The Theory-Practice Relationship in Paramedic Undergraduate Education

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Contents

Table of Figures

Tables

Abstract

A theory-practice gap has previously been proposed as existing in paramedic education. This proposal has been based on the literature, predominantly drawn from nursing, which describes the phenomenon as being a detrimental lack of congruence between the theory that is taught in the classroom and the experiences of students in the practice environment. This submission proposes, rather, that there is a 'paramedic praxis' where the relationship between theory and practice is such that the 'gaps' discussed in the nursing literature do not manifest in the same, potentially problematic, way.

Paramedic students' views of theory were found to be centred around the components of their programme taught at university, including simulated practice and procedural approaches to skills-based interventions. Practice was predominantly seen as engaging with 'real' patients in the out-of-hospital environment, where theory was utilised in varying degrees based on the curriculum area to which the theory related. Practice was also considered by some participants to include university-based practical workshops and simulation exercises. Therefore, the resultant views of theory and practice included 'border areas' where no discrete delineation could be found to exist between the two concepts.

Paramedic students perceived varying degrees of inconsistency when relating their practice-based experiences to the theoretical components of their programme. These inconsistencies were found to be due predominantly to the contextual and situational challenges associated with the undertaking of paramedic practice, challenges which were considered by the students to be an expected part of practice-based learning and not detrimental to their learning experience. There was found to be a clear appreciation among students that theory can never be *exactly* matched by their experiences of practice, and not all aspects of practice-based experiences can be fully 'unpicked' by reviewing the associated theory, particularly when considering aspects of practice related to the social sciences.

Paramedic Practice Educators considered themselves to be a catalyst for learning, a view shared by their students who considered that the role was of greatest benefit when the Practice Educator was an active, engaged partner in the learning process. Learning was, however, also found to have taken place in the absence of an actively engaged Practice Educator.

The model of Paramedic Praxis developed through this research has informed the implementation of practices to enhance existing undergraduate paramedic and Practice Educator educational programmes. The model has been utilised when preparing students for practice placements with greater attention being given to encouraging students to better prepare themselves to make the links between theory and practice. Approaches to reflection and reflective practice have been made more practical and applicable to the realities of practice-based learning, supporting students to enter the practice environment with a clearer individual strategy of learning already considered.

Practice Educator education has also been developed, both locally and nationally. The model of Paramedic Praxis has informed the development of curricula for academically accredited, paramedic-specific, Practice Educator short courses. The Zip Analogy component of the model has been incorporated as a core concept by the College of Paramedics in its promotion of the role of the Practice Educator as a facilitator of learning. Continued development of these approaches, based on the findings of this research, will go to supporting the development of student paramedics into lifelong learners who will, themselves, become the Practice Educators of the future.

Chapter 1 : Introduction

1.1 Introduction

This research will focus on the practice-based learning undertaken by higher education student paramedics. University-led paramedic education is a relatively new development in the initial training of the paramedic, with practice placements being an integral part of such programmes. The paramedic is very new to the ranks of the professional, with registration and regulation having first taken place in 2000, around the same time that the first undergraduate paramedic programme was introduced at a UK university (Blaber, 2012). As a relatively young profession, there is a dearth of research into the learning practices of paramedics, with many existing principles and theories being adopted from other, longer established, professions. Such theories are sometimes adopted without question and, it will be argued in this submission, without due regard for the unique nature of the role of paramedics as an autonomous, first point of contact for patients in the community, some of whom are experiencing potentially life-threatening situations and many more of whom are suffering from social, rather than medical, based presentations.

1.1.1 Background to the study

In my roles as a Health and Care Professions Council (HCPC) partner and a College of Paramedics (CoP) Education Visitor, I have been a panel member at the approval of a significant number of paramedic educational programmes around the United Kingdom. It was a combination of learning undertaken through these approval visits and my own experiences, both as an ambulance service Practice Educator and as a university placement lead, that led me to consider paramedic practice education as an area in need of further research.

An element of both an HCPC approval and a CoP endorsement is a series of meetings between the panel and a range of stakeholders in the programme seeking approval. These meetings include those with students on the programme and with Practice Educators supporting those students in the practice environment. During these discussions, it became clear to me that there were significant differences in the experiences of students, not only between programmes, but also between students on the same programme. For example, some students reported that their Practice Educators were poorly equipped to support them, both in terms of understanding their

needs as a learner and by not having sufficient theoretical knowledge to support 'academic' aspects of learning whilst in practice. Some students' experiences were reportedly those of an observer rather than a participant in practice, with a small number of Practice Educators reporting that they felt unable to support students as they perceived that the students had a greater level of knowledge and a more current understanding of paramedic practice than they themselves did. Students considered that the input at university was not always reflected in the practice that they experienced, or that which they witnessed. This anecdotal evidence appeared to suggest disconnect between theory and practice, a situation described in the literature as a 'theory-practice gap'.

These experiences gave me an insight into potential areas for improvement and development within the current approaches to paramedic practice placements. In principle, practice placements form an essential part of the development of any professional, in particular those involved in health-care; however, such placements must be focussed and appropriately designed to ensure that theory and practice are appropriately integrated (Corlett, 2000). Where this is not the case an artificial 'gap' can appear, which breaks down the holistic development of the practitioner by presenting theory and practice as two separate entities that co-exist but remain distinct (Ferguson & Jinks, 1994). The complexities of the relationship between theory and practice, as well as any potential theory-practice gap in respect of paramedic practice education will, therefore, form the focus of this research.

By establishing a specifically paramedic perspective of the theory-practice relationship, the future development of paramedic educational pathways can be undertaken from a position of knowledge and understanding directly relevant to the paramedic profession.

1.1.2 The research question

This submission seeks to explore paramedic students' and Practice Educators' perceptions of the relationship between theory and practice. It is presented to support the thesis that there can exist a 'paramedic praxis' within undergraduate paramedic education in which the theory-practice gap, previously proposed as existing within nursing education, does not manifest in the same detrimental form.

Research Question-

*How do practice placement experiences influence student paramedics'
perceptions of the relationship between theory and practice?*

Study aims-

1. To explore higher education paramedic students' perspectives of the
   relationship between theory and practice.
2. To explore ambulance service Practice Educators' perspectives of the
   relationship between theory and practice.
3. To explore the effect of ambulance service Practice Educators on students'
   perceptions of the relationship between theory and practice.
4. To explore the influence of the relationship between theory and practice on
   student paramedics' development of personal professional knowledge.

The first aim seeks to establish the position of higher education paramedic students in
respect of their perspectives of the concepts of both theory and practice as they are
seen to manifest during their undergraduate programme. With an understanding of the
students' perspectives of the concepts established, the perceived relationship
between theory and practice will be explored, with a view to establishing any variations
in the relationship based upon the situation in which the relationship is experienced.
The focus will be on theory-practice relationships as experienced when situated in the
practice, as opposed to the university, setting.

As the Practice Educator is a key player in the practice experience of the student, the
second aim considers their position with a view to establishing how Practice
Educators' perceptions of theory and practice can be related to those of the students.
This leads on to the third aim of determining any effect that the views of the Practice
Educator may have on students' perceptions of the theory-practice relationship,
particularly whilst undertaking practice placements.

The fourth aim considers if the students' acquisition of personal professional
knowledge is influenced by their experiences of the theory-practice relationship. The
research question and associated aims explore the role of practice placement
experiences in the theory-practice relationship and are, therefore, focussed on the
participants situated in the practice environment, i.e. students and Practice Educators.

It is acknowledged that there are other influences which may impact on students' perceptions of the theory-practice relationship, for example; curriculum design, university lecturer input and associated relationships; however, this study will focus on students' and Practice Educators' perceptions of the theory-practice relationship as manifested in the practice placement environment.

1.1.3 Structure of the submission

An historical review of the development of the paramedic role and associated educational pathways will be presented in Chapter One. This will place the current position of paramedic education in the context of its recent history to allow the reader to better understand the underlying issues associated with the emergence of the paramedic as a registered professional and the associated development of paramedic education, both academic and practice-based. Having an appreciation of the recent developments in paramedic education will contextualise comparisons made with other professional groups where the theory-practice relationship has previously been explored, most notably nursing. Chapter One will conclude with an overview of the nature of paramedic practice education.

Chapter Two will then present a literature review which will develop the basis to be used to build a conceptual framework, based specifically in the context of the paramedic, incorporating the key concepts to be addressed, i.e. theory, practice and knowledge. Chapter Three will continue the literature review, specifically focussing on relationships between theory and practice, before concluding with a presentation of a proposed conceptual framework of Paramedic Praxis. The philosophical position and theoretical basis behind the study design and methodology will be established in Chapter Four, along with a presentation of the research processes undertaken. Chapter Five will present the key findings of the study in relation to theory and practice, along with a consideration of theory-practice relationships within specific curriculum areas. Chapter Six will further explore and discuss the findings of the research in respect of the practice-based influences on the theory-practice relationship.

The submission will conclude with Chapter Seven, where the development of a model representative of paramedic praxis will be presented. Chapter Seven will also identify the significant and original contribution that has been made to knowledge and practice

in paramedic education, as well as presenting an outline of the limitations of the research and suggesting areas for further research.

1.2 Setting the scene - Paramedic: a new profession

This section will present a brief overview of the history of paramedic education. It is important to appreciate the rapid development of the profession over a relatively short period of time so that the relative impact of existing theories and practices adopted from other professions can be considered in the context of this research.

1.2.1 The development of paramedic education in the UK

The development of the paramedic role from one of an unqualified, untrained 'ambulance driver' in the 1960's to that of a registered healthcare professional in the late 1990's was one that was to draw on principles from both medicine and nursing whilst not aligning fully to either discipline. The emergence of higher education routes for training and education further adopted aspects of nursing philosophy, along with educational principles, from existing healthcare programmes such as radiography, physiotherapy and operating department practice (Donaghy, 2010a).

Ambulance staff training first became nationally standardised following the publication of the findings of the 1966 'Millar Report' (Ministry of Health, 1966; Ministry of Health, 1967), which was produced, in part, as a result of the re-discovery by the medical profession of chest compressions for patients who had suffered cardiac arrest. In around 1960, cardio-pulmonary resuscitation (CPR) had become the subject of international interest and research with the suggestion that ambulance staff should become proficient in its application (Chamberlain, 2010).

The result was the development of a six-week training course aimed at providing intensive first aid training with an emphasis on practical work. Prior to this initiative, ambulance drivers were expected to gain their own St John or Red Cross first aid certificate during their first year of employment. Under the new approach, after twelve months of 'on-the-road' experience, a review would take place and the successful student would receive the Ambulance Services Proficiency Award, commonly referred to as the 'Millar Certificate'. This probationary period was the first example of the development of practice education for ambulance staff. However, it was relatively

informal and was predominantly based on 'time served' rather than any objective assessment of developmental achievement (Blaber, 2012).

This programme evolved, via the National Health Service Training Division (NHSTD), to become the 'Ambulance Technician' training programme of the 1980's. Local ambulance services then began to introduce limited 'extended skills' training for their staff for them to undertake advanced airway management and administer fluids and drugs in the pre-hospital environment. The Department of Health and Social Security evaluated these extended skills programmes and approved a National Paramedic Training Programme, which was piloted in 1986. The NHSTD developed into the Institute of Health and Care Development (IHCD) which continued to dictate the syllabus for paramedic training courses throughout the 1980's and 1990's (Donaghy, 2010a).

Hospital placements were introduced as part of the paramedic extended skills training, furthering the use of practice-based learning for paramedics. These placements were appropriate to the IHCD syllabus's narrow focus on technical clinical skills, with students required to achieve a set number of interventions, i.e. twenty-five endotracheal intubations and twenty-five intravenous cannulations, with no other clear developmental or educational objectives. The links between theory and practice were focussed on psycho-motor skill acquisition, with those skills being undertaken in a hospital environment, one which is quite different from the actual practice environment of the paramedic.

Although the range of technical skills used by paramedics had been updated over time, the IHCD curriculum failed to address advanced patient assessment techniques and wider social sciences and professional skills that would be required by the paramedic to become an autonomous practitioner who could put the patient at the centre of any proposed care plans. This situation was a key driver in the development of higher education programmes which would seek to address this shortfall of 'underpinning' education. In 2000, the NHS Plan (Department of Health, 2000) recognised the shortcomings of NHS education and training stating that *"Radical reform is required in NHS education and training to reshape care around the patient"* (DoH, 2000: page 85).

At around the same time, Lendrum *et al.* (2000) identified that the scope of paramedic

training prescribed by the IHCD did not match the range of callouts that paramedics were actually responding to. The syllabus was found to focus on the management of patients with life-threatening conditions, especially cardiovascular and respiratory problems, and resuscitation. Very little of the curriculum was dedicated to more frequently encountered medical conditions or the development of critical thinking. To develop critical thinking, a greater depth of underpinning, theoretical input is required to support the paramedic's clinical decision making (Fero *et al.*, 2010), as well as a wider range of practice experiences to consolidate such theoretical aspects. This view was supported by the Joint Royal Colleges Ambulance Liaison Committee, which produced a report on the future role and education of paramedics (JRCALC, 2000). This report was compiled following consideration of several government policies and reports (DoH, 1997a; DoH, 1997b; DoH, 1998; DoH, 1999a; DoH, 1999b) and noted that a consensus had developed that education and experience needed to be;

> *"broadened and improved for those personnel involved in pre-hospital care and specifically for paramedics… [concluding that]…paramedic training does not provide the underpinning education for sound clinical judgement to be exercised or indeed expected".* (JRCALC, 2000 p3).

IHCD paramedic training programmes contained a high proportion of practical skills and had become increasingly crowded as new items of equipment and techniques were added to relatively short courses, generally comprising only six weeks of classroom input. Adding new practical techniques without the underpinning background knowledge, as well as critical thinking and problem-solving approaches that link theory and practice, was considered a poor educational approach (JRCALC, 2000).

In 2006, the professional body representing paramedics, the College of Paramedics, produced its first curriculum guidance document in which it made recommendations regarding all aspects of paramedic education as well as the expectation to undertake practice placements. The recommendations were based on a paramedic programme being fifty percent 'theory' and fifty percent 'practice', with seven hundred and fifty hours per academic year being expected to be undertaken in the practice environment. In respect of the theoretical input, it was considered that the value of providing a broader educational base would help students to understand why a particular medical crisis is occurring, to make more accurate assessments of patient need, to select appropriate treatments and to anticipate a patient's response to treatment (College of

Paramedics, 2008). The recommendations from 2000, along with the introduction of professional regulation for paramedics, resulted in an increase in the development of higher education programmes for paramedics, programmes which would be required to significantly develop the links between theory and practice in order to meet the expectations of both the College of Paramedics and the regulatory body, the HCPC.

1.2.2 The move to a graduate profession

Full-time undergraduate paramedic degrees were first developed in the United Kingdom in the late 1990's, with their curriculum often incorporating the IHCD syllabus as well as academically accredited modules such as biosciences, law and ethics, psycho-social issues and advanced patient assessment. The first tranche of paramedic science degrees was delivered within nursing faculties, predominantly by nurse lecturers. There were strong links with ambulance service training departments who continued to deliver the 'ambulance-based' training, focussing on equipment and procedures, while the experienced academic nursing staff developed and delivered the academic modules, often adopting existing 'off-the-shelf' modules previously developed for other allied health professions. It would be several years before there were sufficiently qualified and experienced paramedic academics available to develop and deliver purely paramedic-led programmes.

The HCPC, whose overriding role is to protect the public, is responsible for ensuring that any organisation delivering a training programme leading to eligibility to apply for registration as a paramedic meets both the Standards of Education and Training (SETs) and the Standards of Proficiency (SOPs) for the profession (HCPC, 2017a). The creation of the HCPC meant that the inclusion of the IHCD syllabus was no longer a requirement of higher education programmes, freeing providers to take a more holistic approach to the delivery of paramedic education. HCPC SET 4.5 states that *"integration of theory and practice must be central to the programme"* (2017a, p7), with guidance given to support the meeting of the standard shown in Figure 1.1 (page 17).

This latest guidance is more robust that that contained within the 2008 edition; however, the standard continues to be poorly addressed with education providers sometimes simply presenting the position that they have both academic, university-based modules and practice placements. Exactly how such theory and practice are 'integrated' in a meaningful way is, generally, less clear.

Figure 1.1 SETs Guidance: SET 4.5 (HCPC, 2017b, p.33)

> **4.5   Integration of theory and practice must be central to the programme.**
>
> **Guidance**
>
> This standard is about making sure that learners are able to apply knowledge to practice as a basic part of being prepared and competent to practise their profession.
>
> We expect theory and practice to be combined within both the theory and practical parts of the programme. By 'practical parts of the programme' we mean practice-based learning as well as practical learning in an academic setting.
>
> Theory and practice must be linked and must support each other. Learners must have the opportunity to learn theory and understand why it is important, but also to reflect on and learn how to apply theory frameworks in practice.
>
> This linking of the different parts of the programme needs to be relevant and meaningful to learners and to take place at appropriate times during the programme to make sure it is effective.

In 2012, the College of Paramedics commissioned a report into paramedic education. The findings of the Paramedic Evidence-based Education Project, PEEP (Lovegrove & Davis, 2013), recommended moving the educational level of the paramedic to HE Diploma/Foundation Degree by 2017, with a view to the paramedic profession being wholly BSc graduate entry by 2019. Although this report was seen as a major driver in the commissioning and standardisation of paramedic education programmes, its focus and insight into paramedic practice education is limited, with comparisons made to nursing and other allied health professions without consideration of the very different environment in which the majority of paramedics undertake their role.

The PEEP recommendations appear to put the focus of paramedic education back into the classroom, towards greater theoretical input and, potentially, away from practice-based, experiential learning. In early 2018, the HCPC (2018) actioned one of the key recommendations of the PEEP report by increasing the level of entry to the paramedic register to BSc degree level, with all new programmes seeking approval needing to be degree level from December 2018, and entry to the register restricted to those with a BSc level qualification from 2021.

If, as a result of the move to a fully BSc degree level entry point, practice-based education is reduced within paramedic programmes, it is even more important to ensure that the learning undertaken during practice placements is sufficiently understood to ensure that it promotes the autonomous practice required of the twenty-first century paramedic, and that a theory-practice gap of the type previously described in nursing does not present a barrier to learning and to the development of practice. One of the major challenges facing any provider of paramedic education is, therefore,

the incorporation of robust and appropriate practice placements which are fully supportive of students' professional development and, at the same time, supportive of Practice Educators in their role of facilitating the students' transition to practice.

In recent years, the professional status of paramedics has led to an increase in their employability in wider health-care settings outside of ambulance services. Walk-in centres, GP surgeries, telephone advice centres, police custody suites and agencies contracted to the Department of Social Services all now routinely employ paramedics. One side-effect of this increased employability is that the traditional, ambulance-based paramedic is fast becoming a highly sought-after commodity, with recruitment to UK ambulance services now being in a state of crisis (HCCPA, 2017). The potential for this situation to impact on the quality of education and training of paramedics is high, with an industry requirement for a more rapid method of training of paramedics being in direct opposition to the PEEP report recommendations for movement to a graduate profession.

Any future developments within the field of paramedic education may impact on perceptions of the theory-practice relationship and, potentially, the manifestation of a theory-practice gap. Such developments should, therefore, be informed by profession-specific understanding of theory-practice relationships to support the effective acquisition of knowledge by student paramedics and, subsequently, their ability to undertake safe, autonomous practice and continue to develop as lifelong learners.

1.3 Paramedic Practice Education

As the theoretical elements of paramedic education have developed considerably within programmes across the country to incorporate research, biosciences, pharmacology and social sciences, as well as patient assessment focussed modules, the development of practice education has been less consistent. There is some variation in the number and range of practice placements undertaken in programmes around the UK, with the majority of programmes focussing on ambulance placements with a minimal period of time spent in wider health-care settings, often only attending hospital operating theatres or accident and emergency departments, the same practice placements employed under the IHCD approach. Whether or not the range of placements impacts on students' perceptions of the relationship between theory and practice is not an area which will be explored within this submission. This section will consider existing ambulance service practice placement provision for student paramedics.

1.3.1 Paramedic practice placements

Many professions require their students to undertake practice placements to both gain experience of their future role and demonstrate the proficiency and competence required to enter their chosen profession. Taylor (2007) considers that the clinical practice placements experienced by students are often relied upon to make the theoretical component of an educational programme 'come alive'. This is achieved by offering meaningful experiences where theoretical knowledge can be practically applied, with Taylor (2007) stating that one of the main challenges for educators is to make the links between theory and practice more meaningful, with an ultimate goal of transferring theory into practice.

All the health professions regulated by the HCPC are required to undertake placements, as are doctors, nurses and midwives. Outside health-care, other professional groups, such as teachers and engineers, also undertake placements within their respective practice environments. Waters (2001) proposes that the purpose of undertaking placements is three-fold; firstly, to allow the acquisition of professional knowledge, skills and attitudes; secondly, to allow the theorising of practice and the practicing of theory, citing Schön (1983); and, thirdly, to allow professional identity formation and enculturisation, the process by which students are inducted and adopt their professional culture.

Although the HCPC requires practice placements to form an integral part of educational programmes, it does not specify the type or duration of such placements; this is left to the representative professional body to determine. Until 2017, the College of Paramedics recommended that a minimum of 750 hours of practice placement should be undertaken by student paramedics for each year of study, a recommendation based on a 50:50 split between theory and practice contact hours within the academic year.

The result was a recommendation of 1,500 practice hours for Diploma or Foundation Degrees and 2,250 practice hours for BSc programmes. This was some 1,250 hours more than the recommended placement hours for other HCPC regulated professions, such as physiotherapy and radiography. Such a high number of placement hours was, at the time, proposed due to the perceived importance of gaining significant experience undertaking the practical aspects of the paramedic role. By involving students in practice throughout their educational programme, the links between theory

and practice can be more readily formed, with students being able to feed their practice experiences and development back into the theoretical domain of the classroom, perpetuating a developmental learning cycle of the type proposed by Kolb (1984). The latest version of the curriculum guidance published by CoP (2017) removes the requirement for a set number of hours and, instead, moves the focus to an outcome-based measure. Such an approach has the potential to result in a significant reduction in the opportunities of students to experience a range of situations within the practice environment.

Students on full-time, undergraduate higher education programmes are predominantly supernumerary during placements, a status which has been shown to influence learning and knowledge acquisition (Allan, *et al.*, 2010; McGowan, 2005) and, therefore, to potentially impact on their perceptions of the relationships between theory and practice. There is also a degree of variation in the experience and qualifications of Practice Educators utilised to support the developing student (CoP, 2017; HCPC, 2008; HCPC, 2017a). There is currently no nationally recognised qualification that a paramedic Practice Educator is required to achieve, although the College of Paramedics has recommended the introduction of a register of Practice Educators (CoP, 2017a) and is leading the way in standardising Practice Educator roles and approaches with the production of a Practice Educator Guidance Handbook (2017b).

Although much has been written about the training and education of paramedics, with an emphasis on the move away from skills-focussed training courses and towards evidence-based higher education, one area that has not been as thoroughly explored is that of the development and assessment of practice in the practice environment. It has been recognised since the production of the Miller Reports in the 1960's that undertaking practice is a vitally important part of an ambulance worker's development. The fact that staff were not 'signed off' as qualified until they had undertaken a twelve-month period in the workplace reflects this perspective. Unfortunately, early ambulance technician training programmes did not specify the way in which the quality of practice should be monitored and did not dictate a requirement for trainee staff to be supervised by a colleague with any specific training in the role.

It has been argued that the quality of the mentor is key in developing students in practice, with poor mentorship/supervision having been identified as perpetuating the theory-practice gap (Allen *et al.*, 2006). Students are reportedly mentored by staff who

do not understand the underpinning theory of their profession sufficiently to fully support their students' development. As well as potential deficits in their knowledge-base, the nature and level of the professionalism and attitude of supervisors has also been shown to impact on the ability of students to develop as independent practitioners (Awaya *et al.*, 2003). As the Practice Educator role is so integral to the student's experiences of practice, their influence and impact on the theory-practice relationship will be considered throughout this submission.

1.3.2 The uniqueness of the paramedic role

The paramedic is the only HCPC registered health-care professional who, at the point of registration, has sole responsibility for the initial assessment, diagnosis and treatment of their patients without the support of a wider health-care team working alongside them at the scene. All other health-care professionals can consolidate their role within relatively well-supported clinical environments or, if they are expected to work in the community immediately upon registration, emergency situations would be the exception rather than the norm. This unique aspect of the role of the paramedic can be overlooked when strategies for the development of paramedic education are proposed by those without a paramedic background. My experience of approving nurse- or ODP- (operating department practitioner) led paramedic programmes has highlighted that a profession-specific background is very important in the evolution of paramedic programmes. The PEEP report was authored by a radiographer, and the absence of paramedic-specific insight is apparent in some of the recommendations made therein.

As part of an emergency service, the paramedic can expect to work shifts scheduled over 24-hours, seven-days-a-week. The work can be both dangerous and unpredictable, frequently involving life-threatening situations, generally for patients, but increasingly for the attending paramedic as well. Two terrorist attacks in London in the first half of 2017 saw several student paramedics, undertaking practice placements, attend the scene with their Practice Educators. On both occasions, the students were at various stages of their programmes with some nearing graduation and registration and others on their first ever ambulance practice placement. Such situations, whilst uncommon, clearly demonstrate that the paramedic and, therefore, the Practice Educator, needs to be able to adjust their approach to deal with not only a wide variety of clinical presentations, but also with the wider issues of scene

management, whilst also supporting the developing student. More generally, such scene management involves dealing with patients' relatives, bystanders, other emergency services and the logistics of patient extrication.

Traditionally, paramedics formed part of a two-person ambulance crew; however, the delivery of out-of-hospital care has lately evolved to include many 'lone responders', either in cars or on motorcycles or bicycles. This, along with the 'primacy of care' of the registered paramedic, has meant that the responsibilities of the paramedic have increased considerably over recent years.

Therefore, to be able to take on the responsibility required of an autonomous practitioner at the point of registration, it is vitally important that the student paramedic encounters a significant amount of a variety of situations in practice, and has the foundations to learn and develop personal professional knowledge, and associated principles of practice, from those experiences. In all the other health-care professions regulated by the HCPC, it is possible for students' placements to be focussed with clearly defined learning outcomes and objectives that can, generally, be planned to be met. Such students would have access to a pre-determined range of patients in a safe, controlled, clinical environment, accessing specific clinics or wards to meet the requirements of their educational programme. This cannot be the case for 'front-line' paramedic placements as the nature of the patient presentation can never be planned for.

It would not be uncommon for a student to complete 1,500 hours in practice and to not see a cardiac arrest, maternity or serious trauma case. Some university programmes seek to address this limitation by increasing the number of non-ambulance placements where students' learning experiences can be more closely managed. Examples of such placements include care-homes, walk-in centres, cardiac-care wards, maternity units and operating theatres. The challenges that come with undertaking such placements, both personal and organisational, are not inconsiderable, but such placements cannot directly relate to attending to the same type of patient in the unscheduled, out-of-hospital setting where the environment, as well as the clinical needs of the patient, needs careful consideration and management.

Perceptions of the relationship between theory and practice may differ when the practice is undertaken in a hospital setting, where the vagaries of paramedic practice are reduced and the situation is more controlled, potentially resulting in the acquisition

of personal professional knowledge which is, arguably, less readily transferrable to the paramedic practice environment.

1.3.3 Paramedic students as practice-based learners

Practice placements allow students many opportunities to develop as clinicians. As well as being able to practice their clinical skills, students begin to develop a professional identity while increasing their knowledge-base, and transferring classroom knowledge to the clinical setting (Atack *et al.*, 2000; Kirkpatrick *et al.*, 1991; Wills, 1997) becoming part of what Wenger describes as a community of practice (1998; Wenger *et al.*, 2002). This is a group of people who interact on a regular basis, united by a shared interest or profession, and the value that they place on learning in that area.

Both the student body and the ambulance service Practice Educators could be considered to represent separate communities of practice, with an overlap of membership during practice placement periods. The wider ambulance service could also be representative of a community of practice; however, it could be questioned as to whether all members of that wider community place value on learning as described by Wenger (1998). During practice placement periods, student paramedics' social interactions with, and contributions to, the community of practice go toward constructing their professional identity, a process termed 'situated learning' (Lave & Wenger, 1991). When students are placed with multiple Practice Educators, they are exposed to a diverse range of previous contexts of theory and practice as perceived by each individual Practice Educator. A key challenge is how the student can best utilise that diversity for the development of their own knowledge and, therefore, their own subsequent practice.

The work of Taber *et al.* (2008) highlighted the importance of the practice environment in the development of paramedics. Their social theory of learning, that of learning in communities, was considered in relation to the way in which both paramedics and fire-fighters viewed their development. Taber *et al.* found that the paramedics interviewed confirmed Paloniemi's (2006) view that experience, and learning through experience, are among the most important ways of learning in the workplace as well as confirming that learning in practice is unpredictable and cannot be planned, as proposed by Schulz (2005). Taber *et al.*'s study found that the paramedics questioned had extensive theoretical training before entering the practice environment; however, such

training was very protocol focussed and followed a linear approach to situation management. 'Grey areas' were identified as those situations that were unanticipated by the protocols and resulted in the paramedics needing to step outside of protocols to find solutions to resolve these situations.

Taber found that more experienced paramedics were better able to maintain a balance between protocols and practice, with protocols being considered a representation of theory, whereas newer paramedics had less flexibility and approached situations in a linear fashion: *"if A happens, do B to get to C."* Using this analogy, Taber found that new paramedics followed their protocols and concentrated on the first two components, *'A & B,'* and focussed less on *'C',* the final outcome of adopting *'A & B.'* More experienced paramedics, however, tended to draw on their previous experiences of practice in order to focus on the *'C'* element, the outcome, without becoming pre-occupied with the protocols used to get there, the *'A & B.'*

A potential challenge for student paramedics can arise when they work alongside a Practice Educator who, being more experienced, adopts the latter of the above examples. The student then perceives a theory-practice gap because there appears to be a lack of congruence between the theory that they have been taught in the classroom and the practice that they are now witnessing. To avoid the potential challenges identified by Taber, Practice Educators should carefully consider the developmental level of the student paramedic and facilitate their cognition of associated theory into the practice that is being undertaken. Whether the Practice Educator should be *fully* conversant with *all* of the required theory, or if they should be more of a conduit to facilitate the student's linking of theory and practice is a matter that this submission will explore.

Lane (2014) discusses how the one-on-one Practice Educator mentoring model required in the ambulance service setting may lead to students placing significant emphasis upon developing a good working relationship with their Practice Educator. The very nature of the paramedic role, where student and Practice Educator are situated in very close physical proximity as well as sharing the inherent emotional challenges presented by the situations in which they find themselves, lends itself to the forming of very strong emotional links (Williams, 2013). By comparison, students in other healthcare professions are generally supported in a wider team context and can form different relationships with different team members, depending on their

needs and wants at the time. The student paramedic does not have the same range of options available to them in the workplace.

The complexity, uncertainty and uniqueness of many clinical situations encountered by paramedics in out-of-hospital care means that not all clinical problems are be able to be solved in practice (Getliffe, 1996). Such situations may not have clearly defined 'theory' available to solve them, resulting in it being difficult for Practice Educators when trying to use a contextual framework to rationalise their actions to students, potentially extending the perception of a gap between theory and practice (Duffy & Scott, 1998).

The increase in the range of situations that paramedics are now expected to attend, where there is greater ambiguity and unpredictability, results in protocols becoming a more limited method of offering support (Klein, 2009), particularly given the limited evidence-base for the majority of out-of-hospital care protocols (Smith *et al.*, 2007). As demonstrated by Taber, the gap between the applicability of a protocol and the demands of a situation is often filled by the ability of the paramedic to adapt (Cook *et al.*, 2000), a component of professionalism (HCPC, 2011) linked to personal professional knowledge, which will be explored in Chapter 2.

1.4 Summary

In a rapidly evolving profession, where individuals' responsibilities are continually expanding, a greater appreciation of the role of theory and practice in the initial development of personal professional knowledge for paramedics can be used to inform future approaches to paramedic education.

Paramedic practice education does have many similarities with other professions, as well as having its own unique challenges. This submission will present findings related specifically to the experiences of student paramedics and their Practice Educators with a view to proposing how the theory-practice relationship is perceived within paramedic practice education. By having a profession-specific perspective, future research can focus on the issues raised specifically by paramedic students rather than being led by findings from other professional groups.

This new appreciation of the relationship that students perceive to exist between theory and practice will have implications for how both students and Practice

Educators are prepared to undertake practice-based learning as well as informing the approach to future curriculum design and the future development of educational pathways within the paramedic profession.

To better consider the nature of theory, practice and knowledge, the following chapter will further examine each of these areas before presenting conceptual frameworks and the resultant conceptualised terminology on which later exploration will be based.

Chapter 2 : Theory, practice and knowledge in paramedic education

2.1 Introduction

To explore the relationship between theory and practice, the nature of both elements first needs to be considered. The exploration of 'theory' as a concept will seek to clarify the term's position in relation to the context of this submission. The initial, broad concept of 'theory' being *"that which is taught at university"* (Polit and Hungler, 1987) can cause some confusion when exploring the relationship between theory and practice, raising many questions, for example: what is theory for? Are there different types of theory? Where does theory come from? Is it only theory if it comes from a book or a journal? Similar questions can also be asked regarding 'practice', for example: is practice a place, a thing, a concept, an activity or a state of mind?

This chapter will seek to address these questions in order to establish and maintain clarity when using the terms 'theory' and 'practice' throughout the submission.

The concept of 'knowledge' will also be explored within this chapter as the development of knowledge is considered to be the 'end-goal' of an effective, healthy theory-practice relationship achieved when undertaking an educational pathway to become a paramedic. The influence of theory, of varying kinds, and practice on the acquisition and development of knowledge will, therefore, be considered and explored.

A variety of conceptual frameworks will be developed and presented to further demonstrate the respective positions of theory, practice and knowledge in relation to paramedic education. The chapter will conclude with a presentation of the resultant conceptualised terminology which will seek to clarify the usage of terms adopted throughout the remainder of the submission.

2.2 Theory

2.2.1 Concepts of theory

The Collins English Dictionary (2017) defines theory using the following three terms:

1. *"A supposition or a system of ideas intended to explain something, especially one based on general principles independent of the thing to be explained"*
2. *"A set of principles on which the practice of an activity is based"*
3. *"An idea used to account for a situation or justify a course of action"*

The first definition appears to be closely related to more traditional, scientific notions of theory as a concept, derived from the philosophy of logical positivism (Ayer, 1952; Glanz *et al.*, 1990); however, there can be considered to exist a link to practice where practice is the 'something' or 'thing' being explained. Consideration of the second definition gives a clearer indication that theory can be intrinsically linked to practice. The third definition indicates a situation where theory can be used to justify actions, potentially those actions undertaken in practice. Such definitions clearly establish that theory can be seen to have a relationship with practice; however, the nature, and individuals' perspectives, of that relationship can be variable.

Whilst a useful starting point, the dictionary definitions give only limited depth when considering theory as a concept. The literature presents theory in a wider variety of ways, with Upton (1999) identifying that there are multiple definitions of the term theory and Corlett (2000) considering that the definition of theory is dependent on the individual being asked to define it. Thomas (1997) takes this position further by contending that theory as a term has, in itself, very little meaning, even when attempts are made to contextualise its use. Weick's (1995) definition of theory supports the position of Thomas, going to demonstrate that the term is extremely broad, and rarely explicit in its application; *"Theory belongs to the family of words that includes guess, speculation, supposition, conjecture, proposition, hypothesis, conception, explanation, model"* (Weick, 1995, p. 387).

Theory has been considered to be many things, including both a pre-requisite of professional groups, where its production is seen to give professions legitimacy (McCrae, 2012), and as a potential barrier to the continued development of professions, where blind adherence to previously accepted theories bars progress (Thomas, 1997). Theory was considered by Rajagopalan (1998) to be all structured

thought, a notion rejected by Thomas (1999) as being confusing in that it results in the term losing any significant meaning, an absence of which, particularly when considering the nature of the relationship between theory and practice, results in the potential for considerable confusion.

Kerlinger (1970, p.9) defined theory as being:

> *"…a set of interrelated constructs, definitions, and propositions that presents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting phenomena."*

Kerlinger's is a technocratic, science-based perspective of theory where a systematic view of phenomena is presented based on the supporting constructs, definitions and propositions. Kerlinger also proposes the purpose of theory, that of explaining and predicting phenomena, as an intrinsically linked extension of the definition.

In contrast to Kerlinger's view, Mouly (1978, p.15) proposes a more practical, pragmatic consideration of theory as a 'convenience': *"theory is a convenience- a necessity, really- organising a whole slough of facts, laws, concepts, constructs, principles into a meaningful and manageable form."*

Mouly's view of theory as a convenience of organisation goes towards positioning theory as a construct of multiple facets garnered from various sources and placed together to make sense of complex situations, sense which can be transferrable between individuals. Buchanan (1994, p273), however, suggests that theory is sometimes considered to *"do little more than dress up common sense in esoteric jargon"*, a view which questions the usefulness of theory production in the 'real world'.

O'Connor's (2017, p.36) view of theory, when contrasted to practice, is: *"a set or system of rules or a collection of precepts which guide or control actions of various kinds."* A view which appears to take Mouly's position further by engaging the organisation of the previously identified multiple facets in order to 'guide or control' actions rather than to 'explain and predict' them. This view could be considered to place theory as the precursor to action, i.e. practice, with the inherent implication that practice 'follows' theory, similarly aligned to the second dictionary definition. It could, however, be the case that the development of this set of rules had emerged from initially undertaking the 'actions', with the resultant theory, therefore, being based on

practice. The discussion of such interplay, representative of a relationship, between theory and practice will remain a core theme throughout this submission.

Baxter (2007, p104) proposed the following definition of theory when considering the theory-practice gap identified as existing within nursing education in Canada: "*theory will be defined as the underlying principles that describe, explain, and guide nursing practice.*"

Such an apparently straightforward definition does not appear to fully consider the influence of practice on theory, instead focussing on theory as being that which describes, explains and guides practice, again implying that practice is a product of theory. Polit and Hungler's (1987) description of theory as being the content covered in the classroom, as opposed to the actual practice of performing nursing activities, further identifies how the perception of a theory-practice gap in nursing has been proliferated as the dominant view of the theory-practice relationship, with theory simply equating to 'classroom' and practice to the 'actual' performance of activities.

