be reviewed at least once weekly by the supervisor via one to one meetings and case-based discussion.’ (C32) to ‘maintain a log detailing every case. He must provide a copy of the log to his indirect supervisor, on a monthly basis’ (C25) and on other occasions this information must be also be shared with the FTP, as in C15 ‘must allow her workplace supervisor to provide reports to the GDC at intervals of not more than 3 months and the GDC will make these reports available to any Postgraduate Dean/Director and any other person involved in her retraining and supervision.’. The role of mentorship on a more formal basis can be incredibly supportive, as Bolton (2014, p.59) describes ‘it is like standing in front of the mirror with someone else……..Mentors ask questions one does not, or cannot, ask oneself’. Indeed, mentors provide a helping-to-learn relationship (Bolton 2014, p.60) that encompasses; role model, enabler, teacher, encourager, counsellor, befriender, facilitator, coach, confidante and supporter.

There is no question in relation to how stressful a FTP case can be for registrants as it involves close scrutiny of their clinical practice and professional development, using a combination of educational and clinical supervision, alongside an audit of clinical tasks undertaken (Pearce, Agius, Macfarlane and Taylor, 2015). The FTP process is set to become more rigorous, as the GDC are currently revising their processes: which includes recruiting registrant FTP caseworkers (GDC, 2015) whose sole role will be the investigation and resolution of dental complaints, which comes into force in the summer
of 2016. This will be complimented by the introduction of enhanced CPD in 2018, as an intended preventative measure.

**Phase 3 limitations**
The review of the GDC cases had both positives and negatives. Positively the data was readily available online (with the exception of cases which were subject to health reasons) and the findings of the FTP panel were clearly articulated. The negative aspects were due to the fact that not all of the cases could be reviewed, due to personal health issues which prevented publication of the full case details.

The downloaded FTP cases contained no clear identification of the date that a complaint was initially made, so it is difficult to ascertain when the initial complaint regarding the registrant was brought to the FTP panel, which may well have been prior to the change in the publication of the GDC’s published Standards for Education (2012) and Standards for Registrations (2013) where the expectation for reflection to occur was formalised.

Also, the FTP panel vary in their membership (as the GDC has seen such a large increase in cases it has had to recruit additional members) so the decisions made may well be subject to some comparability issues, surrounding the panel's own experiences and opinions. Lincoln and Guba (1986) have identified the need for the principle of confirmability (neutrality) to occur in research and this is one aspect that cannot be addressed as it is impossible to know who was on the FTP, but invariably there will be cross pollination of FTP panel members as new members would be subject to induction and informal mentoring, as already occurs in the GDC’s Education Inspectors training.

Lincoln and Guba (1986) identify that in order for research to be valid it must be reliable and if the researcher can demonstrate validity it is in turn ensuring the reliability. The validity in this instance is underpinned by the source of the data (from the GDC) and in the Framework Analysis, which enables a clear audit trail of how decisions have been reached, which in turn demonstrates the trustworthiness of this aspect of the research process.
Chapter 5 Summary of findings

This chapter aims to review the final themes derived from each phase of the research, with exploration of these themes in line with the conceptual framework (Figure 4.2). The final themes from phases 1 and 2 led to the identification of the prerequisites for creating a positive educational experience, which are demonstrated in Figure 5:1. With the combined final themes, from all three professional doctorate research phases, then being amalgamated to determine the overarching theme that arises from this research as shown in Figure 5.2.

She left the web, she left the loom,
She made three paces thro' the room,
She saw the water-lily bloom,
She saw the helmet and the plume,
She look'd down to Camelot.
Out flew the web and floated wide;
The mirror crack'd from side to side;
"The curse is come upon me," cried
The Lady of Shalott.

(Tennyson, 1832)

To ease identification, the final themes from each of the research phases 1, 2, & 3 have been identified in Table 5:1. This table uses the colour coding (orange, yellow and then green) in line with the conceptual framework (Figure 2:4). The colour coding allows easier identification of the expected progression of skill acquisition as identified by Benner’s (2001) transition from Novice to Expert; a process that should, in essence, chart the hierarchical development of procedural practice. Phase 1 captures the students’ perceptions at the end of their simulated clinical unit of practice, as they prepare to move onto the live primary care patient clinical floor. Phase 2 captures the same student cohort during their final year of study, as they are working towards gaining competency within their full scope of practice in readiness for registration with the GDC. Phase 3 is the final element which captures the relevance of reflective practice for practitioners.
who have been subject to Fitness to Practice review proceedings in real-world patient care.

Table 5:1 Summary of final themes and overarching theme

<table>
<thead>
<tr>
<th>Initial question</th>
<th>Research phase</th>
<th>Final themes</th>
<th>Overarching theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>What?</td>
<td>1</td>
<td>Uncertainty</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Belongingness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Awareness</td>
<td></td>
</tr>
<tr>
<td>So what?</td>
<td>1</td>
<td>Knowledge</td>
<td>Insight</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Shared goals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Development</td>
<td></td>
</tr>
<tr>
<td>Now what?</td>
<td>1</td>
<td>Improvement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Willingness, ability and engagement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Reflection</td>
<td></td>
</tr>
</tbody>
</table>

**Phase 1; initial development phase (orange) in the conceptual framework**

Initially, in phase one the students experienced the *uncertainty* of the road ahead; struggling with their developing skills, what was expected of them and how to achieve this. They developed *knowledge* in order to demonstrate they had sufficiently improved to become safe enough to start on the clinical floor; which required underpinning knowledge and judgement in order to carry out a task effectively. By the end of their first academic year the cohort had *improved* sufficiently to progress onto the live patient clinical floor. From their reflective reports, submitted for assessment, the students showed the insight that they were able to perceive themselves as *acting as a DCP’s*.

**Phase 2; Clinical demonstration phase (yellow) in the conceptual framework**

Phase two focussed on the *becoming a DCP* aspect of the programme, when the cohort were in their final year, preparing to fly the clinical and academic nest. The participants shared their sense of *belonginess*, arising from the positive and significant interpersonal relationships (Baumeister & Leary, 1995) that were developing as they continued their
learning journey together. This was underpinned by the *shared goals* that they had established, which not only focussed on their own accomplishments, but also insight of the need to take responsibility for their own actions; by looking for solutions to problems, or ways of improving their future performance. By demonstrating *willingness* (to improve), *ability* (to carry tasks out safely) and *engagement* with their educational programme (within their chosen profession) sufficiently they have the potential to meet the duty of care requirements expected of them, to conduct safe and effective practice.

**Phase 3; Professional registration phase (green) in the conceptual framework**  
The final phase of the research placed a lens on the GDC’s Fitness to Practice conditions cases. Identifying how professional registration requirements encompassed not only practical skills, but also attitudes, behaviours and developmental skills that a registrant should have attained prior to registration and maintained as part of their post-registration.

In general, the registrants who were subject to conditions following the FTP review, had a deficit of insight. This led to a lack of *awareness* of the impact of their actions, which prevented them from addressing their failings. The conclusions of the GDC investigative panels, established that prior *personal reflection* of learning needs was an important factor in directing the uptake of effective educational activity. The registrants reviewed by the FTP had not sufficiently *developed* their skills or awareness which resulted in subsequent failure. As such formal reflection, was identified as a mandatory requirement, in order to remediate their deficit of skills and insight.

Combined findings from research phases 1 & 2

The findings from phases 1 and phase 2 of the research were also combined in order to give specific insight into the impact of the educational experience on the development of reflective practice within a curriculum that is situated in a primary care environment.
Figure 5:1 Pre-requisites for creating a positive educational experience in a primary care setting

The prerequisites for effective professional reflective practice to occur must be apparent in all stakeholders; the organisation must be keen to pursue, facilitate and support the needs of both patients, students and staff, the students must demonstrate willingness, ability and engagement with an overarching culture of commitment from students and staff to attain their shared goals. Indeed, the use of creating a positive culture within the architecture of the learning environment, by allowing shared insights and multiple perspectives on a situation should be seen as part of the scaffolding on which to build the foundations of positive educational experience, as shown in Figure 5:1.

Failure to integrate these positive attributes into the student experience can lead to the development of a narrow view of the world, which limits the development of practical skills, suppresses empathetic patient care and hampers emotional resilience.
Overarching theme of the research

The final themes from each research phase have been combined and integrated into Table 5:2. Parkinson et al (2016) describe how qualitative research findings are a ‘consequence of intersubjective meaning making through imagination, interpretation and conceptual input’ and the review of these elements has led to the development of the overarching theme for this research, which is *insight*.

Insight is defined by the Oxford English Dictionary (n.d.) as ‘the capacity to gain an accurate and deep understanding of someone or something’. The term accurate is derived from the Latin word accuratus (done with care) reflecting the GDC (2016) requirement for a Duty of Candour and the noun understanding can be defined as the power of abstract thought which relates to an individual’s perception or judgement of a situation (Oxford English Dictionary n.d.). Echoing Marry’s (2005) stance of the requirement for professionals to make their own choices based on informed understanding, analysis and critical thinking.

This epitomises the pre-requisite qualities that are required to become a truly reflective professional practitioner (Figure 5:2), just like the fire triangle (oxygen, heat and fuel) which are required in order for a fire to burn, so are these prerequisites required for professional reflection in primary care dentistry to occur; for without perception and judgement of a situation, insight into our actions both during and after the event (in and on action; Schön, 1983) underpinned by an innate personal duty of care, we are unable to gain true understanding of the impact of our actions on our patients, fellow professionals and the world around us, at any point of our professional lifelong learning journey.
Figure 5.2 Pre-requisites required for professional reflection to occur in a primary care dentistry

Each of these prerequisites: perception & judgement, duty of care and insight, reflects the qualities identified from each of the research phase themes (Table 5.2) aligned with the conceptual framework (Fig.2.4) and derived from the themes summarised in Table 5.1.

Table 5.2 Summary of research phase themes underpinning each of the research phases

<table>
<thead>
<tr>
<th>Research phase</th>
<th>Final themes from the research phase</th>
<th>Pre-requisite qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Uncertainty</td>
<td>Perception &amp; judgement</td>
</tr>
<tr>
<td>1</td>
<td>Knowledge</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Improvement</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Belongingness</td>
<td>Duty of care</td>
</tr>
<tr>
<td>2</td>
<td>Shared goals</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Willingness, ability and engagement</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Awareness</td>
<td>Insight</td>
</tr>
<tr>
<td>3</td>
<td>Development</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Reflection</td>
<td></td>
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</tbody>
</table>

Professional reflection in Primary Care Dentistry
The first phase of this research identified three dominant themes (as demonstrated in Table 4.3); uncertainty (of the road ahead), knowledge (what has been learnt and what needs to be learnt) and improvement (consideration of how the students will manage themselves in the future). Aspects which contribute to a developmental cocktail (Bogdan, 2009) underpinning the need for acquisition of increasing practical and academic skills which underpin their preception and judgement.

The second phase of the research revealed the synergy that exists between the trust required and the ‘collegiate climate’ (Fook and Gardner, 2007, p.42). The commitment to the educational experience must be apparent in all stakeholders in order for this to become effective learning environment: the hosting organisation must be keen to pursue, facilitate and support the needs of both patients, students and staff. The students must demonstrate willingness, ability and engagement with their studies; entwined with an overarching culture of commitment from both students and staff in order to attain their shared goals.

Indeed, the use of creating a positive culture within the architecture of the learning environment; by allowing shared insights and multiple perspectives on a situations that encompass a shared duty of care, should be seen as part of the scaffolding on which to build the foundations of a positive educational experience.

Finally, the third phase reviewed the deficit of knowledge and critical reflection that underpinned the registrants in the GDC FTP cases, exploring how proactive management of knowledge and continued professional development has become a prerequisite for professional registration, underpinned by the ability to have insight into one’s own actions.
Chapter 6 Review of research questions and recommendations

The aim of this chapter is to draw together the findings of each of the three research phases encompassed within this Professional Doctorate. Giving consideration to addressing each of the research questions individually and considering how the student experience can be improved from the findings.

\[
\begin{align*}
\text{Heard a carol, mournful, holy,} \\
\text{Chanted loudly, chanted lowly,} \\
\text{Till her blood was frozen slowly,} \\
\text{And her eyes were darken'd wholly,} \\
\text{Turn'd to tower'd Camelot.} \\
\text{For ere she reach'd upon the tide} \\
\text{The first house by the water-side,} \\
\text{Singing in her song she died} \\
\text{The Lady of Shalott.}
\end{align*}
\]

(Tennyson, 1832)

Bennett (2003, p.14) suggests that IE is complemented by asking the following questions;

- What did we achieve?
- How did we achieve it?
- What did we learn?
- Would we do it the same way next time?

And so, this chapter will look to answer each of these aspects in turn.

What was achieved and how did I achieve it?

This research used three phases of instruments to capture the role that professional reflection has in student education. Phase 1 captured the students’ experiences as they
transitioned throughout the preclinical (simulated) aspects of their programme culminating in the excitement and anticipation of moving on to authentic learning environment on the live patient clinical floor. Phase 2 allowed exploration of the factors that influenced students’ reflective processes and the preferred conditions that students have when undertaking personal professional reflective practices. Phase 3 moved away from the educational arena, focussing on the realms of Fitness to Practice, adding an element of context and meaning to the realities of professional reflection in the real world, highlighting the potential consequences of failing to nurture future professional reflective practice activities as a GDC registrant.

What did I learn?

In order to identify what has been learnt from this research each of the research questions have been revisited, to determine what has been established and how this will inform and shape the future provision of professional reflection into the undergraduate curriculum;

Research question 1: What types of event prompt undergraduate dental hygiene and therapy students to engage in professional reflective practice activities?

Students identified that reflective practice enabled them to address uncertainty, by allowing them to articulate, in words, their fear of failure, frustrations in completing practical tasks and airing and sharing their concerns for their future practice.

By taking the time to record and write down a written narrative of this initial phase of their learning journey (Phase 1 analysis) the students were afforded an opportunity to become a personal stakeholder in their learning (by drawing on past experiences and sharing how these events have shaped their current reality). Written narratives captured individual students’ views on self-worth and self-empowerment, with new knowledge and understanding being generated by taking time to slow down and take account of historical individual experiences. Written reflections allowed a space for those less vocal students to find a gateway to express their personal views on their current and hopes for their future practice, encompassed by the anticipation (and anxieties) that their move from a simulated to an authentic clinical learning environment would bring.
Mild anxiety can be considered a springboard to effective learning. The Yerkes-Dodson (1908) Curve demonstrates the link between normal arousal in response to a challenge, as shown in the Figure 6:1.

![Yerkes-Dodson (1908) Curve](image)

**Figure 6:1 The Yerkes-Dodson (1908) Curve**

Initially a low level of anxiety should be welcomed as an indicator that there is a willingness to learn. However, if the anxiety becomes heightened performance starts to wane. It is at this crucial point that avoidance behaviour starts to occur, which in turn leads to a failure to move on and learn new skills. If students are not provided with a safe environment which facilitates appropriate feedback (and feed-forward) this may impact on their ability to improve, as heightened anxiety will undoubtedly impact on the attainment of Maslow’s (1943) Hierarchy of Human Needs, hindering the journey to self-actualization. The extent of the effect of stress in dental education is open to some discussion, as recently Harris et al (2017) have identified the perceived stresses that are related to dental undergraduate education, finding that a ‘strong sense of passion’ would mitigate the majority of stressors. Indeed, stress was identified in fostering a sense of meaningfulness by some participants. However, it should be noted that this
was a small study (n=8), and as such caution must be upheld in relation to the transferability of the findings.

The Phase 2 analysis demonstrated the intrinsic value of using reflection to address adverse events or near misses on the clinical floor, with a view to strengthening altruism and capturing underdeveloped or unsafe practice and remedying this by identifying active and/or latent failures when undertaking clinical activities.

There is no doubt that students seek support for their peers as part of their own learning culture, which is a unique and almost untraceable aspect of student learning and engagement. Vygotsky (1987) suggests that in order for students to become better at learning they will internalise a diverse range of resources (e.g. their peers, lecturers, mentors, online search engines and social media) which they act on to inform and improve their own personal practice. The downside of this is the inability to monitor the quality of these learning imprints (taken from various sources), as Bransford and Schwartz (n.d.) have surmised ‘it takes expertise to make expertise’ (p.750) identifying two kinds of expertise; Learning expertise, which surrounds the ideas that would be experts (in this case the students who are aspiring to become safe beginners) continually attempt to refine their skills and attitudes towards learning by engaging in deliberate practise and the teaching expertise, which encompasses a diverse range of forms (mentors, books, videos, curricula and academics). Thus creating a bi-directional process which facilitates a dynamic relationship in which the ‘learners learn from teachers and teachers learn from learners’ (p.753). Resulting in expertise development, which in turn, becomes a safe (and social) process (p.769) that contains four important pre-requisites as demonstrated in Figure 6:2.
The sources of reflection that spring-boarded students’ reflections were identified as everyday events, positive and negative experiences, eventful or unusual incidents, routine activities, meaningful or important events. Ultimately, the underpinning benefit of reflective practice is the opportunity to re-capture experiences in order to become more self-aware of one’s own personal practice, by allowing our internal critical friend to review our personal role in a process which is a pivotal element at the heart of a lifelong learning journey, providing affirmation, improvement and development for future professional practice.