When discussing the theory-practice gap, Baxter (2007) refers to the gap between practice and 'academe', using academe and theory as interchangeable terms throughout. Such an approach enables an easier comprehension of proposed models of a theory-practice gap; however, 'theory' can be considered a much broader construct than *purely* that which is taught at university, or 'academe'. The majority of other writers whose focus is the theory-practice gap (Baxter, 2007; Corlett, 2000; Elkan & Robinson, 1993; Fealy, 1999; Lathlean, 1992; Michau *et al.*, 2009; Rolfe, 1996) also consider 'theory' to mean solely that which is taught at university/in the classroom.

This, arguably less sophisticated, view of theory better lends itself to the presentation of a 'gap' between two separate, physical areas, i.e. the university and the ambulance, rather than enabling greater consideration of the different types of theory and practice and the complex relationships that students may develop with and between these areas. Whilst this dichotomous view might be considered naive, it does, nonetheless represent a position whereby theory and practice can be readily separated into recognisable domains where the many challenges associated with defining theory in more complex, situationally contextualised ways can be lessened. The use of this

approach to the separation, as opposed to integration, of theory and practice as utilised terminology will be reconsidered at Section 3.4.1.

Eraut (2003) cites four 'sources' of theory: academic publications, community discourse among practitioners, community discourse among the general public ('lay theories') and personal theories, which may be either explicit or tacit. The benefit of Eraut's sources is that one can consider the different types of theory that each source produces, and how it may impact on the development of knowledge for student paramedics, with such considerations further clouding any clear delineation between theory and practice as separable entities.

Argyris and Schön (1996) distinguished between the, apparently 'correct', 'espoused theories', generally acquired during professional education, and 'theories-in-use', which determine what people actually do. They found that the espoused theories, i.e. the set activities which the individual said that they would do 'in theory', did not match with the actual activities undertaken when the same individual was required to perform them in practice. This situation may be best considered along with the phrase *'do as I say, not as I do',* a situation that may be apparent within the supervision of student paramedics in practice. When Practice Educators' espoused theory does not match their theories-in-use, there may be confusion on the part of the student participant. Various elements will influence the development of an individual's theories-in-use, including formal education and training, personal experience and informal learning from colleagues (Eraut, 2003). As such, individuals' theories-in-use will, to a degree, differ from each other as well as differing from the associated espoused theories. One of the key challenges potentially associated to this situation is that, without significant consideration of their actions, Practice Educators may not be aware of any potential discrepancies becoming apparent to their student/s.

Lathlean (1992) and Piscopo (1994) both discuss the lack of clarity and consensus when defining what constitutes theory resulting in a 'stumbling block' to understanding, and therefore addressing, the theory-practice gap perceived to exist in nursing. These challenges are recognised by Thomas (1997), who argues that having multiple definitions of theory as a concept, or intellectual construction, is a serious problem as one cannot unequivocally place the term in context. Thomas identifies four core uses

of the term 'theory' in education, reconstructed from nine definitions originally proposed by Chambers (1992):

1. Theory as the opposite of practice
2. Theory as hypothesis
3. Theory as developing explanation
4. Scientific theory

Thomas's first definition presents theory as thinking and reflecting, as opposed to doing, a definition which can be linked to that of Polit and Hungler (1987). This definition can also be seen to represent personal theory, Carr's (1995) concept of structured reflection, Hirst's (1993) rational action and McIntyre's (1995) practical theorising, areas which will be further considered when exploring learning and the nature of knowledge (Section 2.4).

Thomas's second definition presents theory as being an idea that may be followed up by modelling or hypothesising, a definition which can be loosely aligned to that proposed by Baxter (2007). The third category, where theory is seen as developing explanation, represents the broadening bodies of knowledge that are developing within a given field and the fourth definition contends that theory exists as ideas formally expressed in a series of statements, one which can be seen to support Wortham (2010), who identifies theory as being 'academic research'.

When considering the latter three of Thomas' definitions, they can be combined to represent formal theory; that is theory which has an evidence-base and has its foundations in the literature. It could be argued that each of the definitions proffered by Thomas can, at least in part, be applicable to paramedic education in varying degrees and at various points of educational programmes.

The combination of such uses/definitions of theory is apparent in the question proposed by Barrett (1991), that of '*theory of or for nursing?*' Barrett questioned whether nursing was primarily a basic science, where theories 'of' nursing describe the knowledge unique to the discipline, or an applied science which consists of various knowledge from other areas that are applied to the practice of nursing, thereby creating a theory 'for' nursing. The same question could well be asked of the paramedic profession. While some of the theory for the profession has come from paramedic-specific evidence-based research, the majority is 'borrowed' from existing

sciences, taking from both medical and nursing models and encompassing all four of Thomas's definitions. To better consider this notion, the terms 'theory-for-practice' and 'theory-of-practice' will be examined using Barrett's position as a starting point.

The way in which theory is developed has been explored by Rae and Carswell (2001), who adopt a social constructivist approach which first explores practice, then moves to theorising and, finally, considers the practical implications of the theory produced. In this way, theory can be seen to have emerged from the exploration of practice and also to be directly related back into practice. Because such an approach can be considered to produce theory which can be readily traced back to practice, a greater sense of connection can be created between the two (McIntyre & Murphy, 2016). The overt linking back to practice is representative of the production of profession-specific 'theory-for-practice', i.e. a theory that has been developed with the intention of informing the undertaking of practice.

McIntyre and Murphy (2016) compared this social constructivist approach to the use by Watson (1995) of Wright Mills' (1959) concept of 'sociological imagination' in the development of theory. Watson was considered to produce theory based on the investigation of practice, but failed to subsequently link the resultant theory back to its practical applications. Although an apparently valid method of theory construction, the absence of a final consideration of how the theory could be utilised in practice is representative of a 'theory-of-practice', i.e. one which has explored practice and theorised it, but one which is more likely to result in a perception of a theory-practice gap (McIntyre & Murphy, 2016).

In the above examples, it is the purpose of theory production that appears to differ, with one, theory-for-practice, seeking to benefit the ongoing undertaking of practice, and the other, theory-of-practice, seeking to explain practice in a theoretical way. From whichever perspective theory is considered, if it has been developed with a focus on the specific profession to which it is to be applied, then it can be considered to be practice-informed theory. It is when theories are 'imported' from research into other professions that their appropriateness may be challenged, as done so by Barrett (1991).

In this submission, the term 'theory/theories-of-practice' will be used to represent theories which theorise what is seen to happen in practice. This position differs from

that of Barrett (1991) in that such theories may be both profession-specific or imported from other professions, aligning more with Argyris and Schön's (1996) view of 'espoused theories'. The practical application of such theories may, therefore, be seen to be limited.

The term 'theory/theories-for-practice' will be used to describe those theories which have been drawn from both the paramedic and other professions and subsequently applied to the paramedic context with a view to directing practice rather than explaining it, resulting in a form of 'theories-in-use' (Argyris and Schön, 1996). This position will be further contextualised throughout this Chapter.

2.2.2 Theory as an 'idealised' concept

One of the problems with the concept of theory within the social sciences is identified by Thomas (1997) as being due to a perceived 'inferiority complex' (p.84) felt by the social sciences when compared to the longer established epistemological pedigree of scientific theory. Thomas identifies an apparent need of social scientists to have their work recognised as being as robust as that of 'pure' scientists, with the production of theory/theories seen to be the method by which to achieve this aim, a view supported by Schön (1987) who considered that the move of professions into universities was done, in part, to gain social prestige by moving professional knowledge closer to science.

Such matters present a problematic aspect when related to 'paramedic science', itself a very new concept in the educational setting, and one which draws from both the 'pure' sciences of biology, chemistry and physics as well as the social sciences. Where such a subject area encompasses both realms of science, the meaning of 'theory' as a construct can be seen to be confusing, both between and within curriculum areas. An example would be the subject of 'pain', which not only has associated, scientific, physiological theories to describe the processes which the body undergoes when exposed to painful stimuli, but also has multiple associated psychological and behavioural theories associated with the individual human's response/s to 'pain', which can be viewed as both a physical and a psychological phenomenon. The drive to present 'theories' to explain all eventualities has the potential to imply that said theories are the sole way of approaching/achieving tasks.

The existence of a gap between theory and practice is argued by Allen (2011) to be frozen into, and embodied by, societal divisions of labour and institutions, partly as a result of historical developments. Bourdieu (2000) uses the term *'scholastic epistemocentrism'* to describe the separation, asserted by scholastics, of theoretical knowledge from practical knowledge, generally privileging the former over the latter. In this context, Lave (1996) considers that the 'knowing-of-practice' is therefore seen as taking precedence over 'knowing-in-practice' with universities focussing on abstract knowledge and emphasising theory while decontextualising practical skills, a process which presents theory as an ideal to pursued. Again, the concept of theory is presented as being closely aligned to that of knowledge.

Corlett (2000) proposed that students perceive that university lecturers emphasise the ideal way of performing tasks, a view akin to Argyris and Schön's (1996) espoused theories, whereas those individuals situated in the practice arena are considered to be more 'realistically' focussed in their approach, adopting more pragmatic 'theories-in-use'. Where there was a discrepancy between the theory taught in the university and the actions that were expected to be undertaken in practice, Corlett found that students gave more credence to the practice perspective, citing that their university tutors were 'out-of-date' or 'out-of-touch' with practice. This finding raises the consideration that 'idealised' views of practice are not considered as ideal by students who encounter alternative approaches in the practice environment, the implication being that the theory 'preferred' by students is derived from practice, with practice continually evolving and, therefore, continually altering the associated, informal theory.

Being the preferred, ideologically 'most correct' theory does not necessarily mean that it is the most appropriate for practice, with Eraut (2003) considering that theories related to the ideology of a profession are particularly important, especially in occupations where there is a focus on personal interaction with service-users or clients, such as health-care. A potential challenge associated with theories-of-practice which are adapted to become ideologically attractive is that they may be impossible to implement, thereby failing to be seen as a workable theory-for-practice. A significant example of this is when the professionals concerned are encouraged to adopt practices that involve much greater levels of time and effort than their employing organisation can realistically support or finance, a situation linked to Corlett's (2000) findings of university educators being out-of-touch with practice. The result is that there

is a significant gap between the theories-of-practice constructed and taught by former practitioners, based on how they would *have liked* to have practised, and the activities performed by current practitioners. Whether or not this type of situation has been found to exist within paramedic education will be discussed in Chapter Six.

This position highlights one of the potential benefits of employing Paramedic Lecturer Practitioners who remain employed in a patient-facing clinical role whilst also working on the academic aspects of undergraduate programme delivery. This role had been prevalent in the development of paramedic programmes, particularly in the early years when there was a very small number of academic paramedics available to support the development of paramedic degrees, which were predominantly designed and delivered by nurse academics. As this situation has evolved over the years, the number of nurse academics has reduced significantly whilst the number of full-time paramedic academics has increased.

This continued development of an academic paramedic career pathway will likely result in a greater number of full-time Masters or Doctoral level lecturers leading the continued development of paramedic programmes. With the potential for an increased 'distance' between the practice role and the education role, it is possible that the distance between university taught theory and practice may be perceived by students to increase in future paramedic programmes. Conversely, the practice-based work of these new academics could feed in to creating experience-based, informal theories-for-practice which have closer links to the realities of practice. Such informal theories can then become 'formalised' by acceptance within the profession, alongside the required academic rigour of publishing such theory, ultimately resulting in the production of profession-specific-theories. Ensuring that such theories remain -for-practice, rather than -of-practice, is likely to make them more readily accepted by current practitioners (McWilliam, 1992).

2.2.3 Profession-specific theories

Eraut (2003) identifies a profession as being an applied field, rather than a discipline, which utilises theories from a range of formal disciplines, and applies them in its own profession-specific context, a view which aligns with Barrett's (1991) '*theory of or for nursing?*' In addition to these pre-existing, adopted theories, professions create their own theories derived from profession-specific academic and professional practices.

McCrae (2012) supports the view that theory is required to legitimise a profession by citing the fact that early nursing theorists in the 1950's struggled to achieve publication without the co-authorship of a 'real' professional in the form of a doctor.

The development and introduction of 'theories' for the sake of making a subject area appear more academically 'valid', has the potential to result in theories being presented which may not be relevant in the context to which they are being transferred. For example, nursing theories have generally been developed by nurses and applied to the nursing role, one in which the relationships between the nurse and the patient are developed over multiple contacts over extended periods of time. Transferring theories derived from such a relationship to the role of the paramedic, where encounters between paramedic and patient are generally much more brief, one-off and often time-critical, loses the context of the original theory and may not be as readily transferrable as first thought. Even within nursing, theories have come in and out of fashion, with debate surrounding the legitimacy of theories often based on the way in which they are presented, i.e. as 'models', 'grand theory' or 'conceptual frameworks' (Meleis, 2007), with Meleis arguing that such categorisation was both unnecessary and confusing.

A further role of theories is to help practitioners to understand, explain, and critique professional practices as well as being able to appreciate new thinking about the role of the profession, with the potential to propose new approaches to practice (McCrae, 2012). For a theory to be accepted by practitioners, it must have utility, be effective and align with the practitioner's own perceived goals. Challenges to the acceptance of theory by practitioners, potentially resulting in the perception of a theory-practice gap, include situations where multiple theories may be relevant to a given situation, the professional's ability to use the theory and a lack of understanding of the theoretical foundation of the theory by the practitioner (McCrae, 2012).

One form of theory which seeks to ensure that it is of use to the practitioner is that of 'practical theory' (Barge & Craig, 2009). Although writing in the field of communication research, the three approaches to practical theory presented by Barge and Craig (2009) are equally relevant to paramedic theory production. The first, 'mapping' undertakes to create a *"map of reality through scientific, interpretive, or critical methods that subsequently can be used to inform practice"* (p 59). The expectation of

informing practice goes to position this approach as producing theory-for-practice. The second approach, that of 'engaged reflection' is directly linked to paramedic practice and will be explored in Section 3.2.4. Barge and Craig consider that, when using engaged reflection; *"theory emerges from a systematic reflection…in terms of the kinds of problems, dilemmas, and sites that people engage in the conduct of their lives and how they manage them"* (p 59). The third approach is that of 'transformative practice', considered to be *"a useful resource for theorists and practitioners to help them make sense of situations and take action that is intended to improve those situations"* (p 59). This third approach to theory construction is likely to be undertaken by more experienced or clinically advanced paramedics.

There is a tendency for students to reject theory which they do not recognise as relevant to their situation (McWilliam, 1992), a very real possibility within paramedic education where Campeau (2008b) identified a distinct lack of paramedic-specific theories, particularly when compared to nursing theories, where over thirty-eight distinct theories were identified. Campeau highlighted the importance of developing profession-specific theory, considering that formal, context-based theories would provide more accurate and useful knowledge, citing Hass and Shaffir's (1977) view of professional knowledge being the bedrock of competence. An opposing view could be that, by producing such theories, the development of the profession is held back just as much as it is advanced, with theories being retained due to historic association rather than current usefulness (Thomas, 1997). It is the *purpose* of the theory that must be made apparent to the practitioner in order for it to be accepted, i.e. is it there to explain phenomena that occur, a theory-of-practice, or is it there to guide one's actions, a theory-for-practice.

Campeau (2008a) proposed the use of one model, the space-control theory of paramedic scene-management, as an example of the benefits of producing profession-specific theories. It was argued that, for paramedics to more fully establish their own unique identity, they need to demonstrate professional self-reflection, with formal occupational research representing an important method of doing so. Although a sound proposition, the development of paramedic-specific theory must be carefully considered in order to prevent an exacerbation of any theory-practice gap. A focus on presenting theories-for-practice would be one way of mitigating such a situation.

As one of the very few paramedic-specific theories, both of- and for-practice, Campeau's (2008a) theory seeks to apply a theoretical process in order to formalise the management of the emergency scene. Campeau considers that paramedics adapt their environment by controlling the activities that take place in the space immediately surrounding the patient. In Campeau's theory, the space (or environment) is interpreted broadly to include both human and physical (non-human) elements, and seeks to explain why and how paramedics are able to transform every-day, uncontrolled locations where emergencies suddenly occur, into settings that can be used to effectively deliver emergency patient care.

In this situation, the development of theory has clearly emerged from practice, with the theory being developed to explain actions undertaken in practice. The practitioners had developed their own informal theory-for-practice which was then 'formalised' by Campeau. If theory is considered to be the construction of ideas into a framework, a possible downside is that, once such a framework exists, it has the potential to place limits on the ongoing development of alternative theories (Thomas, 1997).

The recognition that such a situation requires the development of its own theory-for-practice supports the findings of this submission, presented in Chapters Five and Six, where the 'situational considerations' are seen to impact on the effective interplay between theory and practice. By considering the introduction of Campeau's model, or similar, into the development of paramedic Practice Educators, their ability to better understand how they manage the practice environment may better their ability to engage with students to enhance their learning in practice. In order for that development to take place, however, the theory must be accepted by the practitioners as being correct, appropriate and worthy.

One view of theory, that of it being a *"a set of principles on which the practice of an activity is based"* (Collins, 2017), can be represented by the output of such principles by way of the production of a policy, procedure or protocol. Although not necessarily a theory itself, the resultant theory-informed/theory-based procedure may be seen by the perpetrator of said procedure as being representative of 'theory'. When such a procedure is based on theory which is context or situationally specific, i.e. the optimal conditions in which such a procedure should be undertaken, the perception of a gap

between the theory-based process of undertaking the procedure and the practice-based application of the procedure may arise.

Views of profession-specific theory may, therefore, also include elements such as policies, procedures and protocols which dictate the actions expected to be undertaken in practice. The interpretation and adaption of such policies to fit the requirements of the practice environment can inform the evolution of an individual's personal professional theory.

2.2.4 Personal professional theory

Individual professionals can be considered to construct their own, unique theory, based on their experiences and their understanding and exploration of those experiences (Eraut, 2003). Having been built upon a broadly common, core curriculum, a high proportion of this theory will, initially, be shared amongst the wider professional group. As this existing theory is subsequently informed by personal experiences it becomes individualised in nature, distinguishing it from other forms of theory. A personal professional theory can, therefore, be considered to be a 'structured set of elements', for example: procedures, concepts, facts, examples, heuristics, beliefs and values (Pajares, 1992), along with hierarchical, causal or conditional relations between these elements (Toulmin, 1958).

Eraut (2003) considers that a personal theory is a personalised version of a published or existing theory, tuned to the context by the personal experience of its 'owner', with personal professional theory being an extension of this in the context of the individual's professional role. Professionals have been found to construct and internalise their own personal, profession-specific body of knowledge, based on the foundation of their vocational education and their subsequent, practice-based experience, which are used as a reference framework both for acquiring and interpreting new knowledge in order to direct their professional behaviour (Schaap, *et al.,* 2009). In addition to different kinds of skills and knowledge acquired through formal training and practical experience, this framework also consists of personal convictions, and the norms and values of the profession. Schaap *et al.* (2009) consider personal professional theories to consist of declarative and procedural knowledge; to be stored in the long-term memory; to refer to compiled knowledge; to be built upon different types of knowledge;

and to be able to be specified and applied in different situations (van den Bogaart *et al.,* 2016).

When assessing the quality of an individual's personal professional theory, Schaap *et al.* (2011) proposed four features that should be considered:

- *concreteness*, where an element is considered concrete when it refers to knowledge that can be used in action and, in particular, when the individual knows how to act upon it;
- *specificity*, which refers to knowledge applied in a profession, or group of related professions, which distinguishes that profession from other professions;
- *complexity*, which refers to aspects of professional actions such as consequences, influences, order, causes, exceptions and conditions (Trochim & Cabrera, 2005) and can be expressed by means of examples and clarifications or by means of relations with other elements (Bakker & Derry, 2011); and
- *richness* which expresses the diversity of domains of knowledge within the theory.

In each of the four features listed above, the link between personal professional theory and concepts of knowledge is one which is intrinsic. As such, personal professional knowledge, as informed by personal professional theory, will be explored further in Section 2.4.3.

2.2.5 Theory: a conceptual framework

The term 'theory' has been shown to be a very broad concept which has multiple meanings, many of which conflict with each other and many of which use the terms 'practice' and 'knowledge' to position themselves.

To gain an overall perspective of the concept of 'theory', the following conceptual framework has been constructed. Figure 2.1 (page 43) brings together the key descriptions and perspectives of 'theory', as previously presented, and overlays them to demonstrate how the multiple perspectives can be considered to be representative of components of a greater whole. The framework does not aim to favour one perspective over another, rather it seeks to demonstrate that the majority of views of

theory can be considered to fit within an overarching structure with elements of cross-over as well as elements of isolation and, potentially, conflicting perspectives.

Not every concept or consideration of 'theory' has been included as to do so would render the framework so unwieldy as to be detrimental to understanding the concepts considered to be core to this work. Those which have been presented will inform later discussion of the theory-practice relationship, as well as interrogation of the findings of the research, hence their inclusion.

The framework is designed to be read as a 'top-to-bottom' evolution of the concepts of theory as encountered and experienced by the developing paramedic student. The initial experiences of theory are those based on structured thought, which are subsequently organised into approaches which are taught at university, using a range of theoretical approaches, often promoting the theory as the ideal approach. These ideal approaches later influence the development of theories-in-use and the accompanying personal professional theory which evolves up to and beyond the point of graduation and registration as a paramedic.

The framework has its foundation in the position of Rajagopalan (1998) where theory can be viewed as *'all structured thought'*, an all-encompassing perspective which can be considered to include all the other proposed viewpoints. Within Rajagopalan's first level sits the concept of *'theory as a convenience of organisation'* (Meleis, 2007; Mouly, 1978), from which follows the proposition that theory is *'that which is taught at university'* (Argyris & Schön, 1996; Baxter, 2007; Corlett, 2000; Elkan & Robinson, 1993; Fealy, 1999; Lathlean, 1992; Michau *et al.*, 2009; Polit & Hungler, 1987; Rolfe, 1996).

'Technocratic' (Kerlinger, 1970; Wortham, 2010), *'explanatory'* (Kerlinger, 1970) and *'guiding'* (Baxter, 2007; O'Connor, 2017) views of theory are considered to be dominant components of *'theory as that which is taught at university',* whilst necessarily informing *'personal professional theory'* (Eraut, 2003; Pajares, 1992; Toulmin, 1958), hence the overlap. *'Personal professional theory'* and *'theory as a convenience of organisation'* have not been overlapped due to the individual nature of personal professional theory, a concept where the convenience of organisation proposed by Mouly (1978) and Meleis (2007) is less apparent and the nature of theory is more iterative.

Figure 2.1 Theory- A Conceptual Framework

THEORY

Theory as all structured thought (Rajagopalan, 1998)

Theory as a convenience of organisation (Mouly, 1978; Meleis, 2007)

Theory as that which is taught at university
(Argyris and Schön, 1996; Baxter, 2007; Corlett, 2000; Elkan and Robinson, 1993; Fealy, 1999; Lathlean, 1992; Michau, *et al.*, 2009; Polit and Hungler, 1987; Rolfe, 1996)

| Technocratic theory (Kerlinger, 1970; Wortham, 2010) | Explanatory theory (Kerlinger, 1970) | Guiding theory (O'Connor, 2017; Baxter, 2007) |

Theory as an ideal
(Argyris and Schön, 1996; Bourdieu, 2000; Corlett, 2000; Eraut, 2003; Lave, 1996)

Theory-of-practice (Barge & Craig, 2009; Barrett, 1991; McIntyre & Murphy, 2016; Watson, 1995)

Theory as a barrier (Thomas, 1997)

Theory-for-practice (Barge & Craig, 2009; Barrett, 1991; McIntyre & Murphy, 2016; Rae & Carswell, 2001)

Theories-in-use
(Argyris and Schön, 1996; Barrett, 1991; van den Bogaart *et al.*, 2016; Bourdieu, 2000; Eraut, 2003; Lave, 1996; Schaap, *et al.*, 2009)

Personal Professional Theory
(Eraut, 2003; Pajares, 1992; Toulmin, 1958)

The concept of *'theory as an ideal'* (Bourdieu, 2000; Corlett, 2000; Eraut, 2003; Lave, 1996) is considered in the conceptual framework to be prevalent within university teaching whilst encompassing aspects of each technocratic, explanatory and guiding theory. The concept of theory as an ideal does not overlap with personal professional theory because it is considered that personal professional theory adopts a more pragmatic, experience-based position.

As represents an evidence-based examination of practice *'theory-of-practice'* (Barge & Craig, 2009; Barrett, 1991; McIntyre & Murphy, 2016; Watson, 1995) spans both *'technocratic'* and *'explanatory theory'*, sitting within the broader representation of *'theory as that which is taught at university'*. *'Theory-for-practice'* (Barge & Craig, 2009; Barrett, 1991; McIntyre & Murphy, 2016; Rae & Carswell, 2001) also sits within the broader representation of *'theory as that which is taught at university'*, but draws from both *'explanatory theory'* and *'guiding theory'*, as well as being nearer to *'theories-in-use'* and *'personal professional theory'*, demonstrating its greater applicability to undertaking practice than *'theory-of-practice'*.

The proposition made by Thomas (1997), that theory can be considered to be a *'barrier'* to the continued development of professions, is presented as sitting between the concepts of *'theory-of-practice'* and *'theory-for-practice'*, thereby separating the concepts of *'theory as an ideal'* and *'theories in use'* (Argyris & Schön, 1996; Barrett, 1991; van den Bogaart *et al.,* 2016; Bourdieu, 2000; Eraut, 2003; Lave, 1996; Schaap, *et al.,* 2009). *'Theory as a barrier'* simultaneously spans the concepts of *'technocratic'*, *'explanatory'* and *'guiding theory'*. This placement is based on where potential barriers may occur, i.e. between the *'ideal'* and the *'theories in-use'*.

'Theories-in-use' spans both *'theory as that which is taught at university'* and *'personal professional theory'*, which is also influenced by *'technocratic'*, *'explanatory'* and *'guiding theory'*. This is representative of the concept of utilising theories in both the theoretical and practice settings.

The concept of theory as a barrier may be experienced, and may influence perspectives of theory itself; however, as this aspect is directly related to the experience of practice, it will be explored when relationships between theory and practice are considered in Chapter Three.

The next section will explore the meaning of 'practice', referring back to the concepts of theory discussed in this Section and forward to the various concepts of knowledge which will be presented in Section 2.4, prior to the theory-practice relationship being examined in Chapter Three.

2.3 Practice

2.3.1 Concepts of practice

As with theory, there is also a lack of consensus regarding the definition of the term 'practice', both in general and specifically in relation to paramedic education. As with Corlett's (2000) consideration of theory, the definition of practice will vary depending on who is being asked; however, the range of such definitions appears to be narrower and less contentious when compared to theory.

Sellman (2010) identifies practice simply as being *"just about any activity with which human beings engage" (p85).* Merz and Knorr-Cetina (1997) consider the term practice to refer to a sequence of patterned actions that are typical of a profession, with Eraut (2003) arguing that there are two types of practice: the observable, socially constructed and approved practice (possibly derived from an evidence-base), and the only partly observable, only partly describable experience-based practice of the performer. The first of Eraut's types of practice could be considered as an observable performance to be replicated and the second as the result of experientially acquired understandings and capabilities, which can be considered to be predominantly tacit in nature. When a student considers an aspect of practice purely as an observable performance, they may try to replicate it without necessarily considering the wider situational context upon which the original perpetrator undertook that practice, potentially failing to engage with the theory of the practice and, subsequently, impacting on their developing personal professional knowledge (Section 2.4.3).

Whether such a lack of engagement with the associated theory presents any kind of problem is another matter. Benner (1982), when describing the route from novice to expert, suggested that nurses could gain knowledge and skills whilst undertaking practice without ever learning the associated theory. Such a position may be related to the apprenticeship model of education where 'on-the-job' learning replaces formally taught theory. Knowledge will be specifically considered in Section 2.4.

Eraut (2003) further discusses different meanings of practice within health-care;

- the holistic meaning of practice, e.g. the practice of medicine,
- the activity-based meaning, e.g. the practice of undertaking a specific physical assessment or intervention,
- condition-based meanings, e.g. the practice of diagnosing and treating a specified medical condition.

A paramedic undertaking the management of a patient could be considered to be engaging in all three of these aspects of practice; they may be following evidence-based clinical guidelines in order to diagnose and treat a particular clinical presentation, a condition-based example, and they may be required to place an intravenous cannula in the patient, an example of activity-based practice. By combining these actions with the ethos and approach of a registered professional, they can be considered to be undertaking holistic, paramedic practice. Each of these aspects of practice could be reasonably expected to have its own, associated theory, both formal, accumulated through research, and informal, derived from undertaking the practice itself.

Two problems identified by Eraut (2003) in respect of the representation of practice are, firstly, how practice is defined and represented and, secondly, how the understandings and capabilities required by practitioners to perform that practice are represented. Such an understanding is extremely challenging to quantify and could vary to a significant extent between individuals as the way in which paramedics work within their environment, i.e. independently and often in isolation, would result in consensus being difficult to ascertain. One way of better quantifying practice is to seek to promote and undertake practice which has been shown to work, i.e. evidence-based or evidence-informed practice.

2.3.2 Evidence-based practice

Evidence-based medicine, from which the concept of evidence-based practice is derived, is an approach popularised by Weinstein and Fineberg (1980) which incorporates research, policy and practitioners' strands (Eraut, 2000). In relation to evidence-based practice, the term practice is normally condition-based, being defined as an explicit set or sequence of actions that can be replicated by any practitioner with the requisite competence (Eraut, 2003). This definition differs from the holistic

approach in that it focuses on a key set of assessments and interventions which can be applied equally to all cases of the same type. As such, evidence-based practice can be described as a theory-of-practice, with the inherent danger of the focus moving away from holistic practice and toward a focus on what are purely observable clinical elements. One possible result is that the more interpersonal, humanistic elements of holistic practice, such as compassion and caring, may be lost.

In order to undertake effective practice, paramedics need to be able to interpret research-based evidence as well as having the competence to perform the individual practices judged appropriate for each individual patient situation encountered (HCPC, 2014). Upton (1999) considered how the existence of a theory-practice gap would impact on the implementation of evidence-based nursing, concluding that there will always be a gap, and that it is how the gap is managed that is important. The paramedic profession has significantly increased its clinical evidence-base in recent years, with the drive tending to come as much from the practice environment as from academic researchers.

The practice-based 'Paramedic2' trial (Nolan, 2015) is an example of a previously generally accepted theory being tested in the context of paramedic practice. The trial focusses on the use of adrenaline in resuscitation, a theory that was proposed following drug trials undertaken in the 1960's involving animals. The theory derived from these experiments was 'taken as read' and adopted throughout the world as the correct way to treat a patient in cardiac arrest. Many practitioners have reported different outcomes in practice related to the use of adrenaline in resuscitation, resulting in the call for a randomised controlled study to close the perceived gap between the theory and the practice of this intervention, specific to the paramedic environment. This type of study demonstrates that the practice environment feeds into the theoretical development of the profession, rather than purely theoretical developments dictating practice, thereby influencing the theory-practice relationship.

The initial steps towards undertaking evidence-based practice, as with most forms of practice, often take place as simulation.

2.3.3 Skills and simulation: between theory and practice

The College of Paramedics (CoP), when discussing practice, focuses on the environment rather than the undertaking of paramedic practice itself. The College (2017a) appears to consider practice to be any environment that involves patient contact. However, anecdotal evidence gained through undertaking educational approval visits indicates that some universities consider that *any* interaction between students and the ambulance service constitutes practice, whether that contact is a skills workshop or a manual handling session. This position often appears to be adopted to allow students to accrue additional 'practice' hours in order to meet the requirements of their programme, rather than any in-depth consideration of the notion of practice as an entity. This raises the consideration that 'practice' does not necessarily have to be confined to what is generally considered to be the practice environment.

Approaches to supporting the teaching of 'skills' have been proposed by several authors, including Studdy *et al.* (1994b), whose model is based on Kolb's (1984) learning cycle, and Peyton (1998), whose model follows that of Studdy *et al.* In Studdy *et al.'s* model, there is a focus on demonstrating the 'skill' as part of a wider situation, either real or simulated, in order that the context of the skill is embedded from the outset rather than it being perceived as an abstract, stand-alone procedure, a stage which is noticeably absent from Peyton's model. This single, fundamental difference in approaches to teaching skills has the potential to isolate the formally taught application of the skill from the application of the same activity-based practice within either the predominantly theory-based setting of the university or predominantly practice-based setting of clinical placement.

Teaching a student to follow a procedural set of staged tasks to complete an overall task, i.e. to undertake the activity-based practice representative of a 'skill', relies on theory to construct the procedure. Whether or not the resultant procedure is itself seen as theory or practice will be explored in the findings of this submission.

The use of simulated casualty scenarios within the education institution replicates the practice environment and allows students to undertake practice, albeit in a non-patient contact environment that is traditionally considered to be a theory-based setting.

The significant impact of simulation as a learning method has been explored in several studies (Ballangrud *et al.*, 2014; Bultas *et al.*, 2014; Lucas, 2008; Williams *et al.* 2009). These collectively suggest that developing simulated scenarios in a relatively close to reality situation allows participants to develop problem solving skills and apply patient management strategies whilst remaining safe themselves, as well as protecting the public (Hudgins, 2017). Scenarios can be managed and manipulated to ensure that specific learning outcomes are addressed which can then be transferred to real-life situations once the student has entered practice. By having clear objectives and learning outcomes associated with each scenario, the student can experience key learning episodes and begin to develop their own repertoire of paradigm cases (Boyle *et al.,* 2007).

Simulation is the closest that some student paramedics will get to particular activity-based or condition-based practice prior to their registration as a paramedic, with the first time that they encounter the reality being in a situation where they have clinical primacy and are required to undertake the practice with no 'real' experience in the field. As such, simulation can be considered to be a 'border' area where the lines between theory and practice are significantly blurred.

The complexity of simulation required to be undertaken by paramedics in order to address the challenges of real-life situations has been explored by Alinier (2007, 2008, 2009). The environment, the equipment and the psychological status of the participants were found to be key factors required to 'suspend the disbelief' of participants in order to make simulation as close to real life as possible. Alinier (2007) proposed a framework, based on that of Miller (1990), which will itself be considered in Section 3.2.3, which indicates the level of 'fidelity' required for simulation to be effective. Alinier's framework (Figure 2.2, page 50) links different levels of simulation against levels of competence assessment, moving from theory, in the lower half, to practice, in the upper half.

Alinier's framework demonstrates the considerations of simulation as being representative of both theory and practice. Level 0 simulation involves the use of only written or visual aids, Level 1 the use of passive anatomical models, and Level 2 virtual reality and screen-based resources. These levels of simulation are predominantly considered to represent 'theory', with Levels 3 to 5 representative of 'practice'. Level 3 simulation involves standardised and real patients, with Levels 4 and 5 involving

high-fidelity simulation manikins. The reason that 'real' patients cannot be used for Levels 4 or 5 is due to their inability to present with the required clinical presentations on demand, for example altered blood pressure, temperature or breath sounds, and the fact that invasive interventions cannot be carried out on them; all aspects which can be readily undertaken on a high-fidelity simulation manikin. This situation presents a considerable challenge for students in that the more complex the simulated patient presentation, the less like a 'real-life' situation it will appear.

Figure 2.2   Framework for acquisition of experience and skills through simulation (Alinier, 2007, p.246)
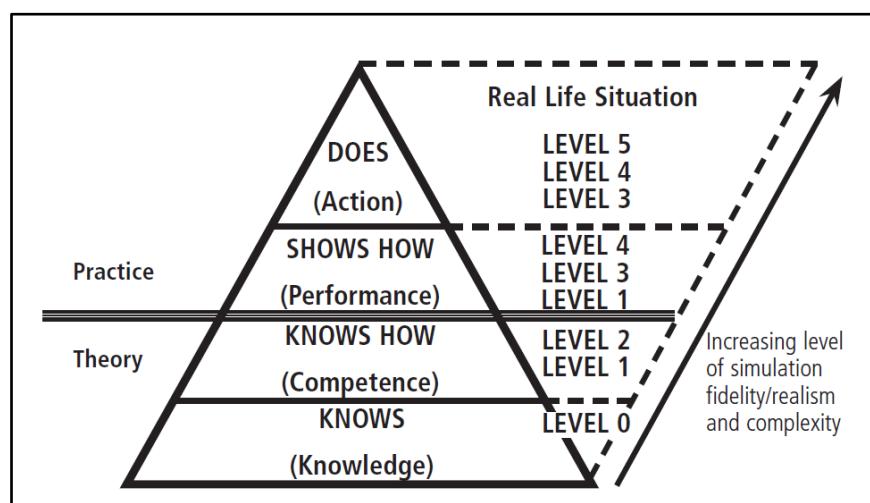
There are other aspects of paramedic practice which can be considered to be on the border of both theory and practice, particularly when the two are presented as being opposites of each other. One issue with the interpretation of theory as being the opposite of practice, and vice versa, is that one cannot clearly define one without reference to the other. When theory is described as the opposite of practice, it is unclear what that means to the student or the Practice Educator. When theory is described as a cognitive, i.e. thinking, process, it cannot be separated from practice as there is generally thinking involved when undertaking practice, albeit sometimes 'unconscious' thinking. Such unconscious thinking can be considered to represent tacit knowledge and will be further explored in Section 2.4.

2.3.4 Practice: a conceptual framework

Like the term 'theory', 'practice' has also been shown to be a broad concept which has multiple meanings. To gain an overall perspective of the concept of 'practice', a

conceptual framework has been constructed following the approach previously presented for theory (Figure 2.3, page 52).

As with the theory conceptual framework, that for 'practice' has as its basis the broadest possible concept of practice, that of being *'any activity'* (Sellman, 2010; Wortham, 2010). Within this broad concept sits the notion of practice as being the *'observable'* (Eraut, 2003), i.e. practice as seen by an outside observer, within which sits the *'performed practice'* (Eraut, 2003) as undertaken by the performer themselves.

'Situated practice' (Ford, 2008; Lave & Wenger, 1991; Malthouse *et al.*, 2015) then sits alongside the comparatively smaller area of '*practice as simulation*' (Studdy, 1994a) with a small degree of overlap. The size difference between these two areas is representative of the proportionate amount of time spent by student paramedics in situated practice, i.e. the 'real-life' environment, when compared to simulation. The overlap is representative of high-fidelity simulation exercises, often utilising actors or expert patients, where the simulation is, to all intents and purposes, considered by the student to be 'situated'.

Within the concept of situated practice, but not overlapping with simulation, sits *'holistic practice'* (Eraut, 2003). As this concept is considered to be the overall practice of caring for a patient, it was considered that it would not be appropriate to encompass simulation within its coverage. In contrast, Eraut's (2003) notions of *'condition-based practice'* and *'activity-based practice'* overlap both situated practice and simulation as aspects of performed practice, which can be undertaken in simulation. Similarly, Merz and Knorr-Cetina's (1997) view of practice as *'a sequence of patterned actions'* and the concept of *'evidence-based practice'* (Eraut, 2003; Weinstein & Fineburg, 1980; Upton, 1999) span both situated practice and simulation elements.

The concept of *'professional practice'* (Eraut, 2003; Freidson, 2001; HCPC, 2014; Leinhardt *et al.*, 1995; Merz & Knorr-Cetina, 1997) is an overarching theme which supports all other definitions and considerations, it therefore sits beneath the other elements of the framework to demonstrate its overall, underpinning importance.

Figure 2.3 Practice- A Conceptual Framework

PRACTICE

Practice as any activity
(Sellman, 2010; Wortham, 2010)

Observable Practice
(Eraut, 2003)

Performed Practice
(Eraut, 2003)

Situated Practice
(Ford, 2008; Lave & Wenger, 1991; Malthouse, Watts and Roffey-Barentsen, 2015)

Practice as simulation
(Studdy, 1994)

Holistic Practice
(Eraut, 2003)

Condition-based Practice
(Eraut, 2003)

Activity-based Practice
(Eraut, 2003)

Practice as a sequence of patterned actions
(Merz & Knorr-Cetina, 1997)

Evidence-based Practice
(Eraut, 2003; Upton, 1999; Nolan, 2015)

Professional Practice
(Eraut, 2003; Friedson, 2001; HCPC, 2016; Leinhardt *et al.*, 1995; Merz & Knorr-Cetina, 1997)

The previously cited differences between the concepts of theory and practice can be too simplistic when considering the relationship between the two elements. The most basic approach to the two paradigms, where they are presented as the classroom of theory versus the real world of practice, does little to establish the much more complex relationship between the thinking and doing aspects of knowledge acquisition, development and the undertaking of practice. The often-presented division between theory and practice will, in Chapter Three, be challenged as being an artificial representation, with Section 3.2.4 considering how the use of a reflective approach can be instrumental in shaping perceptions of the theory-practice relationship. Prior to that, Section 2.4 will explore the links between theory, practice and knowledge.

2.4 Knowledge and its relationship to theory and practice

As discussed previously (Section 1.1.2), one key purpose of exploring student paramedics' perceptions of the relationship between theory and practice is to better understand how student paramedics view their learning in practice and how they acquire the requisite personal professional knowledge to practise as registered paramedics. An appreciation of the processes of learning and the nature of knowledge is therefore required to fully contextualise the theory-practice relationship in paramedic education.

Thomas (1997) presents a continuum on which the notions of theory sit in relation to practice, with theory in its 'purest' form, where it is considered an elegant description of knowledge, sitting to the far left and theory as an *'idea of how an aspect of the world works'* sitting towards the centre, nearer to practice (Figure 2.4, page 54). Although presented by Thomas as a challenge to the use of the term 'theory' as a universally applied, unhelpfully loose, term, the continuum does demonstrate that the relationship between knowledge and theory, of whatever type or definition, is one that is acknowledged as existing, even when the context of theory is not clearly articulated and the use of the term itself is being questioned.

When discussing the right-hand side of the continuum, Thomas uses descriptions of views of knowledge, i.e. practical knowledge, craft knowledge, and apprenticeship as the continuum moves toward practice. Therefore, this singular model, when viewed from left to right, can be viewed as one representation of the position of knowledge in

relation to theory and practice, but one where the nature of knowledge differs at each pole of the continuum. This continuum will be further considered in Section 3.2.1.

Figure 2.4 The Theory-Practice Continuum (Thomas, 1997, p83)

Theory as idea
or hypothesis

Theory as formally
expressed statements   Practice
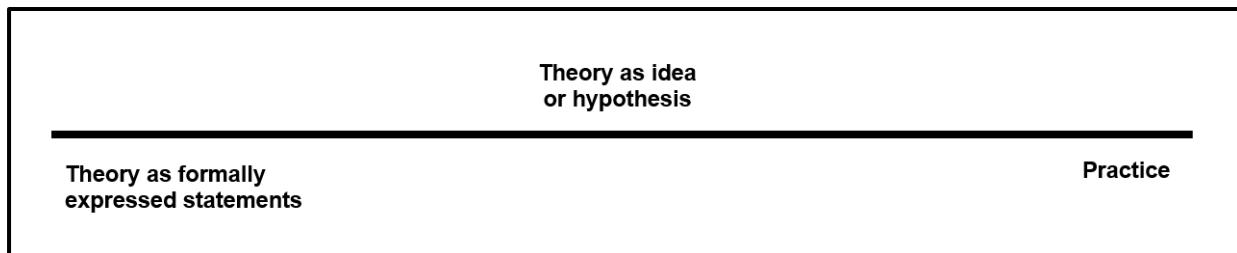
Thomas also presents a broader, 'plural' approach to representing theory, one which considers broadening bodies of knowledge (Figure 2.5, below), with unitary and formal theories being placed in the top left and those theories with multiple, less formal considerations, which are based in practice, being placed in the bottom right. Again, Thomas is critiquing the apparent overuse, and under-contextualisation, of the term 'theory' when used to describe a wide range of very different concepts, hence the breadth of the frame.

Figure 2.5 The Theory-Practice Frame (Thomas, 1997, p85)

UNITARY

● CONSTRUCT
THEORY   ●PERSONAL OR PRACTICAL
THEORY

● ATTRIBUTION
THEORY

THEORY   PRACTICE

● CRAFT
KNOWLEDGE

●
LEARNING
THEORY

PLURAL
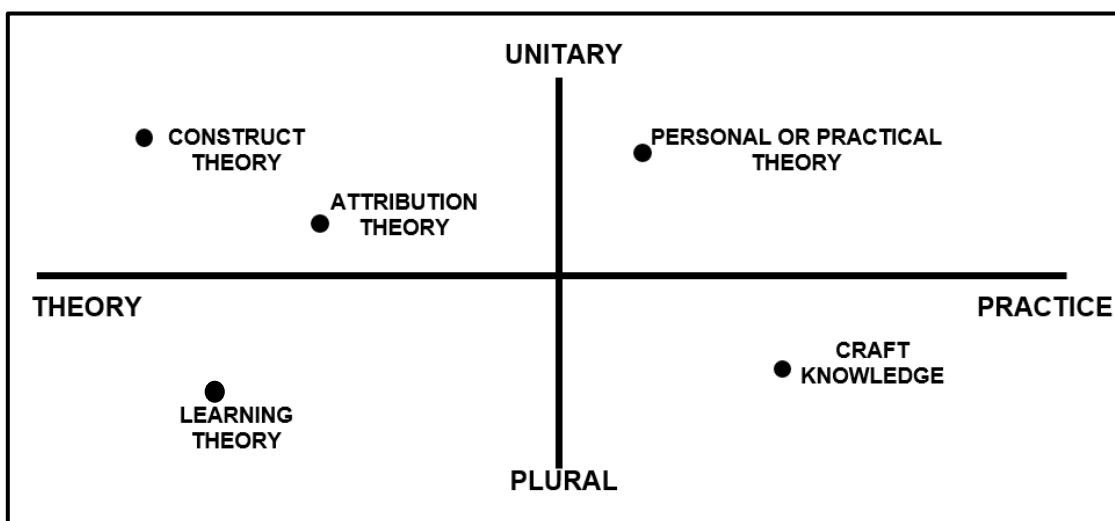
Thomas's continua demonstrate the existence of multiple possible relationships between the concepts of theory, practice and knowledge which will be explored in the following sections.

2.4.1 Concepts of knowledge

From certain educational perspectives, 'knowledge' can be viewed as being fluid, generative and performative as opposed to the historical view of knowledge as being the 'product of education' (Cranefield & Yoong, 2009; Gilbert, 2005; Scardamalia & Bereiter, 2010). A dichotomy between theoretical knowledge, characterised by paradigmatic modes of thought, and practical knowledge, characterised by narrative modes of thought has been discussed by several writers (Bruner, 1985; Grossman, 1995; Munby *et al.*, 2001). These two considerations of knowledge can be directly applied to theory; theoretical knowledge, and to practice; practical knowledge. There is rarely, however, discussion related to any perceived 'gaps' between these two areas, with knowledge appearing to be considered as the 'melting pot' of theory and practice.

Technocratic/technicist education views knowledge as existing in the world, apart from, or outside of, the person who knows it (Carr & Skinner, 2009). Post-technocratic education, however, views knowledge as being constructed by the learner, rather than discovered (Chinn & Kramer, 1991). From this perspective, the importance of a student knowing how to learn is considerably greater than their being *taught* information, or theories (Boud *et al.*, 1985), a view that aligns with Benner's (1982) where the teaching of theory is not a prerequisite for the development of expertise.

Among the many, varied, definitions of knowledge, Eraut (2000) identifies two parallel definitions; *'codified knowledge'*, which is explicit by definition, and *'personal knowledge'*, which may be either explicit or tacit. Codified knowledge is described as being subject to quality control by editors, peer review and debate and as being given status by incorporation into educational programmes, examinations and courses. Codified knowledge is combined together with procedural and process knowledge, experiential knowledge and impressions in episodic memory to result in personal knowledge, defined by Eraut (2000) as the cognitive resource which a person brings to a situation enabling them to think and perform.

Leinhardt *et al.'s* (1995) contention that knowledge gained through undertaking practice tends to be procedural, specific and pragmatic, as opposed to knowledge learned in the classroom which is more declarative, abstract and conceptual, would support the parallel definitions of Eraut.

By exploring these types of knowledge, it could be argued that the knowledge gained from 'theory' constitutes codified knowledge, whereas knowledge gained from experience in the practice environment is more readily identified as personal knowledge. When existing codified or personal knowledge is used in a new context, learning occurs with the creation of new personal knowledge. Eraut (2003) also considers how the process by which codified knowledge is acquired impacts on the use of that knowledge in different contexts, building on an individual's personal knowledge and developing what is often considered 'tacit' knowledge. This key aspect of knowledge acquisition will be discussed in greater depth in Section 2.4.2.

Freidson (2001) described the professional's knowledge as being *'discretionary specialisation'* as opposed to the semi-skilled labourer's knowledge being *'mechanical specialisation'.* For mechanical specialisation, the individual must possess everyday knowledge in order to undertake and complete a task, whereas the professional would need specialist knowledge to be able to discriminate in their application of their skill. A comparison could be drawn between these two approaches to knowledge and the development of clinical guidelines from treatment protocols. There is limited specialist knowledge required to follow a step-by-step treatment protocol, whereas the application of a clinical guideline would require more specialist knowledge to know in which way the guideline should be implemented and where deviation can take place. From these descriptions, it may be the case that student paramedics see themselves as undertaking practice with a view to completing sets of skills, a mechanical specialisation, rather than the demonstration of the discretionary specialisation of the professional described by Freidson (2001).

Student paramedics undertake modules, or sessions within modules, entitled 'Paramedic Skills Development', or similar, at various stages within their programmes, where the assessment focus is on intervention-based psychomotor replication. Freidson (2001) describes a 'skill' as the ability to accomplish a task, with a skill being considered as a kind of knowledge which is facilitative in nature. In this respect, the application of what are considered basic skills also represent demonstrations of knowledge, a term which, as discussed previously, directly correlates to definitions of theory. Therefore, it could be argued, counterintuitively, that the undertaking of skills is, in fact, as much of a theory task as a practice one. This is clearly at odds with the generally accepted meaning of the term 'skill' in the paramedic domain where it is used

to describe specific patient interventions, such as cannulation and intubation, and goes to demonstrate that the complexities of the relationships between theory, knowledge and practice cannot be easily deconstructed into distinct component parts.

Lave (1996) presents a variety of types of 'knowing', with knowing-of-practice and knowing-in-practice being two key distinctions. Roth (2010) further considers 'knowing' when asserting that knowing-in-practice requires not only 'knowing-that' and 'knowing-how' but also 'knowing-what-for' and 'knowing-in-order-to.' Roth considers Cole and Engeström's (1993) cultural-historical activity theory (CHAT) to suggest that there are as many forms of consciousness as there are society-constituting human activities, further compounding the range of 'knowing' and 'knowledge' as concepts.

'Knowing' is considered by Sibson and Mursell (2010) in their proposed example of how different learning domains, as described by Bloom (1956), could be presented in order to conceptualise the theory-practice relationship in paramedic education. Using the example in Figure 2.6, below, it could be argued that the cognitive domain is addressed in lectures at university, with the psychomotor domain being developed during practical skills sessions in the laboratory before being developed further in specific practice placement environments. The affective domain could be utilised when undertaking either clinical simulation or the treatment of an actual patient.

Figure 2.6 Bloom's taxonomy: clinical examples (Sibson & Mursell, 2010)

Domain	Clinical example
Cognitive	Knowing the pharmacology of a drug action, e.g. adrenaline is a sympathomimetic stimulating alpha and beta-adrenergic receptors resulting in enhanced cerebral and myocardial blood flow
Affective	Applying relevant JRCALC adrenaline guidelines to individual patient
Psychomotor	Skill in administrating the adrenaline via intravenous and/or endotracheal injection.

A theory-practice gap may present itself when a student is able to demonstrate both the attributes of the psychomotor domain and the affective domain when dealing with a patient, but they do not integrate or consider the underpinning theory, the 'knowing', of the cognitive domain. A supervising paramedic may be in the same situation,

whereby they can identify the treatment required by a patient and they can administer that treatment, but they do not have a full understanding of the associated theory or the problem-solving approach that they have undertaken to reach their decision. Without this insight, it could be argued that the supervisor is not able to adequately facilitate the student's development of knowledge, a proposition made by Baxter (2007) which will be discussed later.

Benner (2001) discusses the above type of situation as being the difference between 'knowing that' and 'knowing how.' The differences discussed by Benner were first proposed by Polanyi (1958) and Kuhn (1970) and could be presented in the paramedic situation as being the experienced paramedic who approaches a mental health patient and knows *how* to adapt their communication methods appropriately, but may not be able to articulate their knowing *that* they made those adaptations for any theoretical reason. A student paramedic in the same situation may know *that* they need to adopt an alternative style of communication, but they may not have the know-*how* to do so.

The views on the *requirement* to know, or have a full understanding of, the associated theory of a situation are varied and dependant on one's situation. For example, a student paramedic who has an upcoming examination or assessment will have a greater dependency on knowing the theory that supports their knowledge, whereas the experienced paramedic who relies on their 'know-how' to do their job will be less focussed on the formal theory which informs their role. In this respect, even where a gap in the theory-practice relationship can be seen to exist, any impact on the performance of practice remains less clear.

The recent move of paramedic to a graduate profession has implications for the relationship between theory-based knowledge and subsequent levels of practice undertaken. The College of Paramedics' curriculum framework (2014) indicates that advanced clinical, as well as educational and managerial roles, should be underpinned by academic qualifications at identified levels, e.g. Post Graduate Diploma for specialist paramedics and Masters level degrees for advanced paramedics (Figure 2.7, page 59). The move to formalise and standardise the academic education levels required to undertake these roles is one that has allowed the legislation changes surrounding paramedic prescribing announced in 2018 (HCPC, 2018). Previous attempts to pass this legislation failed, in part, due to the lack of clarity around exactly

what level of theoretical understanding a paramedic at any point in their career pathway would be expected to have attained.

Figure 2.7 The College of Paramedics Curriculum Framework (2014)

© College of Paramedics, 2014
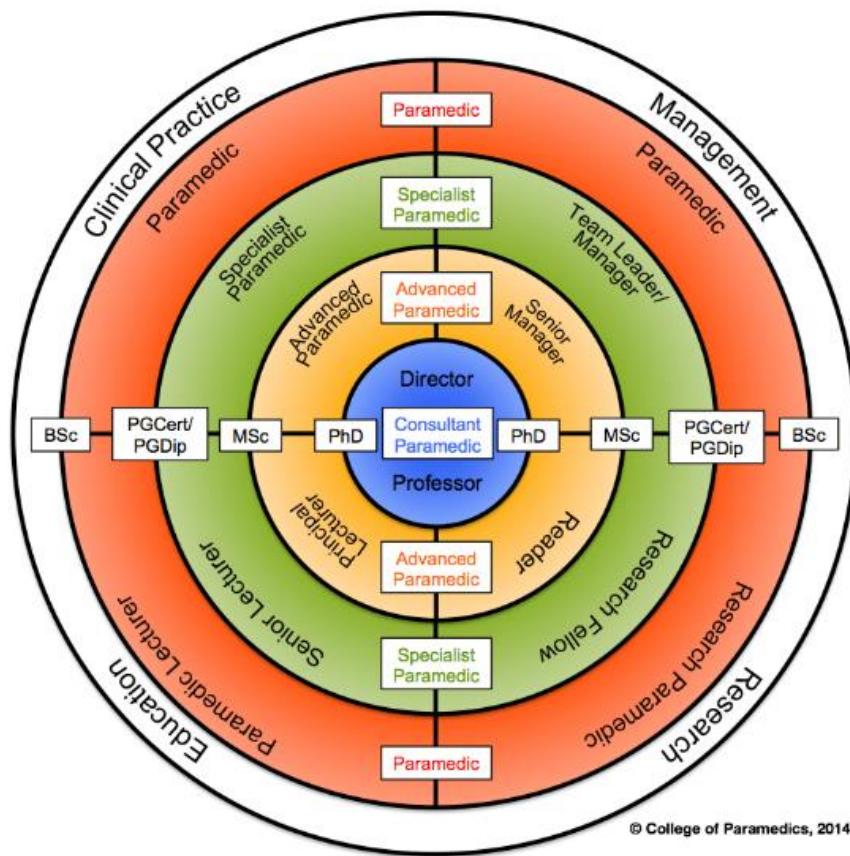
Linking the theoretical levels associated with degree, PGDip and Masters awards to the cognitive requirements of advanced practice roles has clearly sign-posted the importance of sound theoretical underpinning in the continued evolution of the paramedic as a professional. Alongside such theoretical considerations sit the practice-based, experiential development undertaken in the progression towards becoming proficient or expert in one's field, development which includes the evolution of tacit knowledge.

2.4.2 Tacit knowledge

Tacit knowledge, sometimes colloquially referred to as 'gut feeling' or 'professional instinct', is defined by Polanyi (1967, p4) as *"that which we know but cannot tell".* It is a 'hidden' form of knowledge, considered by Eraut (2003) to appear in three different forms: 'situational understanding', 'intuitive decision-making' and 'routine procedures'. Spender (1995) suggests that tacit knowledge is that which has not yet been

abstracted from practice, whereas Molander (1992) contends that all knowledge has at least some tacit aspect, and no knowledge can be wholly tacit.

Biswas (2015) presents an account which demonstrates that tacit knowledge plays a crucial role in professional clinical decision making, where professional expertise is considered to be more than simply scientific knowledge or technical rationality (Schön, 1987). Technical knowledge, gained from evidenced-based medicine, is combined with the intuition associated with tacit knowledge in a *"symbiotic relationship"* (Biswas, 2015, p.309) where the individual practitioner's expertise is essential in utilising the available technical knowledge.

Where the use of tacit knowledge/understanding is prevalent in a role, it can be proposed that undertaking the role becomes an 'art' (Schön, 1987). Peplau (1988) strongly argued that nursing is both an art and a science, this perspective being based on the discipline's reliance on the qualities of communication and interaction which were often based on intuition, empathy and experience. Schön (1987) supports this position, arguing that there is a reluctance to acknowledge the artistry of a profession which is rooted in professions moving into universities. The paramedic also relies very heavily on communication and interaction when dealing with patients; however, the degree to which these interactions rely on intuition, empathy and experience is not clear and will require further exploration outside of this submission.

A high proportion of the paramedic syllabus has a scientific, clinical background, with the development of paramedic theories of intervention in recent years being heavily focussed on evidence-based practice (Willis, 2009). Such evidence tends to be garnered from quantitative studies or trials which do not generally consider the qualitative aspects, or 'human factors' of the interventions proposed. Paramedic educational programmes do now include social sciences in their curricula; however, the 'art' of the paramedic is something that could be considered as being developed only in the practice environment where the student has first-hand experience of undertaking the tacit learning described by Lave and Wenger (1991) or the implicit learning discussed by Eraut (2003), potentially resulting in Biswas' (2015) view of a symbiotic relationship.

Eraut (2003) identifies implicit learning as being learning undertaken when the learner is not aware of it, for example the development of interpersonal and communication

skills taking place in family and social environments. Where such implicit learning takes place in the practice environment, it may be based on the use of tacit knowledge by paramedics and Practice Educators, with neither the student nor the Practice Educator being aware of such learning taking place, potentially distancing the development of knowledge in practice from the associated theory.

As well as non-formal, implicit learning, the development of tacit knowledge can also be deliberative, in that it is planned and undertaken in time specifically set aside for the purpose (Eraut, 2000). The key distinction between these two modes of learning is that of the intention to learn, with 'reactive learning' presenting a situation were near-spontaneous, unplanned learning takes place with limited intentionality. Such learning can subsequently become deliberative if time is set aside for reflection (Figure 2.8, below).

Figure 2.8 A typology of non-formal learning (Eraut, 2000, p116)

Time of Stimulus	Implicit Learning	Reactive Learning	Deliberative Learning
Past Episode(s)	Implicit linkage of past memories with current experience	Brief near-spontaneous reflection on past episodes, communications, events, experiences	Review of past actions, communications, events, experiences. More systematic reflection
Current Experience	A selection from experience enters the memory	Incidental noting of facts, opinions, impressions, ideas. Recognition of learning opportunities	Engagement in decision-making, problem-solving, planned informal learning
Future Behaviour	Unconscious effects of previous experiences	Being prepared for emergent learning opportunities	Planned learning goals. Planned learning opportunities

The benefits to students of undertaking a deliberative approach to learning, and the importance of Practice Educators in facilitating this approach, will be further considered in the analysis of findings at Chapters Six and Seven, with a key benefit of this approach being the uncovering and subsequent embedding of tacit knowledge.

The embedding of knowledge can be considered to be the objective of undertaking a professional education programme, with newly acquired knowledge needing to be embedded in order to allow it to be appropriately and contextually applied in the future. If knowledge is not embedded, there may be only temporary benefits or inappropriate application of 'surface' knowledge. As well as being an important aspect of initial

professional education, the ongoing embedding of knowledge is required to keep practice current. Embedded knowledge can also exist within professional groups or organisations where it is described by Badaracco (1991, p.11) as:

> *"individual and organisational skills that can't be translated into formulas, computer programs, or blueprints [. . .] [such as] information, technology, rumours, cost data, plans, judgements about personnel, trial balloons, and other sorts of knowledge [that exists within] . . .social networks"*

Such knowledge can be so deeply embedded that workers no longer think about what they are doing, but simply do it (Davidson & Voss, 2002), i.e. 'tacit knowledge.' The application of such knowledge is very context-specific, having been developed and evolved by the individuals concerned. With such knowledge being more implicit than explicit, it can be difficult for individuals to share, or to pass on to others, particularly students (Jensen & Szulanski, 2004), resulting in it being considered 'hidden'. There is limited literature regarding exactly how embedding occurs or how it can be facilitated; however, many reflective models and learning cycles have been proposed as methods of attempting to embed knowledge in order to continue to develop practice (Borton, 1970; Brookfield, 1995; Gibbs, 1988; Johns, 2006; Kolb, 1984).

Unlike the majority of nurses and other health care professionals, paramedics undertake a very wide range of duties in the out-of-hospital environment, duties that are unplanned and occur in dynamic and potentially volatile situations. The paramedic needs to be able to adapt their approach to deal with a variety of clinical presentations whilst also dealing with the scene management, in particular dealing with relatives and other situational occurrences. The ability to learn from encountering time-critical presentations is key in the development of the paramedic. The focus can tend to be on reflection-on-action with the Practice Educator giving feedback after the event, often having stepped in to manage the situation themselves (Wilson, 2013). This has the potential to limit learning opportunities. The role and influence of reflection and reflective practice on personal professional knowledge acquisition, and its place in the theory-practice relationship, will be explored in Section 3.2.4.

The Skill Acquisition Model of Dreyfus and Dreyfus (1986) brings together the concepts of situational understanding, routinised action and decision-making to depict the progression from novice to expert. Tacit knowledge can be considered to be present throughout the Dreyfus and Dreyfus model in the form of situational understanding, the development of which is predominantly based on an evolving

experience-base (Figure 2.9, below). Rigid adherence to taught rules or plans, at Level 1, develops into standardised and routinised procedures by Level 3, having become automised and increasingly tacit through repetition. The continued development of tacit knowledge results in increasingly intuitive decision-making, based on both advanced levels of pattern recognition and the ability to respond rapidly to developing situations, based on the tacit application of tacit rules. The Level 5, expert practitioner, is able to apply these rules without necessarily knowing that they are doing so, or being able to explicitly justify their use.

Figure 2.9 Summary of the Dreyfus & Dreyfus model of skill acquisition (Eraut, 2000, p126)

Level 1 Novice	Rigid adherence to taught rules or plans Little situational perception No discretionary judgment
Level 2 Advanced Beginner	Guidelines for action based on attributes or aspects (aspects are global characteristics of situations recognisable only after some prior experience) Situational perception still limited All attributes and aspects are treated separately and given equal importance
Level 3 Competent	Coping with crowdedness Now sees actions at least partially in terms of longer-term goals Conscious deliberate planning Standardised and routinised procedures
Level 4 Proficient	See situations holistically rather than in terms of aspects See what is most important in a situation Perceives deviations from the normal pattern Decision-making less laboured Uses maxims for guidance, whose meaning varies according to the situation
Level 5 Expert	No longer relies on rules, guidelines or maxims Intuitive grasp of situations based on deep tacit understanding Analytic approaches used only in novel situations, when problems occur or when justifying conclusions Vision of what is possible

Existing, non-degree level paramedics may have developed to become expert in their role; however, their progression to advanced clinical positions would also be dependent on their ability to engage with the formal theory associated with the role, which may, in some cases, require an 'unlearning' of aspects of their tacit knowledge.

Taber *et al.* (2008) suggest that shared tacit practices exist within communities of practice; however, the interactions undertaken between paramedics tend to be limited to those which take place away from the patient contact situation. The relationship between a paramedic and their crewmate may result in the development of tacit understanding between the two individuals, particularly when they have been paired for a significant amount of time. Historically, it was commonplace for individuals to be

crewed together for many years and they would develop working patterns that could be considered to consist of shared tacit understanding.

The current landscape of the ambulance world is one where such partnerships are much less common, with lone working and crew resourcing both negatively impacting on the longevity of such partnerships. In addition, it is relatively rare for paramedics to work as part of a larger team when interacting with patients, the main exceptions being major incidents, trauma cases and cardiac arrest management. Specialist teams of paramedics, for example the hazardous area response team (HART) do work more closely together, but this is the exception rather than the norm. The development of a wider community of learning, as presented by Lave and Wenger (1991), where tacit understanding is shared, could be argued to be more likely to exist in such a close-knit team than between the individuals of the wider community of practicing paramedics.

The acquisition and development of tacit knowledge/understanding by student paramedics is considered to be a key aspect of their personal professional knowledge, explored below in Section 2.4.3.

2.4.3 Personal professional knowledge

The term 'personal professional knowledge', in the context of this submission, is used to identify the individual, personalised knowledge developed by both paramedics and student paramedics in the practise of their professional role. Unlike codified 'bodies of knowledge', professional knowledge is more activity-oriented, contextualised and personalised (Borko & Putnam, 2000; Bromme & Tillema, 1995; Tillema, 1995).

In relation to the personal professional knowledge of teachers, Cranefield and Yoong (2009) identified a number of research-based constructs which had attempted to explore the richness, personal nature and contextual dependency of knowledge. Personal practical knowledge (Connelly & Clandinin, 1994; Elbaz, 1983), images (Calderhead, 1988), situated knowledge (Leinhardt, 1988), knowledge in action (Schön, 1983), event-structured knowledge (Carter, 1994) and craft knowledge (Grimmett & MacKinnon, 1992) were all identified as leading towards a greater understanding of the development of personal professional knowledge among teachers.

Cranefield and Yoong (2009) discuss the reciprocal process required to achieve this development of personal professional knowledge, as opposed to what they consider to be the unidirectional translation of theory into practice. This acknowledgement that individuals must undertake a continually iterative process to abstract theories from practice supports the expectations of a reflective and analytical approach to paramedic practice education. Baartman and de Bruijn (2011) consider one of the defining characteristics of a profession to be the internalisation and integration of its body of knowledge, skills and attitudes by professionals in order to achieve competences.

As out-of-hospital care becomes more complex, a greater reliance is being placed on the cognitive abilities of paramedics to manage increasingly difficult situations. In adapting to the challenges in their work, paramedics develop expertise (Smith *et al.*, 2013). Smith *et al.* (2013) reported that the cognitive adaptations developed by experienced paramedics can be seen in terms of how knowledge is structured and how information is processed. When compared with that of non-experts, the mental models of experts reflect fundamental principles of the domain (Charness & Tuffiash, 2008; Feltovich *et al.*, 2006) and support more functional analyses of a situation (Cellier *et al.*, 1997). Roesler and Woods (2007) consider that deep conceptual knowledge of the domain is fundamental to expertise, with Klein and Militello (2001) identifying that the mental models of experts incorporate a broader set of causal relationships and support better anticipation and inferential reasoning, with experts being considered by Klein (1997) to be better able to detect and use cues, possibly tacitly, while thinking more strategically and understanding the entire perspective.

Smith *et al.* (2013) studied the cognitive strategies used by expert paramedics undertaking simulated casualty scenarios. The more experienced paramedics were found to have made more assessments, explored a wider variety of differential diagnoses, and identified the presenting complaint earlier. They also managed a multi-casualty incident by switching attention between the two patients more, by using their Emergency Medical Technician more, and by providing more advanced level care for both patients when compared to their less experienced colleagues. Smith *et al.* (2013) concluded that their findings correspond to general cognitive attributes of expertise: greater cue gathering and inferential reasoning, and more functional and strategic thinking. This level of expertise is sometimes considered to be representative of tacit knowledge.

Leinhardt *et al.* (1995) made the distinction between knowledge which is gained in the practice and the academic settings. Knowledge gained in practice is typically procedural, specific and pragmatic, whereas that gained in academic settings is more declarative, abstract and conceptual. It is the integration of these two types of knowledge, that gained from 'practice' and that gained from 'theory', which can be considered to develop personal professional knowledge.

Schaap *et al.* (2011), drawing from Eraut (1994, 2009), distinguished six domains of knowledge which, they contend, cover the content of personal professional knowledge:

1. knowledge of the vocational field, such as general issues and trends in the profession;
2. organisational knowledge, including general work processes, information systems, management and cultural aspects (Rauner, 2007);
3. professional knowledge of the organisation one is working in;
4. target group knowledge, e.g. in education, pupils and parents;
5. technical-instrumental knowledge on how to perform adequately and accountably (Kelchtermans & Hamilton, 2004);
6. knowledge relevant for personal development, such as one's strengths and weaknesses.

The first of these domains can begin to be addressed by studying the associated theoretical foundations presented within the academic components of an undergraduate degree. The remaining domains, however, rely on immersion in the practice environment and support and direction from an experienced, expert professional, i.e. the Practice Educator, to sufficiently develop personal professional knowledge in the novice practitioner. Such knowledge may be tacit, or may be that from which informal theories of practice have been be derived by the experienced professional, theories which can then be passed on to the novice.

The purpose of an undergraduate paramedic programme is to produce a 'competent' paramedic, rather than a 'proficient' or 'expert' one, (see Figure 2.9, page 63) with such expertise only being acquired over time with exposure to a wide range of situations as a basis from which to learn. Such expertise, representative of the ongoing development of students' personal professional knowledge, is likely to be developed

by approaching learning in a reflective way and relating lived experiences to theoretical understanding. The use of reflective approaches to learning will be explored in Section 3.2.4 and further considered in the discussion chapters of this submission.

In a similar way to the concepts of theory-of-practice and theory-for-practice, Cochran-Smith and Lytle (1999) consider three concepts of knowledge related to the learning undertaken by teachers. The concepts are, firstly, 'knowledge-for-practice', which can be linked to 'formal theory' generated by university researchers, secondly, 'knowledge-in-practice', which is aligned with 'theories-in-practice' and tacit knowledge, and, thirdly, 'knowledge-of-practice'. The final concept is considered to be an amalgam of formal and practical knowledge which can be linked to personal professional knowledge and the 'knowing-of practice' discussed by Lave (1996).

2.4.4 Knowledge: a conceptual framework

Knowledge has been presented as a fluid construct, and one which appears to be less encumbered by the boundaries associated with the definition of the concepts of theory and practice. Therefore, to present knowledge as a conceptual framework using the same approach previously employed for theory and practice, a degree of de-construction of various theories of knowledge has been undertaken. The following conceptual framework (Figure 2.10, page 69) distinguishes between aspects of knowledge that can be more aligned to theory, i.e. theoretical knowledge, and those aligned to practice, i.e. practical knowledge. The representation of the two domains as being separate is done, in part, to demonstrate the challenges associated with attempting to place restrictions on concepts by way of categorising them and will be discussed in greater depth in Section 3.4.1.

A distinction can be made between Chinn and Kramer's (1991) view of knowledge as *'existing in the world'*, representative of *'theoretical knowledge'* (Bruner, 1985; Grossman, 1995; Munby *et al.*, 2001) and Boud *et al.* (1985) and Benner's (1982) consideration of knowledge as *'constructed by the learner',* representative of *'practical knowledge'* (Bruner, 1985; Grossman, 1995; Munby *et al.*, 2001). Eraut's (2000) views of *'codified'* and *'personal'* knowledge are attributed to the theoretical and practical paradigms respectively, with the views of Leinhardt *et al.* (1995), Lave (1996), Benner (2001), Polanyi (1958) and Khun (1970) similarly deconstructed and attributed to the theoretical or practical domain.

'Personal professional knowledge' (Borko & Putnam, 2000; Bromme & Tillema, 1995; Tillema, 1995) is presented as spanning both the theoretical and practical areas, with both elements key to its development. *'Tacit knowledge'* (Freidson, 2001), although predominantly demonstrated within the practical domain, is inseparable from theoretical and practical knowledge as it is theoretical knowledge which is the basis of, and underpins and develops, the applied practical knowledge, albeit without the perpetrators conscious knowing.

Figure 2.10 Knowledge- A Conceptual Framework

Knowledge

Theoretical Knowledge
(Bruner, 1985; Grossman, 1995; Munby *et al.*, 2001)

Practical Knowledge
(Bruner, 1985; Grossman, 1995; Munby *et al.*, 2001)

Knowledge as 'existing in the world'
(Chinn and Kramer, 1991)

Codified knowledge (Eraut, 2000)

Declarative, abstract and conceptual
(Leinhardt *et al.*, 1995)

Knowing-of-practice
(Lave ,1996)

Knowing how
(Benner, 1984; Polanyi, 1958; Khun, 1970)

Knowledge as constructed by the learner
(Boud *et al.*, 1985; Benner,1982)

Personal knowledge (Eraut, 2000)

Procedural, specific and pragmatic
(Leinhardt *et al.*, 1995)

Knowing-in-practice
(Lave ,1996)

Knowing that
(Benner, 1984; Polanyi, 1958; Khun, 1970)

Personal Professional Knowledge
(Borko and Putnam, 2000; Bromme and Tillema, 1995; Tillema, 1995)

Tacit Knowledge
(Friedson, 2001)

2.5 Conceptualisation of theory, practice and knowledge

With the terms 'theory', 'practice' and 'knowledge' having been shown to have a multitude of meanings in a variety of settings, the following tables (2.1 to 2.3) are presented in order to maintain clarity throughout this submission. By presenting the terminology in such a way, it is intended to contextualise the use of each term without the need for in-depth explanation at each point of use.

The first column presents the terminology from the literature which describes views/concepts of theory, practice or knowledge. The second column indicates from which authors said definitions have been drawn, in alphabetical order with primary proponents of the proffered definitions being highlighted in bold text where appropriate. The third column shows the terminology that will be used to distinguish between the different concepts of theory, practice and knowledge when discussing them within the context this submission. When used, these terms will be presented in title-case italics to aid their identification. When the terms are used in a non-italic form, they are being presented in the overall context which is representative of 'lay' terminology.

The fourth column presents a working definition, derived from the various sources, which summarises how the term has been considered when used throughout the remainder of the submission. These definitions will not necessarily present the original authors' definitions of the term, rather an amalgamated and adapted definition produced to reflect the continued use of the term within this submission.

The core concept from each table which will be drawn from in the analysis chapters are those of *Taught Theory*, *Situated Practice* and *Personal Professional Knowledge*. *Taught Theory*, although being based on *'that which is taught in the classroom'*, goes beyond the confines of other definitions of theory in that it contains elements that may be considered to constitute certain aspects of practice, particularly *Simulated Practice*. *Situated Practice* is presented as the undertaking of the role of the paramedic and *Personal Professional Knowledge* is the product of a continually iterative process which abstracts theories from practice resulting in personalised, activity oriented and contextualised knowledge.