*Research question 2: What preferences do undergraduate dental hygiene and therapy students have in the way they conduct their professional reflective practice activities?*

The need to iteratively develop and learn their clinical skills throughout the rest of their undergraduate and postgraduate career was strongly evident in all the students. There was also a clear bond of belongingness developing which continued to develop...
throughout their programme (Phase 1 and 2 analysis), which was evident from the positive comments made by the research participants surrounding the security of their work family and shared common values, echoing the research conducted by Radford & Hellyer (2016) in the same location.

The culture that has flourished throughout their programme has facilitated an environment of willingness and engagement encompassing aspects of their undergraduate delivery (Phase 1 and 2 analysis) borne out of the development of enquiry and insight that is a direct result of a positive commitment to undertake reflection by both the students and staff. The use of sharing experiences to aid resolution of problems has the added benefit of allowing the students to gain closure alongside releasing new information and perspectives on a situation. This sharing of ideas facilitates involvement of all members of the dental team, generating a collaborative approach to learning and solving problems.

Although students had identified models that had supported their reflective activities, from the data gathered only limited exploration of this aspect of their development occurred. From the comments made by the students there was also some evidence of the confessional qualities of professional reflection, an area that would benefit from further exploration in the future. Bolton (2010) has already identified how confessional styles of writing can have a seductive quality in as much as the emphasis of responsibility can move to others, allowing opportunities to exonerate one's actions in a situation or to move the blame for a series of adverse events on to others. Resonating with Davis and Kremer’s (2016) view of written reflection as part of a fight or flight response during moments of professional stress. Strengthening the research conducted in this area would be a useful way of ascertaining if the reality of a reflective practice panacea can truly exist.

Students were keen to discuss their progress both verbally and in writing, and both individually and in group settings. However, concerns were raised regarding perception of others when disclosing near misses or adverse events. The ability to self-manage oneself during a professional career is essential (Patterson & Chapman, 2013), specifically with the requirement to been seen to adhering to a Duty of Candour (GDC, 2016). Integrating elements of self-compassion could be an effective way addressing these types of concern, alongside the added benefits of furnishing the students with the
skills to manage the potentially deleterious consequences that self-induced stress can have on their professional careers (Shaperio, Austin, Bishop and Cordova, 2005). Maybe, in all reality we are disempowering the students before they begin on their reflective journeys, by labelling their failures and successes as such. Perhaps one way of addressing this would be to foster an environment where staff and students to adopt the mantra of Thomas Edison “I’ve never made a mistake, only learned from experience”.

The future inclusion of self-compassion into the undergraduate curriculum should to be complemented with the development of self-awareness skills. Beveridge (1997, p.33) states that students are quite good at thinking, but are not so good at thinking about what they are thinking. It is because of this students can often struggle to place their thoughts into words, in turn making it difficult for them to examine and reflect upon their actions. Beveridge suggests that in order for students to honestly use their reflections they must first become self-aware of their actions, which is facilitated by expressing events in writing. By allowing the students to think openly about a topic and articulate this in their writing their sense of self-awareness is in turn deepened.

Research question: 3: How comfortable are undergraduate dental hygiene and therapy students in capturing their professional reflective practice activities?

The findings from the Phase 2 analysis demonstrate that the students are generally very comfortable in capturing their personal reflective activities, although some (n=6) indicated that they are still keen to undertake reflective activities alone (Figure 4:5). Students should be encouraged to share their reflections with a peer as it can ‘open up fresh avenues of thought’ (Bolton, n.d.) adding a new dimension to their learning experience. Being professional is not just what you do it also encompasses the how you do it. It is about how you behave, who you are and the values that underpin your actions. Tarrant (2013, p.3) describes how easy it is to become entrenched in our own world, failing to be open to some of the other possibilities, leading to a distorted view of one’s professional practice (Kollmus & Agyeman, 2002)

Despite the requirement for reflective practice, there is also another, somewhat difficult aspect to address. Much time is spent teaching the dental undergraduates to carry out
reflective practice, but in reality under-graduates and post-graduates, are ‘measured’ in the actions that they are seen to take. As Moon (1999, p.55) identifies, practice often requires rapid actions, and as such, the proof of expertise is often measured by the actions taken, opposed to the thought that may have gone into the action.

It may be all too easy for a student to complete a reflective ‘form’ or essay, using a structured form, that allows identification of espoused theories (Argyris and Schôn, 1974), but this may only demonstrate a perception of a student’s ideal scenario, when in reality the ideal may well be very different from a student’s theory-in-use.

Research question 4: What difficulties do undergraduate dental hygiene and therapy students’ encounter in relation to their professional reflective practice activities?

Moon (1999, p.4) states that the term reflection has ‘several meanings’, which are in essence down to an individual’s own personal interpretation of what reflection means to them. Indeed, whilst practitioners’ may claim that they are reflective, there is no doubt from the literature that multiple interpretations exist (Rodgers 2002, Finlay 2008).

The Phase 2 analysis identified that the difficulties that students faced when required to write about themselves in a critical way. This aspect can easily be addressed by incorporating more focussed sessions on how to write reflectively into the curriculum and providing supportive feedback on their writing.

From the GDC curriculum document ‘Preparing for Practice’ (2012a) and The GDC standards (2013) it would appear that the requirement expected is for registrants not just to reflect, but to become reflective practitioners. That is to use higher order thinking skills to critically appraise situations and their own personal practice in order to continually improve their practice, the skills of the team that surround them, with a view to ultimately improving the patient experience. There will no doubt be some practitioners’ who are able to build on these qualities to allow them to fully embody reflective practice, but the expectation is that that all registrants are provided with a skill set that allows them to critically view their actions and create development opportunities appropriately, thus becoming demonstrative reflective practitioners. Figure 6:3 demonstrates the phases of reflective qualities discussed above using the
transition of colours (orange, yellow, green) based on the conceptual framework (Fig. 2:4). From the GDC publications it is evident that the minimum expected is an ability to be an a demonstration (yellow=safe beginner) phase of reflective practice:

The demonstration (yellow) phase of professional reflective practice is rather like the active cycle that Rolfe (2001, p.249) identifies; where the role of reflection should not only occur around aspects of practice that are predominately based around motor skills (the doing) but also extended to encompass the advanced cognitive abilities that support a professional's view of the world, where reflective practice as part of their professional make up. The progression of attainment of these skills is demonstrated by the findings from Jonas-Dwyer & Abbott’s (2012) research; involving third year dental undergraduates which distinguished three categories of reflection: non-reflector, reflector and critical reflector. These dental undergraduates were undertaking a five-year programme, which may explain why some of the participants were identified as non-reflectors. Nonetheless, this does draw attention to the views of Ghaye (2011, p.40) who describes the importance of using reflection as part of a commitment to develop one’s own professional mindset, enabling practitioners to make even wiser and more

**Figure 6:3 System of reflective qualities**

- **Common sense, casually placed (looking back) and practically focussed, generally occurring when things go wrong .**
  - ‘Let me have a think about that....’
- **Technocratic process.**
  - Practitioner uses mental consideration to enable themselves to make well contructed and balanced decisions
  - I wonder why that happened?
  - How can I become more knowledgeable?
  - (What) Do I need to develop?
- **Critical viewpoint, consideration of all aspects and how these interplay with their role on a continual basis**
- **Not a formal requirement, becomes an intrinsic part of the registrants professional practice, part and parcel of who they are and what they do (embodiment)**
  - Open to views of others without fear or threat
ethical judgements. The conceptual framework (Figure 2:4) encapsulates the move from
the basic demonstration (yellow= safe beginner) view of the world, denoting the
transition to embodiment (green= being reflective), whereby a professional is enabled
to not only acquire knowledge about the practical tasks they have undertaken, but they
are, in turn, able to generate new knowledge for themselves, which is grounded in their
own on the spot experimentation, encompassing the breadth of their clinical skill and
furnishing it with their depth of understanding and the views of others.

Indeed, it must be remembered that at the point of graduation registrants are not
expected to have achieved clinical excellence or expertness (Newsome and Langley,
2014). It is, however, the responsibility of educational providers to have equipped them
with an armoury experiences to drawn on, which encompasses self-assessment, clinical
reasoning and self-confidence required to undertake safe and independent clinical
practice.

Research question 5: How regularly do undergraduate dental hygiene and therapy students
engage with their personal professional reflective practice?

The responses to the Phase 2 analysis demonstrated that 92% of respondents reflected
daily or after clinic (3 times per week). Only one respondent indicated that they reflected
two to three times per year which is most likely as a direct result of the reflective journal
log which is used as an assessment artefact in the student’s clinical units of study, which
has a requirement for three reflections to be completed per year. It is feasible that this
may indeed be a possible example of the gap between the need to be compliant in
participating in an activity, in order to be visibly perceived as reflective (as part of a tick
box exercise) and thus duplicating the non-reflective stance found in some of the
participants in Jonas-Dwyer & Abbott’s (2012) research, opposed to actually being
reflective.