Table 2.1 Conceptualised terminology – Theory

Existing terms/definition	Key Authors	Terminology to be employed throughout the submission	Definition in the context of this submission
Theory as thought/the opposite of practice	Carr, 1995; **Chambers, 1992**; Hirst, 1993; McIntyre, 1995; Meleis, 2007; Polit & Hungler, 1987; **Rajagopalan, 1998**; **Thomas, 1997.**	*Theory*	Thinking and reflecting, as opposed to doing.
Espoused theory/theory as an ideal	**Argyris & Schön, 1996**; Bourdieu, 2000; Corlett, 2000; Eraut, 2003; Lave, 1996.	*Espoused Theory*	The theoretical expression of what one says one would do, or should be done, as an ideal, as opposed to what one actually does/is done.
Theory as hypotheses/ Guiding theory	Baxter, 2007; **Chambers, 1992**; Meleis, 2007; O'Connor, 2017; **Thomas, 1997.**	*Hypothesis Theory*	Ideas that may be followed up, rules which control actions.
Theory as developing explanation	Barrett, 1991; Baxter, 2007; Campeau, 2008; **Chambers, 1992**; **Kerlinger, 1970**; Meleis, 2007; **Thomas, 1997.**	*Explanatory Theory*	Broadening bodies of knowledge in a particular field, an accumulating body of knowledge that has become more diffuse as more facts are accommodated, in contrast to *Technocratic Theory.*
Scientific/technocratic theory	Allen, 2011; Bourdieu, 2000; **Chambers, 1992**; Khun, 1970; **Thomas, 1997;** Wortham, 2010.	*Technocratic Theory*	Ideas formally expressed in a series of statements, the process of 'normal' science, i.e. based on formal research and scientific experiments acknowledged by the relevant scientific community as supplying the foundations for its further practice. Precise and succinct.
Formal Theory	Allen, 2011; Baxter, 2007; Bourdieu, 2000; Hass & Shaffir, 1977; McCrae, 2012; Meleis, 2007; **Rolfe, 1996.**	*Formal Theory*	An amalgam of *Technocratic, Explanatory* and *Hypothesis Theory*, considered to have an evidence-base and to come from reputable published sources.
Theory as that which is taught at university	Argyris & Schön, 1996; **Baxter, 2007**; Corlett, 2000; Elkan & Robinson, 1993; Fealy, 1999; Lathlean, 1992; Michau, *et al.*, 2009; **Polit & Hungler, 1987**; Rolfe, 1996.	*Taught Theory*	All aspects of the taught elements of an educational programme, including *Formal Theory*. Differs from *Theory* in that it would include practical aspects of the paramedic role, but in the non-patient contact environment.
Informal, personal or practical theory; theories-in-use	Argyris & Schön, 1996; Barrett, 1991; Bourdieu, 2000; Campeau, 2008; Eraut, 2003; Lave, 1996; McCrae, 2012; McWilliam, 1992; Schaap, *et al.*, 2009.	*Informal Theory*	Theory generated out of practice and developed based on experience.
Personal Professional Theory	Bakker & Derry, 2011; Campeau, 2008; Eraut, 2003; McCrae, 2012; Pajares, 1992; Schaap, *et al.*, 2009; Schaap, *et al.*, 2011; Toulmin, 1958; Trochim & Cabrera, 2005.	*Personal Professional Theory*	A personalised version of *Formal Theory*, tuned to the context by the personal experience of its owner's individual professional role, necessarily comprising aspects of *Informal Theory*.

Table 2.2 Conceptualised terminology – Practice

Existing term/definition	Key Authors	Terminology to be employed throughout the submission	Definition in the context of this submission
Practice as activity	Eraut, 2003; Polit & Hungler, 1987; Sellman, 2010; Wortham, 2010.	*Practice*	Doing, as opposed to thinking and reflecting; taking actions. All that is not *Theory*. Not locational contingent, may be experienced in any setting.
Holistic practice	Eraut, 2003; Smith et al., 2013.	*Practise*	The holistic meaning of practice, e.g. undertaking the practise of medicine.
Situated practice/ observable practice/ performed practice	**Eraut, 2003;** Ford, 2008; **Lave & Wenger, 1991;** Malthouse, Watts & Roffey-Barentsen, 2015.	*Situated Practice*	Undertaking the role of the paramedic, or student, as a member of the broader community of the workforce, including workplace and inter-professional relationships, utilising a combination of both *Activity-based* and *Condition-based Practice*, along with all other elements required to manage the entirety of real, as opposed to simulated, patient encounters along with organisational operational experiences.
Condition-based practice	Eraut, 2003.	*Condition-based Practice*	The diagnosing and treating of a specified medical condition.
Activity-based practice	Baartman & de Bruijn, 2011; Eraut, 2003; Freidson, 2001; Leinhardt et al., 1995.	*Activity-based Practice*	The undertaking of a single, specific action such as a physical assessment, task or intervention.
Professional practice/ patterned actions	**Eraut, 2003**; Freidson, 2001; HCPC, 2016; Leinhardt et al., 1995; Merz & Knorr-Cetina, 1997.	*Professional Practice*	A sequence of patterned actions that are typical of the profession. Encompasses all aspects of *Situated Practice* with the addition of considerations related to the registered status of the paramedic, e.g. HCPC standards of conduct, performance and ethics.
Evidence-based practice	Eraut, 2003; Nolan, 2015; Upton, 1999.	*Evidence-based Practice*	Practice which has been demonstrated to have a foundation in formal evidence, i.e. research, or which has been based on or informed by formal evidence.
Practice as simulation	Ballangrud *et al.*, 2014; Bultas *et al.*, 2014; Hudgins, 2017; Lucas, 2008; Studdy, 1994; Williams *et al.* 2009,	*Simulated Practice*	The undertaking of particular practical activities in an environment where the participants are not engaging with live cases or patients. May be in the university or any other setting.

Table 2.3 Conceptualised terminology - Knowledge

Existing term/definition	Key Authors	Terminology to be employed throughout the submission	Definition in the context of this submission
Knowledge as a product of education	Chinn & Kramer, 1991; Cranefield & Yoong, 2009; Gilbert, 2005; Scardamalia & Bereiter, 2010.	*Taught Knowledge*	Knowledge that is considered to have been acquired by an individual during the delivery of *Taught Theory*. Can be considered to exist in the world outside of the person who knows it.
Theoretical/Codified knowledge	**Bruner, 1985; Eraut, 2000**; Freidson, 2001; **Grossman, 1995**; Khun, 1970; Leinhardt *et al.*, 1995; **Munby et al., 2001;** Polanyi, 1958; Roth, 2010.	*Codified Knowledge*	Public knowledge subject to quality control by editors, peer review and debate and as being given status by incorporation into educational programmes, examinations and courses. Extends beyond *Taught Knowledge* in that it may not be made known to the learner during *Taught Theory*.
Personal knowledge	Boud *et al.*, 1985; **Benner, 1982; Eraut, 2000**; Khun, 1970; Leinhardt *et al.*, 1995; Polanyi, 1958; Smith et al., 2013.	*Personal Knowledge*	The cognitive resource which a person brings to a situation enabling them to think and perform, utilising *Codified Knowledge* along with procedural and process knowledge, experiential knowledge and impressions in episodic memory to result in *Personal Knowledge*.
Practical knowledge	Boud *et al.*, 1985; Benner, 1982; **Bruner, 1985**; Grossman, 1995; Leinhardt *et al.*, 1995; **Munby et al., 2001**; Roth, 2010.	*Practical Knowledge*	Knowledge derived from undertaking practice, constructed by the learner.
Tacit knowledge	Badaracco, 1991; Davidson & Voss, 2002; Eraut, 2000; **Freidson, 2001;** Jensen & Szulanski, 2004; Khun, 1970; Klein, 1997; Klein & Militello, 2001; **Lave & Wenger, 1991**; Polanyi, 1967; Smith *et al.*, 2013; **Taber, 2008.**	*Tacit Knowledge*	Sometimes termed 'gut feeling'; deeply embedded knowledge. More implicit than explicit, it can be difficult for individuals to share, or to pass on to others, particularly students and can be considered to be 'hidden'.
Personal professional knowledge / Professional craft knowledge	**Borko & Putnam, 2000; Bromme & Tillema, 1995;** Calderhead, 1988; Carter, 1994; Cellier et al., 1997; Charness & Tuffiash, 2008; Connelly & Clandinin,1985; Cranefield & Yoong, 2009; Elbaz, 1983; Feltovich *et al.,* 2006; Freidson, 2001; Grimmett & MacKinnon, 1992; Hass & Shaffir, 1977; Kelchtermans & Hamilton, 2004; Klein, 1997; Klein & Militello, 2001; **Lave & Wenger, 1991**; Leinhardt, 1988; Peplau, 1988; Roth, 2010; Rauner, 2007; Schaap *et al.,* 2011; Schön, 1983; Smith *et al.*, 2013; Taber, 2008; Thomas ,1997; **Tillema, 1995.**	*Personal Professional Knowledge*	The individual, personalised knowledge developed by both paramedics and student paramedics in the practice of their professional role; activity-oriented, contextualised and personalised where the individual undertakes a continually iterative process to abstract theories from practice. A culmination of *Taught Knowledge, Personal Knowledge* and *Practical Knowledge* leading to the evolution of *Tacit Knowledge*.

2.6 Summary

The complexities of defining theory, practice and knowledge as separable constructs has been demonstrated throughout this chapter. The production of diagrammatic representations of conceptual frameworks for each of these areas has now set the scene to continue to explore the relationships that may exist within and between them.

Tables at Section 2.5 demonstrate the wide-ranging views of the concepts of theory, practice and knowledge, which have been initially deconstructed and then reconstructed and framed in specific terms to focus some of the discussion in the following chapters. Although all the concepts presented in Section 2.5 will be considered and discussed, the reconstructed concepts of *Taught Theory*, *Situated Practice* and *Personal Professional Knowledge* will emerge as core themes throughout, having come to the fore in the analysis of the data.

Chapter Three will further explore the literature in respect of the relationships considered to exist between theory and practice.

Chapter 3 : Exploring the theory-practice relationship

3.1 Introduction

This chapter will explore and challenge the representation of the relationship between theory and practice as that of a gap, as well as exploring the wider influences on the theory-practice relationship within paramedic education. There have, for many years, been debates regarding the relationship between theory and practice, with those between Hirst and Carr and Thomas and Rajagopalan being of some note (Carr, 1995; Hirst, 1993; Hirst & Carr, 2005; McIntyre, 1995; Misawa, 2011; Rajagopalan, 1998; Thomas, 1997; Thomas, 1999).

Hirst and Carr presented both individual (Hirst, 1973, 1993, 1996, 1999 & 2008; Carr, 1995, 2004, 2005 & 2006) and shared (Hirst & Carr, 2005) publications related to their views on the nature of both theory and practice and the resultant theory-practice relationship. Hirst's early work proposed the position that theory informed, and took priority over, practice (Hirst, 1973; Misawa, 2011); however, his view later altered to reverse this position, with the new-held view being that practical knowledge, gained from practice, is more fundamental than theoretical knowledge (Hirst, 1993). Hirst went on to present this position in relation to Aristotle's distinction between theoretical and practical reason (Engberg-Pedersen, 1983), stating that; *"What it is rational to do in practice is . . . not something we can work out theoretically first in terms of propositional principles and then act on accordingly."* (Hirst, 2008, p.8).

Hirst fails to address, in any significant depth, the way in which theoretical and practical reason are interrelated, simply stating that they are *'interrelated in complex ways'* (Hirst, 2008, p. 9). Carr's view is that theory cannot occupy a space either inside or outside of practice, with it being impossible to take a vantage point outside of practice and unnecessary for theory to occupy a position inside practice (Misawa, 2011). Such a view goes beyond Hirst's hierarchical approach of placing theory 'above' practice and, later, practice 'above' theory, by dismissing theory as being an unnecessary construct which should, inherently, be dissolved within practice.

Such debate further highlights the challenges in labelling theory and practice as two separate entities. The previous chapter's consideration of the multiple views and definitions of 'theory', 'practice' and 'knowledge' has highlighted the complexities of

existing propositions relating to the relationship/s between theory and practice. The concept of the theory-practice gap, as one such perspective of the relationship, therefore requires unpicking to contextualise it in light of the challenges associated with defining the key concepts of theory and practice.

In addition to the discussion of the relationship between theory and practice being represented as a gap, the relationship between theory and practice in the context of learning and knowledge acquisition will also be explored, with learning cycles and approaches to reflection and reflective practice being considered as areas where there is an inherent relationship between theory and practice.

The chapter will continue with a consideration of praxis before concluding with the presentation of a series of conceptual frameworks representative of views of both the theory-practice relationship and, ultimately, Paramedic Praxis. Throughout this chapter, reference will be made back to the discussions of Chapter Two to appropriately position such perspectives, utilising the terms presented in Tables 2.1 to 2.3.

3.2 Perspectives of the theory-practice relationship

3.2.1 The theory-practice gap

The origins of the differentiation between theory and practice can be traced back to Aristotle's views of 'theoria' and 'praxis' (Rackham, 1934; Roth *et al.*, 2014). Buchanan (1994, p273), considers Aristotle's theoria to constitute *'natural processes'* as opposed to the *'social practices'* of praxis. Roth *et al.* (2014) consider that Aristotle distinguished theoria, characterised by self-sufficient contemplation, from praxis, involving actions that have goals other than themselves and bring about change in the world (Roth *et al.* 2014).

Such a distinction can be considered representative of a theory-practice gap, the existence of which has been discussed in many, varied, professions, for example; teaching (Korthagen & Kessels, 1999; Russell, 1988), business management (Reed, 2009), engineering (Simonovic, 1992), clinical medical practice (Brown, 2012), midwifery (Doughty *et al.*, 2007), nursing (Carson & Carnwell, 2007; Gallagher, 2004; Rolfe, 1996; Spouse, 2001), physiotherapy (Roskell *et al.*, 1998) and accounting

(Arnold & Hatzopoulos, 2000), as well as paramedic practice (Armitage, 2011; Donaghy, 2010b; Edwards, 2011; Michau *et al.,* 2009).

In these areas, practitioners discuss the gap that they experience between what they do and learn in university and what they do and learn while working. Educators are expected to ensure that *Taught Theory* accurately reflects the realities of *Situated Practice* while continuing to make theory input relevant to current practice in the professional setting (Corlett *et al.*, 2003).

As cited above, the existence of a theory-practice gap in the education of paramedics has been proposed by several authors, with most of their arguments deriving from nursing-based research. As the evolution of paramedic higher education initially took place in nursing-based institutions, this link is not entirely surprising.

The theory-practice gap is a widely accepted concept within nursing literature where it relates to the distance between *Theoretical Knowledge* and the actual performance of nursing students in *Situated Practice* (Carson & Carnwell, 2007; Gallagher, 2004; Rolfe, 1996; Spouse, 2001). There have been various reasons given for the apparent manifestation of a theory-practice gap in nursing, including the move of vocational education from practice to universities (Hope *et al.*, 2011; Landers, 2000; Maben *et al.,* 2006; Romyn *et al.*, 2009), a lack of knowledge of nursing students (Swain *et al.*, 2003), and problems in applying nursing theory into nursing practice (Corlett, 2000).

Kinsella (2010) considers the theory-practice gap to manifest when teaching is focussed on technical knowledge, where theories and research are abundant, but the utilisation of this knowledge to solve practice situations is missing. Such a position can be related to the use of theories-of-practice, whereas the development of theories-for-practice may be seen to reduce the perception of a gap.

The term 'gap' is often considered to have negative connotations, being likened to a 'break' or an 'interruption' (Collins, 2018; Gallagher, 2004), aligning with the predominantly negative view of the theory-practice gap presented in nursing. Articles with cautionary titles, such as *'mind the gap'* (Cook, 1991; Sellman, 2010), and those which present the gap between theory and practice as something in need of '*bridging'* (Baxter, 2007; Bernstein, 1999; Brake, 2005; Hatlevik, 2012; Nematollahi & Isaac,

2012; Nuthall, 2004; Sibson & Mursell, 2010; Wilson, 2008) are suggestive of the degree of negativity associated with the theory-practice gap.

Although there is a wide acceptance of the existence of a gap between theory and practice, cited by both practitioners and theorists, the forms in which it is considered to emerge, and approaches to addressing it, differ. Concepts such as 'boundary crossing' (Engeström, 2000; Tsui & Law, 2007), 'social practice theory' (Bourdieu, 2000; Lave, 1996), the theory of 'reflective practice' (Schön, 1983) and cultural-historical activity theory (CHAT) (Cole & Engeström, 1993; Roth & Lee, 2007) all view the theory-practice gap differently.

In general terms, the theory-practice gap can be defined as a discrepancy between what is taught in a classroom setting – the theoretical aspects of the role – and what is experienced on clinical placement – the practice of nursing or, in this case, paramedic practice (Ferguson & Jinks, 1994; Jones, 1997). The theory-practice gap has been considered as both a negative phenomenon in need of addressing (Nematollahi & Isaac, 2012), with Rafferty *et al.* (1996 p.685) going as far as to describe it as an *"embarrassing failure"* in nursing, and as a positive phenomenon which is necessary for developing the problem-solving skills of the practitioner (Corlett, 2000; Rolfe, 1996). Others consider that the theory-practice gap is present due to what Maben *et al.* (2006) call 'profession-bureaucratic work conflict' (Pepper, 1977; Melia, 1987). This situation arises where organisational pressures from the employer impact on the employees' ability to undertake their role to the professional standard to which they aspire.

Several researchers in medical education have studied 'experiences in action' (Dornan *et al.,* 2009; Teunissen *et al.,* 2009; Yardley *et al.,* 2010), seeking to better understand the links between what *should* happen in practice and what *does* happen in practice. The manifestation of a theory-practice gap in health education is considered by Buchanan (1994) to be a result of theory being a positivist construct of the natural sciences, one which is not well suited to developing the understanding of human behaviour, where the explanatory and predictive nature of positivism cannot be directly translated. When social science theories are developed based on a natural science approaches and philosophy, the result can be theories which are not recognisable or usable by practitioners.

Like Buchanan, Bromme and Tillema's (1995) view of the relationship between theory and practice, in the context of teacher training, is also one where the direct translation of theory into practice cannot be undertaken. Instead, new professionals must 'transform' theory to the demands and constraints of practical situations by integrating, tuning and restructuring it. Such a view does not appear to present the theory-practice gap as a negative presence, rather an expectation that *Taught Theory* cannot be applied directly to *Situated Practice* without such integration, tuning and restructuring, perhaps implying that the presentation of a gap in nursing can, at times, be an artificially negative one. Bromme and Tillema (1995) go on to describe a 'field of tension' which was considered to exist between professional action and theoretical knowledge, with professionals being expected to draw upon a continually evolving body of professional knowledge whilst simultaneously generating their own *Personal Professional Knowledge* when in practice. This situation was presented by Schön (1983) as being 'knowledge-in-action' and can be considered to form one facet of the theory-practice relationship.

McCaugherty (1991) explains the 'gap' using the analogy of symbol-object dichotomy. In this analogy, the symbol can be identified as a picture or photo which, although a two-dimensional representation of an actual object, cannot be considered to be the same as the actual object itself. A photograph of an apple, for example, does not convey the weight, taste, texture and 360-degree view of the apple when considered as an actual, physical object. In the same way, the theory taught in the classroom or read from a book can never be *exactly* the same as the practice which is experienced in the clinical environment; it is, rather, a representation of that practice. Whether this is a negative situation from the perspective of the learner, or an expected stage in the development of *Taught Knowledge*, as a step to developing *Personal Professional Knowledge*, is less clear to establish.

Wortham (2010) considers that there is a gap, but one between different domains of activity, holding the view that, when exploring how *Formal Theory* gets translated into practice, the use of a decontextualised, non-activity-based sense of knowledge, i.e. *Formal Theory,* has the potential to generate a 'gap' between theory and practice. However, as knowledge is always embedded in activities, there can be no such gap when knowledge is applied to practice. Wortham (2010) considers that the beliefs, habits and capacities of academic researchers differ from those of practitioners, with

each having a distinct repertoire of practice which, whilst they do overlap, are fundamentally different.

Using Wortham's position, it could be argued that university-based academics are more likely to build conceptual arguments and analyse data, while paramedic Practice Educators support their students to become more competent when participating in practice-based activities with a view to 'changing the world', i.e. undertaking actions that have an external effect. That is not to lessen to role of either party, rather to determine that there are, and can be expected to be, differences in the way in which academics and practitioners approach both theory and practice. If there were not such differences, then the value of undertaking practice-based learning as a core component of a paramedic, or any other professional, programme would be significantly reduced.

When the theory-practice relationship is considered from a positivist perspective, practitioners are expected to intervene to change theoretically specified independent variables to bring about desired changes in dependent variables. In practice, such a positivist relationship rarely exists between theory and practice when considered in the health-care context, or in any context where human behaviours are involved.

Thomas's (1997) Theory-Practice Continuum (Figure 2.4, page 54) can be used when considering such a theory-practice relationship. When theory sits to the far left of the continuum, i.e. theory in its 'purest' form, it may be so far removed from the right end of the continuum, where practice is found, to be representative of theory-practice gap. For the gap to be seen to be reduced, such pure theory may need to be better contextualised so that it comes to better represent an idea of how an aspect of the world works, moving it towards the centre of the continuum. At the same time, views of practice may need to be better related to the associated theory in order to draw them away from the extremity of the right side of the continuum and towards the middle where a more balanced consideration of theory and practice can exist.

The challenge of drawing together such apparently disparate elements can be considered to be pitting the ideal against the reality, a view of the theory-practice relationship explored in Section 3.2.2.

3.2.2 The ideal versus reality

Yassin (1994) suggests that there are two main problems causing the theory-practice gap, the first of which is that some of the theory is viewed as being too idealistic and impractical. Yassin's second 'problem' is that, even where the theory is practical and beneficial to patients, some practitioners do not act on it. Draper (1991) supports this duality of approach by suggesting that there are two types of theory: the idealistic, which describes an idealised world of paramedic practice as it ought to be, and the realistic, the purpose of which is to account for the complex reality of the profession.

In relation to student midwives' perceptions of the theory-practice gap, Wilson (2008) identified key four themes, one of which asserted that practice based on tradition contributes to the theory-practice gap. The remaining three key themes identified coping or mitigating measures, the first of which was having peers and others to identify with as a way of helping to bridge the theory-practice gap. A coping mechanism was identified by way of acceptance of the status quo in the face of powerlessness to effect a clinical change, and that seniority and increased autonomy allows some freedom to implement practice preferences based on evidence, again helping to bridge the theory-practice gap. Such considerations demonstrate a view that can be summarised as 'the ideal versus reality', where the students were expected to adapt their perspectives of the ideal way of practicing, as presented within *Taught Theory*, to those of the reality of *Situated Practice*. Rather than suggesting that the sources of this apparent conflict between ideal and reality should be addressed, students instead identified how such conflict was mitigated by them in practice. Why practice 'based on tradition' was not seen as constituting part of the *Taught Theory* of the relevant educational programme was not a consideration of Wilson's study.

The implicit limitations of 'the ideal versus reality' as a description are, firstly, that there is a theoretical 'ideal' applicable to all situations and, secondly, that such an ideal is of greater merit than the opposing 'reality' experienced by students. The nature of the situations which paramedics attend is often complex and multi-faceted, with 'ideal' principles sometimes applicable to specific elements within the patient encounter, rather than to the patient encounter in its entirety.

Coudret *et al.* (1994) took a rather more extreme view of the impact of the theory-practice gap in nursing education when they described the effect on graduating

students entering practice as a 'reality shock' which has the potential to have a 'paralysing impact' on the novice nurse. This situation appears to be largely avoided within paramedic education due to students' exposure to the practice environment throughout their educational programme. There may well be a 'reality shock' associated with a student's first foray into the practice environment; however, it is likely that a graduating paramedic will not experience this effect to the extent reported by Coudret, their having been exposed to *Situated Practice* throughout their programme. The increased responsibility associated with the primacy of care of the paramedic may contribute to an experience of a 'reality shock', a matter which is, in part, being addressed by the introduction of a national ambulance services' approach to supporting the newly qualified paramedic (NQP) by way of a two-year preceptorship programme.

In one of the few paramedic specific studies, Michau *et al* (2009) focussed on case exposure in practice, identifying areas where clinical skill interventions were not accessible in the practice environment due to limited presentations of appropriate cases. This perception of the theory-practice gap could be based on Baxter's (2007) previously discussed definition in that the practice that the students engaged in whilst in the clinical setting was not congruent with the theory taught in the classroom. The matter for further consideration here would be that of 'congruence'.

Does the fact that a student is taught how to undertake a clinical intervention, such as a needle cricothyroidotomy, in the classroom, but they do not then need to undertake such an intervention when on their clinical placement, present a lack of congruence akin to a theory-practice gap? It can be argued that lack of opportunity does not equate to lack of congruence; however, had the skill been required in practice, and the method advocated by the Practice Educator differed from that which was taught in the classroom, then there could be a case for a lack of congruence. An absence of the requirement to undertake certain intervention-based skills could be viewed as a theory-practice gap in that the very limited occurrence of such interventions is not representative of the everyday practice of the paramedic.

Rather than being an audit of syllabus/practice discrepancies or individual intervention/skills undertaken, this submission will seek to explore student

paramedics' own personal experiences of learning in practice and their perceptions of the relationship between theory and practice.

3.2.3 Theory, practice and learning

As previously discussed, the expectation of a relationship between theory and practice is one that is based on the requirement of both elements to inform the development of *Personal Professional Knowledge*. Where the relationship is 'unhealthy', it can be viewed as having a negative impact on learning as opposed to a 'healthy' relationship where theory and practice are appropriately considered in the development of *Personal Profession Knowledge*. The nature of a 'healthy' relationship is considered to be one which *appropriately* considers all aspects of theory when undertaking practice, and one which reflects on *Situated Practice* by considering associated *Taught Theory* and which reflects on *Taught Theory* by considering associated *Situated Practice*.

That is not to suggest that such a relationship *must* be formalised by undertaking a recognised process of reflection, but rather it should be an ongoing consideration. The 'weight' or 'importance' attributed to different types of theory in relation to different types of practice is not suggested as being equal, with some situations having minimal *Formal Theory* existing to support the experiences of *Situated Practice*. In some circumstances, the identification of an absence of *Formal Theory* is a pre-cursor to the development of an individual's *Informal Theory*, a process which is often undertaken at a subconscious level, resulting in the development of *Tacit Knowledge* (Dreyfus & Dreyfus, 1986)*.*

The consideration that theory 'underpins' practice is one that is suggested by Miller (1990) when considering the assessment of clinicians in medical schools, as demonstrated by his triangle model of assessment (Figure 3.1, page 84). In this model, the base of the triangle is representative of knowledge, being a broad foundation upon which the other elements are built. Then comes applying knowledge; demonstrating that knowledge can be applied to undertake clinical skills; and finally, at the top of the triangle, comes work-based or practice-based assessment. The cognitive knowledge which makes up the base of the triangle can be likened to *Taught Knowledge*, i.e. that which is derived from *Taught Theory*. In Miller's model, it appears that greater emphasis is placed on 'knowing' as opposed to 'doing'. As a model of competency-

based assessment, it could be argued that the doing should be equally as important as the knowing; however, such a view can be considered to be dependent on one's position in the assessment situation.

Figure 3.1 Miller's framework for clinical assessment (Ramani & Leinster, 2008)
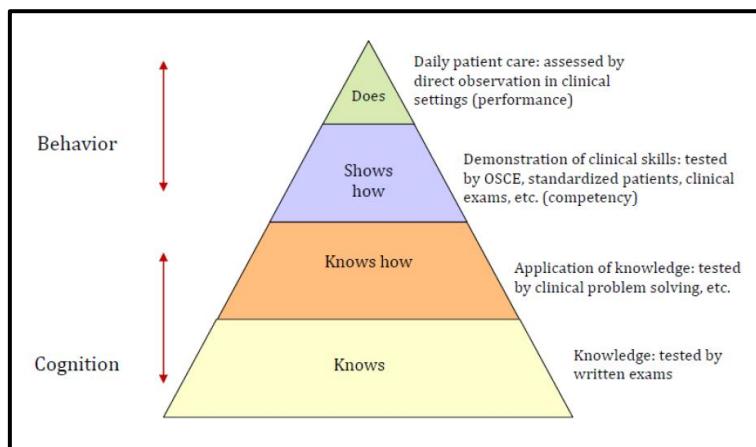
For example, the academic may view Miller's triangle as being an appropriate representation of the balance, role and relationship between theory and practice, where practice is a product of theory. For the Practice Educator, however, the relative importance of theory, when assessing a student paramedic in practice, may be reduced, with the 'doing' of practice the main element that is being assessed.

Figure 3.2 (page 85), an alternative view of Miller's framework, represents the possible perspective of the Practice Educator who is assessing a student paramedic in the practice setting, where behaviour, skills and attitude may be considered to be of more importance than overt demonstrations of theoretical knowledge. The size of the elements of the triangle are representative of the relative importance, to the Practice Educator, of each aspect of practice. The starting point for Practice Educators is likely to be an assessment of their student's observable practice, with the assessment of their theoretical knowledge being a secondary priority.

Figure 3.2 An alternative view of Miller's framework
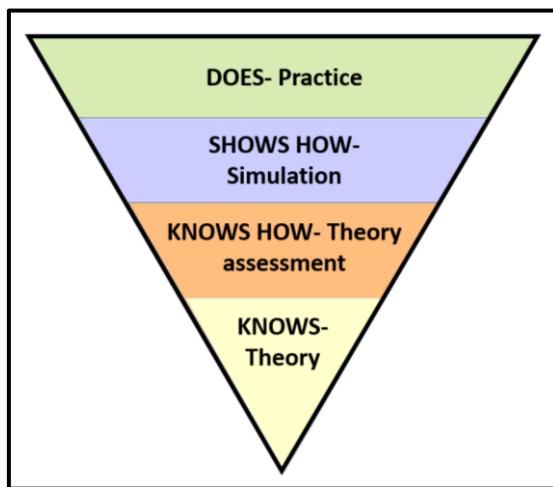
This distinction between the views of the practice-based assessor and the academic assessor is considered by Dornan *et al.* (2005) and Morcke *et al.* (2006) to be addressed by the development of specific, practice-based objectives, developed collaboratively between the practice setting and the education provider.

Another useful model, that of Brennan and Little (1996) (Figure 3.3, page 86), demonstrates the different pedagogical considerations when developing work-based curricula. The needs of the profession, the university and the employer are all considered alongside those of the student, in the wider context of political, community and service users' influences. The overlap, and distinction, between fitness for award, fitness for practice and fitness for purpose can be seen to be differing perspectives of the same experience of the student when undertaking practice-based learning. Where conflict between these aspects of 'fitness' is perceived as emerging, it may be considered to impact on the relationship between theory and practice.

Brennan and Little place the student at the centre of their model, with student centred learning being identified as a key pedagogical approach to work-based learning by Nixon *et al.* (2006), work which built on that of Rogers (1969) who contended that students' learning was enhanced when they could recognise the relevance of their learning, participate and be involved in their learning and self-evaluate in a non-threatening environment. Rogers viewed the teacher as a *facilitator* of learning, with the same role assigned to teachers in practice. This view of facilitation will be considered in greater depth in respect of the role of Practice Educators in Chapters Six and Seven.

Figure 3.3 Pedagogical approaches to a work-based curriculum (Brennan & Little, 1996)
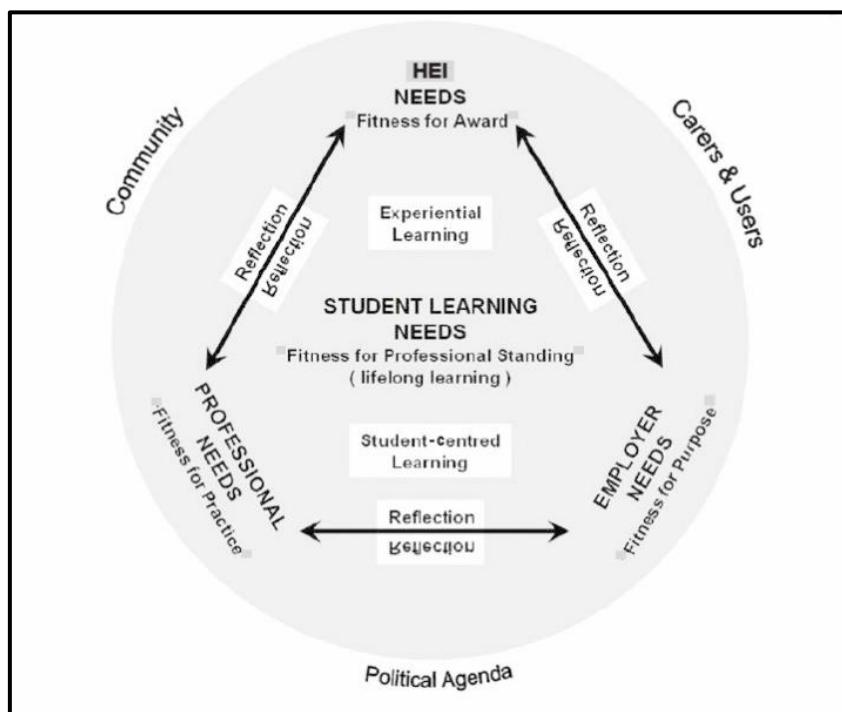
Learning is defined by Kolb as *"…the process whereby knowledge is created through the transformation of experience"* (Kolb, 1984, p38)*. The way in which Kolb considers such a transformation to be undertaken is by way of a 'learning cycle'. Kolb's learning theory comprises a four-stage, experiential learning cycle in which are contained four distinct learning styles (Figure 3.4, page 87). The four stages are 'concrete experience', 'reflective observation', 'abstract conceptualisation' and 'active experimentation'. Concrete experiences provide a basis for observations and reflections which are then assimilated and distilled into abstract concepts, resulting in the production of new implications for action which can be actively tested, in turn creating new experiences whereby the cycle can recommence. Ideally, the learning cycle should be both completed in its entirety, with each individual stage being considered by the learner, and 'spiral', in that the process is continual, with experiences generated from active experimentation restarting the cycle (Kolb, 1984).

Kolb's cycle contains four preferred learning styles; 'diverging', 'assimilating', 'converging' and 'accommodating', where learners are considered to sit within two of the cycle's stages, based on their approach to learning. Although learning styles are a contentious matter, with much debate surrounding the validity of attributing 'labels' to individuals (Cuevas, 2015), Kolb considered that people naturally prefer a particular

learning style, with various factors influencing such preference. Kolb defined three stages of development which influence learning styles. Firstly, 'acquisition', from birth to adolescence with the development of basic abilities and cognitive structures. Secondly, 'specialisation', including schooling, early work and personal experiences of adulthood, with the development of a particular specialised learning style shaped by social, educational, and organisational socialisation. Thirdly, 'integration' from mid-career through to later life where there is an expression of a non-dominant learning style in work and personal life.

In Kolb's model, the learning style preference is the product of two pairs of variables, presented as lines of axis, each with 'conflicting' modes at either end, shown in Figure 3.4, below, as the 'Processing Continuum', the horizontal line between Active Experimentation (doing) and Reflective Observation (watching) and the vertical, 'Perception Continuum' between Concrete Experience (feeling) and Abstract Conceptualisation (thinking). Kolb placed these elements as opposing one another as he considered that, when confronted with a new learning situation, one cannot fully consider both at the same time, i.e. doing *and* watching, and thinking *and* feeling, creating a degree of internal conflict brought about by a desire to do both, which is resolved by deciding which one to choose, a decision which dictates one's preferred learning style.

Figure 3.4 Kolb's learning cycle
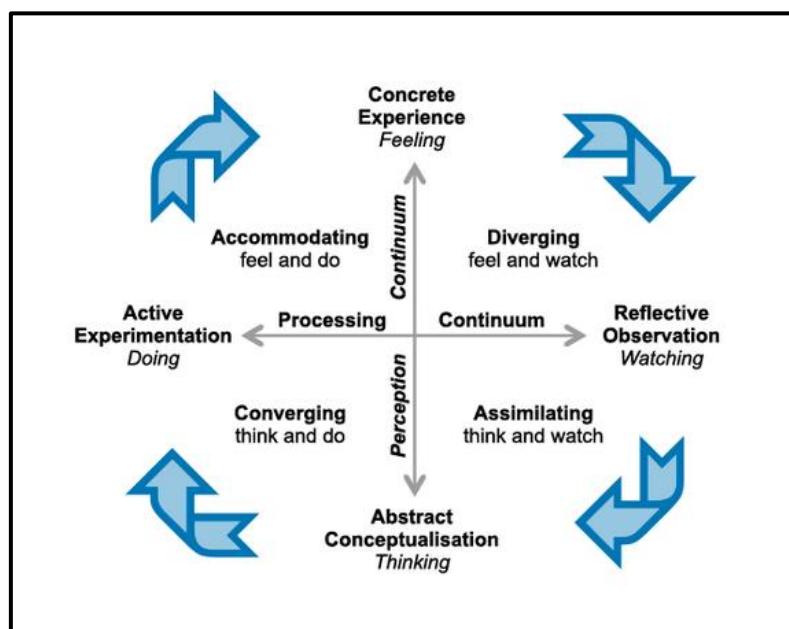
Such consideration of learning styles within a learning cycle has implications for how an individual uses their *Taught Knowledge*, based on *Taught Theory,* as well as how they view their experiences of *Situated Practice*. The difference between a student who prefers to 'watch', as opposed to 'do', when encountering a new learning experience will influence both the way in which they approach the task and the effectiveness of the experience as one of learning. If their Practice Educator has put the student in a position in which they are forced to 'do', they may not be able to 'think' effectively, by drawing on *Taught Theory*, resulting in their response to the situation being one which gives rise to feelings, which are potentially negative, relating to the situation. Similarly, a student who gains the most from an experience by jumping in and 'doing', may be frustrated if their Practice Educator does not allow them the freedom to 'do', resulting in their *Situated Practice* experience not being what they were expecting based on their understanding of *Taught Theory*.

An alternative view to Kolb's 'Perception Continuum' is presented by Parrott and Schulkin (1993), who contend that there exists an interdependent relationship between the physiological process of cognition and emotion. Emotions are inherently cognitive, in that emotions *"anticipate future needs, prepare for actions, and even prepare for thinking certain types of thoughts"* (p. 56), often acting as a trigger for the reflective process. This view places Kolb's processes of Concrete Experience, i.e. feeling, and Abstract Conceptualisation, i.e. thinking, closer together rather than at either end of a continuum.