In the same way that Gardner (2011) has identified multiple intelligences, some students
will be better placed to have the skills that lend themselves to professional reflective
practice. Indeed, the use of Multiple Mini Interviews in the student selection and
recruitment process is already established with a view to identifying candidates that
have skill set that compliments the NHS core values. However, this is not to say that
these skills cannot be learnt or enhanced, as Gardner (2011, p.390) is keen to point out intellectual competencies can become symbolising activities when they are seen to have ‘practical meaning and tangible consequences’.

Research question 6: In what ways could the undergraduate dental hygiene and therapy student experience of professional reflective practice be enhanced?

From the research findings and the literature, it is clear that there is a perceived usefulness in incorporating reflection into the dental curriculum (Trico, Wolford & Escudier 2014, Wilson, Sweet & Pugsley 2015). Not just to provide immediate value as part of a course and associated assessments, but also in its broader application by providing valuable development opportunities in the future. Back in 2001 Rolfe (p.250) described how it is no longer enough for professionals to know just ‘what we do and how we do it’, that a professional must be able to evidence the rational processes behind their decisions and judgements; to be able to demonstrate how they know. One way of addressing this is to ensure that professionals do not just have the skills, or indeed are able to demonstrate the skills to be reflective in action (show-how), but also begin with a skill set that allows them to reflect on action (know-how) via an evidenced based approach which underpins their individual practice. In developing professional reflective skills new registrants may find it useful to use a more experienced (expert) member of the dental team to act as a guide (Johns, 2010), providing that the guide is willing to support them in their reflective practice endeavours. As Sweet, Pugsley & Wilson (2008) have pointed out, some clinical teaching staff are;

‘disparaging of reflective practice. Clearly perceiving this as neither required for themselves as intuitive experts, nor for students who as beginners stated “have nothing to reflect upon”’ (p. 501)

Highlighting the importance of adopting a team ethos that encompasses a shared understanding of dental reflection and is upheld by all stakeholders in the education arena. Mentorship, including the implementation of peer mentors, could become an effective way of guiding new members of the team through their ‘river of practice’ (Horan, 2005).
As students’ progressed through their undergraduate programme they began to access the additional experienced skill sets of outreach supporters and mentors, who are working in more challenging and diverse environments. Brockbank and McGill (1998, p.269) identify the skills required by workplace mentors such as; active listening skills, questioning and provision of information, feedback, facilitation of reflective skills and empathy. It is interesting to note the inclusion of empathy, which is also a quality that is sought in undergraduates as part of values based recruitment (Health Education England, 2014, p.10). The relationship of mentor and mentee should be non-directive and non-judgemental, respecting the subjective world of the mentee (Brockbank and McGill, 1998, p.273), with the caveat that they both (mentor and mentee) remain mindful of objective professional boundaries that are expected of a registrant. The positive benefits of clinical mentorship have been acknowledged by the Department of Health (2012, p.5) who state that where these roles are embedded they have a ‘flourishing and have a demonstrable impact on patient care’. In the future new pathways could be explored with a view to creating supportive opportunities that triage those in more urgent need of mentorship support and foster opportunities to nurture the registrants who are floundering within their chosen profession.

Another way of enriching the development of reflective skills may be to use online support by embedding reflective logs and activities online via a virtual learning environment. The embedding of information and communication technology into the dental undergraduate curriculum could be an effective way of engaging with the students with their learning via a familiar medium. Dabbagh (2007, p218) has identified how “Generation Xers” (those born 1960-80), have been replaced with the “Generation Nexters” (those born 1980-2000), describing how learners are now being challenged with “socially mediated online learning activities that de-emphasize independent learning and emphasize social interaction and collaboration”. It is interesting that the ‘classic’ adult learner (independent, self-motivated, remote) now appears to have an increasing requirement to evolve and manage a personal online presence, as part of their educational experience, which could include opportunities to sharing their reflections and collaborate online with their peers. This is representative of the increasing prerequisite for those students (and academic staff) entering (or working within) higher education to be in possession of not only an academic skills set, but to also be able to demonstrate an inherent range of social, networking and information.
technology skills to act as adjunct to their personal repertoire. If online vocational support, via mentors (including those who support students in outreach/workplace environments), could be developed in the future this could truly become the foundations for encapsulating a lifelong learning journey.

Research question 7: What relevance does professional reflective practice have in future professional conduct?

Phase 3 of the research focussed on exploring the impact of reflection in the context of future practice, by reviewing the GDC Fitness to Practice cases which were subject to conditions, with a view to exposing aspects relating to this research that would have otherwise been missed. The themes from this phase of the research were surrounding the deficit of insight and awareness surrounding this selected cohort of GDC registrants.

In dentistry, newly registered Dentists are required to undergo a formal period of Vocational Training, should they wish to gain a performer number which allows the registrant to work within the NHS. The vocational training process enables them to be closely monitored and supported by a more experienced Dental Team. This requirement does not currently formally exist for Dental Hygiene and Dental Therapists. There are several small cohort examples of vocational programmes within the UK, but considering the increased scope of practice it would seem pertinent to have this process formalised. However, finding a dental establishment that is able to provide vocational training is not without its problems. Indeed, new Dentist registrants do struggle to find placements and one way of addressing this would be to use technology to support new (and Fitness to Practice) registrants, using a system of online support.

Hersh (2007) describes how young people relying less and less on mentors and becoming more dependent on their peers and the internet for guidance. Tainting the clearly defined roles of more experienced practitioners mentoring ‘safe-beginners’, who are now beginning to navigate their way through the early phases of their chosen career path by gathering multiple sources of support and information (e.g. professional social networking platforms, un-calibrated discussion forums and general hearsay during conversation) as part of their armamentarium. Davis (2010, p.305) terms this
information use as ‘frag-mentoring’, with the downside of this type of activity being that not all of the ‘mentoring participants’ are aware of their role. If genuine mentors had knowingly been formally recruited to nurture and support safe beginners, they may well implement a more cautious stance than may be exercised when anecdotally providing information to one another. There is a danger that it may become all too easy for a novice practitioner to piece together fragments of information, weaving aspects that they personally prefer into their own (and complimentary) value system, opposed to having a more formal professional discussion with a mentor, with a view to resolving an identified problem or issue. The use of a more formalised system of synchronous or asynchronous online support system may well be a good way to provide the much needed support to developing practitioners, cultivating a safe and progressive environment in which to develop and hone their professional skill set, providing that professional boundaries and expectations are set.

Harrison, Lawton and Stewart (2014) reviewed the personal and professional impact of adverse events by 1,755 General Practitioners in the U.K., identifying the role of healthcare organisations, governing bodies and regulators have in developing systems to support clinicians who have been affected by adverse events, stating that there is a requirement to foster an open and transparent culture which allows self-disclosure and incident reporting to truly become a learning activity (Harrison, Lawton and Stewart, 2014 (p.588). A process that could clearly be substantiated by the insight that professional reflection brings to the fore. Interestingly, it appears that more experienced practitioners have no greater protection or resilience from adverse events when compared with more inexperienced practitioners (Harrison, Lawton and Stewart, 2014, p.587) and although this may impact on them personally (leading to feelings of stress and anxiety, coupled with a loss of confidence in their personal ability, there is evidence to demonstrate that those practitioners who have experienced an adverse event or near miss may actually result in an increase of a practitioner’s drive and determination to improve (Harrison, Lawton and Stewart, 2014, p.589). This insight should, in turn, form the ethical basis of a registrant’s actions and beliefs (Bolton, 2014, p.21), originating from the espoused (what we say) values which inform the ‘values-in-practice’ (what we do). Bolton (2014, p.22) describes how professional integrity can be defined as having
values-in-practice as close to our espoused values as possible, and how critical reflective practice enables professionals to clarify and develop their view of the world.

Would I do it the same way next time?

The purpose of undertaking a Professional Doctorate (PD) is to enable professionals to implement a research project within their own workplace context. The expectation is that by the end of their programme PD students will have demonstrated the general ability to independently conceptualise, design and implement a project that is original, creating new knowledge and merits publication within the candidates chosen field (University of Portsmouth, n.d., p.2).

As with all research, there have been challenges and unforeseen obstacles that have presented themselves along the way. On looking back, I feel that my research architecture is representative of who I was at the moment in time that I embarked on my journey; an inexperienced researching professional, who had been involved in the design of a new curriculum, in line with the GDC’s Learning Outcomes for registration document: Preparing for Practice (2012a), preparing to implement the use of reflection as an assessment artefact for the first time, within my sphere of teaching activity.

If I was starting again, I think that I would want to explore the staff members’ understandings of the term reflective practice, giving consideration to their perspectives on how reflection should be used, measured and assessed during the student’s programme.

I would want to explore in more depth what reflection means to the cohort, bearing in mind from my own research and the findings of other dental studies, that there are likely to be some students who would fit in to Jonas-Dwyer & Abbott’s (2012) non-reflectors category. This aspect could have been explored using interviews, providing students would volunteer to participate. The use of interviews has been a problematic area for Harris, Wilson, Hughes & Radford (2017) who state that just 11% of a similar population were recruited for interviews in their study, and as such may not have been a solution for developing this area sufficiently.
So, would I change anything? In essence; No. If I did, I would not be the person I am today. I am satisfied that I have independently conducted a research project that has encapsulated a snapshot in time, when a major change to the UPDA undergraduate primary care dental curriculum was occurring; as a direct result of the GDC’s publication of Preparing for Practice (2012a). In addition to this, phase 3 of the research allowed me to encapsulate the expectations of the statutory regulatory authority (the GDC) in relation to the use of reflection by registrants, as part of the GDC’s Fitness to Practise conditions cases. These findings in turn have been published in relevant peer-reviewed journals, which are listed in the dissemination section.
Chapter 7 Conclusions

The intention of this chapter is to summarise the purpose of this Professional Doctorate research, situate the research findings and architecture within the context of primary dental care education and professional practice. Followed on by the exploration of the limitations and future research recommendations, arising from this research. In addition to identifying the impact that this research has had within the educational setting which has been subject to this research. Finally, identifying the demarcation of publications, within peer-reviewed specialist dental journals, arising from the research contained within this Professional Doctorate.

Who is this? And what is here?
And in the lighted palace near
Died the sound of royal cheer;
And they cross’d themselves for fear,
All the knights at Camelot:
But Lancelot mused a little space;
He said, “she has a lovely face;
God in his mercy lend her grace”
The Lady of Shalott.

(Tennyson, 1832)

Purpose of the research
This research project set out to explore the use of reflective practice by a BSc cohort in a U.K. primary care dental training establishment. It should be noted that the incorporation of reflection as an assessment artefact was new to the undergraduate curriculum for the 2012/13 academic year. As such the staff facilitating this implementation were inexperienced. In addition to this, the UPDA has no clear definition of Reflective Practice and what this should encompass. This leaves the term open to personal interpretation and potential misunderstandings (Rodgers 2002, Finlay 2008).
Consequently, from the outset there was a need to define what reflective practice means to the researcher in this dental undergraduate context, which was expressed by the authors theoretical interpretation of reflection (Figure 2:3).

The final phase was used to investigate the relevance of reflection for GDC registrants who had met the requirement for registration with the GDC and therefore should have been in the professional registration phase (green) of development as identified in the conceptual framework (Figure 2:4).

**Situating the research architecture**

The research was structured using an amalgamation of Borton’s (1970) three stem questions: What?, So what? and Now what?, and Parlett & Hamiltons (1972) three distinct phases: Observation, Enquiring further, and Seeking to explain. Focussing on exploring the use of reflection in both pre-registration and post-registration phases of professional development (appendix II).

In considering the process for the research undertaken, there is a need to return to Parlett and Hamilton’s (1972) architecture for conducting Illuminative Evaluation, acknowledging the uniqueness of each and every student’s educational experience. Central to IE are two concepts; the learning milieu (the social-psychological and material environment that the students are exposed to) and the instructional system (which is driven by the educational stakeholders).

Although reflective practice is ‘taught’ via models within the learning milieu, which aims to guide, this is in essence a technocratic approach, a mechanistic ‘this fits everyone’, (do this and you can demonstrate that you have this skill) where in reality, this is not the case, to truly be a reflective practitioner there is a prerequisite to develop the skills of compassion and empathy; the ability to step outside of one's view of the world and see things from other people’s perspectives; allowing students to gaining insight into their practice. Ixer (1999, p.251) identifies that reflection should not simply be placed on a par with propositional knowledge or behavioural skills as the nature of reflection does not fit into a competence model, however, there is a case for it to be placed as a desirable overarching requirement, as the GDC have done in in their learning outcomes for dental team training (Preparing for Practice, GDC, 2012a).
The GDC is responsible for the setting of the ‘instructional system’ (Parlett and Hamilton, 1972), as the statutory regulatory authority for the dental profession in the UK, the GDC standard sets the expectations of its registrants. However, the grand proposals set by the GDC can often be diluted in the learning milieu. This may not be the result of an active undertaking but a consequence which occurs more covertly, wherein the day to day realities the expectations set have become diluted, out of context and potentially shaped by student and academic demands, as research by Sweet, Pugsley & Wilson (2008) has demonstrated.

The embedding of the GDC expectations within a Higher Education setting allows opportunity for the expectations to become skewed, due to varying factors, including the drive to ensure that Universities are perceived to be good via league tables which are driven by satisfaction scores. Indeed, it is important to note that the evolution of the student as a consumer has an ever-increasing weight and impetus in today’s society.

Phase 1 & 2 abridgement
Students require learning opportunities throughout their undergraduate educational programmes that nurture the astuteness and clear sightedness in order to develop the perspicacity required to undertake PRP. The development of this insight needs to be developed and matured as part of the students’ professional identity; so that it is no longer a routine chore, but becomes an implicit necessity. A process that can be achieved by facilitating multiple ways of developing reflection; ensuring that it is the process of routinely doing with perhaps less emphasis on the formal how we do it PRP will become open and accessible to all. Like arriving home after a wet and windy day, a port in a storm, somewhere to take the time to come back to the day’s events, without threat or fear, but armed with compassion and insight to meet the challenges and realities of our professional lives.

As presented in Figure 5:1 the prerequisites for effective professional reflective practice to occur in primary care dental education settings, should be easily accessible via all stakeholders; the organisation must have an ethos that facilitates and supports the needs of patients, students and staff. In turn, the undergraduates must demonstrate willingness, ability and engagement with their studies. Becoming part of the culture of commitment that is required to attain shared goals. By sharing insights, multiple
perspectives on a situation become available, building the foundations for a positive educational experience.

**Figure 5:1 Pre-requisites for creating a positive educational experience in a primary care setting**

Failure to integrate these positive attributes into the student experience can lead to the development of a singular view of the world. Consequently, limiting reflective processes and potentially fostering isolation, which could ultimately impinge the development of practical skills, suppresses empathetic patient care and hamper the development of emotional resilience.

**Phase 3 abridgement**

The review of the GDC Fitness to Practice (FTP) cases from 2012-15 identified that reflective practice would enable practitioners to learn from their own professional experiences acting as a stepping stone to facilitate change. By reducing aspects of professional practice that are solely based on custom, familiarity and mechanistic
processes, there is a tangible opportunity to develop the reflective skills of registrants that could lead to a reduction in future FTP cases. Regular engagement with professional reflective activities provides a backdrop to iteratively develop and improve on one’s personal professional decision making and clinical skills processes, which should, if facilitated in a safe and open environment culminate in that care is patient centred and focussed on the patient experience. Further research on engagement with reflective practice activities post registration, alongside exploring the impact of varying workplace environments on the opportunity to reflect would provide useful insight, with ECPD on the horizon.

*Pre-requisites required for reflection to occur in primary care dentistry*

It would appear that the drivers for reflective practice appears to be two fold, with an onus on the need of personal development and insight, alongside the broader pre-requisites from professional bodies, who may well favour the benefits that reflective practice brings by facilitating a shift of responsibility, away from educational decision makers, onto the registrant to self-manage and develop their own awareness, which is acceptable, providing that the registrants have the skills, support, time and a clear understanding (definition) of the term ‘reflective practice’ and what this should mean to them in the context of their professional practice.

The outcome of this research has been the identification of the prerequisites for professional reflection in primary care dentistry: duty of care, insight and perception and judgement (Figure 5:2).
Figure 5:2 Pre-requisites required for professional reflection to occur in dentistry

It is beneficial for students to have the capacity to conduct effective professional reflection. There is an expectation and a formal requirement, via the GDC, that they develop a skill set that is contiguous and embedded within a collaborative support structure. Fundamentally students should be encouraged to nurture the development of their perception and clinical judgement (reasoning) skills, with a sense of altruism that is complimented by a duty of care to their patients and be positively encouraged to take time to reflect independently and alongside their peers and mentors by gaining effective insight into their personal practice. If these desiderata are garnered there is a positive opportunity to facilitate and nourish the augmentation of insight that underpins their personal professional reflective activities.

Becoming a reflective practitioner provides an opportunity to become an autonomous and self-directed professional. It facilitates the development of good quality care by stimulating personal and professional growth by addressing the gap between evidenced based theory and practice, underpinned by the prerequisite of insight in our past, current and future practice.

The GDC are keen to move the focus away from solely counting the amount of CPD undertaken to a more outcomes based approach in 2018, which would have an emphasis on the quality and impact of any learning undertaken during a developmental
activity (GDC, 2012c, p.8). There is no doubt for the GDC publications that there is a formal requirement for professional reflection to become part and parcel of post-graduation lives; an essential ingredient in the recipe of lifelong learning. Insight (Figure 5:1) is a fundamental aspect required in order for professional reflection to become meaningful and successful.