Eraut (2000) presents a model of knowledge acquisition (Figure 3.5, page 89) based on the work of Horvath *et al.* (1996). The model shows the sources of input, i.e. practice experience and public propositional knowledge, at the top with the resultant behavioural consequence shown at the bottom of the model as 'performance'. The arrows represent the process of knowledge acquisition based on episodic memory, with the path 'A' representing the experiential learning described by Kolb (1984) where generalised knowledge structures are constructed over time following the storage of experienced events in episodic memory. Path 'B' is representative of the direct acquisition of generalisable knowledge from existing sources, such as other individuals or published resources. Path 'A*' represents implicit learning, that is learning based on the direct influence of the practice experience which is not mediated by generalised knowledge, potentially resulting in acquired tacit knowledge.

Figure 3.5 Memory structures and knowledge-acquisition pathways in the explanatory model of tacit knowledge (Eraut, 2000, p117)
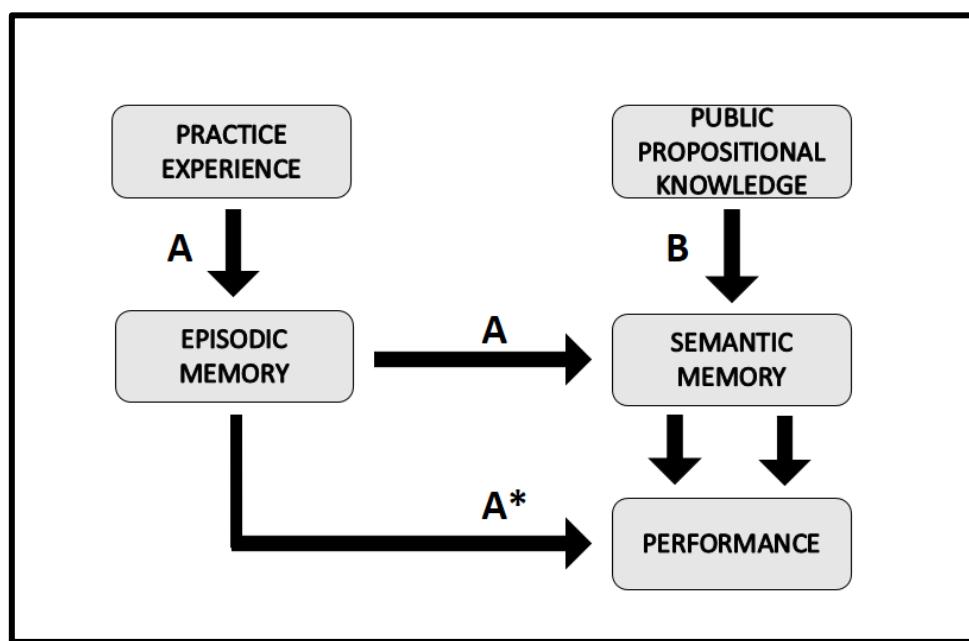
Horvath *et al.* (1996) consider that multiple pathways may be in use for the same episode, with implicit learning occurring via path 'A*' at the same time as explicit learning takes place via path 'A'. The usefulness of path 'B' becomes more apparent when considering activities in reflection to confirm understanding. This model can be related to the different influences of theory and practice on tacit knowledge acquisition, and subsequent performance, with paths 'A' and 'B' representing practice and theory respectively.

A learning process presented by Eraut (2000) can be readily transferred to demonstrate the considerations when relating theory and practice to each other. Eraut's process involves the application of scientific knowledge, which can be considered to represent theory, to practical situations. When the theory is used in a new situation, the following stages will be undertaken:

(1) Understanding the situation, which itself may require appropriate use of some prior knowledge;

(2) Recognising that the concept or idea is relevant;

(3) Changing it into a form appropriate for the situation; and

(4) Integrating that knowledge with other knowledge in the planning and implementation of action

If such a process is undertaken, the individual's capacity to think and act is enhanced by the learning involved in making the theory available for use in that type of practice-based situation. At the same time, their personal knowledge of the theory is enriched, with its meaning being extended by its use in a new, practice-based context, developing as *Personal Professional Knowledge*. These stages can be considered to represent an approach to reflection-in-action, an aspect of reflective practice which will be considered in Section 3.2.4 below.

3.2.4 Reflective practice and the relationship between theory and practice

The concept of reflective practice has been fundamental in the education and continued professional development of nurses, as well as other professional groups, for many years, with many proponents specifically identifying the use of reflection as a way of reducing the theory-practice gap (Burton, 2000; Carney, 2000; Duke & Appleton, 2000; Fonteyn & Cahill, 1998; Foster & Greenwood, 1998; Getliffe, 1996; Koh, 2002; Maudsley & Scrivens, 2000; Perkins, 1996; Smith, 1998). Kinsella (2010) argues that Schön's (1987) theories of reflection-in-action can assist health care professionals to navigate uncertain situations which manifest as a result of a perceived theory-practice gap.

Schön (1987) presents the importance of undertaking reflection to enable the theorising of practice and the practicing of theory, with a view to preventing a reliance on 'technical rationality' when approaching practice-based problems. The importance of reflection in the development of the professional is captured in Schön's often used 'swampy lowlands' analogy with the 'high ground' of theory contrasted to the lowlands of practice:

> *"On the high ground, manageable problems lend themselves to solution through the application of research-based theory and technique. In the swampy lowland, messy, confusing problems defy technical solution ..." (Schön, 1987, p. 3).*

Where a technical rationality approach to practice is adopted by following a 'set' procedure, Schön believes that practitioners are reduced to *"instrumental problem solvers who select technical means best suited to particular purposes"* (1987, p. 3). Professionals can, therefore, solve routine problems by applying scientific theories.

However, because practice-based problems tend, instead, to be *"messy, indeterminate situations"* (p. 4), adopting a technical rationality approach can be limiting. When divergent situations present themselves, reflection can be undertaken to support both the understanding and development of tacit knowledge, allowing the practitioner to better approach divergent situations in the future.

Gibbs summarises the requirement to undertake reflection as an integral part of the learning process:

> *'It is not enough just to do, and neither is it enough just to think. Nor is it enough simply to do and think. Learning from experience must involve linking the doing and the thinking.' (Gibbs, 1988, p9)*

It can be considered that the linking of 'doing' and 'thinking' is representative of the relationship between the 'doing' of *Practice* and the 'thinking' of *Theory.* There are varied approaches to reflection, with a vast array of models having been proposed, including those of Borton (1970), Driscoll (1994), Gibbs (1988) and Johns (2006). Reflective models may be 'questioning', in that they guide the break-down of a situation with structured questions; 'hierarchical', where the approach guides toward a progressively deeper knowledge; 'iterative', where new understandings are gained, with the potential to act differently in the future; or 'appreciative', whereby reflection becomes a means of asserting the positive (Turner, 2015). Whichever approach is adopted, one of the consistent themes of reflection is the consideration of theory in respect of practice.

One of the benefits of reflection cited by Moon (2002) is that it slows down activity, providing time to process material of learning and to link it to previous ideas, thereby interrelating theory and practice. Whilst a beneficial approach when considering learning in a classroom, or even a hospital ward environment, the slowing down of activity in time-critical patient situations presents something of a challenge for the paramedic, where rapid decisions and actions are often required, potentially impacting on the adoption of a reflective approach to practice.

Student paramedics are first introduced to the concept and process of reflection at university, when it is used both in the development of *Simulated Practice* within scenario-based work and, subsequently, as a focus of academic written assessment. The use of reflective models enables students to identify which aspects of their

knowledge, and associated theory-base, are lacking when undertaking *Simulated Practice* (Borton, 1970; Driscoll, 1994; Gibbs, 1988; Johns, 2006). By the facilitator allowing patients within the scenarios to rapidly deteriorate when the attending students are unable to demonstrably apply their knowledge, the importance of having, and being able to draw upon, sound underpinning knowledge is conveyed to the students. The actual practice environment, for obvious reasons, does not allow for an approach based *solely* on 'end-of-job' reflection-on-action (Schön, 1987), requiring, instead, active reflection-in-action to be undertaken to meet the expectations of patient care.

Following the tradition of nursing, several models of reflection have been developed specifically for use by paramedics, including those of Willis (2010), Smart (2011), Turner (2015) and Pocock (2013), with these profession-specific approaches acknowledging that the role of the paramedic differs from that of the nurse, hence the impetus for the development of adapted models. There is also a consideration of the evolution of the paramedic profession, with approaches to reflection being identified by Turner (2015) as a challenge for existing, non-higher education paramedics, whose access to, and appreciation of, *Formal Theory* can be considered to differ from those who are in, or who have experience of, higher education. This has implications for Practice Educators who do not have a higher education background, but are supporting higher education students.

The remainder of this section will explore models of reflection which have been selected for their relevance to paramedic practice, and/or for their contribution to the discussion of the relationship between theory and practice, and is intended to provide an overview, rather than an in-depth discussion or critique on all approaches to reflective practice.

Turner's (2015) model of paramedic reflection seeks to make clear and explicit links between practice experiences and the associated *Formal Theory*, particularly pathophysiology, which explains certain aspects of those patient presentations. Turner clearly seeks to promote the integration of *Formal Theory* into the reflective approach in order to develop the paramedic's *Personal Professional Knowledge* as well as exploring their feelings in relation to practice-based experiences. Turner (2015) considers this approach to differ from the nursing-based models of reflection, where

the focus can be seen to be on exploring the experience from a more introspective, feelings-based position, rather than a position which seeks to more systematically draw from *Formal Theory*.

Turner (2015) summarises the role of reflection in the theory-practice relationship when she says:

> *"Reflection is the bridge of clarity that lies between the diverse and complex events witnessed in practice, and the literature that explains what we see and reinforces or corrects what we do."* (Turner, p. 141)

Interestingly, Turner uses the 'bridge of clarity' as a metaphor for the role of reflection in reinforcing the links between practice and theory, perhaps in consideration of a perceived gap between the two previously presented in the literature.

Figure 3.6, below, presents Turner's paramedic reflective model where the reflecting paramedic should first choose a question coloured in black to answer, then answer the corresponding grey question, working through all the pairs of questions within the model. The model directs the examination of what happened to the patient, what the clinician did, and how they responded emotionally to the situation. The second layer of reflection asks the paramedic to find reasons as to why all these things occurred, suggesting both *Informal Theory* gathered from peers or clinical supervisors and *Formal Theory* identified from the literature. The final stage is for the paramedic to search for what is, 'in theory', the 'ideal treatment' for their patient.

Figure 3.6 Turner's (2015, p139) model of paramedic reflection
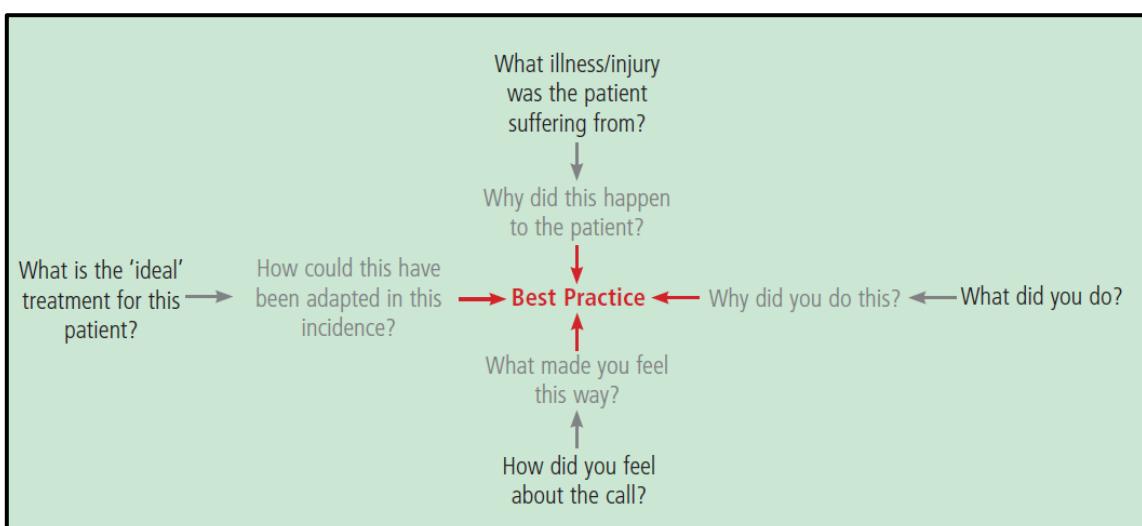
Turner's position again places the concept of 'theory' as one which portrays the 'ideal' (Sections 2.2.2 and 3.2.2) and suggests that the reflecting paramedic considers how this 'ideal' treatment may be applied to a similar patient in future. Turner further extends the role of *Formal Theory's* influence over *Situated Practice* when she suggests that the paramedic goes on to consider how practice may require development to better serve similar patients in future, stating that this would be a method of promoting 'best practice'. In this model, the focus remains on the *Formal Theory* informing and directing subsequent *Situated Practice,* with less emphasis placed on the potential for *Situated Practice,* and the paramedic's evolving *Personal Professional Knowledge,* to influence *Formal Theory.* This is not surprising as the mechanisms by which an individual's experiences, and their evolving *Personal Professional Knowledge,* can be considered to influence *Formal Theory* are limited, generally with only those directly involved in academia and research having the opportunity to formulate and publish their work in order for it to become more widely accepted as *Formal Theory.*

Willis (2010) proposes three models for reflection which all encourage paramedics to actively seek out literature and an evidence-base to support their reflective process, clearly introducing *Formal Theory* into the practice experiences of the reflecting paramedic. As Willis himself was one of the early graduate paramedics, it is not surprising that his models include academic approaches to seeking out the literature, citing 'literature searches' as one stage of the reflective process. Willis's first model, Figure 3.7 (page 95), like that of Turner, implies that the literature-based theoretical evidence should be sourced in order to determine if the actions undertaken in *Situated Practice* were 'correct', informing future actions based on the *Formal Theory* established from the literature.

Figure 3.7 Willis's (2010, p213) paramedic reflection: Model 1
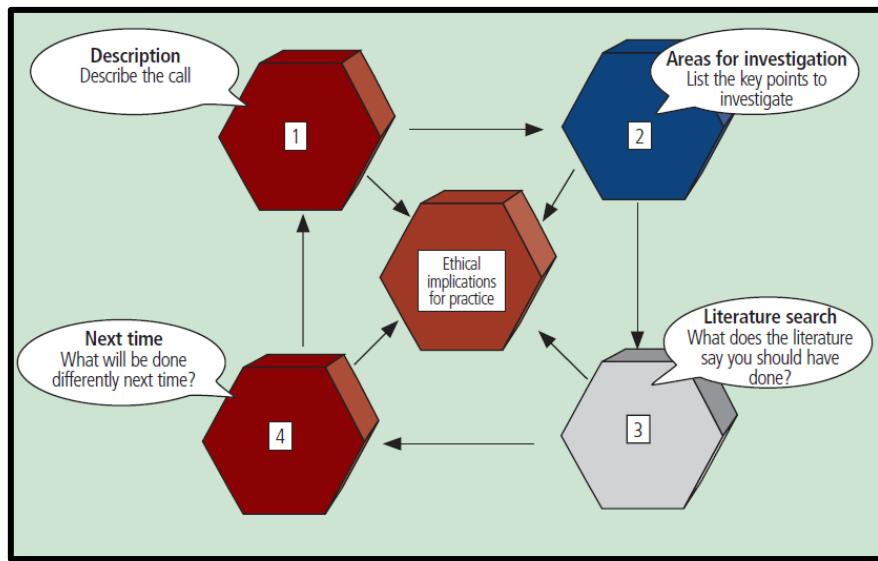
Willis's second model (Figure 3.8, below) again directs the reflector to the supporting literature; however, in this model, there is greater consideration given to the experience of 'human factors' which can be considered to be more representative of *Situated Practice*.

Figure 3.8 Willis's (2010, p214) paramedic reflection: Model 2
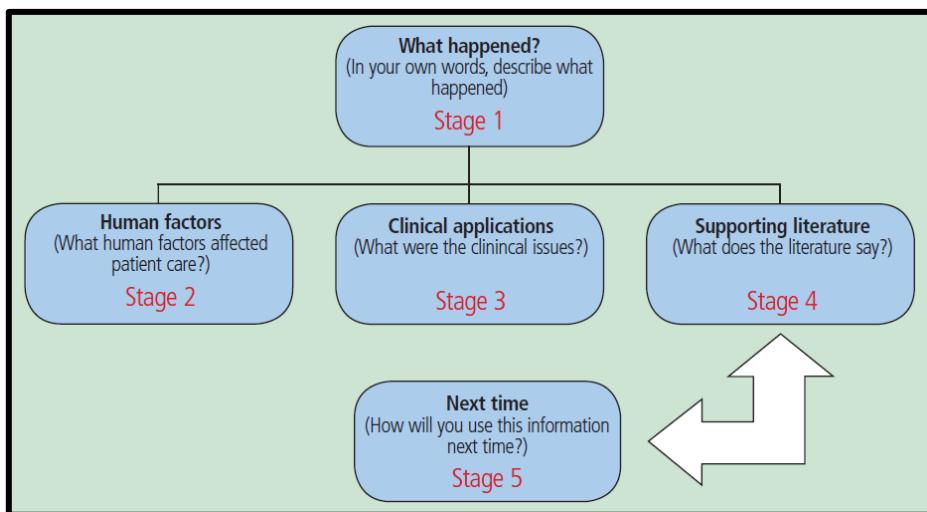
Willis's third model, Figure 3.9 (page 96), also directs the reflector to the supporting literature, i.e. *Formal Theory*, in this model terming it 'evidence-base'.

Figure 3.9 Willis's (2010, p215) paramedic reflection: Model 3
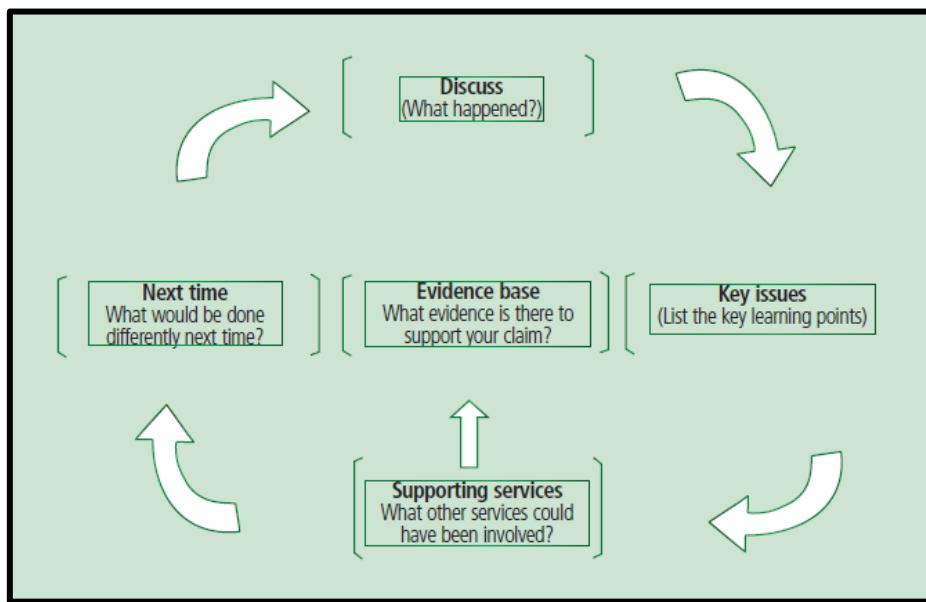
Baxter (2007) presents a model of clinical supervision for nurses which places caring at its centre (Figure 3.10, page 97). As the model was developed specifically to bridge the theory-practice gap in nursing education, it is considered to be of greater relevance here than some of the earlier produced nursing models. Baxter clearly delineates between theory and practice, suggesting that it is the role of a 'preceptor' to ensure that theory is understood and applied in the clinical setting.

As with Turner (2015), the assumption made by Baxter is that the *Taught Theory* is the 'correct' theory and it is that which should be applied to *Situated Practice*. There is no consideration that theory may be produced from the practice environment, or that such practice-based *Informal Theory* may have equal, or greater, validity or relevance to practice than that developed or taught at university. *Informal Theory*, based on experiential learning and *Tacit Knowledge* developed by practitioners does not appear to be considered as important as relating *Situated Practice* back to the *Taught Theory* of the university. Akin to other representations of the theory-practice gap, Baxter makes a very clear distinction between the realms of theory, the academic culture, and practice, the clinical culture, with each having its own distinct focus.

Figure 3.10 Baxter's CCARE model of clinical supervision (2007, p106)
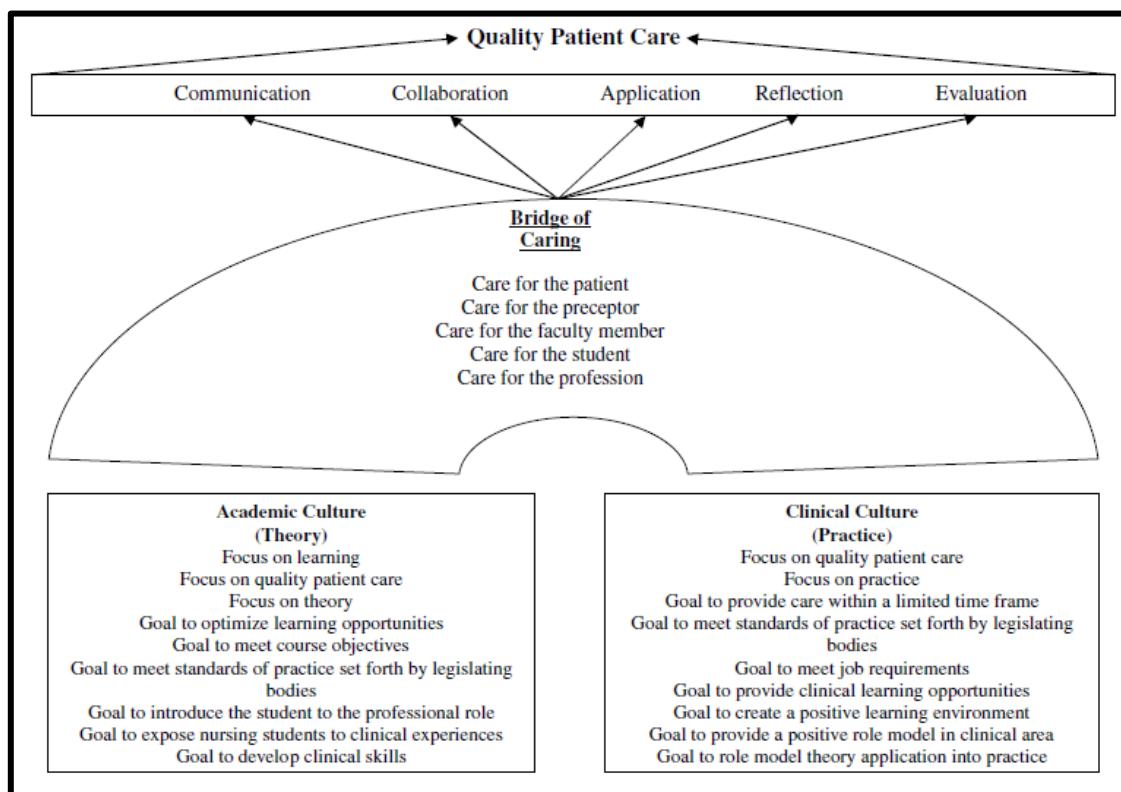
In addition to the model shown as Figure 3.10, Baxter also proposed a specific method of reflection which aims to address the links between theory and practice; the PALPATE approach (Figure 3.11, below). This approach to reflecting on the integration of theory and practice appears to be focussed on identifying how *Taught Theory* was used to support *Situated Practice*. This model of reflection represents a sound method of assessing for the presence of a potential theory-practice gap; however, it does not appear to consider theory in relation to *Personal Professional Knowledge* and the development of a personal repertoire of cases based on key learning episodes experienced by the students.

Figure 3.11 The PALPATE reflective model (Baxter, 2007, p108)

1) **P**atient situation described.
2) **A**pplication of theory (describe how it was applied).
3) **L**evel of difficulty applying the theory (scale of 1-10, 1 being extremely easy, 10 being extremely difficult).
4) **P**atient outcomes (or potential outcomes) and patient feedback.
5) **A**nalyse positive and negative characteristics of the theory.
6) **T**heory appropriateness in this situation.
7) **E**valuate your ability to apply this theory into practice and whether you would or would not use it again.

Baxter presents the model as a way of ensuring that clear links are made between theory and practice by focussing the student, mentor and preceptor on making such links explicit. There is, therefore, an assumption that such links will be readily made. If, for example, a student reported a score of '10' in respect of the level of difficulty in applying the theory to practice (item 3 of PALPATE), does this mean that the theory is not appropriate to the practice, that the theory is outdated, or that the practice environment is 'behind' the theory being discussed? The are a number of reasons why a mis-match between theory and practice might occur, and it should be this area that is investigated with a view to addressing, rather than grading, the level of disparity.

Baxter's approach requires a high level of input from a practice mentor, the student and a university-based preceptor in order to fully address each aspect of reflection. Such a resource-intensive approach, while potentially identifying the existence of a theory-practice gap would, arguably, be unworkable in the paramedic environment. The time required to complete a PAPLATE reflection for each patient encounter would not be available, nor would access to sufficient higher education tutors to support the process.

Baxter's approach can be seen to be creating a clear distinction between theory and practice, a distinction which places the consolidation of *Taught Theory* as the goal of undertaking *Situated Practice*. Whilst the encouragement of a reflective approach by the student is laudable, it could be seen as a method of highlighting the differences between *Taught Theoy* and *Situated Practice* to a limited end.

It was initially considered that the production of an alternative model/approach to identifying and managing manifestations of the theory-practice gap in paramedic practice education would be a beneficial product of this submission. This perspective evolved to consider the production of a method of representing the overall theory-practice relationship, rather than the gaps that may occur within it. Chapter Seven will present the resultant models.

Smart's (2011) IFEAR model of paramedic reflection is based on Gibbs' (1988) reflective cycle and follows a very similar pattern, having five stages; Incident, Feelings, Evaluation, Analysis and Reaction and Response (Figure 3.12, page 99).

Figure 3.12 Smart's (2011, p256) IFEAR model of paramedic reflection
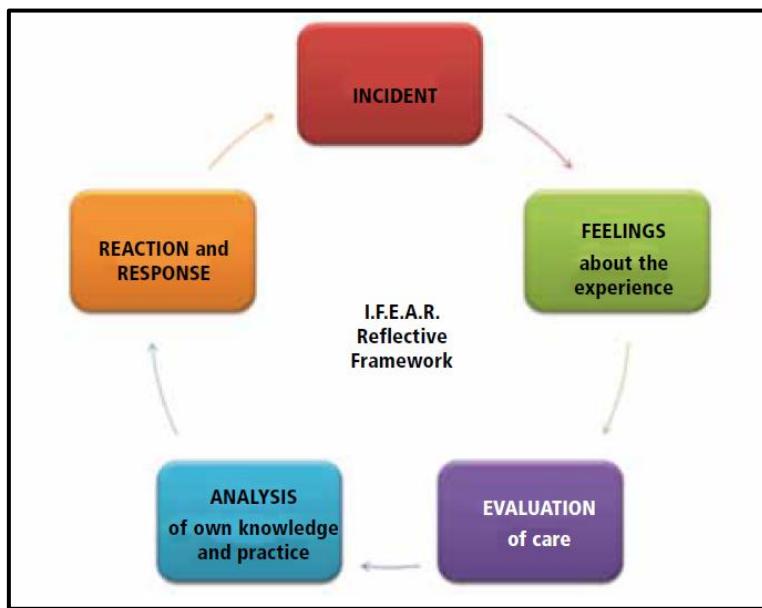
Smart presents his model as an easy way to start the process of recording learning experiences in practice in order to produce evidence for one's continuing professional development portfolio. In the 'reaction' stage, Smart advocates the seeking out of *Formal Theory* to support the learning from practice experiences. This process relies on the reflector recognising that there was a deficit in their *Theoretical Knowledge* at the time of the incident. Such insight is key in promoting the reflector to seek out supporting evidence, particularly in a model such as Smart's, where the focus is initially on feelings regarding the event, rather than learning that can be undertaken as a result of the incident.

Malthouse *et al.* (2013) present an alternative approach to reflection, that of situated reflective practice (Malthouse, 2012; Malthouse & Roffey-Barentsen, 2013) which, whilst building on the reflective approaches of Schön (1987), Kolb (1984) and Gibbs (1988), differs in that it focusses on external influences rather than the internal considerations generally associated with traditional reflective practice. The external influences can be viewed as those situational circumstances which are outside of the individual's immediate control, with the situation acting as a catalyst for reflective thought. Situated reflective practice is, therefore, primarily concerned with the emergence of situations which affect the individual in significant ways, as opposed to reflecting on something that they were fully responsible for.

Malthouse *et al.* (2013) identified three elements for consideration when identifying a situational context in relation to situated reflective practice:

1. *The Setting* - to include the broad location, physical environment, time and ambiance. The physical surroundings are considered important, giving the example of *"a motorway hard-shoulder for a young paramedic"* (p78).
2. *Social* - to include the learning community, relationships, expectations, other people and the activities involved.
3. *Personal/Individual* - to include individual traits, skills, competencies, moods and expertise. People can be seen to have discernible styles of reflection with depth, breadth and complexity differing between individuals (Akerlind, 2007; Bell & Mladenovic, 2013; Bleakley, 1999; Moon, 2004).

Malthouse *et al.'s* (2013) view is that, as individuals respond in different ways to the situations that they encounter, it is not just their reflective style that should be considered, but also their perceptions and appreciation of the situation. The most obvious application of the situated reflective practice approach in paramedic education is related to the 'setting', with the setting of the majority of student paramedic experiences and interactions being hugely variable. The fact that some physical settings cannot be changed, but that they may be differently managed, adds to the otherwise predominantly internal considerations of alternative approaches to reflection.

Consideration of the 'social' aspects when undertaking situated reflective practice may influence students' approaches to learning based on their perception of their colleagues, including Practice Educators, and the relationships that they have with them. Recognition of such influences can be considered to better prepare the student for subsequent challenges in respect of their ongoing professional development (Malthouse, 2012).

Each of these approaches to reflection and reflective practice involve considerations of the concepts and applications of both theory and practice, thereby constituting theory-practice relationship models. The influence of reflection on the relationship between theory and practice will be further considered in Chapter Seven. How reflection and reflective practice are integrated into paramedic curriculum design,

along with considerations of how such design influences the theory-practice relationship, will be explored in Section 3.3, below.

3.3 Paramedic education and the theory-practice relationship

3.3.1 Curriculum design

This section will consider the influence of approaches to paramedic education on the relationship between theory and practice.

Bines (1992) proposed three models of professional education; the pre-technocratic, the technocratic and the post-technocratic. The pre-technocratic model describes professional education as taking place largely 'on the job', with some instruction being given through block and/or day release in a training school. Training is mainly provided by experienced practitioners and is seen as the acquisition of 'cookbook' knowledge, largely from practice manuals, along with the mastery of practice routines, an example of *Activity-based Practice*. This model correlates directly to the paramedic training model historically delivered as part of the IHCD process (Section 1.2.1).

Bines' second, technocratic, model is characterised by the division of professional education into three main elements; a systematic knowledge-base, the interpretation of the knowledge-base to practice and supervised practice in selected placements. This is the model which is more recognisable as the paramedic degree programmes which developed in the late 1990's. Rolfe (1996) identifies that these elements closely align to the three components of professional knowledge proposed by Schein (1973) of basic science, applied science and technical skills, an approach which formed the basis of Project 2000 in nursing education. The recent history of paramedic education can be clearly linked to the developments in nursing when implementing Project 2000, where there was a move from a 'pre-technocratic' towards a 'technocratic' model of education.

Rolfe (1996) criticises this curriculum approach due to the way that it presents 'pure sciences' before they are 'applied', with both pure and applied concepts being delivered prior to practice, thereby reinforcing a hierarchy where theory can be seen to be given greater importance than practice. As with most educational programmes, such a linear approach to curriculum delivery is the standard for paramedic degree programmes within the UK. Pure sciences, such as anatomy and physiology, are

taught alongside social sciences, such as psychology and sociology, with a foundation of theory considered to be required to be able to take the student to the next, applied, level. Such initial application is generally undertaken by way of simulated patient encounters, or scenarios. In the safety of the simulated environment the student can apply their theoretical understanding and begin to develop a deeper understanding of the *Taught Theory* as it applies to practice in order to develop their *Personal Professional Knowledge*.

The effectiveness of this approach to professional education was challenged by Bines (1992) as resulting in a wide variation of competencies, as well as differing considerations of the theory and practice required to undertake the professional role. Bines strongest criticism was levelled at the technocratic model representing a 'two-step' approach of applying knowledge to practice, which had the potential to perpetuate a theory-practice gap. The development of recognisable professional standards, such as those put forward by the College of Paramedics (2017a), the HCPC (2014) and the QAA (2016), goes some way to alleviating the concerns raised by Bines with respect to uniformity of curricula; however, the approach remains a 'two-step' one, with theory necessarily preceding practice.

One challenge with this curriculum approach was identified by Willis *et al.* (2010) in their exploration of the 'road readiness' of Australian paramedics, where students undertook their degree with a curriculum focussed on theoretical components and minimal practice experience gained prior to graduation. Willis *et al.* (2010) gave particular consideration to the 'supporting sciences', identifying these as including interpersonal skills, ethics, law, psychology and sociology, with the relevance of knowledge in such areas often being called into question by both students and existing paramedics. Willis *et al.* found that university programmes could only produce novices, as opposed to beginner practitioners or experts (Benner, 2001), a finding partly based on the lack of maturity and experience gained by students within the university setting prior to graduating and entering the workforce. Willis *et al.* (2010) considered that more overt integration between the clinical aspects of the curriculum and the supporting sciences would better facilitate the transition from novice to beginner practitioner.

Such a finding can be considered to be a view of the theory-practice relationship where the theory of some curriculum areas is not overtly presented as being relevant to the

practice of other curriculum areas. This position will be considered further in Section 5.3.

Once the student enters the 'real world' of the practice environment, the third of Bines' models can be considered, that of the 'post-technocratic'. In this model, Bines suggests that as much importance should be placed on *Informal Theory*, that which is generated out of practice, as is placed on the *Taught Theory*. For the post-registration professional, this approach to further development and education can be considered reasonable and valuable, drawing as it does on the experiences of the practitioner and their own *Personal Professional Knowledge* to generate *Informal Theory*. The challenges associated with attempting to introduce a post-technocratic model as a method of educating undergraduate students are, however, significant.

For a post-technocratic approach to be successful, the mentor, or Practice Educator, must be suitably prepared and able to adequately facilitate reflection-on-action (Schön, 1983) and encourage reflective practice and critical reflection, whilst also having a clear understanding of *Tacit Knowledge* and its development in the practice setting. Bines considers the role of the mentor to be to attempt to support the student to explore the limits of pure theory when applied to real-life situations rather than to impose order, structure and perfection in the practice setting (Rolfe, 1996). For such a role to be successfully undertaken, the Practice Educator must be not only an expert clinician, but also an expert facilitator of learning.

As previously discussed, the nature of front-line ambulance work does not readily lend itself to nurture such an approach, with some Practice Educators lacking both the necessary skills and the time that would be required to be effective in such a role. Effective, continued Practice Educator education would address some of these concerns, with methods and techniques of facilitating practice-based learning being the focus of these programmes (CoP, 2017). In the absence of such programmes, the role of the link-tutor, or lecturer practitioner, could be one that is utilised to undertake the role of facilitator in this sense. By ensuring, as much as possible, that students are appropriately equipped to manage their own learning, and, to a certain extent, manage their Practice Educator's approach to their learning in practice, it is more likely that the effective development of *Personal Professional Knowledge* will be achieved.

Rolfe's (1996) proposed 'reflective spiral curriculum', where there is little formal theory delivered to students and the students develop their own personal, *Informal Theory*, would not be considered practical in the early stages of the development of paramedics. The expectation of Practice Educators is that their students will have a recognisable level of *Taught Knowledge* when they embark on clinical placements, a level which can be audited against programme specifications and required learning outcomes (CoP, 2017; HCPC, 2014).

In this regard, a linear approach to curriculum appears to be appropriate. The principle of a student developing their own *Informal Theory*, as proposed by Rolfe, is sound only when the student has an existing level of theoretical understanding, and a degree of practice experience, on which to reflect and enhance throughout their later practice experiences. To suggest that a paramedic student could enter the practice arena and use their experiences with actual patients to develop their own *Personal Professional Theory* would be so alien to Practice Educators and ambulance services as to be unworkable. It could also be argued to present a significant clinical risk to patients and would not, therefore, be supported by employing ambulance trusts.

Adopting a broadly spiral curriculum (Bruner, 1960) during the later stages of an undergraduate programme, where the same subject areas are revisited in greater depth, would, however, appear to be a sound approach to paramedic curriculum design, and is one that is claimed to be delivered by many universities and one advocated by the College of Paramedics (CoP, 2017).

Henderson (2002) discusses 'compartmentalisation' within nursing practice, where the task-oriented practices of the nurse, *Activity-based Practice*, are seen to override the holistic approach advocated by *Taught Theory*, resulting in student nurses experiencing a gap between the theory of holistic care and the practice of undertaking a series of tasks which are not necessarily focussed on the patient. This position is also proposed by other researchers (Corlett, 2000; Shariff & Masoumi, 2005) who consider the different demands between theory and practice, including the matter of 'sequencing' in educational programmes.

Shariff and Masoumi (2005) identified that a lack of knowledge among students in practice could cause anxiety and fear, highlighting the requirement to appropriately sequence university input to prepare students for their practice experience. The

challenge with such sequencing when preparing paramedic curricula is that, unlike the majority of healthcare roles, the exact nature of individual student paramedic's practice experiences cannot be planned in advance. It would not be uncommon for students to encounter situations in practice which have not yet been addressed in their *Taught Theory*, for example obstetric, maternity or paediatric presentations, which are often taught towards the latter end of academic programmes.

Similarly, there can be no guarantee that a student would encounter a patient with a cardiac presentation when the student has just completed their cardiac care module. The benefit of non-ambulance, wider health-care, practice-based learning opportunities becomes apparent in such circumstances, where the student can undertake a purposeful, specific placement, for example in a hospital cardiac unit, to consolidate this particular aspect of their learning alongside the experiences of managing the unplanned patient load associated with front-line ambulance work.