**Limitations**
The use of slightly remote research instruments: analysis of written essays (phase 1), online questionnaire (phase 2) and documentary evidence published by the GDC (phase 3) was deemed to be beneficial when designing the research architecture, due to the fact that it created an element of remoteness. A stance which was helpful from an insider researcher’s perspective during the data gathering and framework analysis phase. However, this approach also came with some drawbacks that should be noted. The main element being the inability to collect any additional data. As all data was compiled via a written medium there was no opportunity to expand and contextualise the data in greater depth, which may have facilitated alternative interpretations.

In addition to this, the number of participants was relatively small (due to the constraints of cohort size) but this was unavoidable as the potential research participants are a unique group of students, since they are studying solely within a primary care context. Primary care is the dominant way in which dental care is accessed in the U.K. and therefore, should be considered as an extremely authentic learning environment in which to train. Which has been acknowledged by the publication of the findings from this research, as demonstrated in the publication list.

**Future recommendations for research**
In the future, additional research should be conducted to increase participant numbers by using the diverse range of undergraduate dental establishments within the U.K., which are all subject to the validation of the GDC in order for their students to gain their practising rights. This research should aim to explore and further understand the role of reflective practice and how this is encompassed across the various dental team member’s undergraduate education programmes. This would aid academics and regulatory stakeholders in determining how students can be encouraged to further develop their reflective skill acquisition. In addition to this, exploration of how the
professionals involved in dental education personally interpret the term *reflective practice* and if any differences in these interpretations influence their style of delivery and support.

Research regarding the exploration of reflection *in action* and how the students, clinical and academic staff perceive this element of reflective practice would further aid understanding of reflective processes. Providing an opportunity to explore Dewey's (1932) 'real moral question' to discover 'what kind of self is being furthered formed'?

It would be interesting to expand on this research by revisiting the research participants as GDC registrants, aiming to find out what impact professional reflection has in their working lives both in daily practice and in the development of their continuing education activities. Providing appreciation of how the participants involved in this research have moved forward in their professional careers, by continuing through the three distinct phases identified in the conceptual framework (Figure 2:4).

Research impact

Although the impact of this research will be limited to undergraduate dental education in the first instance, it is anticipated that the findings will help to inform undergraduate and postgraduate delivery of dental professionals reflective practice and may also be transferrable to other healthcare disciplines, as whilst roles vary in healthcare settings, there is without a doubt commonality in effectively developing and supporting personal and professional development, of which reflective practice is embedded within. Allowing development of professional daily practices, ultimately enhancing the patient experience.

An article that highlighted the prerequisites for a positive learning culture (Figure 5:1) and the importance of mentorship was published in the British Dental Journal Team (Brindley, 2016a) in May 2016. Building on my work, I have been mentoring a peer who has been delivering a new style of PRP education to the foundation programme students in the department. We have incorporated a series of regular six minute writes (Bolton, 2010): These are activities that are designed to get students writing effectively from different perspectives (moving away from a mechanistic approach) activities designed and incorporated were:
1) Write an unsent letter to a good friend about their experiences at university so far (developing independence and identifying support requirements), this was then discussed, with those students happy to share.

2) The following week the group were tasked with responding to themselves, from their friend’s perspective. This was a useful way to explore self-compassion which will endow the student cohort with resilience skills as they progress through their programme.

3) Creating a coat of arms (this is a very useful and fun way to consider what would pictorially represent you) which can then lead on to discussion on personality traits and perception of self.

4) Using art and music to consider personal development. For example; which season are you? This activity requires students to consider where they currently feel they are (spring, summer, autumn or winter) and to describe why they feel this way. The students use imagery (e.g. a photograph or their own artwork) or music (e.g. Vivaldi’s Four Seasons) to assist them in further exploration and consider which season they aim to be in and how they can achieve this.

For those students studying the BSc (Hons) programme and are working on the live clinical floor (treating patients) real-life scenarios have been used to inform and develop. For example, historically when a clinical incident has occurred, the student involved has been asked to ‘reflect on it’ using a mechanistic approach guided by Borton’s (1970) stem questions ‘what?, so what?, now what?’ In order to enhance the student’s reflective skills fictional (independently tailored) complaint letters have been designed that the student has to write a response to. This has facilitated an opportunity for the students to reflect on their own actions, whilst enhancing their complaint management and allowing insight to view the world via a service user’s perspective, giving consideration to the language and use of jargon that they may be inadvertently using when communicating information to their patients. Whilst underpinning the importance of their personal and professional development.

As previously identified during the discussion of phase two of this research (‘Reflection as an assessment artefact’, p.120) patchwork texts (Trevelyan & Wilson, 2012) were introduced as part of the assessment process for the 2015/16 academic year. This has
created an opportunity for the students to self-select aspects of their reflections that they felt comfortable in sharing with academic staff as part of a summative assessment artefact.

In reviewing my findings from research question 2 (What preferences do undergraduate dental hygiene and therapy students have in the way they conduct their professional reflective practice activities?) the aspect of self-compassion sparked a desire to write an article about this topic, which was published in the British Dental Journal Team in November (Brindley, 2016 b). Indeed, the impact on this small cohort of students has already been observed. The group has already expressed an interest in becoming peer mentors for the new cohort in the forthcoming academic year, which has been met with positive enthusiasm by staff.

In addition to this an article was also published in the British Dental Journal in October (Brindley, 2016 c) using the Phase 3 analysis and findings (Figure 5:2) from this research. In response to this I was delighted to receive an unsolicited email from the Director of a dental protection organisation (whom I do not know) congratulating me on my article, writing “I found myself nodding in agreement to so many statements and inferences as I read through it” and identifying how my findings “resonate with the remediation work that we do here”.

In preparation for the GDC’s planned Enhanced CPD programme in 2018, I have been asked to facilitate a series of workshops on the role of effective reflective practice in personal development planning as part of UPDA’s portfolio of CPD courses. I was also invited to present my research findings at the University’s Science Faculty’s Conference in December 2017.
Chapter 8 Reflection

In this final chapter I have taken the opportunity to reflect on my personal perspective and drivers for undertaking a Professional Doctorate. Starting with sharing my motivation for choosing poetry as a framework for my thesis. This moves on to a brief synopsis of my career journey leading on to my motivations for embarking on a Professional Doctorate programme of study and exploring my evolution as a developing researching professional.

The Lady of Shallot
I have chosen Tennyson’s The Lady of Shallot as a backdrop for my thesis. As, despite its age, it holds a synergy for me and my career. Where once I was slightly flattered by my patient referring to me as The Lady of Shallot. I now see what an empty life the Lady had weaving her colourful web, alone and in isolation. Once she turns to gaze at true reality of the world outside of her four grey walls the Lady of Shallot is struck by a curse and dies. In the same way that if we, as practitioners fail to develop ourselves, keeping our art locked away in isolation, failing to develop insight into our world, we too run the risk of allowing the curse to be upon us.

Poetry presents a window on the world that feels both real, while far removed from the reality our own lives. Reading, creative writing and poetry allows us to express our innermost thoughts and feelings in a different way to conversation. As Auden (1979) wrote, the benefit of poetry (or indeed creative narrative) is that it captures a moment, allowing it to remain untouched by the busy ebb and flow of our daily lives.

For poetry makes nothing happen: it survives
In the valley of its saying where executives
Would never want to tamper: it flows south
From ranches of isolation and the busy grief’s,
Raw towns that we believe and die in: it survives,
A way of happening, a mouth

(Auden, 1979, p.82)
Unlike the Lady of Shallot (Tennyson, 1832) who viewed her world through only one lens. Dental professionals need to be brave and responsible enough to turn and look at ourselves through the eyes of our own internal critical friend, alongside those colleagues and patients that surround us. By doing so we will be well placed to avoid the curse of our own personal reflective mirror, which, if only used in a superficial way will never meet its true potential. If we fail to develop our reflective skills fully we may well be on the path to creating our own limited reality, which, if held up for review and subjected to scrutiny may not ultimately demonstrate the image that we think it will portray.

Facing reality can sometimes be a difficult task, as Tennyson so insightfully captured; out flew the web and floated wide, the mirror crack’d from side to side. If we wish to negotiate a safe passage to a reflective panacea (that is Camelot) we need to develop insight into our own professional world.

What we feel as professionals should now be underpinned and informed by our Personal Development Planning activities. With the advent of Enhanced CPD in 2018 if we fail to demonstrate our internal vulnerabilities and weaknesses, we will be prevented from viewing ourselves and our role in our daily practice as it really is.