The opposing 'values of learning' between clinical staff and universities (Allan *et al.* 2010) has also been identified as presenting a potential exacerbation of any theory-practice gap. Allan *et al.* (2010) found that the supernumerary status of nursing students had a negative impact on their learning experiences as they felt that they were on the periphery of practice, rather than being fully immersed in the practice role. As an experienced ambulance service link tutor and Practice Educator, this author would suggest that Allan *et al.*'s work is less likely to apply to paramedic students who, whilst also supernumerary, are less able to slip to the periphery of practice due to the one-to-one nature of supervision afforded them during ambulance-based placements. Students who do not actively engage in patient interactions during practice-based learning are readily identifiable by Practice Educators and supportive action undertaken. There are, however, occasions where the Practice Educator pushes their student to the periphery of practice, sometimes due to their lack of confidence in the ability of the student to effectively treat patients. This aspect of the students' experiences of theory and practice will be considered in Chapter Six.

3.3.2 The hidden curriculum

The 'hidden curriculum' is a phenomenon that has been identified in many professional curricula, including nursing (Aled, 2007; Cook, 1991; Davies, 1993; Mayson & Hayward, 1997). Cribb and Bignold (1999, p. 24) describe the hidden curriculum as

the *"processes, pressures and constraints which fall outside…the formal curriculum and which are often unarticulated or unexplored."*

It is considered to be a process by which students are socialised into professional behaviours and practice, with such socialisation being heavily influenced by Practice Educators. Allan *et al.* (2010) argued that to be an effective learner, student nurses must negotiate their position as a student in the ward team. The experience for paramedic students is one that is somewhat different in that they are developing relationships with one Practice Educator and their crewmate at a time, rather than a wider ward team. The nature of the hidden curriculum, and the socialisation of the paramedic student is, therefore, much more heavily dependent on that single relationship (Lane *et al.,* 2016).

It has been argued that the hidden curriculum in professional education is important due to the amount of time spent in practice as opposed to time spent in the academic setting (Assor & Gordon, 1987; Bloom, 1972; Cribb & Bignold, 1999; Hafferty, 2000; Lempp & Seale, 2004). Spouse and Redfern (2000) assert that there is a fine line between the tangible and intangible aspects of the curriculum, with Hargreaves (1980) suggesting that these intangible aspects are, in fact, known and obvious to everyone involved. Hargreaves (1980) proposes the term *'para-curriculum'* as an alternative to hidden curriculum, as it is learnt *alongside* the formal curriculum. Where aspects of a student's learning in practice are influenced by the hidden, or para-, curriculum, there is the potential to form a perception of a gap between *Taught Theory* and *Situated Practice* due to the likely absence of any related formal content within the taught curriculum.

To lessen the apparent disparity between the roles and aims of the academic when compared to the practitioner in nursing education, various roles have been researched, with the lecturer practitioner (Brereton, 1995; Cook & Wilby, 1998; Fairbrother & Ford, 1998), nurse teacher (Landers, 2000) and nurse preceptor (Öhrling & Hallberg, 2000) all being explored.

3.3.3 Practice Educators and the theory-practice relationship

The term 'Practice Educator' is, in paramedic education, used to identify the practitioner who is responsible for overseeing the development of a student in the

practice environment (CoP, 2017). Other professional groups often use the term 'mentor' when describing such a role, which can lead to some confusion in identifying exactly who is a Practice Educator and who is a mentor in certain ambulance service practice supervision structures. In broad terms, it can be considered that the terms 'mentor' and 'Practice Educator' are interchangeable. With the vast majority of literature adopting the term 'mentor', both terms will be used in this discussion with the distinction that Practice Educator refers specifically to paramedic practice education.

There are numerous definitions of the mentor role, with McIntyre and Hagger (1996) defining the mentor as someone who wears the 'teacher's mantle' and who has the interpersonal skills to be an effective manager of adults. Lloyd *et al.* (2001) describe the mentor as being a role model and someone who facilitates students' clinical learning experiences by undertaking clinical teaching and assessment whilst on placement. Jarvis and Gibson (1997) note that mentors should be highly qualified people who enter into one-to-one teaching and learning relationships with junior colleagues in order to help them perform their role.

Based on the above examples, a mentor should be someone who has clinical expertise and can lead by example, as well as being involved with the teaching, learning and assessment of the mentee. Aagaard and Hauer (2003) developed this definition further by approaching mentorship from a more holistic perspective. They concluded that the mentor should promote development by addressing the student's individual needs, weaknesses and accomplishments and understand the student's future goals. They contest that the mentor should be more than just a role model or advisor to the mentee. Sullivan (2000) also approached the role from a broader view and described the mentor role as enabling mentees' behaviour and attitudinal change.

Caldwell and Carter (1993) consider that the definitions of a mentor fall into two distinct categories, those that focus on professional development and those that emphasise both professional development and personal growth. The latter addresses the emotional aspects of practice placements and the support required from the mentor to help the mentee find ways of coping with the intensity of their daily work. This is particularly relevant with regards to the potentially highly stressful and emotionally demanding nature of paramedic work. The importance of interpersonal relationships in practice-based learning was initially explored by Kurt Lewin in the early 20th century

(Lewin, 1947), whose work influenced the production of experiential learning models such as Kolb's (Figure 3.4, page 87) (Argyris & Schön, 1974, 1978; Kolb, 1984). Lane (2014, 2016) also explored the relationship between student and Practice Educator in paramedic practice-based learning, identifying that the relationship was an influential aspect of learning.

The literature recognises that the role of the mentor places significant demands on those wishing to undertake it. As such, it has now become widely recommended that the mentor should receive some form of formal training prior to the supervision of students. The Nursing and Midwifery Council (NMC, 2006) highlighted that experience as a mentee, or in practice alone, is not sufficient to qualify as a mentor. The College of Paramedics insists that prospective mentors undertake Practice Educator training, and it is desirable for Practice Educators to hold a recognised assessor's qualification (CoP, 2017). Andrews and Chilton (2000) suggest that mentors need to be prepared for the role, which incorporates more than observing others alone.

The majority of NHS Ambulance Trusts in the UK now provide their Practice Educators with some degree of formal training, often developing partnerships with universities to deliver such programmes. One key aim of delivering such training is to attempt to provide student paramedics with a standardised approach to their placement period, regardless of who their Practice Educator is. Finnerty *et al.* (2006) revealed the need for structured support for the mentor to fulfil their role as supervisors and assessors, with formal courses going some way to providing this. Unfortunately, despite the formal training, poor practice placement experiences can still occur. This was evident in the pilot study of students' experience towards ambulance clinical placements conducted by Boyle *et al.* (2008). They found that students felt dissatisfied with their learning experience during placement time. The students' experiences were very broad and varied depending on their location and exposure to cases, as well as on the input that they received from their Practice Educator.

Where students are developing their *Personal Professional Knowledge* during practice placements, their Practice Educator can be expected to be a key influence. Both mentor and student must respect each other as fully autonomous collaborators to enable the mentor to shift from expert to learner and for the student to shift from novice

to competent participant (Habermas, 1993; Yorks & Marsick, 2000). Kegan (1994) describes such a shift as being both cognitively and emotionally *'wrenching'* (p. 275).

Different approaches to facilitating practice education have been proposed, with Bee and Bee (1998, p18) differentiating between adopting a facilitative approach and a directive approach (Figure 3.13, below). In the out-of-hospital environment, it is likely that a combination of both facilitative and directive approaches will be undertaken, with the choice of approach dependant on both the presenting circumstances and the ability and confidence of the Practice Educator, with the potential for approaches from each end of the spectrum to become apparent in a single patient encounter.

Figure 3.13 A directive versus a facilitative approach to Practice Education

Directive	Facilitative
Use when: • Aims and objectives are unclear and will be difficult to clarify. • There are very tight time constraints. • The culture/atmosphere is one of suspicion and insecurity. • The attitude towards information is one of limited access and concealment. • Your facilitation skills are undeveloped.	**Use when:** • Aims and objectives are crystal clear or are capable of clarification. • Sufficient time is available or can be made available to meet the aims and objectives. • The culture/atmosphere is one of openness and trust. • The attitude towards information is one of accessibility and transparency. • You are confident in your facilitation skills.

Loftus-Hill and Harvey (2000) discuss the move away from more traditional, didactic teaching methods to the student-centred approaches advocated by Rogers (1969) and Brookfield (1986) where the (practice) educator becomes a 'facilitator' of learning who is enabling the student to develop their *Personal Professional Knowledge* by providing a 'helping hand' and removing obstacles that may be present.

Bently (1994) highlighted the difference between teaching and facilitating learning when he noted that facilitators concentrate on providing the resources and opportunities for learning to take place, rather than managing and controlling learning. Such an approach, where the Practice Educator is considered to be a facilitator of learning, is at the core of the College of Paramedics' Practice Educator Guidance Handbook (2017b), which presents a guide for paramedic Practice Educators and details the expectations of the role (Figure 3.14, page 110). This diagram shows the key roles of the Practice Educator as being role-model, coach, leader, teacher, mentor

and assessor. The outer ring adds in the personal attributes considered to be required to undertake the Practice Educator role.

Lane (2014) presented three challenges which were considered by Practice Educators in relation to their ability to support students in the workplace, two of which can be directly attributed to the role of the Practice Educator being primarily that of an employee as opposed to an educator. These areas were 'support', particularly in respect of being allowed sufficient time to adequately perform the role of Practice Educator, and 'recognition', where the absence of any incentives to undertake the role were discussed. The third area was that of the 'mental well-being' of students, a component of the role for which the Practice Educators felt ill-equipped.

Figure 3.14 The College of Paramedics' Practice Educator Model (2017, p19)

Lane (2014) discusses how the one-on-one Practice Educator mentoring model required in the ambulance service setting may lead to students placing significant emphasis upon developing a good working relationship with their Practice Educator, with a 'significant minority' of students wanting their Practice Educator to be their friends, even when this sentiment was not always reciprocated. The nature of the paramedic role, where student and Practice Educator are situated in very close physical proximity, as well as sharing the inherent emotional challenges presented by the situations in which they find themselves, lends itself to the forming of very strong emotional links.

By comparison, students in other healthcare professions are generally supported in a wider team context and can form different relationships with different team members, depending on their needs and wants at the time. The student paramedic does not have the same range of options available to them in the workplace. Anecdotal evidence suggests that, as a result, students and Practice Educators often become friends once the student has entered the profession and is seen as a peer. It is, therefore, inevitable that friendships develop between students and Practice Educators during undergraduate programmes; however, the degree to which such friendships can impact on the objectivity of the Practice Educator as an assessor of student performance is an area for consideration outside of this submission.

3.3.4 Experiences of practice-based learning

The development of students' *Personal Professional Knowledge* relies on what the students actually experience during their practice placement, with Boyle *et al.* (2007) identifying a lack of consistency among the practice experiences of student paramedics: *"Where students do obtain clinical placement, their learning experiences and opportunities for patient care are heterogeneous and unreliable."* (p 856).

Although Boyle *et al.* were undertaking their research in Australia, where access to practice placement time within undergraduate degree programmes is considerably more restricted than within UK programmes, the very wide-ranging experiences that students can be exposed to, regardless of the duration of placements, will undoubtedly influence their learning in, and from, practice (Eraut, 2003).

When on placements, students may experience a varying amount of 'down-time', the time that crews have between calls where they return to their base station. Michau *et al.* (2009) found that almost 80% of students questioned proposed that this time could be more effectively used to reinforce learning by doing structured activities. This could include practicing with equipment, vehicle familiarisation and even by holding mini-scenarios. However, such 'down-time' is rapidly becoming a thing of the past due to the pressures of meeting operational targets. Crews are expected to remain 'Green Mobile' between calls and are now often put on 'Active Area Cover', more commonly known as standby, which takes place at the side of the road. The implication of this being that crews no longer get the opportunity to return to their base station and the structured activities suggested by Michau *et al.* cannot easily be undertaken, reducing

the opportunities to consolidate clear links between practice-based experiences and *Taught* or *Formal Theory*.

The locality of ambulance placements is also a consideration with regard to the experiences of students. Most ambulance services have both urban and rural areas within their catchment, with a diverse population range and variable access to treatment centres. The nature of care delivery that takes place in an urban, city environment, where transfer time to hospital is rarely greater than twenty minutes, differs considerably from the nature of care delivery in very rural areas where there are limited destination options and the paramedic is required to spend longer periods with their patients during transfer. The student in the urban environment may attend a higher call volume and be engaged in patient care for a higher proportion of their time than the rurally placed student who does not undertake as many calls, but who does spend proportionally longer with each patient that they convey. Ideally, practice placements would address both environments to allow for a range of development.

Such differences in placement experience may impact on students' perceptions of the relationship between theory and practice. It may be one student's experience that, during a relatively short practice placement, they were able to relate their practice experiences to *Taught Theory*, and vice versa, because they encountered patients and situations where such links were more readily formed. Another student may spend a comparatively lengthy time in placement, but not encounter the same learning opportunities, potentially resulting in a negative perception of the relationship between *Taught Theory* and *Situated Practice*. The additional factor of the involvement of the Practice Educator in facilitating reflection may also impact on the students' perceptions of *Taught Theory* as it relates to practice, with effective facilitation potentially increasing the ability of the student to develop their *Personal Professional Knowledge* irrespective of the number and range of incidents that they have personally attended.

The large recruitment drive and modernisation of the NHS at the end of the 20th century massively impacted on the availability of clinical practice placements. Harrison (2004) recognised that pressures on placements to support large numbers of students were exacerbated by the restrictions of the academic year, a situation faced by undergraduate student paramedics who are expected to achieve competence in clinical areas prior to progressing in their degrees. Hutchings *et al.* (2005) found that

the increase in learner numbers had impacted on clinical placements' capacity to support learning, and, subsequently, the learners' achievements in practice. Michau *et al.* (2009) raised the issue that the opportunity to integrate theory with practice is further worsened by an already constrained health care system that struggles to meet competition for placements.

By developing a better understanding of the way in which student paramedics approach their practice-based learning, and their experiences of the theory-practice relationship, differences between the placement experiences of individual students can be considered along with their potential impact on the development of *Personal Professional Knowledge.*

3.3.5 Praxis as a representation of the theory-practice relationship

Praxis, when considered in the educational setting, can be defined as the process by which a theory, lesson, or skill is enacted, embodied, or realised (Carr & Kemmis, 1986). Praxis may also refer to the act of engaging, applying, exercising, realising, or practicing ideas and can be summarised as being education for use (Lindemann, 1944). It is with this view of praxis as 'education for use' that the term is proposed to describe the process of learning undertaken by student paramedics during their practice placement experiences.

Praxis is not the same as practice, with one view of how they differ, proposed by Bernstein (1983), being that with praxis there can be no prior knowledge of the right means by which the end is realised in a particular situation. As the practitioner thinks about what they want to achieve, they alter the way in which they might achieve that end, with a continual interplay existing between ends and means. The incorporation and continual interplay of both theoretical and practice-based knowledge and experience undertaken during practice placements can, therefore, be considered to constitute praxis, sometimes termed 'phronesis' or 'practical reasoning' (Engberg-Peterson, 1983; Nussbaum, 1986).

Praxis is more than just taking action based on reflection and can be seen to be closely linked to the undertaking of autonomous practise, with Carr and Kemmis (1986, p. 190) stating that praxis requires that the practitioner *"makes a wise and prudent practical judgement about how to act in <u>this</u> situation"*. Because each situation

encountered in practice is unique, with a fresh context, new participants, a peculiar set of circumstances, unforeseen challenges, etc., praxis is considered *"the ability to recognise, acknowledge, pick out and respond to the singular salient features of a complex and unique situation"* (Buchanan, 1994, p.279).

It is, therefore, the ability to consider all of the circumstances surrounding a particular, individual situation, including a commitment to human well-being and respect for others, which distinguishes the informed, committed action of praxis.

In order to clarify the position of praxis, the model proposed by Rolf (1996) will now be discussed, with the initial evolution of a paramedic-specific model presented at Section 3.4.4 and, subsequently, in Chapter Seven.

Rolfe (1996), when discussing nursing education, disputes the existence of an actual gap between theory and practice, describing the theory-practice gap as an illusion brought about by a theoretical paradigm resulting in a problem that must be 'dis-solved' rather than solved. Rolfe suggests an approach to closing the theory-practice gap by introducing a paradigm for nursing which integrates theory and practice without creating the artificial barriers created by some nursing theorists, an approach that adopts a theory-of-practice.

Rolfe's theory is based on the development of both the nursing profession and nurse education which, although closely linked to the paramedic profession, does have some fundamental differences, such as the nature of practice and, specifically, patient interactions. The majority of Rolfe's work was undertaken in the 1990's when the nursing profession was entering into a predominantly higher education based model, similar to the process that the paramedic profession is currently undergoing. Although nursing has undergone many changes since Rolfe's original work, the context and findings are relevant to the position in which the paramedic profession now finds itself.

Rolfe (1996) describes the evolution of the nursing profession from a task centred role subservient to doctors, to a modern, holistic carer having moved from the medical model toward the social science model. There are similarities to the development of the paramedic profession; however, the paramedic profession currently has fewer underpinning theoretical 'models' than nursing and has evolved in a way that, on the surface, appears to have adopted Rolfe's proposed model.

Rolfe's (1996) Model of Learning Praxis (Figure 3.15, page 116) offers a useful diagrammatical representation of the development of *Personal Professional Knowledge* by way of a 'reflective spiral curriculum', one intended to be adopted by nurse educators to reduce any potential negative impact of the theory-practice gap within nurse education. Rolfe considered his model to present a 'dissolution' of the theory-practice gap found to exist within nursing education at the time. Rolfe's cycle starts with 'practice', where the student is given minimal basic and rudimentary skills required to enter the practice environment very early in their training (Figure 3.15: Stage 1). Reflection-on-action is then facilitated by way of critical incident analysis to enable the student to develop their own personal knowledge which is expected to later develop into a repertoire of paradigm cases (Figure 3.15: Stage 2). During the next stage, the student utilises this repertoire of paradigm cases to generate and test hypotheses, with Rolfe considering this stage to be the most difficult part of the process, it requiring high level cognitive skills of analysis and synthesis, as well as drawing on formal theory and research to support the student's learning (Figure 3.15: Stage 3).

The next stage requires the development of hypotheses, which can be considered *Informal Theory* derived from practice (Figure 3.15: Stage 4), which are then applied to subsequent situations experienced in the practice environment (Figure 3.15: Stage 5). The final stage involves the development of reflection-in-action where proposed hypotheses are adapted during the course of a patient encounter based on the learning undertaken throughout the previous stages (Figure 3.15: Stage 6). The cycle continues with reflection-on-action and follows the stages one through six again.

Figure 3.15 Rolfe's model of learning praxis (1996)
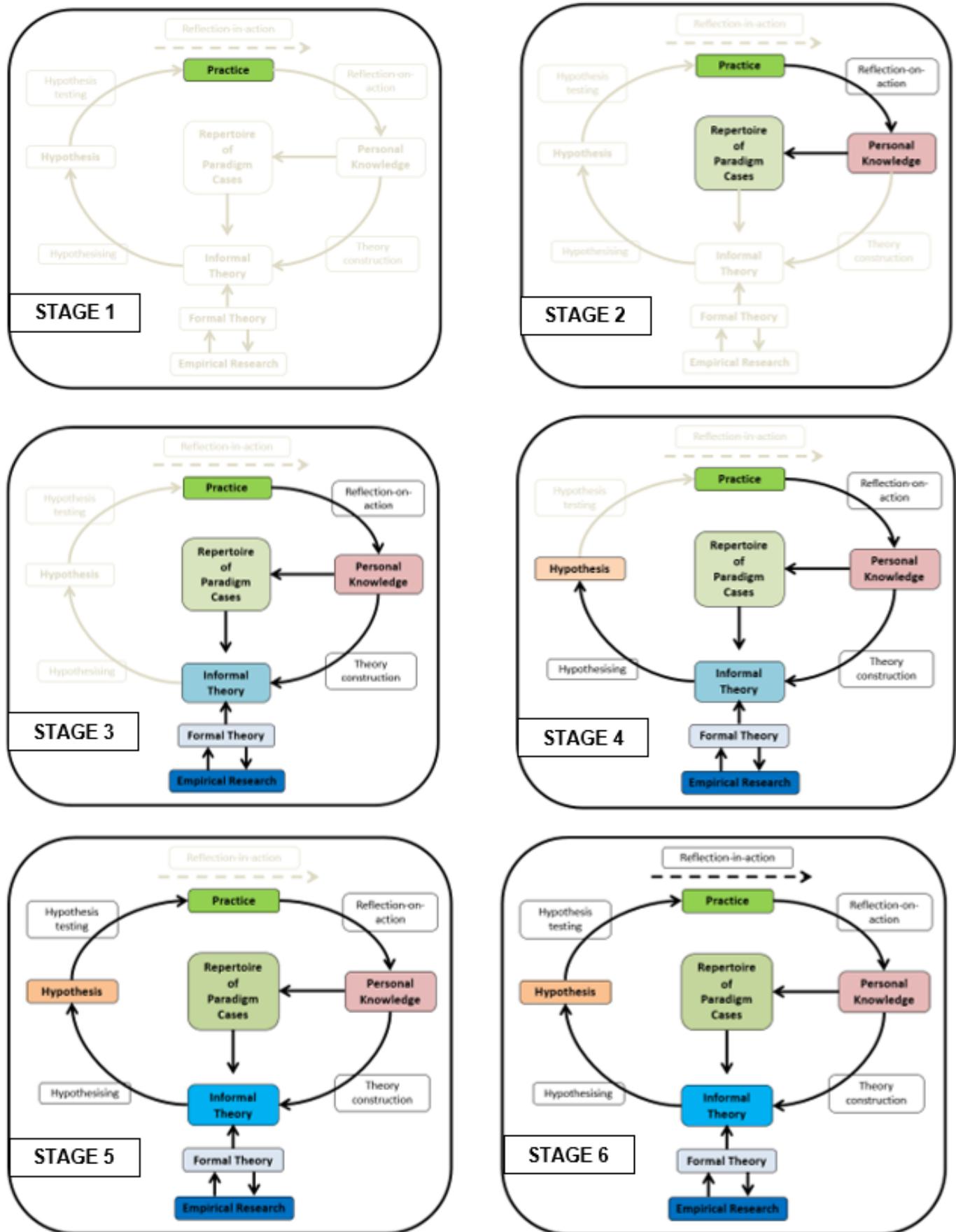
The example cited by Rolfe (1996) to demonstrate his model is that of a student who undertakes a clinical discussion with a patient prior to their undergoing a surgical procedure. The patient becomes distressed and the discussion is ended. The student then reflects on this experience and identifies that there may have been a previous experience of the patient which influenced their desire to be informed in greater detail about the pending surgery. The student then approaches the patient in a different way the next time they meet.

Rolfe considers that the final stage of the cycle, that of reflection-in-action, cannot generally be met by the student in practice, being the preserve of the experienced clinician, and that their development of *Informal Theory* is reliant solely on reflection-on-action, which, in Rolfe's model, is undertaken only when the student returns to the classroom and has time to consider their practice experiences.

Eraut (2003) considers that, depending on the repetition of the application of *Informal Theory*, it will generally need to be developed and adapted to fit with each new situation encountered, as indicated by Rolfe's suggestion of the need for both reflection-in-, and reflection-on-, action. The degree of difference between situations would dictate the degree of further learning required when reflecting-on-action and drawing on *Formal Theory* and research to add to the individual's *Informal Theory,* thereby extending their *Personal Professional Knowledge*. The relationship between an individual's theoretical capability, manifest in their *Informal Theory,* and the development of their *Personal Professional Knowledge* would, therefore, be dependent upon the range of situations and associated contexts in which their *Informal Theory* had been used.

For paramedics to construct their own *Informal Theory*, using Rolfe's model, they would need to have developed a repertoire of paradigm cases. Whilst having the potential to develop significantly over time, such a repertoire will, clearly, differ between both individual students and the paramedics acting as their Practice Educators. Student paramedics' repertoire will, initially, be very limited, resulting in a slower assimilation of information and formulation of an action/treatment plan for their patients, potentially resulting in an increased likelihood of their Practice Educator stepping in to take charge of a situation, as discussed by Lane (2014).

Without sufficient consideration to the reflection-on-action phase in partnership with their Practice Educator, the student paramedic's learning process could be adversely affected resulting in a 'chop-logic' approach to the next patient who presents in the same way, in a similar fashion to the *'A-B-C'* analogy proffered by Taber *et al.* (2008). It could be argued that the proficient Practice Educator would be able to identify when their reflection-in-action is taking place and to relate back to the process when debriefing the student, thereby facilitating the student's learning. The term 'repertoire of paradigm cases', and the abridged 'repertoire of cases', will be used throughout this submission when considering the amassed experience of the paramedic, Practice Educator and student.

A proposed model for paramedic praxis, which builds on the work of Rolfe and incorporates the student paramedic and Practice Educator perspectives of the theory-practice relationship, will be presented in the concluding chapters of this submission, with an initial conceptual framework presented in Section 3.4.4.

3.4 Conceptual frameworks representing the theory-practice relationship

This section will draw on both the previous sections and the preceding chapters to present a series of conceptual frameworks which seek to represent the theory-practice relationship considered to exist within undergraduate paramedic education.

3.4.1 Theory and practice as 'domains'

The term 'domain' has various meanings within the disciplines of law, science, geography and computing. The use of the term in this submission is two-fold; firstly, and primarily, to identify *'a sphere of knowledge, influence, or activity'* (Merriam-Webster, 2017), with the two key spheres being 'theory' and 'practice' with that of 'knowledge' also having emerged as being fundamental in the consideration of the theory-practice relationship. The conceptual frameworks representing theory (Figure 2.1) and practice (Figure 2.2) have, so far, by necessity of organisation, been presented as two, separate elements, which can be considered to be representative of the 'domains' of theory and practice, containing, as they do, the knowledge, influence and activity associated with each of these areas.

This section will explore the explicitness of placing these concepts in such discreet domains and will consider why such separation is necessary in order to begin to understand the relationships between the concepts of theory and practice as experienced by undergraduate student paramedics.

This is where consideration is given to the second definition of the term 'domain', that being *'a region distinctively marked by some physical feature'* (Merriam-Webster, 2017). The presentation of the domains of theory and practice as philosophical constructs in the conceptual frameworks, whilst useful, does not present a model which would be readily recognised by paramedic Practice Educators or students. By simultaneously considering the *predominance* of the physical features of each domain, i.e. theory being based *predominantly* within the 'physical feature' of the university and practice being based *predominantly* in the 'physical feature' of the ambulance service, the philosophical models represented by the conceptual frameworks can be supported during discussion to represent the 'where' of each respective domain.

It must be stressed that this, secondary, consideration of the term is used to support dialogue during data gathering and in the presentation of findings, rather than to present a marked delineation between the concepts of theory and practice as considered by the researcher, as will become apparent in the following sections.

3.4.2 The dissolution of the theory-practice gap

Figure 3.16 (page 121) presents a conceptual framework of the factors that were considered to impact on theory and practice, and the relationship between them, within paramedic undergraduate higher education. This framework was produced in the early phases of the study and drew on the aspects of the theory-practice gap identified in the literature. The framework was developed to inform the study and the focus of data gathering rather than being a final representation of any findings or the proposition of any final theoretical model in respect of the theory-practice relationship in paramedic education.

The framework builds on the previously described considerations of theory being akin to 'academe' by drawing in theoretical considerations from other, external areas such

as the profession's regulator and the professional body, as well as the university itself. In addition, 'informal theory' is placed within the practice domain, to the right of the framework, thus falling outside of the previously discussed, more traditional concept of theory being solely that which is delivered in the classroom. The key representation in this framework is that of the Practice Educator, forming a link, or 'bridge', between the perceived domains of theory, on the left of the framework, and practice. As it is the student who must cross this bridge, they are also represented as traversing the 'gap' between theory and practice. The Practice Educator is represented as a larger 'bridge' because it was considered that their role was important in facilitating the learning of the student and that they were better equipped to address the challenges of theory-practice integration than were their students. It was also considered that the role of the Practice Educator was more active than that of the student in this respect. The framework also depicts the theory-practice gap as a barrier, in this representation the use of the colour red also implies negativity, which is to be either bridged or circumnavigated, as represented by the blue arrows.

Figure 3.16 The Theory-Practice Gap (i)
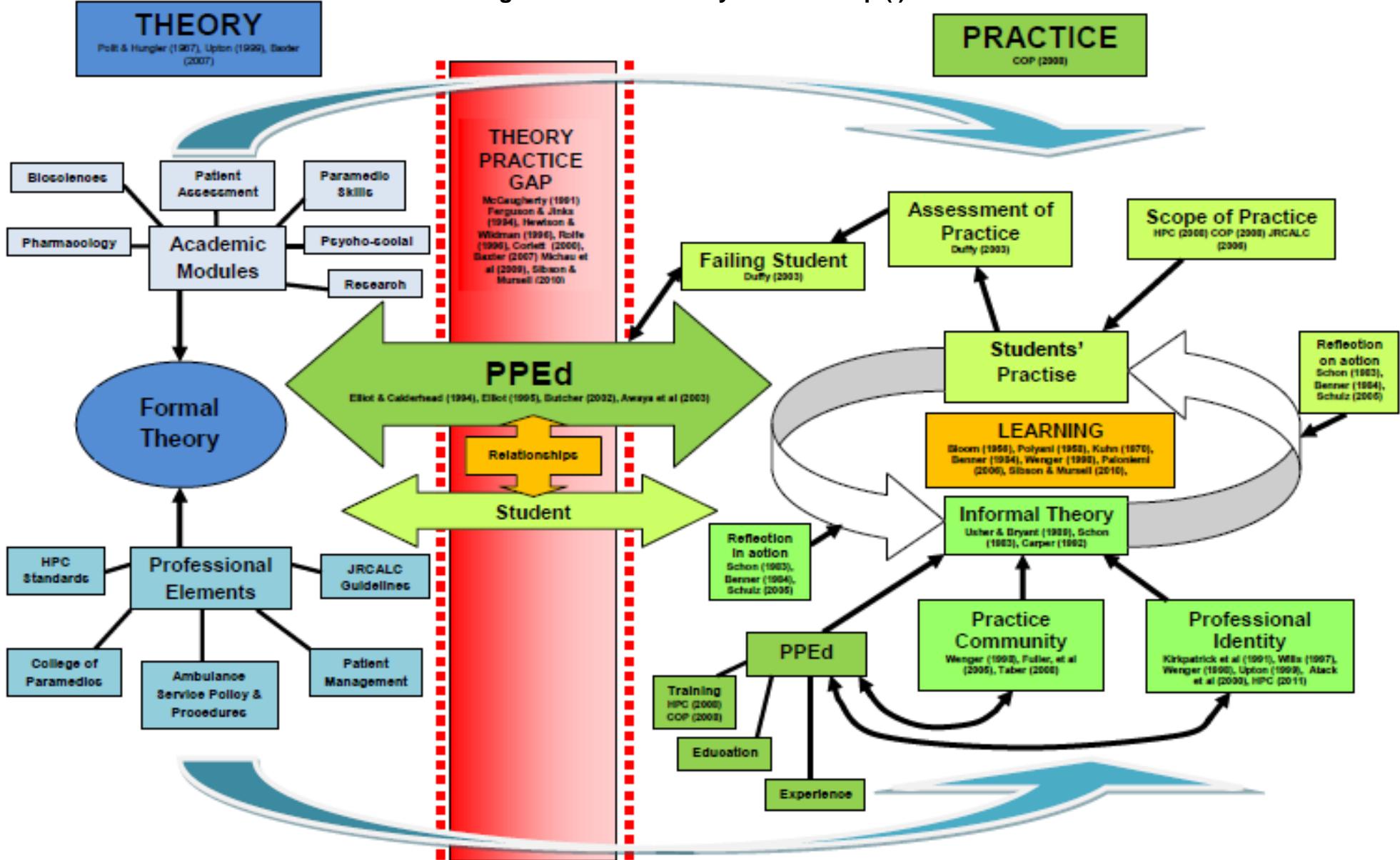
Although a useful basis for the development of the study plan, the adoption of a reflexive approach identified that this initial conceptual framework is not representative of the findings of the study, and as such, will be further revisited, considered and challenged in later sections. Its inclusion at this point is undertaken to both demonstrate a reflexive approach and to contextualise the subsequent conceptual frameworks in this, and later, chapters.

Figure 3.17 (page 123) also represents the theory-practice gap by presenting the conceptual frameworks of theory and practice previously constructed in Chapter Two. As with Figure 3.16, this representation shows theory and practice as being separated by a barrier, representative of the gap discussed in this chapter. The exploration of the literature surrounding the concepts of theory, practice and knowledge has demonstrated that the, apparently clear, division between these concepts presented in some of the literature, is not, in reality, so clearly defined. Having abstracted the concepts for the purposes of presenting three, separate conceptual frameworks in Chapter Two, the concepts will now be reconstructed to demonstrate the relationship considered to exist between theory, practice and knowledge, as opposed to the gaps between them.

Figure 3.17 The Theory-Practice Gap (ii)
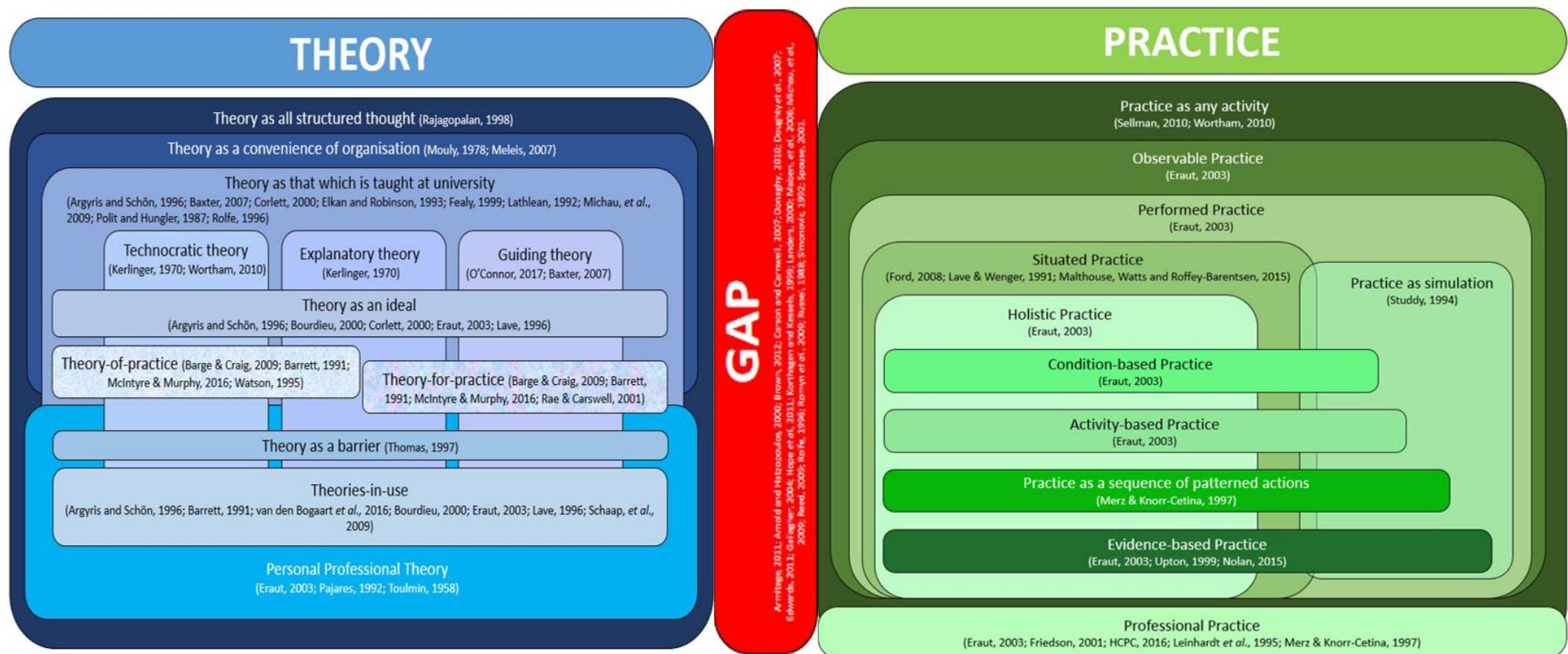
From the foundations of Figure 3.17, the conceptual framework of the 'Theory-Practice Relationship', Figure 3.18 (page 125), was developed. In this framework, the barrier, representative of the 'gap', has been removed to allow the fluid merging of aspects of theory into the practice domain, and practice into the theory domain. The resultant representation is demonstrative of the position that there is a significant overlap between the domains of theory and practice, with the notion of a 'gap' having been significantly relegated.

Misawa (2011) considered the nature of the theory-practice relationship to be *"interpenetrating"* (p.694) with each going hand-in-hand with the other. Misawa goes on to describe the relationship as being both *"intertwined and shifting"* (p.695) and *"essentially interlocking"* (p.690). It is this view of the relationship that is introduced here, with Figure 3.18 showing how aspects previously presented solely as theory can be positioned across the area of practice and those previously defined as being solely practice also have a foundation which encompasses aspects of the theory domain.

The amount of overlap into the opposite domain represents the degree to which any particular component is considered to constitute inclusion in that domain, for example, *'theories-in-use'* sits equally between the domains of theory and practice. This is due to its application being undertaken in the practice domain while its underlying principles are theoretical in nature. Similarly, *'practice as simulation'* sits between the domains of theory and practice as it is considered that simulation is equally a theoretical and a practice activity, as well as taking place in both physical domains.

'Evidence-based practice' migrates to sit more toward the theory domain, closely followed by the heavily theoretical *'activity-based practice'*. *'Condition-based practice'* has a greater presence in the practice domain, with a lesser proportion entering the theory domain. This is due to applied, tacit knowledge which is considered necessary to undertake *Condition-based Practice*.

Figure 3.18 The Theory-Practice Relationship
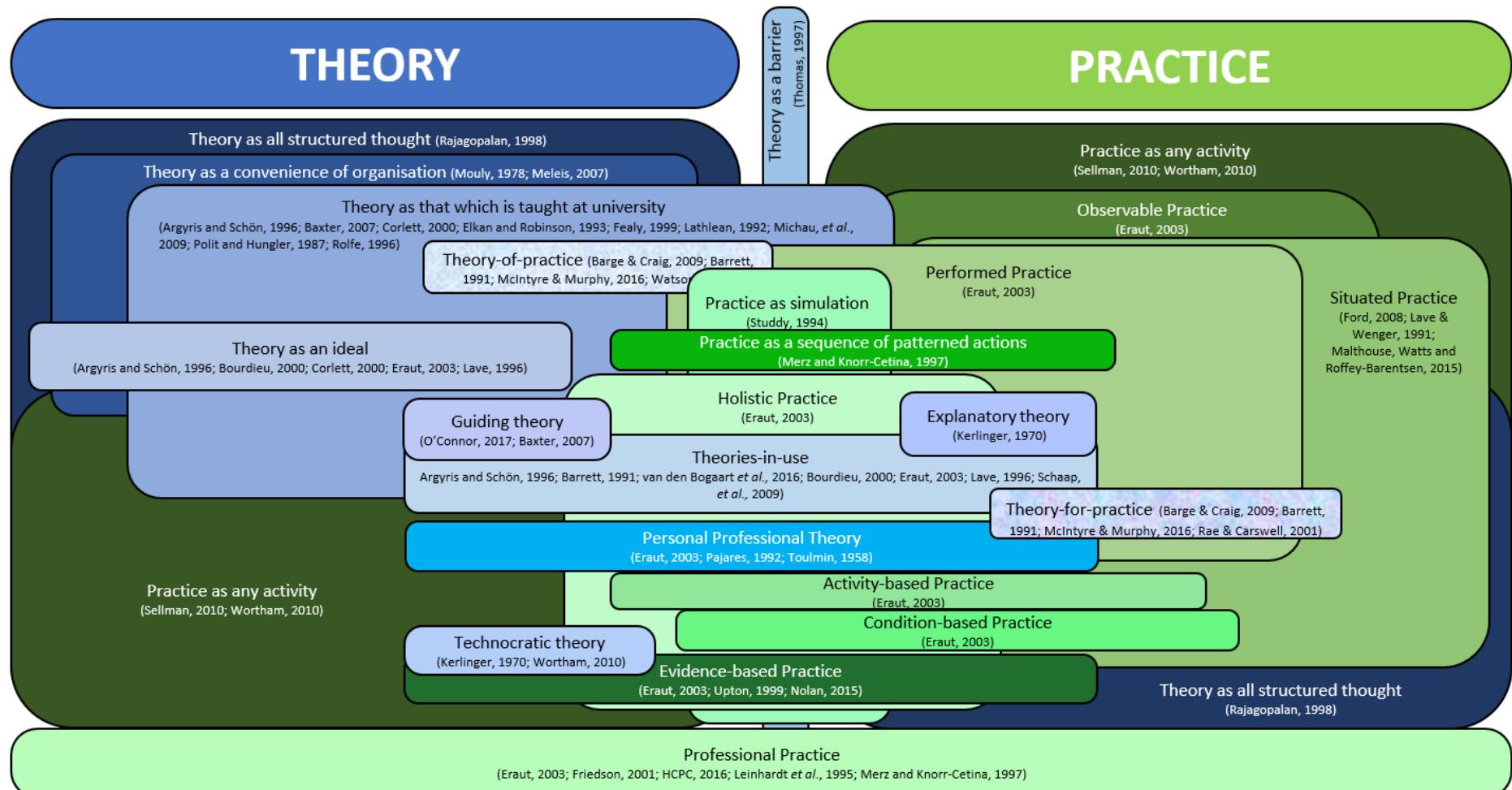
'Theory as that which is taught at university' moves to touch on the periphery of the practice domain, representing the fact that there are practical/practice-based elements inherent in university teaching which cannot be wholly separated from practice. Two elements, *'theory as all structured thought'* and *'practice as any activity'*, can be seen to be present in both domains. This is representative of the position that the undertaking of practice must constitute structured thought, with due consideration to the definition of 'structured' and the notion of tacit practice where structured thought may be undertaken unconsciously. Equally, the process of engaging with theory is representative of 'an activity', albeit a predominantly cognitive one.

As can be seen, while some elements remain distinctly based in either the theory or the practice domain, the majority meet somewhere in the middle, representative of the foundations of a model of Paramedic Praxis (Section 3.4.4.).

3.4.3 The position of knowledge and reflection

Figure 3.19 (page 127) further expands on the representation of the theory-practice relationship by introducing the concepts of 'reflective practice' and 'knowledge'. Reflective practice can be seen to span both the domains of theory and practice, reliant as it is on the integration on both elements in the pursuit of personal development and the acquisition of knowledge. Knowledge has been placed as the backdrop to the conceptual framework, representative of its position as an overarching result of an individual's engagement with theory, practice and reflection.

The previously identified aspects of knowledge (Section 2.4) are placed within the appropriate domain of theory or practice, with knowledge as *'existing in the world'* being considered a more theoretical construct and knowledge as *'constructed by the learner'* being considered to be more relevant to the practice domain. The concept of *'codified knowledge'* is placed toward to the theory domain, with *'personal knowledge'* being more toward the practice domain.

'Personal Professional Knowledge' spans both domains, as does *'Tacit Knowledge'*. '*Theoretical Knowledge'* sits on the left of the framework, in the theory domain, with *Practical Knowledge'* sitting to the right, in the practice domain. These aspects of knowledge, as they are informed and developed by engagement with both theory and practice, can be seen to 'merge' with the overarching backdrop of 'knowledge' and are representative of the fluidity of knowledge across domains.

Figure 3.19 Theory, practice, reflection and knowledge

Figure 3.19 Theory, practice, reflection and knowledge
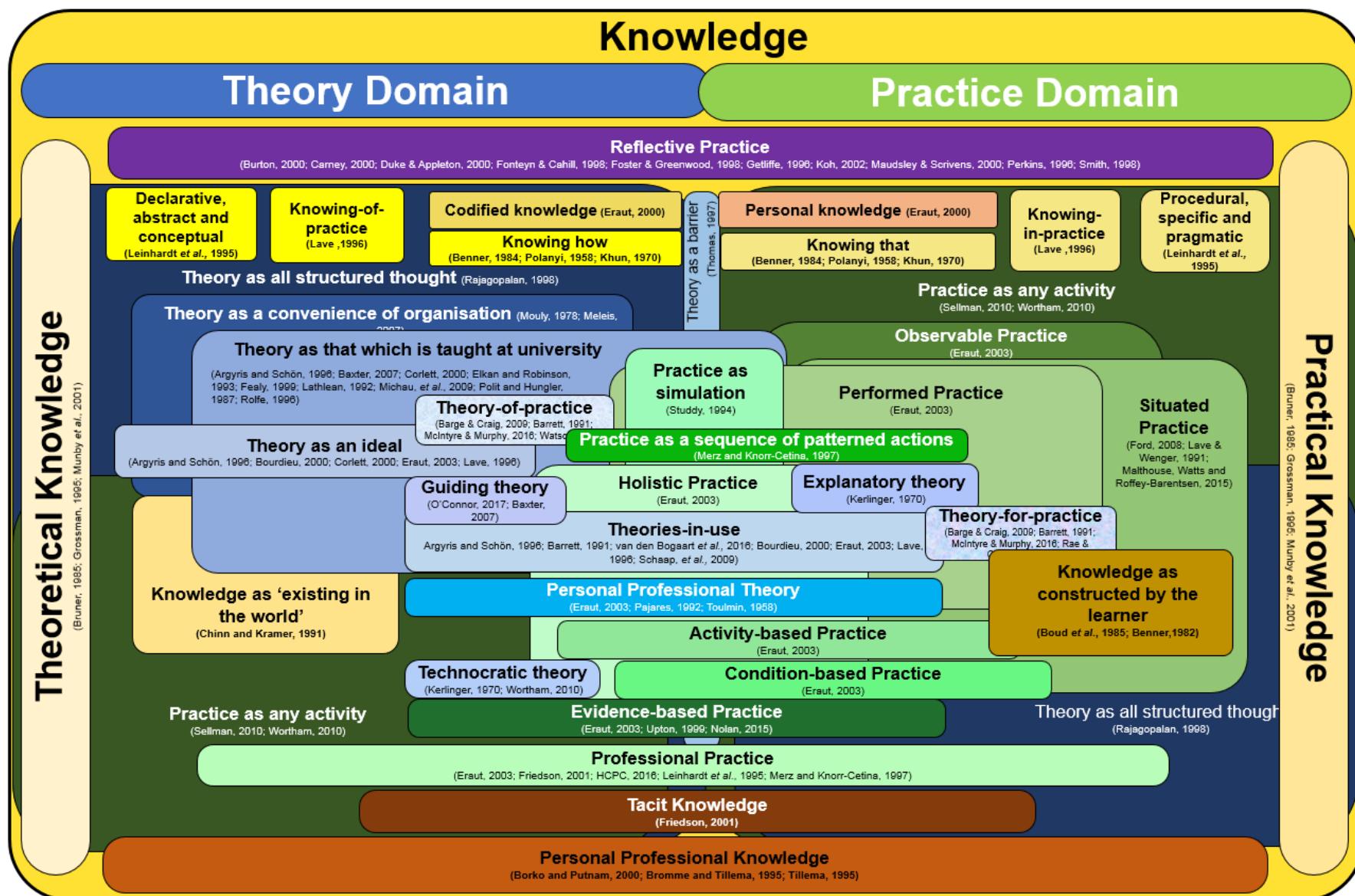
3.4.4 The Praxis Model

'The Praxis Model- A Conceptual Framework' (Figure 3.20, page 129) includes all the elements previously presented combined to represent 'paramedic praxis', i.e. multiple concepts of theory, practice, knowledge and reflection which may inform the paramedic's ability to practice as an autonomous healthcare professional. The domains of theory and practice are still present, but they are considerably less constrained than in the initial frameworks of Chapter Two, and are presented as core components of paramedic praxis, which is reliant on other factors to present a coherent whole.

The Praxis Model does not seek to align to any particular view of theory, practice or knowledge, rather it contains the, sometimes opposing, views of the key authors in these areas. The model is representative and, as such, does not present an exhaustive list of concepts. Individual paramedics, or student paramedics, may have individual views of theory and/or practice; its purpose, use, place, etc. which would shape their individual model, based on the weight, in respect of importance, which they place on any particular element. Such weight may alter over time, resulting a fluid model which sees the size, shape and position of each concept within the praxis model alter not only between individuals, but over time.

As a theoretical framework, The Praxis Model will be considered in relation to both the findings from the data and the later proposition of models which are considered to be representative of individual participant's experiences and perceptions of the theory-practice relationship. The notion of a 'healthy' theory-practice relationship will be considered in the latter stages of this submission, with 'healthy' being considered to represent an appropriately balanced relationship between theory and practice. That is not to say that theory and practice should always be considered to be equally balanced at all times and in all situations, rather that the degree to which one is reliant on the considerations of either element will depend on the circumstances and situation in which one finds oneself. One way of viewing this notion would be to consider the student who is preparing for an upcoming written examination in pathophysiology. It would be expected that, in their approach to this task, considerations of *Technocratic, Formal Theory* would heavily outweigh considerations of *Practice,* although components of such *Formal Theory* may well have been reinforced and consolidated by previous exposure to case examples whilst experiencing *Situated Practice*.

Figure 3.20 The Praxis Model- A Conceptual Framework

PARAMEDIC PRAXIS

Reflective Practice
(Burton, 2000; Carney, 2000; Duke & Appleton, 2000; Fonteyn & Cahill, 1998; Foster & Greenwood, 1998; Getliffe, 1996; Koh, 2002; Maudsley & Scrivens, 2000; Perkins, 1996; Smith, 1998)

Theoretical Knowledge
(Bruner, 1985; Grossman, 1995; Munby et al., 2001)

Practical Knowledge
(Bruner, 1985; Grossman, 1995; Munby et al., 2001)

Declarative, abstract and conceptual (Leinhardt et al., 1995)

Knowing-of-practice (Lave ,1996)

Codified knowledge (Eraut, 2000)

Knowing how (Benner, 1984; Polanyi, 1958; Khun, 1970)

Theory as a barrier (Thomas, 1997)

Personal knowledge (Eraut, 2000)

Knowing that (Benner, 1984; Polanyi, 1958; Khun, 1970)

Knowing-in-practice (Lave ,1996)

Procedural, specific and pragmatic (Leinhardt et al., 1995)

Theory as all structured thought (Rajagopalan, 1998)

Theory as a convenience of organisation (Mouly, 1978; Meleis, 2007)

Practice as any activity (Sellman, 2010; Wortham, 2010)

Observable Practice (Eraut, 2003)

Theory as that which is taught at university
(Argyris and Schön, 1996; Baxter, 2007; Corlett, 2000; Elkan and Robinson, 1993; Fealy, 1999; Lathlean, 1992; Michau, et al., 2009; Polit and Hungler, 1987; Rolfe, 1996)

Practice as simulation (Studdy, 1994)

Performed Practice (Eraut, 2003)

Situated Practice (Ford, 2008; Lave & Wenger, 1991; Malthouse, Watts and Roffey-Barentsen, 2015)

Theory-of-practice (Barge & Craig, 2009; Barrett, 1991; McIntyre & Murphy, Watson, 1995)

Theory as an ideal (Argyris and Schön, 1996; Bourdieu, 2000; Corlett, 2000; Eraut, 2003; Lave, 1996)

Practice as a sequence of patterned actions (Merz and Knorr-Cetina, 1997)

Holistic Practice (Eraut, 2003)

Explanatory theory (Kerlinger, 1970)

Theory-for-practice (Barge & Craig, 2009; Barrett, 1991; McIntyre & Murphy, 2016; Rae ...)

Guiding theory (O'Connor, 2017; Baxter, 2007)

Theories-in-use
Argyris and Schön, 1996; Barrett, 1991; van den Bogaart et al., 2016; Bourdieu, 2000; Eraut, 2003; Lave, 1996; Schaap, et al., 2009)

Knowledge as 'existing in the world' (Chinn and Kramer, 1991)

Personal Professional Theory (Eraut, 2003; Pajares, 1992; Toulmin, 1958)

Knowledge as constructed by the learner (Boud et al., 1985; Benner,1982)

Activity-based Practice (Eraut, 2003)

Technocratic theory (Kerlinger, 1970; Wortham, 2010)

Condition-based Practice (Eraut, 2003)

Practice as any activity (Sellman, 2010; Wortham, 2010)

Evidence-based Practice (Eraut, 2003; Upton, 1999; Nolan, 2015)

Theory as all structured thought (Rajagopalan, 1998)

Professional Practice (Eraut, 2003; Friedson, 2001; HCPC, 2016; Leinhardt et al., 1995; Merz and Knorr-Cetina, 1997)

Tacit Knowledge (Friedson, 2001)

Personal Professional Knowledge (Borko and Putnam, 2000; Bromme and Tillema, 1995; Tillema, 1995)

When the same student subsequently undertakes to treat a patient in the practice setting, the balance of their consideration will shift towards *Situated Practice*, with the inherent components of both *Condition-based* and *Activity-based Practice* being more prevalent, whilst still being supported by the theory engaged with when focussing on the aforementioned written examination.

In this respect, a 'healthy' theory-practice relationship can be seen to be one where the component elements presented within the Praxis Model exist simultaneously, but are not concurrently drawn upon or considered in all situations. Paramedic Praxis is, therefore, a considerably wider construct than the two overarching components of 'theory' and 'practice', incorporating as it does reflection and knowledge as inseparable components of the theory-practice relationship.

3.5 Summary

This chapter has presented an introduction to the relationship between theory and practice and how that relationship can be viewed. Consideration has been given to the concept of the theory-practice gap; however, when viewed alongside the multiple considerations of the terms theory and practice presented in Chapter Two, it would appear that to attempt to present a concept which addresses all such considerations and definitions must be fundamentally flawed. The relationship of theory to practice in respect of learning and the acquisition of knowledge, along with approaches to reflective practice, have also been presented and considered, as well as the introduction of the concept of praxis, with Rolfe's theory of nursing praxis identified as being a key proposition in respect of the relationship between theory and practice found to exist in nursing education.

The development of conceptual frameworks which represent the relative positions of theory, practice and knowledge when viewed as being within 'domains', has been undertaken to position the concepts ahead of the exploration and discussion of the data gathered for this study. The conceptual framework of the Praxis Model has been proposed as being a basis for the exploration of these findings, demonstrating that, at this stage, no allegiance to any particular theoretical or philosophical position in respect of the concepts of theory and practice has been adopted. Chapter Four will present the research approach undertaken, before Chapters Five to Seven present, analyse and explore the findings.

Chapter 4 : The research approach

4.1 Introduction

This chapter will present the approach taken to the research process, beginning with the philosophical position adopted, followed by the research design, ethical considerations and the practical application of the data gathering methods. Consideration will then be given to the approaches undertaken for the analysis of data.

4.1.1 The philosophical position: a pragmatic approach

Guba and Lincoln (1994) propose that researchers adopt a philosophical paradigm, or 'worldview', to help locate themselves and their studies, with their defining a paradigm as a belief system or worldview that guides the researcher and the research process. The worldview adopted for this study is that of pragmatism, derived from the work of Peirce, James, Mead, and Dewey (Cherryholmes, 1992), with Rorty (1990), Murphy (1990), Patton (1990), and Cherryholmes (1992) being more recent writers. From a philosophical perspective, pragmatism contends that reality exists for individuals, but knowledge is contextually contingent, that is to say that knowledge may be discovered by examining the usefulness of theory in practice (Guba & Lincoln, 1994). As theory and practice are key elements within this study, and the aim is to ultimately produce theory that has both come from and will inform paramedic practice, pragmatism was considered an appropriate philosophical position to adopt.

Pragmatism asserts that the truth may be interpreted in terms of the practical effects of what is believed and, in particular, the usefulness of these effects, as well as proposing that the truth of an idea is dependent upon its workability; ideas or principles are true insofar as they work (Savin-Baden & Major, 2013). These ideals sit very well with a practical, work-based researcher, whose aim is to make a useable contribution to both knowledge and to the practice of the paramedic profession.

When adopting a pragmatic position, as with any other, answering the research question remains central; however, data collection and analysis methods are selected in order to provide insights into the question without any loyalty to a specific research approach (Thorne *et al.*, 1997). Proponents of the pragmatist approach emphasise the

importance of trying different methods and evaluating their effectiveness, often undertaking a trial-and-error approach.

With the underpinning paradigm of pragmatism adopted, *'pragmatic qualitative research'* (Savin-Baden & Major, 2013) was selected as the overarching research approach to be utilised in this study, albeit in an amended, mixed-methods form. Pragmatic qualitative research, subsequently termed PQR, is an approach which has been recognised as being one of the most widely used in some professional fields, including health and education (Neergaard *et al.*, 2009; Sandelowski, 2000). PQR aims for a description of an experience or event as interpreted by the researcher (Neergaard *et al.*, 2009), with Savin-Baden and Major (2013, p172) proposing a continuum along which the pragmatic qualitative researcher can position themselves based on their level of objectivity or subjectivity (Figure 4.1, below). Qualitative research can never be truly objective, nor should it claim to be, with the expertise and experience of the researcher influencing how they interpret data at every stage of the research process (Newby, 2014). As practice-based, insider research (Colbourne & Sque, 2004), this study will sit towards the subjective end of the PQR continuum, adopting interpretive description as the underlying approach. As part of this approach, quantitative data will be incorporated to triangulate and position the qualitative data, resulting in the inclusion of what can be considered a mixed-methods approach to the study.

Figure 4.1 The objective-subjective continuum of pragmatic qualitative research (Savin-Baden and Major, 2013, p172)
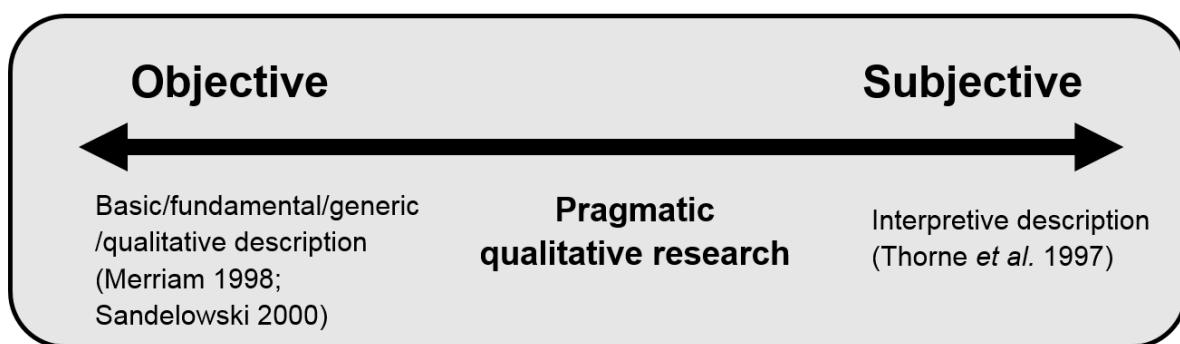
Merriam (1998, p11) considers that researchers using a PQR approach are seeking *"to discover and understand a phenomenon, a process or the perspectives and worldviews of the people involved".* In this study, the phenomenon about which

understanding is being sought is the theory-practice relationship, and the people involved are both student paramedics and Practice Educators.

The main purpose of PQR is to link theory and practice, with pragmatists believing that knowledge can be gained through a variety of methods (Savin-Baden & Major, 2013). Therefore, PQR is an approach that draws upon the most sensible and practical methods available in order to answer a given research question. This aspect was key in this study as access to both paramedic students and Practice Educators to act as participants was particularly challenging, the result being the adoption of methods that best suited the availability of participants whilst still addressing the remit of the research approach in answering the research question. Another key aspect in adopting the pragmatic approach was the assertion that pragmatists extract theory from practice and then apply it back to practice, which is exactly the approach desired by the researcher.

The findings of PQR are usually presented as a description of an experience or event as interpreted by the researcher and will be presented as such in subsequent chapters, with the use of supporting tables, diagrams, models and analogies as appropriate.

4.2 Designing the research

4.2.1 Pragmatic qualitative research

As there is no commonly accepted and understood approach or method to PQR, or interpretive description (Neergaard *et al.*, 2009; Sandelowski, 2000), the following section seeks to provide clear and explicit information about the methods selected for this research and the rationale for their selection.

Pragmatism as a research methodology rejects the traditional approach which puts the paradigms underlying qualitative and quantitative approaches at odds with each other and instead takes the stance that both approaches have their strengths and weaknesses and can be combined to complement one another (Hewson, 2006). The adoption of both qualitative and quantitative methods of data collection has been variously called multi-methods (Brannen, 1992), multi-strategy (Bryman, 2004), mixed methods (Creswell, 2014; Newby, 2014; Tashakkori & Teddlie, 2003) or mixed methodology (Tashakkori & Teddlie, 1998) research.

4.2.2 Utilising mixed methods

Rather than collecting and analysing both qualitative and quantitative data separately, the mixed methods design adopts both approaches in tandem to provide a better understanding than either approach could do alone (Creswell & Plano Clark, 2011). Creswell and Plano Clark (2011) suggest that the integration of methodological approaches strengthens the overall study with the strengths of each approach offsetting the weaknesses of the other, providing more comprehensive and convincing evidence than single method approaches. Bryman (2006) states the importance of clearly and explicitly establishing why both quantitative and qualitative approaches are being combined, with consideration given to the fact that the outcome may not be predictable.

The mixed method approach enables data to be contextualised by giving a macro picture of a concept, in this case the theory-practice relationship, and adding information about individual's experiences, i.e. students and Practice Educators. The merging of quantitative and qualitative data will develop a more complete understanding of the theory-practice relationship by developing a complementary picture where results can be compared, validated and triangulated (Plano Clark, 2010).

Guest *et al.* (2013) consider that the audience for a study's findings is an important factor when considering research design. Although the core theme of this study, the theory-practice relationship, could be argued to sit in an 'educational' domain, the findings will also need to be shared with, and understood by, the wider paramedic profession. Freshwater *et al.* (2010) identified that, traditionally, the quantitative approach to research has required the researcher to be directed by controlled methods to create and maintain objectivity within a study, the view being that the researcher's prejudices, intentions and emotions are not perceived to affect the data gathering and analytic phases, ensuring the validity of the findings. The approach to qualitative research, however, can be considered to value the subjectivity of the researcher, with an expectation that the researcher remains reflexive, self-aware and self-monitoring in order to maintain the rigour and credibility of findings (Freshwater *et al.*, 2010).

In the relatively new paramedic profession there is a greater abundance of quantitative, evidence-based clinical research, often emerging from clinical audit

processes, when compared to qualitative research studies. Although this trend is changing, with universities developing a profession-based body of research, the partner organisations to which the findings of this study can be considered to have the greatest impact, ambulance services, often rely on more quantitative evidence when determining organisational strategies. The approach of ambulance services, as well as universities, to practice education provision has, therefore, been a consideration in the development of the research design. By combining methods, and employing a rigorous approach to the production of evidence, it is envisaged that the findings of this research will be valued by both academic and professional audiences.

Creswell and Plano Clark (2011) identify four major types of mixed methods research design; triangulation, embedded, explanatory and exploratory designs. The method adopted for this study is triangulation, the purpose of which is to *"obtain different but complementary data on the same topic"* (Morse, 1991, p.122) to best answer the research question. An adaptation of the concurrent model of triangulation design (Creswell, 2006, p63) was adopted (Figure 4.2, below), with the adaptations discussed further in Section 4.3. In this model, qualitative and quantitative data on the same phenomenon are collected separately before the results are converged during the analysis. This model was chosen to extend the depth of the findings as well as corroborating quantitative results with qualitative findings in order to end up with valid and well substantiated conclusions.

**Figure 4.2 Triangulation design: Concurrent Model (Creswell, 2006, p63)**
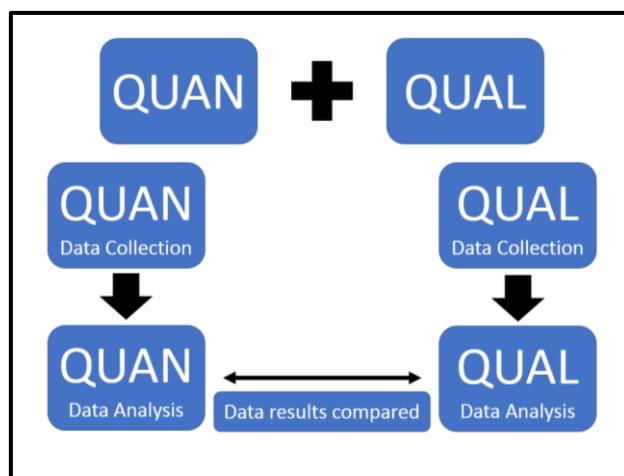
Table 4.1 (page 136), adapted from Savin-Baden and Major (2013), presents a summary of the considerations to be given to designing a study when adopting a PQR

approach. This summary presents the key considerations generally applied to PQR and specifies their position in relation to this research, indicating how each of the component parts has been situated. Where the approaches adopted in this research do not match the specifics proposed for PQR, the notes give explanations as to why such differences appear.

Table 4.1 Designing pragmatic qualitative research

Design	Specifics in pragmatic qualitative research	Notes for this study
Philosophical origins	Pragmatic origins	Pragmatic origins
Philosophical stance	Outsider looking in	The researcher is an 'outsider' in respect of the students' and Practice Educators' experiences, but, as a practice-based professional may also be considered to be carrying out 'insider-research'
Who or what of study	Varied: often individuals, structures or processes	Who = student paramedics and Practice Educators What = the theory-practice relationship
Research topic and question	Practical and often related to practice	Directly related to practice, perceptions of experiences rather than explicitly 'practical'
Literature review	Typically, comprehensive and all inclusive	The literature review draws from various disciplines in which the theory-practice relationship has been discussed as well as where the theory-practice gap has been identified as existing.
Theoretical or conceptual framework	Can be applied to guide research design and more infrequently for interpretation of data	The conceptual framework was produced in order to guide and inform the research design
Ethics	Ethical design, treatment of individuals, processes, and presentation of products important; particular emphasis on design and processes	All institutional and national ethical guidance was followed in the production of the research tools and their application. Fully informed consent was gained from all participants. Both university and NHS ethical permission was sought and granted for the study.

Table 4.1 Designing pragmatic qualitative research (cont.)

Design	Specifics in pragmatic qualitative research	Notes for this study
Time, place, participants	Shorter duration in field than other approaches, such as ethnography Done in natural environment Purposeful sampling, frequently maximum variation	A 'snapshot' duration approach undertaken within the educational environment rather than the practice environment due to the challenges with access to participants. As perceptions were being sought rather than observable experiences, this was an appropriate adaptation. Purposeful sampling was undertaken to ensure that the range of student participants were representative of the wider student body. Minimal variation in respect of the point within the programme that students were selected.
Fieldwork	Note taking during interviews	Focus groups were recorded and the recordings transcribed.
Data collection methods	Many forms possible, including various combinations of; • Semi-structured interviews with individuals or focus groups • Observations in context • Review of documents or other pertinent materials	Focus groups, semi-structured interviews and questionnaire surveys were undertaken.
Data handling	Basic and descriptive coding of information	Basic and descriptive coding was used. Basic quantitative analysis was also undertaken to triangulate qualitative data.
Analysis	Qualitative content analysis using modifiable coding systems that correspond to the data collected	Content analysis undertaken by way of modifiable coding. Quantitative analysis was also undertaken.
Interpretation	Stay close to the data or low-level interpretation	A low degree of inference was adopted during the interpretation in order to remain as close to the 'face-value' of responses gained.
Researcher voice	External observer and reporter	External, reporter voice adopted.
Report	Description of the data organised in a way that 'fits' the data (chronologically by topic, by relevance, etc.)	Data presented by topic.

Adapted from Savin-Baden and Major (2013).

4.2.3 The study focus

Figure 4.3, the study focus (page 139), represents how the study design sought to answer the research question. The first part of the study, Phase 1, sought to determine in what form, if any, the theory-practice gap reported to exist in nursing manifests as part of the theory-practice relationship within paramedic higher education. This was undertaken by using questionnaire surveys to gather both quantitative and qualitative data, with initial analysis of the quantitative data undertaken prior to the implementation of Phase 2.

Further exploration, Phase 2, then sought to determine the general nature of the relationship between theory and practice, specifically during practice placements, and how this relationship may influence student paramedics' learning. This was undertaken by gathering data from focus groups, the process of which was informed, in part, by the initial results of Phase 1, but prior to full analysis of the questionnaire surveys.

The focus of the final phase of the study, Phase 3, was determined by the findings of the first two phases. The preliminary descriptive interpretation developed throughout the first two phases would elicit emergent themes which could then be explored further by analysis of the data or confirmed with participants as being representative of their overall perceptions and experiences.

Figure 4.3 The study focus
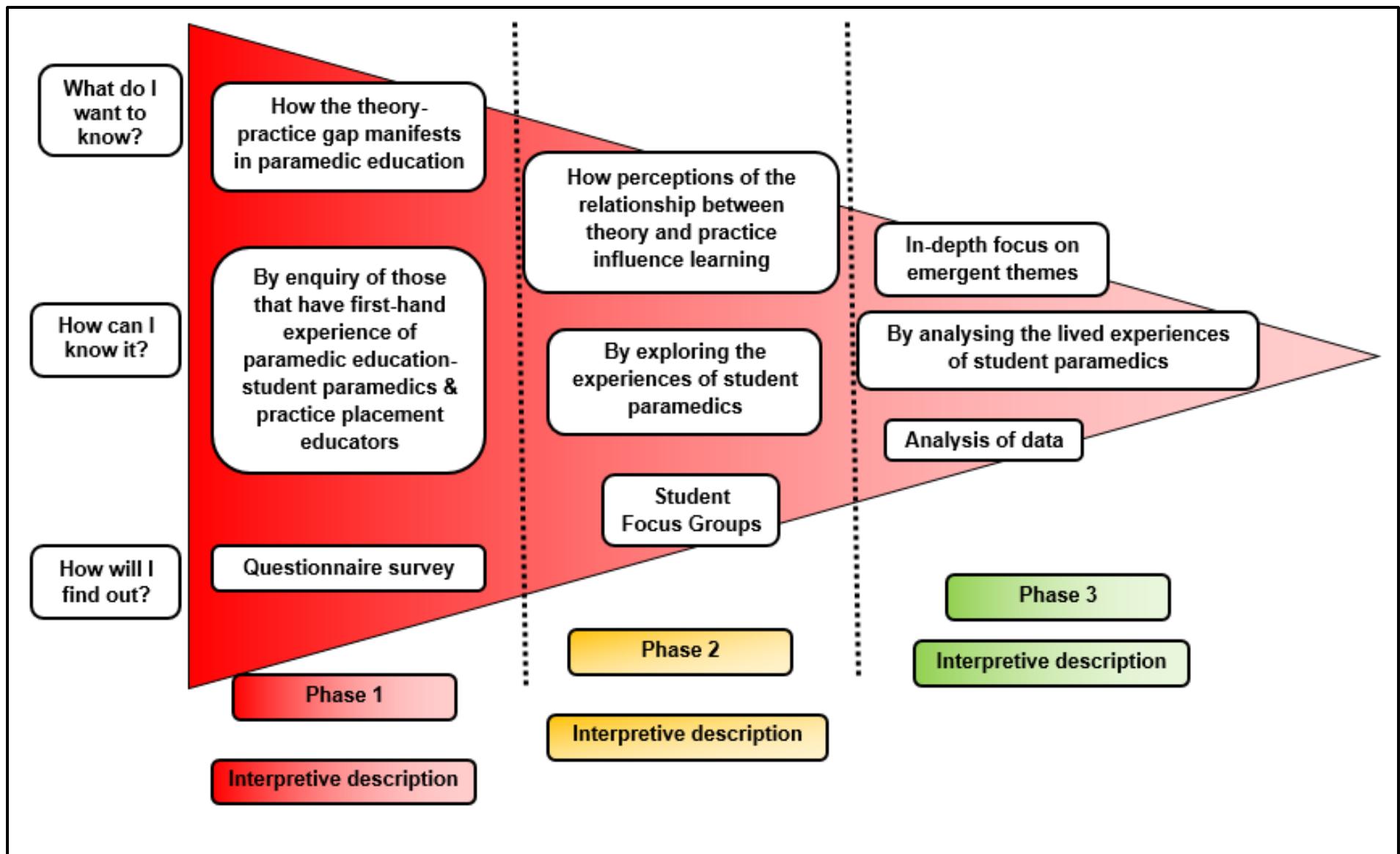
4.2.4 Ethics

Any research must be ethically sound and safe for both the researcher and the participants (BERA, 2011). The British Educational Research Association (BERA) advocates that educational research should be conducted with ethical consideration for five key factors; the person, knowledge, democratic values, the quality of educational research and academic freedom. The researcher has a responsibility to the participants of the study, in particular, to ensure that all participants give voluntary informed consent and are fully aware that they have the right to withdraw.

All participants in this study were given clear, written information regarding the nature of the study, as well as being told that they could withdraw at any point (Appendix 1). All participants signed an information and consent form which was developed with regard to both institutional (University of Hertfordshire) and national (BERA) guidance. Participants were assured that any information that was shared with the researcher would remain confidential with any published results not identifying the individual participants in any way. All data presented is anonymised.

Ethical approval for this study was sought from the University of Hertfordshire ethics committee and granted on 11th October 2012. Additional approval was needed to undertake the aspects of the study that involved the London Ambulance Service. Following a rigorous procedure, this approval was granted by the London Ambulance Service Clinical Audit and Research Unit on 11th December 2012.

The relationship between the researcher and the student participants was one of tutor/student. As the students' tutor, the researcher played a large part in the first year of their higher education programme. It could, therefore, be argued that the students may have modified their responses and felt pressured into particular responses based on their perceived expectations of the researcher (Campbell, *et al.*, 1995). The participants may also have felt obliged to take part in the study due to the existing relationship between them and the researcher. Where practitioners are researching within their own practice environment, the issue of bias must be raised along with question of whether such research can ever be totally free of bias (Carr & Kemmis, 1986). True objectivity is practically impossible to achieve and to demonstrate to the reader, so study results in general may be questioned, particularly where generalisability of findings is sought or claimed (Savin-Baden & Major, 2013). In

practice-based research, where the researcher brings with them a high level of experience-based knowledge, bias cannot be viewed in the same way as it may be with more empirical, scientific studies. The degree of reflexivity undertaken by the researcher throughout the process goes to address considerations of bias, with such a reflexive approach and existing experience-based knowledge being considered to enhance the validity of the work, rather than limit it (Malterud, 2001).

As this practice-based, insider research is adopting an interpretive description approach, there will, clearly, be a degree of subjectivity on the part of the researcher. The way in which analysis was undertaken, and the process by which the data was interpreted, will be made explicit later in this chapter in order to demonstrate how the degree of subjectivity was moderated. An acceptance of the researcher's influence and impact on their study, ideally by the use of a reflexive approach, must be considered in order to mitigate any questions that might be raised in relation to the validity of the study (Dowling, 2006). Such a reflexive approach was undertaken throughout the research, which should be implicit in the work presented.

The impact of the relationship between researcher and participant on data collection will be further considered in Chapter Seven along with the limitations of this study and the validity of any claims made based on the findings.

4.2.5 Selection of student participants

The individuals from whom data was gathered for this study come from two groups; paramedic students and Practice Educators. The participants recruited to the questionnaire survey phase of the study were undergraduate student paramedics studying at the University of Hertfordshire and Practice Educators employed by the London Ambulance Service NHS Trust. Participants recruited to the focus groups were also selected from the University of Hertfordshire student paramedic population. The selection of both groups will now be discussed, firstly student and then Practice Educator participants.

The selection of a segment of the population for investigation, termed 'sampling' (Bryman, 2004), usually aims to generate a sample which is representative of the population being studied. In PQR, sampling is done to gain perspectives from many different types of participant with a view to gaining maximum variation (Cooper & Endacott, 2007). Purposeful sampling, where the researcher actively selects the most

productive sample to answer the research question based on the researcher's practical knowledge of the research area, was the approach adopted for this study.