**My career journey**

I have worked within the dental profession for over 27 years. Initially, as a Dental Nurse and then moving onto training as a Dental Therapist and Dental Hygienist, first registering with the GDC in 1994. I have seen many changes during this period, both in how registrants revalidate their registration alongside structural changes to the NHS. When I trained, there was no utterance of the word reflective practice, and yet I know from personal recall that I did informally and casually consider how the day’s events had gone, leading myself to consider what I might do in the future to improve outcomes.

The colleagues I have routinely worked with often shared the day’s events with one another; I don’t know if this was a practice that occurred in dental environments throughout the U.K. but this was a reality for me.

Over the years I have been fortunate enough to have worked in both primary and secondary care settings (hospital and community) treating a diverse range of patients in
a broad range of settings, alongside being involved as an outreach supervisor for student Dental Hygienists and Therapists, which sparked my interest in dental education.

In 2005 I began working for the University of Portsmouth Dental Academy, where I am currently a Senior DCP Teaching Fellow. During the last 12 years, I have completed a Postgraduate Certificate in Learning and Teaching in Higher Education, a Masters in Learning and Teaching, in addition to becoming a Fellow and then a Senior Fellow of the Higher Education Academy.

Choosing a Professional Doctorate
I chose to undertake a PD as it reflects my role in education. I am primarily an educator; a researching professional opposed to a professional researcher. That does not mean that I will not continue to develop my researching skills, but my passion is in education, in supporting the future dental workforce in achieving their career aspirations.

As a busy wife, mother and dog owner, the option to take a career break to study a PhD was not available to me, and yet, following on from my Masters I was driven to continue to hone my academic skills. The PD seemed like a perfect choice; as it allowed me to situate my research in my workplace, with the initial two year taught elements furnishing me with the skills to be able to execute my research in an effective way.

Reflection on my Professional Doctorate journey
Throughout my Professional Doctorate journey, I have kept a reflective diary, which I had hoped to use for this chapter of my thesis. However, on looking back on the diary I have written, in my own hand, I do not recognise myself. I am changed. How I feel about reflection and what it means to me as a practitioner could be related to Horan’s (2005) river of practice; a journey that has been long, meandering, treacherous, surprising and leading to new and unexpected discoveries.

I have made friends with the cohort that I started my studies with, we have stayed in touch with one another and although our journeys have all been distinctly different, this has enriched my understanding of other healthcare professions; their challenges and strengths. Had I not have entered this programme of study, I may never have
experienced the opportunity to network in this way, nor to see healthcare provision from such multifaceted perspectives.

Mentorship
As I have continued in my academic endeavours for my PD, I found myself being approached by other members of staff within my department for support. Over time this flourished into regular, informal conversations, which have developed into formal requests from Line Managers of some staff members, to mentor members of our team. I feel extremely privileged to have been asked to support my peers in this way, and thoroughly enjoy the opportunity to explore and motivate staff members in a receptive and honest way. My work in this was rewarded in November 2016 when I became a Senior Fellow of the Higher Education Academy. This is a domain that I would like to formally expand my knowledge on in the future.

Writing for publication
By developing my writing style, I have been enabled to publish six articles in the past 18 months. The confidence and sense of accomplishment in having an article reviewed and accepted for publication in a relevant dental journal is a huge thrill to me. Had I not undertaken my PD I sincerely doubt I would have had the confidence to write in this way. My minor success in this respect, spurred me on to apply for an Oral and Dental Research Trust grant, which I received from Colgate in May 2017. I know that this is just the first stage of my ‘research’ career and I have much to learn, but I feel that I now have an armamentarium that will enable me to continue onwards.

Reflection on revisions to this thesis
The opportunity to review and refine my thesis was initially met with a period of mourning and despair; there was hopeful expectation form family, friends and colleagues and from myself that I would be fortunate enough to sail across the academic finishing line. I cannot imagine that anyone relishes entering to a process; showing a panel of experts in their field the efforts of years of hard work and labour, only to discover that amendments are required. However, following a few dark days, light
appeared and with it an opportunity to look at my work with fresh eyes, guided by the comments provided by my examination panel.

My love of poetry helped me to articulate my feelings, allowing me to heal my academic wounds;

_Hold fast to dreams_

_For if dreams die_

_Life is a broken-winged bird_

_That cannot fly._

_Hold fast to dreams_

_For when dreams go_

_Life is a barren field_

_Frozen with snow._

_Langston Hughes (1994, p.32)_

I chose this poem as it inspired hope in me; just like the broken-winged bird (which represents my initial failure to fly at the task in hand) this poem has provided me with some solace. If the bird were to be dead, its journey would be at an end. Just by the fact that I, as academic bird am _injured_, I still have the aspiration that my broken wings will mend and I will fly on to continue and complete my journey. Within days of my viva I began to make the changes I had noted following my verbal feedback from my examination team. I needed to immerse myself back into my writing, so that I could believe that flight was a tangible reality. The cold and lonely starkness that I felt while I waited for the formal examiners comments is represented by the frozen field; a field that is frozen for merely a moment in time. Just like a season where snow lays on the ground covering my work, beneath the snow there lies a field full of optimism that my thesis will survive once more, with the emergence of an academic springtime.
The internet was another source of comfort, reading the experiences of peers, scattered throughout the globe, who have shared their perspectives of this process. This served to clarify my thoughts, acting as the catalyst to perpetuate my revisions. A clarity struck me that during the months between submission and viva voce I had continued on with my academic studies: reading and CPD activities, deepening my insights and gaining new understandings about my work and the work of others. I drew on this knowledge to institute the changes required.

Over time I began to appreciate the opportunity afforded to me by my examination team to go back and strengthen my work. Returning to my thesis once again became my focus of passion; starting early in the mornings and late into the nights, taking chunks of annual leave to immerse myself in advancing my work. I realised how much I had missed academic writing and revelled in the opportunity to revisit my work.

My journey of development will never be complete. Learning is an elemental part of life. For me, it is more than the basic question of ‘what do I need to learn to get through the day?’, it is about my desire to transition towards Jarvis & Watts (2012) living a worthwhile life. A developmental process that not only influences me, but has the capacity to supplement the learning opportunities that I can afford to the students I encounter.
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Appendices

Appendix i: Example of bibliographic database search

- Reflection 6,637,941 results
- Academic journals 4,195,133 results
- Research conducted within last 10 years 1,750,005 Results
- Papers published in English language were selected 1,659,060 results
- (AND) Barrier was included in the search field 212,604 results
- Health Publications were included as a search parameter 645 results
- Research was selected as a subject area 123 results
- Hand search

Academic journals were selected as a search parameter as these were the most likely source of primary research.

Limitations were placed on this aspect due to the broad search terms (N.B. this did not occur when Boolean operators were incorporated into the search strategy) to ensure that findings were contemporary and in line with modern practices.
## Appendix ii: Detailed overview of research phases

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<th>Participants &amp; research instruments</th>
<th>Reflective Framework</th>
<th>Research questions</th>
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<tbody>
<tr>
<td><strong>What?</strong> <em>(Observation; what is happening?)</em></td>
<td>2012/13 intake. Level 4* cohort</td>
<td>2012/13 intake. Level 6* cohort</td>
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<tr>
<td>Framework analysis on preclinical reflective reports</td>
<td>Consideration of past experiences</td>
<td>Identification of perceived strengths and weaknesses</td>
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<tr>
<td><strong>So what?</strong> <em>(enquire further)</em></td>
<td>2012/13 intake Level 6* cohort Questionnaire (to review perspectives and assumptions) on the following areas: Personal reflective activities, reflection as an assessment, barriers to reflection.</td>
<td>Was a reflective model used? If so, which one?</td>
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<tr>
<td><strong>Now what?</strong> <em>(seek to explain)</em></td>
<td>GDC Fitness to Practice cases 1st January 2012 to 20th November 2015</td>
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Appendix iii Science Faculty ethical approval for Reflective Essays (research Phase 1)

Mrs Joanna Bradley
Senior DCP Tutor
University of Portsmouth Dental Academy
William Beatty Building
Hampshire Terrace
Portsmouth PO1 2DG

07 August 2013

FAVOURABLE OPINION

Protocol Title: An evaluation of BSc (Hons) Dental Hygiene and Dental Therapy student self-perception during the transition from preclinical to clinical environment

Date Reviewed: 7th August 2013

Dear Jo

Thank you for resubmitting your protocol for ‘light touch’ ethical review and for the clarifications provided.

Your responses have been reviewed and I am pleased to inform you that your application has been given a favourable opinion by the Science Faculty Ethics Committee. Please notify us in the future of any substantial amendments that may be required and send us a final study report.

Good luck with the study.

[Signature]

Dr Sara Holmes MBE
(Department) Science Faculty Ethics Committee

CC:
Dr Chris Markham – Chair of UPEC
Dr Jim House – Vice Chair of SFEC
Holly Sawyer – Faculty Administrator
Appendix iv Science faculty ethical approval for online questionnaire (research phase 2)

Joanne Brindley@port.ac.uk
03/03/15

Science Faculty Ethics Committee

Protocol Title: Barriers to Reflective Practice SPEC 2014-052 A
Date amendment received: 27/03/15
DATE REVIEWED: 03/03/15

FAVOURABLE OPINION – SPEC 2014 – 052A

Dear Ms Brindley,

Thank you for your submission for ethical review. Having completed their review, members of the Science Faculty Ethics Committee have reached a Favourable opinion of your proposed research.

Please notify the committee of any substantial amendments to the proposed procedures, send an annual report to the committee regarding study progress and a final study report once the study has concluded. Please send these to ethics-sci@port.ac.uk.

Thank you for your submission and the Committee wishes you well with your study.

Dr Chris Markham – Chair of SPEC

CC –
Kelly Shannon – Faculty Administrator

If you would like to offer any feedback on the Science Faculty Ethics Committee process please email ethics-sci@port.ac.uk, to be forwarded to the Chair

Faculty of Science
University of Portsmouth
St Michael’s Building
White Swan Road
PORTSMOUTH
PO1 2DT
Participant information sheet

Study title
An evaluation of BSc (Hons) Dental Hygiene and Dental Therapy student self-perception during the transition from preclinical to clinical environment

Introduction
You are being invited to participate in a research study. Before you decide it is important that you understand why this research is being carried out and what it will involve. Please read this information carefully, you are welcome to talk with others about it, if you would like to. Should you have any additional questions, please contact joanne.brindley@port.ac.uk

What is the purpose of this study?
This study is looking to understand how UPDA students feel about their practice in the Phantom Head environment and to understand what concerns students have prior to their first patient contact on the clinical floor.

Why have I been chosen?
As part of your Pre-Clinical practice unit you were asked to submit a 1000 word reflective report overviewing your experiences in the phantom head environment and identifying your strengths and weaknesses as you prepared to progress onto the clinical floor. If you agree to participate you will need to send, via email, your reflective report to Joanne Brindley. The data from your report will be analysed and the findings will be used to enhance and support future students as they prepare to see their first patients.

Do I have to take part?
No. It is entirely up to you if you would like to take part. However, once you have sent your information to Joanne Brindley your name will be removed, to prevent individual student identification. Once this has occurred, it will be impossible to remove your information from the analysis process.

What will happen if I take part?
If you agree to take part you will be asked to send an electronic copy of your reflective report to Joanne Brindley and the information that you provide will be gathered and analysed. Whether you do, or do not decide to take part, this will not affect your standing as a student studying at UPDA in any way.

**Will my taking part in this study be kept confidential?**

You will not be able to be identified as an individual from any information that you provide. However, as a group of students you will be identified as the 2012/13 intake of BSc(Hons) Hygiene and Therapy students.

**What are the benefits of taking part?**

Students who decide to take part will be helping to identify areas of education and support that future UPDA students will benefit from.

**Are there any disadvantages to taking part?**

No risks are anticipated from you taking part in this study. The only perceived disadvantage to you will be your time in sending this information, should you wish to participate in this study.

**What will happen to the results of this study?**

Once this study is completed the information will be shared with University of Portsmouth staff and students and articles may be written for journals. Talks may also be given which include information about this study, as it will form part of the background information as part of a doctoral thesis.

**Who is organising this study?**

This study is being conducted by Joanne Brindley, Senior Dental Therapy and Hygiene Tutor, University of Portsmouth Dental Academy.

**Who has reviewed this study?**

This study has been peer reviewed internally and subjected to review by the University of Portsmouth Science Faculty Ethics Committee. These processes are designed to look at research proposals independently, with a view to protecting your interests.

Thank you for taking the time to read this information sheet, if you require further information about this study please contact joanne.brindley@port.ac.uk

If you do decide that you would like to participate in this study, you will be required to submit your 1000 clinical reflective report from the Pre-Clinical Practice unit of study, via email.
Appendix vi Participant information sheet (research phase 2; online questionnaire)

Student volunteer information sheet

Science Faculty Reference number: 2014-052

Study title
Reflective skills development; an illuminative psychosocial investigation into the perceptions of BSc students at a UK dental training establishment

Introduction
You are being invited to participate in a research study. Before you decide it is important that you understand why this research is being carried out and what your role in its development will involve. Please read this information carefully, you are welcome to talk with others about it, if you would like to. Should you have any additional questions, please contact joanne.brindley@port.ac.uk

What is the purpose of this study?
This research project aims to follow the 2012/13 cohort of BSc (Hons) Dental Hygiene and Dental Therapy undergraduates over a three year period, with a view to ascertaining their views on reflective practice as developing practitioners. The particular focus is on identifying any barriers encountered that may (or may not) have hindered your reflective processes.

Why have I been chosen?
Your year group were invited to participate in the first phase of this research study at the end of your first year, when you were invited to submit your reflective reports from the Pre-Clinical Practice Unit of study. This questionnaire will add to that information, by exploring your thoughts and experiences on the topic of reflective practice.

Do I have to volunteer?
No. It is entirely up to you if you would like to volunteer. Whether you do or do not decide to volunteer will not affect your standing as a student studying in UPDA in any way. It does not matter if you did not submit your reflective report for inclusion in the first phase of this research project. All information provided is of value.

What will happen if I take part?
If you decide to take part you will need to click on the electronic link to the questionnaire provided in your student UPDAte email. The information that you provide will be analysed and
the results written up in a Professional Doctorate Thesis. Whether you do, or do not decide to take part, will not affect your standing as a student studying at UPDA in any way.

**Will my volunteering be kept confidential?**

You will not be able to be identified as an individual from any information you provide. However, as a volunteer group you will be identified as ‘volunteers from the 2012/13 BSc cohort’

**What are the benefits of taking part?**

Students who decide to take part will be helping to identify areas of education and support that future UPDA students will benefit from.

**Are there any disadvantages to taking part?**

There are no risks from you volunteering. The only disadvantage to you will be your time in reviewing and making comment in the online questionnaire.

**What will happen to the results of this study?**

Once this study is completed the information will be shared with University of Portsmouth staff and students and articles may be written for journals. Talks may also be given which include information about this study, as it will form part of the data used in a doctoral thesis.

**Who is organising this study?**

This study is being conducted by Joanne Brindley, Senior Dental Therapy and Hygiene Tutor, University of Portsmouth Dental Academy.

**Who has reviewed this study?**

This study has been peer reviewed internally and subjected to review by the University of Portsmouth Science Faculty Ethics Committee. These processes are designed to look at research proposals independently, with a view to protecting your interests.

**Thank you for taking the time to read this information sheet. If you require further information or would like to volunteer to participate in developing this research project please contact joanne.brindley@port.ac.uk**
FORM UPR16
Research Ethics Review Checklist
Please include this completed form as an appendix to your thesis (see the Postgraduate Research Student Handbook for more information)

Postgraduate Research Student (PGRS) Information

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<td>Joanne Louise Brindley</td>
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<tr>
<td>Department:</td>
<td>SHSSW</td>
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<td>First Supervisor:</td>
<td>Dr Isobel Ryder</td>
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<tr>
<td>Start Date: (or progression date for Pro Doc students)</td>
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Title of Thesis: The mirror crack’d... An illuminative evaluation of the use and relevance of reflection in undergraduate Dental Care Professionals education

Thesis Word Count: (excluding auxiliary data) 49,838

If you are unsure about any of the following, please contact the local representative on your Faculty Ethics Committee for advice. Please note that it is your responsibility to follow the University’s Ethics Policy and any relevant University, academic or professional guidelines in the conduct of your study.

Although the Ethics Committee may have given your study a favourable opinion, the final responsibility for the ethical conduct of this work lies with the researcher(s).

UKRCIO Finished Research Checklist: (If you would like to know more about the checklist, please see your Faculty or Departmental Ethics Committee rep or see the online version of the full checklist at: http://www.ukrcio.org/nature-code-of-practice-for-research)

a) Have all of your research and findings been reported accurately, honestly and within a reasonable time frame? YES [X] NO [ ]
b) Have all contributions to knowledge been acknowledged? YES [X] NO [ ]
c) Have you complied with all agreements relating to intellectual property, publication and authorship? YES [X] NO [ ]
d) Has your research data been retained in a secure and accessible form and will it remain so for the required duration? YES [X] NO [ ]
e) Does your research comply with all legal, ethical, and contractual requirements? YES [X] NO [ ]

Candidate Statement:
I have considered the ethical dimensions of the above named research project, and have successfully obtained the necessary ethical approval(s).

Ethical review number(s) from Faculty Ethics Committee (or from NRES/SCREC): SPEC-2014-002A

If you have not submitted your work for ethical review, and/or you have answered ‘No’ to one or more of questions a) to e), please explain below why this is so:

Signed (PGRS): [Signature]

Date: November 2017