The first group of participants in the questionnaire phase of the study were student paramedics undertaking a higher education programme in Paramedic Science. There were multiple sample selection options available, for example; representatives from any single year-group, from a range of year-groups, or from previous student cohorts. The sample group selected was made up of two cohorts, one studying for a Batchelor of Science Honours Degree (BSc), the other studying for a Foundation Degree (FD). The students were all in their final year of study with data gathered following their final placement with the ambulance service. The total population of paramedic students within the two programmes at the time of the study was approximately one hundred and fifty BSc and one hundred FD students. The selection of the final year students was based on several factors; their impending completion of the programme, potentially increasing the potential for open and honest engagement, the range of their practice placement experiences compared to newer students, their greater understanding of the role and responsibilities of the paramedic at the point of registration and, on a pragmatic point, their availability to take part in the process. The potential limitations of the selection of this sample group will be discussed in Chapter Seven.

It was considered that gathering data from both FD and BSc student paramedics was important as their practice experiences would have been based on the same initial transition from the university to the practice setting. It was also considered that there may be the potential for some differences between the groups' perceptions of their experiences as they progressed to different academic levels within their respective programmes.

The students had undertaken a total of between seven and nine supernumerary placements of between two and six weeks duration. These placements took place throughout their programmes, interspersed with both academic modules being taught at the university and periods of employment with the ambulance service; two years, part-time employment for the FD participants and one-year, full-time employment for the BSc participants.

Selection of participants for the focus groups was also purposeful, being drawn from the same group as those discussed above for the questionnaire survey. This was to further explore matters identified within the questionnaires in greater depth within the focus groups. Each focus group's participants were self-selected, in that volunteers were sought. There were no criteria set other than being a member of the BSc or FD final year cohort. Volunteers were sought at the point of the completion of the questionnaire survey and were booked onto focus group sessions based on the participants' availability. The focus group participants remained in their cohort group, i.e. BSc or FD due to both timetabling and availability, as well as a desire to compare the perspectives of the different cohorts during analysis. A total of five student participant focus groups were conducted lasting around one hour each with the number of participants in each group ranging from two to four. The limitations of this approach to sampling will be discussed in Chapter Seven.

4.2.6 Selection of Practice Educator participants

At the time of the study, the London Ambulance Service employed approximately 750 Practice Educators. These were paramedics who had undertaken at least unit one of the three units which make up the Certificate in Practice Education. Accessing all the Practice Educators to take part in the questionnaire survey would have only been possible by a postal, e-mailed or online questionnaire survey. Due to the expectation of gathering qualitative, free-text data through the questionnaire survey, it was decided that a face-to-face method of administering the questionnaire would be most effective in gaining depth of responses, but would limit the total number of respondents.

The sample of Practice Educators was obtained by targeting cohorts of paramedics undertaking unit three of the Certificate in Practice Education. These Practice Educators would have undertaken a minimum of 750 hours of practice-based supervision of students, giving them a definitive minimum level of experience in the role. Approximately thirty percent of all Practice Educators had undertaken to complete unit three, placing the participants in a sub-group of Practice Educators who had continued their formal studies.

By accessing the Practice Educators during a taught module, their time was 'protected' in that they would be facilitated and supported in the completion of the questionnaire. An electronic or postal questionnaire would have been less likely to gather such an

experienced group of respondents, nor such a high number of participants and as in-depth qualitative data. This purposeful sampling would not, necessarily, have given a complete view of the attitude and perspective which was representative of all Practice Educators within the London Ambulance Service. This group, by virtue of their attendance at unit three, were demonstrably committed to the role of Practice Educator. The limitations of this method of sampling will be discussed in Chapter Seven.

4.3 Data collection: the questionnaire survey

4.3.1 Rationale

When designing a mixed methods approach, Guest *et al.* (2013) propose that there are two key considerations; the timing of data integration and the purpose of data integration. In respect of the timing of data integration, this study adopts a concurrent design (Creswell & Plano Clark, 2011) in that the data sets are not dependent on one another and are integrated at the same time within the analysis. Both qualitative and quantitative datasets were compared during data analysis to determine whether the findings converge, diverge or are contradictory (Guest, *et al.*, 2013). The strength of this approach is that it demonstrates a robust consideration of different types of data where triangulation and confirmation can take place. The rationale behind data integration in this study is discussed below and subsequently summarised in Tables 4.2 and 4.3.

Two methods of gathering data were selected for the study; questionnaire surveys and focus group interviews. The questionnaires sought to gather both quantitative and qualitative data, whereas the focus groups would produce predominantly qualitative data. Although not suggested by Savin-Baden and Major (2013) as being a primary tool in PQR, a questionnaire survey was selected for the first phase of the study as it was considered that a greater number of participants could be targeted to gather data that would be more representative of the wider paramedic student population than could be accessed solely through the focus groups. It was considered that it was important to establish a broadly representative position based on the greatest number of participants available in order to gain data which could be triangulated against that gained from Practice Educators as well that from the student paramedics' focus

groups. Such triangulation was considered important in answering the research question.

4.3.2 Approach

Due to the sampling methods adopted, the participants were considered to be more likely to engage in the completion of the questionnaire survey, so some of the general considerations usually adopted when designing a questionnaire survey were adapted and developed. The initial development of the questionnaires was supported by a series of peer reviews, with student, Paramedic Tutor and university lecturer input gained. This resulted in three iterations before the first draft questionnaire was trialled by way of a pilot study. The pilot study participants further informed the development of the questionnaire, for example, it was found that participants wanted to qualify some of their answers by writing notes next to the response boxes. To allow this to happen for all participants, the questionnaires were adjusted to allow for free text to be written after all the questions allowing both quantitative and qualitative data to be gathered. This would not generally be an approach adopted when designing a survey where simplicity and brevity are often important considerations (Newby, 2014).

Questionnaires were produced for both Practice Educators and student paramedics, with both consisting of a series of closed and open questions covering several issues, utilising Likert scale responses as well as areas for free text input. The areas of the study addressed by the questionnaire have their origins in the study's initial conceptual framework (Figure 3.16), as well as elements that were raised by student participants in the pilot study.

The questionnaires (Appendices 2 and 3) gathered details regarding the participants' age, gender and, in the case of the Practice Educators, years of experience and level of education, before moving on to areas of curriculum and participants' experiences of practice-based learning. The open questions asked for more information about their views on theory and practice, and their inter-relation, and the relationship between student and Practice Educator. The aim of the demographic information was to give a more detailed picture of the participants in order to place their responses in the context of their background. This was particularly important in establishing how the approaches of the Practice Educators may be affected by their own experiences of paramedic education, higher or other. Tables 4.2 and 4.3 (pages 146 & 147) detail the factors examined through the questionnaires.

Table 4.2 Factors examined through the student paramedic questionnaire

Variable	Rationale for inclusion
Age, gender	• Perspectives of, and approaches to, learning may alter with age • Mature students may have different perspectives based on life experience • Perspectives/relationships may differ with gender
Students' expectations of practice	• Matching expectations to reality may impact on students' perceptions of the relationship between theory and practice • Unrealistic expectations may impact on students' perceptions of the relationship between theory and practice
nature of the relationship between the student and their Practice Educator	• To determine if the quality/nature of the student/Practice Educator relationship impacts on the perspective of the relationship between theory and practice • To triangulate with responses from student focus group • To triangulate with responses from Practice Educator questionnaire
Links between the ambulance placement experience and the curriculum's academic modules	• To determine whether the Practice Educators' abilities to demonstrate insight into the relationship between theory and practice impact on the student paramedics perspective of the relationship between theory and practice • To determine if Practice Educator knowledge and understanding of the student paramedics' educational programme impacts on the relationship between theory and practice • The students' perspective of the Practice Educators' abilities to explicitly link the ambulance placement experience to the academic curriculum modules • The students' perspective of the correlation between theoretical components of programme and their undertaking practise of the profession will directly link to their perception of the relationship between theory and practice • To triangulate with responses from student focus group • To triangulate with responses from Practice Educator questionnaire
The relationship between theory, practice and learning in practice	• To determine the nature of the relationship theory, practice, and learning in practice • To triangulate with responses from student focus group • To triangulate with responses from Practice Educator questionnaire
Experiences of a theory-practice gap	• To determine if there is a perceived 'gap' between theory and practice • To triangulate with responses from student focus group • To triangulate with responses from Practice Educator questionnaire
Assessment of student performance	• The relationship between assessed abilities in placement in relation to the relationship between theory and practice • To triangulate with responses from Practice Educator questionnaire
Practice Community	• If experiences of the Practice Community impact on the relationship between theory and learning in practice • To triangulate with responses from student focus group

Table 4.3 Factors examined through the Practice Educator questionnaire

Variable	Rationale for inclusion
Age, gender	• Perspectives towards learning may alter with age • mature Practice Educators may have different perspectives based on life experience • younger Practice Educator may be able to relate better to student paramedics • Perspectives/relationships may differ with gender
Length of professional qualification, method of professional qualification, previous employment experience	• Routes of entry to the profession have evolved over time giving a range of possible qualifications • Route may correlate to attitudes to learning • Previous experience may influence perspectives
Academic qualifications	• The pilot study indicated that their Practice Educator's level of qualification was directly related to their ability to make explicit the relationship between theory and practice. Some stated that they wanted a Practice Educator with a paramedic degree. Some suggested that the level of academic qualification of their Practice Placement Educator should be commensurate with their stage of the programme, increasing over the years • Relevance of qualification to Practice Educator. Anecdotal evidence has suggested both that Practice Educators need to have a degree and that they do not! The perspective of the Practice Educator is sought to determine whether their own view impacts on their ability to sufficiently link theory and practice. • To triangulate with responses from student focus group
Reasons for becoming a Practice Educator/Role of Practice Educator	• The pilot study highlighted a number of reasons proposed by student paramedics as to why their Practice Educators had taken on the role. Some of these were noble, altruistic reasons, other based on work avoidance. Gaining the views of the Practice Educators themselves would give a greater insight into the actual reasons for undertaking the role • The Practice Educator role is sometimes unclear with it being seen as an amalgam of supervisor/assessor/mentor/trainer
Links between curriculum's academic modules and the ambulance placement experience	• To determine if Practice Educator knowledge and understanding of the student paramedics' educational programme impacts on the relationship between theory and practice • The Practice Educators' abilities to explicitly link the ambulance placement experience to the academic curriculum modules • To triangulate with responses from student questionnaire • To triangulate with responses from student focus group
nature of the relationship between the Practice Educator and their student	• To determine if the quality/nature of the Practice Educator/student relationship impacts on the perspective of the relationship between theory and practice • To triangulate with responses from student questionnaire • To triangulate with responses from student focus group
Assessment of student performance	• The relationship between assessed abilities in placement in relation to the relationship between theory and practice
Practice Community	• If experiences of the Practice Community impact on the relationship between theory and practice

4.3.3 Response rates

The total number of potential participants from both student cohorts was fifty-four, representing approximately 22% of the total student paramedic population at the university. A total of thirty-nine students, a response rate of 72% of the total population available, completed the questionnaire survey.

This is a high response rate for this type of questionnaire, strengthening the validity of the data gathered. Of the 39 student paramedic participants, fifty-four percent were female and forty-six percent male, with ages ranging from twenty-one to thirty-five, with the average age of the participants being twenty-three. The gender profile reflected the higher education paramedic student population within the university at the time, with the age range, as would be expected for final-year students, being slightly higher.

The questionnaire survey was completed by a total of thirty Practice Educators accessed through two, unit-three study days. This number represents approximately four percent of all Practice Educators within the London Ambulance Service at the time and approximately thirteen percent of the level three Practice Educators. Seventy-three percent of the Practice Educator participants were male, and twenty-seven percent female. As a group, they had been paramedics for an average of five years and three months, with the longest period being seventeen years. The longest period served as a Practice Educator was eight years and the shortest was six months. Their ages ranged from twenty-four to fifty-one with an average age of thirty-five. The range of Practice Educators was, in these areas, broadly representative of the current ambulance service workforce profile.

4.4 Data collection: Focus group interviews

4.4.1 Rationale

During the pilot study, discussion groups were used to elicit the perspectives of the students regarding both their experiences of the relationship between theory and practice and their experiences of learning in practice with Practice Educators. The results were used to inform the questions produced for both the final student questionnaire and the Practice Educators' questionnaire. It was found that the amount of interaction between participants of the pilot study discussion groups generated new

strands of enquiry that may not have emerged in individual, semi-structured interviews and appeared to give a greater depth to the information that was produced. This experience led to the use of group interviews being explored as an alternative to the initially proposed individual interviews. This application of trial-and-error in the development of the study's research methods is commensurate with the adoption of a pragmatic research approach and resulted in the focus group approach to group interviewing being explored and selected as the method for the second phase of the study.

One of the benefits of focus groups over one-to-one interviews is that participants can provide each other with mutual support in expressing feelings that are common to their group but which they may consider to be opposing the viewpoint of the organisation or the researcher (Newby, 2014). In this study, where the researcher is known to the participants, this mutual support was a key factor in the rationale for selecting the focus group approach. It was considered that participants would feel more at ease in expressing views that they may consider were not those of the researcher. The use of focus groups allows rich data to emerge from dynamic discussions among participants, but does not necessarily allow individual perspectives to be explored in depth (Newby, 2014).

4.4.2 Approach

One of the challenges associated with focus group research is that the researcher, or moderator, has less control over the data produced than in either quantitative studies or one-to-one interviewing (Morgan, 1997). To overcome this, a series of tasks was set for the focus group participants to perform together, the idea being that they would keep the discussions of the group on target. The 'key questions' phase of the focus group was used to drive the study, with Krueger and Casey (2000) considering these questions to be those which are often the first to be developed by the researcher and require the greatest attention in the analysis. The facilitation of this stage was undertaken by the use of a quotes board. A total of sixteen quote cards were placed face down on a board in four rows of four cards. The participants were then asked to select a total of five cards to turn over, one at a time, one from each row and any one other, in the style of the Countdown television show's numbers game. Each quote card had been produced in order to elicit conversation around the key areas of the study

by making a contentious statement and attributing it to an individual from a particular group, e.g. student paramedic, Practice Educator, university tutor, etc. Each of the quote cards was connected to an area identified as being relevant to paramedic practice-based learning. These areas were developed from an expanded form of the initial conceptual framework (Figure 3.2) and were placed under the headings shown in Figure 4.4, below.

Figure 4.4 Areas examined through focus groups

- **Learning and interpersonal relationships**
- **The role of the Practice Educator**
- **The application of the curriculum in practice**
- **Theory vs. Practice**
- **Students as learners**
- **Communities of learning, developing a professional identity**

Each of the quote cards related to at least one of these areas and was grouped accordingly on the board. The result was that each focus group would discuss each of the subject groups, although not necessarily based on the same quote card. The aim of this approach was to attempt to diversify the discussion between focus groups whilst also ensuring that the key concepts of the study were incorporated.

In addition to this exercise, several other written tasks were completed by the participants prior to the discussion phase of the focus groups commencing. The data gathered from these written exercises informed the initial discussion of the focus groups.

A total of five student participant focus groups were conducted lasting around one hour each. The total number of participants was eighteen. Table 4.4 (page 152) details the factors examined through the student paramedics' focus groups. The number of participants in each focus group varied between two and four. A further two planned focus groups were conducted as one-to-one interviews due to non-attendance by participants. These interviews will be discussed below. Each focus group was both audio and video recorded, the video being used solely as a back-up to make the

production of transcripts easier to undertake. The first two focus groups followed a consistent format as outlined above. Once it was considered that there was sufficient data available in response to the exercises, the relatively formal regime of the focus groups was slackened to allow for greater exploration of emerging themes from the initial focus groups. This process was iterative in nature with decisions as to the direction of the discussion being made by the facilitator based on their previous experiences with the earlier focus groups. The result was a rich mixture of discussion which produced valuable data for analysis and represented a pragmatic trial and error approach whilst retaining the research question at the forefront of the discussions (Savin-Baden & Major, 2013).

Kreuger and Casey (2000) suggest that the full transcribing of tape-recorded data, use of field notes and moderator debriefing, represents the most rigorous approach to data collection and analysis when using focus groups. The expectation that researchers tape-record and fully transcribe their focus groups' data is supported by Bloor *et al.* (2001) who suggest that other approaches can lead to superficial and biased analyses. As the moderator will have had first-hand exposure to the focus group situation it would be ideal that the moderator undertake the analysis (Bloor *et al.,* 2001; Kreuger, 1994). Their having both seen and heard what took place as part of the focus group interactions goes to enhance their ability to engage with the analysis, as opposed to a third-party analyst.

In this study, the researcher moderated all the focus groups and undertook both the transcription and the data analysis. All the audio recordings were written up into verbatim transcripts by the researcher, with colloquialisms also transcribed verbatim. Only the words used were transcribed, no notes were made regarding body language, mannerisms, facial expressions or intonation.

Table 4.4 Factors examined through the student paramedics focus groups

Variable	Rationale for inclusion
Students' expectations of practice	• Matching expectations to reality will impact on students' perceptions of the relationship between theory and practice • Unrealistic expectations may impact on students' perceptions of the relationship between theory and practice
nature of the relationship between the student and their Practice Placement Educator	• To triangulate with responses from student paramedic questionnaire • To triangulate with responses from Practice Educator questionnaire • To expand on the nature of the student/Practice Educator relationship • To explore the effect of different personal relationships on students' learning
relationships and learning in practice	• To triangulate with responses from student paramedic questionnaire • To triangulate with responses from Practice Educator questionnaire • To determine if the quality/nature of the student/Practice Educator relationship impacts on the students' learning • To explore the students' perceptions of the nature of learning and knowledge in practice
learning in time-critical situations	• To determine if the quality/nature of the student/Practice Educator relationship impacts on the management of time critical patients from the perspective of developing the practise of the student • To explore the students' development of tacit knowledge and personal professional knowledge
theory, practice and learning in practice	• To triangulate with responses from student paramedic questionnaire • To triangulate with responses from Practice Educator questionnaire • To determine the nature of the relationship between theory, practice, and learning in practice
Experiences of a theory-practice gap	• To triangulate with responses from student paramedic questionnaire • To triangulate with responses from Practice Educator questionnaire • To explore the effect of any perceived 'gap' between theory and practice on learning and development of knowledge
Professional Identity	• To explore if the development of a professional identity impacts on the relationship between theory and practice • To explore any impact of workplace bureaucracy on learning in practice
Road readiness	• To explore how the relationship between theory and practice impacts on the development of autonomous practice

4.4.3 Interviews

Two, one-to-one, semi-structured interviews were, by chance, carried out following the focus groups interviews. These interviews were initially planned to take place as focus groups, but were undertaken as one-to-one interviews due to focus group participants' non-attendance. This development allowed for a revised focus to be placed on the interviews, with the nature of the relationship between the student and the Practice Educator being the main element, with analogies and alternative representations of the relationship being sought out and explored. As these were the last two planned focus groups, the researcher had established an understanding of the areas where more in-depth, personal data would be of benefit in positioning the broad data already gathered. This adaptation and flexibility of approach is reflective of the pragmatic approach adopted for the study and aligns with the principles of PQR.

Prior to each interview, informed consent was gained and the participants were assured of anonymity and confidentiality. Although a small number of the entire paramedic student population, the interviews enabled in-depth data regarding the impact of the student/Practice Educator relationship on learning in practice and the relationship between theory and practice to be gathered. This data was analysed along with that of the focus groups.

4.5 Approaches to data analysis

The quantitative data gained from the survey questionnaires was initially analysed using a spreadsheet which was subsequently used to produce graphs and pie charts. The qualitative data was analysed by coding based on the language used and the researcher's interpretation of the underlying meaning of that language. Other factors were not considered to be appropriate to analyse due to the nature of the research question focussing on participants' reported perspectives rather than their emotional engagement in the discussion, which may have been elicited from analysis of the interpersonal interactions or group dynamics.

The transcribing process, whilst slow and laborious, did allow for immersion into the data, with the recordings being listened to repeatedly over a period of months to ensure that the transcripts were full and accurate representations of the focus group discussions. During this period, initial analysis was undertaken and notes made on the

transcripts where comments were thought to be of particular relevance or interest (Newby, 2014). This process informed first-stage, primary coding, which will be discussed further below.

Cooper and Endacott (2007) suggest an inductive approach to data analysis when undertaking PQR, summarising the approach in three stages;

- Reduce and display data; identify key categories and chart appropriately.
- Draw conclusions; identify category clusters and indicate relationships within the data enabling development of overarching themes and sub-themes.
- Confirm the results; weigh the evidence and make contrasts and comparisons.

There are no strict rules about selection of an analytical approach, nor are there for interpretation; however, it is suggested that low inference interpretation is undertaken. The researcher takes the position of striving for validity and seeking descriptive validity or an accurate accounting of the meanings with which participants would agree (Newby, 2014).

Initial analysis of the questionnaires was undertaken by collating data to give a broad understanding of the levels of agreement expressed by participants. The questionnaire was predominantly utilised to gather information regarding individual items. The data was then further interrogated to determine any trends and relationships between the answers, as outlined at Tables 4.2 and 4.3. The free text responses were coded and themed in the same way as the focus group transcripts. This was so that data could be merged and triangulated.

4.5.1 Primary coding

Coding was used to deconstruct the data and determine links between the codes. The format of the focus groups meant that there were a number of key areas about which data was being sought (Table 4.4, page 152).

Initial coding of the data from the focus groups was undertaken using an 'open coding' approach to first-level, or primary, coding, with all transcripts coded on semantic content. This coding was then used to reduce the scope of the data by establishing basic themes. For data management purposes, each theme was given a heading and added to the N-vivo computer programme project as a 'node'. The codes that emerged

were very broad and elements from the transcripts were placed in multiple nodes with no initial limits to the number of nodes that each element could be placed into. Once established, these themes were further examined to determine commonality and links between the nodes, with further refinement then undertaken to establish which themes were considered to be of greatest moment in the study. These themes were not necessarily those which occurred the most frequently but were those which were considered to best address the research question and were representative of participants' experience which could be described and applied in order to answer the research question. This consideration was based on the position of the researcher as an expert in the field of paramedic education. This process expanded on the notes already made during the transcribing process. The first set of primary coding nodes can be seen in Figure 4.5, below, where they are presented alphabetically.

Figure 4.5 Primary coding

- **Communication**
  - Link tutor/student
  - Practice Educator/link tutor
  - Student/Practice Educator
  - University/Practice Educator
  - University/student
- **Experience**
  - Learning experiences
  - Life experience
  - Memorable experiences- negative
  - Memorable experiences- positive
  - Practice experience
- **Learning in practice**
  - 'in at the deep end'
  - Context
  - Feedback
  - Techniques
  - Reflection-in-action
  - Reflection-on-action
- **Practice Educators**
  - Ability
  - Attitude
  - Education
  - Experience
  - Feedback
  - Qualifications
  - Relationships
  - Training
- **Problem solving**
  - Developing ability
  - Independent
  - Supported

- **Profession-bureaucratic work conflict**
  - Blue calls
  - Feedback
  - Handovers
  - Paperwork
  - Professional identity
  - Short-cuts
  - Times
- **Simulation vs. realism**
  - Idealised
  - Real-world
- **Situational management**
  - Manual handling
  - Safety
  - Scene awareness
- **Skills**
  - Methods
  - Opportunity
  - Real world
- **Tacit knowledge**
  - Hidden
  - Explicit
- **Theory vs. practice**
  - Books
  - Curriculum
  - Guidelines
  - Lectures
  - Module content
  - Skills

This primary coding was undertaken for each transcript. This level was less emergent as it followed the process of the focus groups' areas for discussion and could be looked at more as an organisational approach to sorting the data from different groups into

similar areas for easier next level coding. The fact that aspects of the data could be placed in more than one node did mean that there was a degree of analysis of emergent themes as they were coded.

4.5.2 Secondary coding

Secondary coding was then undertaken to determine where areas of particular interest could be found. The research question was again considered at this stage, with data that directly addressed the question being collated and placed appropriately. The secondary coding identified three core themes, drawing on data from all sources. The three core themes were 'theory and practice', 'students as learners', and 'Practice Educators as facilitators of learning'. The three core themes were further considered to produce key aspects of the data for further consideration as presented in Figure 4.6 (page 157).

From the 'theory and practice' theme emerged three strands, those of 'idealised situations', 'wider situational considerations' and 'work-profession divide'. Although aligned to the 'theory and practice' theme, each of these strands also has crossover into the other core themes, as do all the resultant strands in the model.

The 'relationship with' and 'dependence on' the Practice Educator emerged as strands from the 'students as learners' theme, with 'relationship with student', 'attitudes & beliefs' and 'experience & qualification' emerging from the 'Practice Educators as facilitators of learning' theme.

The core aspects of the study, theory, practice, knowledge and reflective practice, were all inherent in the themes which emerged from the secondary coding, as well as the strands which emerged as resultant themes.

The data from Practice Educators was compared to that gathered from the student participants. This was in order to triangulate as well as to differentiate their relative positions based on their responses. By seeking to understand both student and Practice Educator perspectives, and their similarities and differences, it was considered that the relationship between theory and practice as experienced by both participant groups could be better understood.

Figure 4.6 Primary and secondary coding and resultant categories
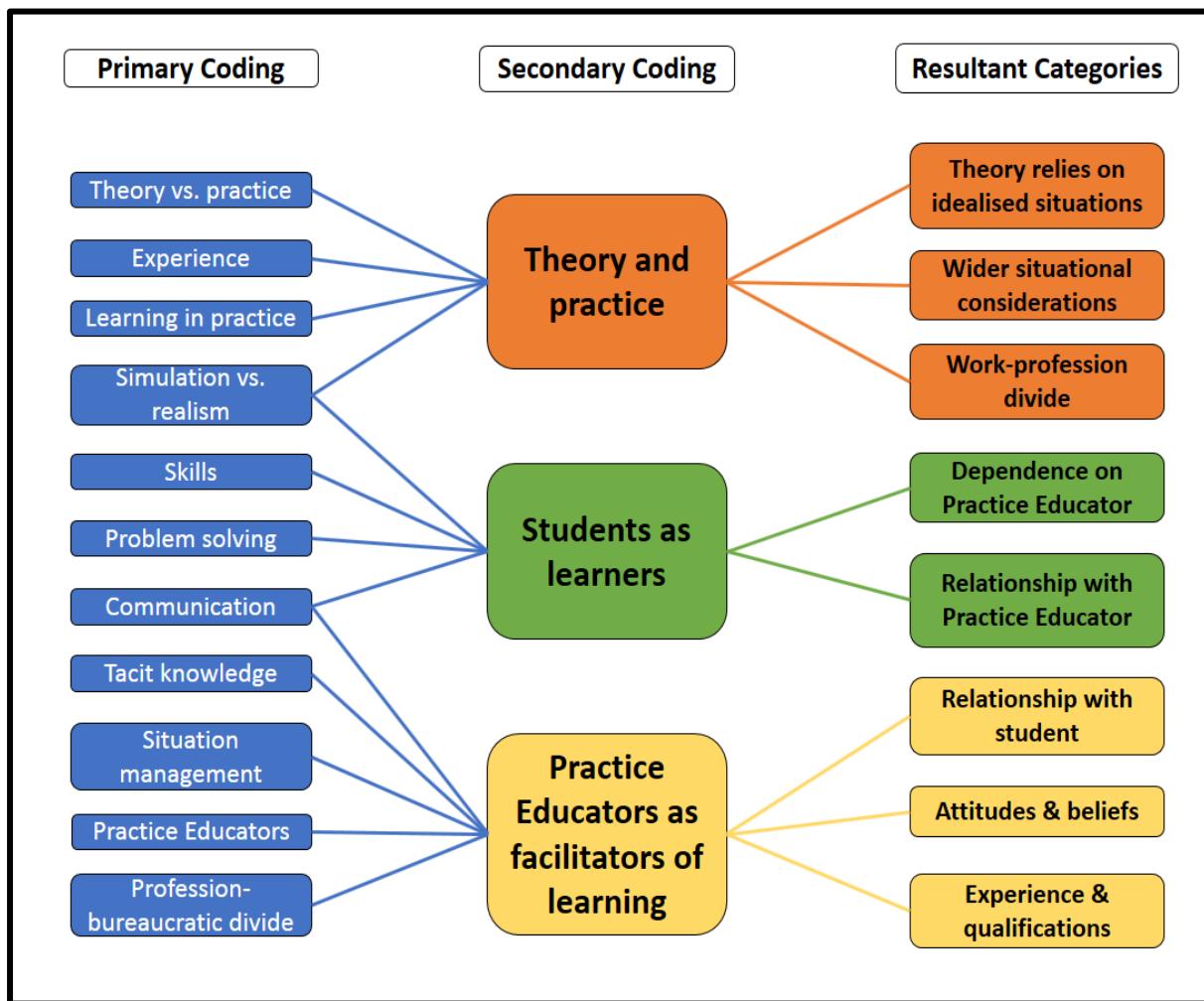
4.5.3 Presentation of data

Several options were considered in order to capture the essence of the emerging themes when presenting data. Graphical representations, such as pie charts and bar graphs, were considered appropriate to present the key quantitative findings and would allow for straightforward visual analysis. The qualitative data was considered as being most appropriately represented by utilising direct quotes of the participants. In selecting such quotes, it is important to ensure that the rationale for the selection of each quote is made clear. In some cases, quotes were used as a representative example of a position proposed by multiple participants and, in others, they were selected because they were considered to be of particular significance in presenting an individual's perspective. Where such quotes are included in the analysis, the rationale for their selection will be made clear.

Where individual responses have been quoted, an identifier, assigned during the analysis stage, will be shown. Student questionnaire participants are identified by an 'SQ' prefix, followed by their numerical identifier, e.g. SQ14. Practice Educators are similarly identified by a 'PQ' prefix, e.g. PQ02. In the analysis of the focus groups and interviews, gender appropriate pseudonyms were assigned to each of the participants to maintain anonymity whilst retaining the individual, personal aspect of their quotations. To address any potential ethical issues, none of the names assigned are those of any of the participants in the study.

4.6 Summary

A range of data was obtained and scrutinised in order to present a thorough, deep and meaningful position in relation to the experiences of student paramedics. This data was considered alongside that gathered from the Practice Educators so that a better understanding of the learning experiences of student paramedics in the practice environment could be gained. This broad, holistic understanding was then further focussed to gain an in-depth understanding of the relationship between theory and practice, predominantly from the perspective of the student paramedic but informed by the expressed views of the Practice Educator participants.

The process of analysis was undertaken in a structured, methodical way, considering the pragmatic approach and philosophy. The core findings of the study will be presented in Chapters Five and Six before final conclusions are drawn and presented in Chapter Seven.

Chapter 5 : Findings: Perceptions of the theory-practice relationship

5.1 Introduction

This chapter will present the findings established from the data in relation to the concepts of theory and practice as perceived by both student and Practice Educator participants. Key data will be presented in a variety of ways, including charts, tables and diagrams, and will be analysed and discussed throughout.

To extend the analysis, reference will be made to appropriate literature in the body of the text along with discussion of the findings. The terminology presented in Tables 2.1 to 2.3 will be used throughout this, and subsequent, sections where areas of theory, practice or knowledge are being considered, adopting italicised and capitalised presentation, e.g. *Formal Theory*. Where more discrete aspects of each area are discussed, the key authors' work will be cited and considered.

5.2 Views of 'theory' and 'practice'

The participants' understanding of 'theory' and 'practice' were initially sought through the questionnaire, with additional data gathered through the focus groups. As well as being valuable in clarifying the position of the participants in relation to these key terms, the data was also important to establish the context of subsequent data and perceptions reported by the participants.

5.2.1 Sources of theory

Students' views of the sources of theory were explored, with no limit set on the number of sources that could be cited. The majority of responses (69%, n27) considered theory to come from one of Eraut's (2003) four cited sources (Section 2.2.1), that of 'academic publications', i.e. research/studies, books and journals, aligning to the concept of *Formal Theory* (Figure 5.1, page 160). Fourteen participants (36%) cited university lectures as a source of theory, aligning with the broader concept of *Taught Theory,* which can be considered to encompass *Formal Theory.* Two participants (5%) identified their Practice Educators as sources of theory, aligning with Eraut's (2003) second source, that of community discourse among practitioners, and the notion of *Informal Theory.* There were no responses which could be considered to directly align to Eraut's conceptions of 'lay theories' or 'personal theories'. The identification by four

participants (10%) of 'scenarios and practical work' as sources of theory, areas that may also be identified as constituting practice, goes to demonstrate that students are not constrained to considering theory to exclude physical activities.

Figure 5.1 Student participants' views of where theory comes from
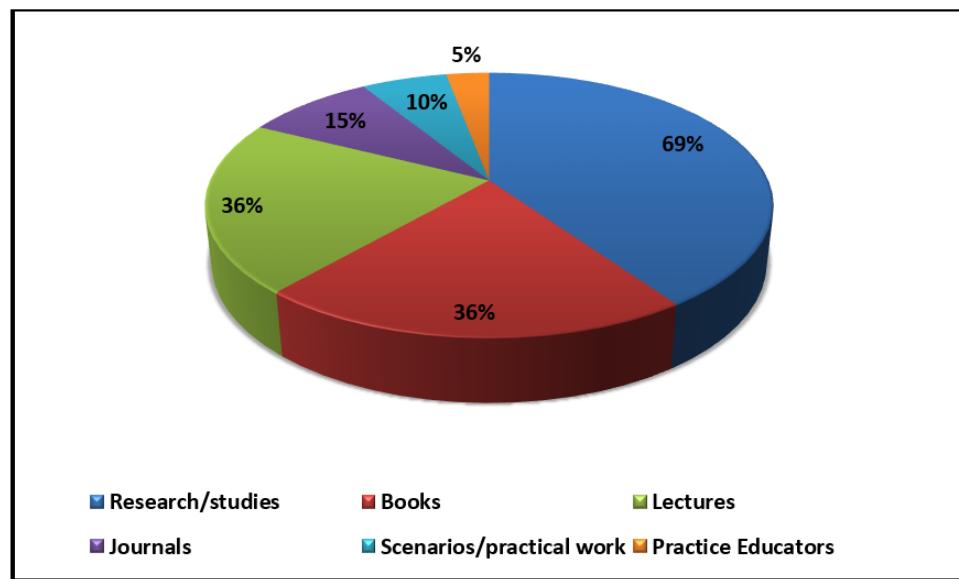
(N= 39 student questionnaires)

These findings indicate that students predominantly identify with sources associated with *Formal* and *Taught Theory,* with practice-based sources, i.e. Practice Educators, being only rarely considered by students. This finding enables clarification of the context when discussing the definitions of theory which follow.

When further explored in the focus groups, it emerged that a greater proportion of students did consider that their Practice Educators were a valuable source of *Informal Theory*, although not one which was at the forefront of their mind, with theory being more readily related to the concepts of *Formal* and *Taught Theory*. The role of Practice Educators in the generation of *Informal Theory* and its links to *Personal Professional Knowledge* will be further explored in Section 6.2.2.

5.2.2 Perceptions of the term 'theory'

The participants' understanding of the term 'theory' was explored through the questionnaire with the resultant data coded against the conceptualisations presented in Table 2.1. The coding was based on content analysis, with each participant's description of theory initially being placed into a single category, the results of which are shown in Figures 5.2, 5.3 and 5.4 (pages 161 & 162). The categorisation was

based on the degree to which the description was considered to align with a single definition. Of the nine definitions, eight were found to have been considered by each participant group, with *Personal Professional Theory* not being identifiable from the Practice Educator definitions and *Informal Theory* not identified within the student responses. Where a component element of *Formal Theory*, i.e. *Hypothesis Theory, Explanatory Theory* or *Technocratic Theory,* were presented as discrete definitions, they were placed within that category. Where the sense was more generally one of *Formal Theory*, then this category was assigned.

The greatest proportion of students (28%, n11) were considered to have defined theory as *Taught Theory,* twenty-one percent (n8) as *Explanatory Theory* and thirteen percent (n6) each as *Theory, Formal Theory* and *Personal Professional Theory.* Eight percent (n3) identified with *Hypothesis Theory* and three percent (n1) each as *Espoused* and *Technocratic Theory* (Figure 5.2, below).

Figure 5.2 Students' perceptions of 'theory'
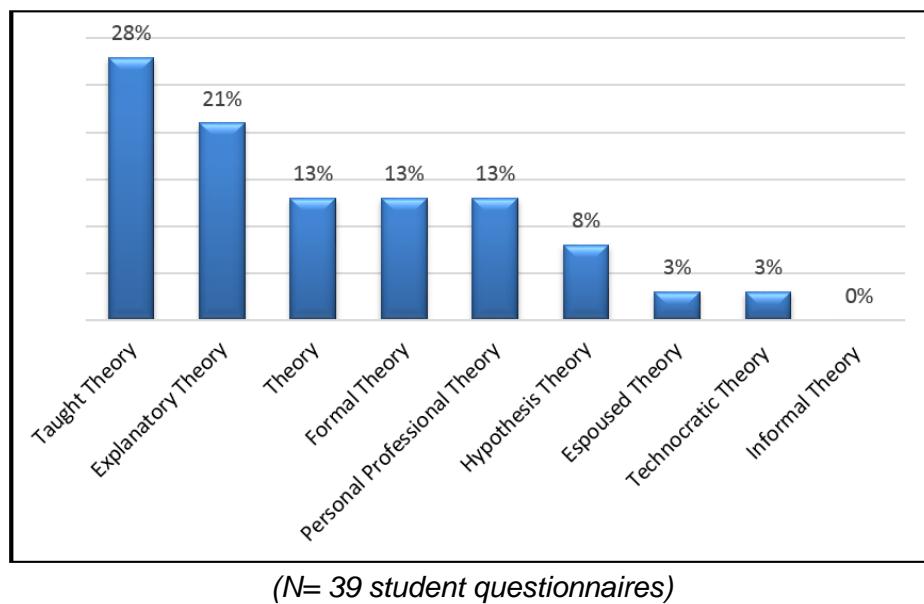
(N= 39 student questionnaires)

The same coding process was undertaken for the Practice Educator participants, the greatest proportion of whom (23%, n7) were considered to have defined *Taught Theory*. Twenty percent (n6) were identified as describing *Technocratic Theory* and seventeen percent (n5) as *Theory,* i.e. the opposite of practice. Thirteen percent (n4) were considered to have described *Espoused Theory*, eight percent (n3) defined *Formal Theory* and three percent (n1) each *Explanatory Theory, Hypothesis Theory* and *Informal Theory* (Figure 5.3, page 162).

Figure 5.3 Practice Educators' perceptions of 'theory'
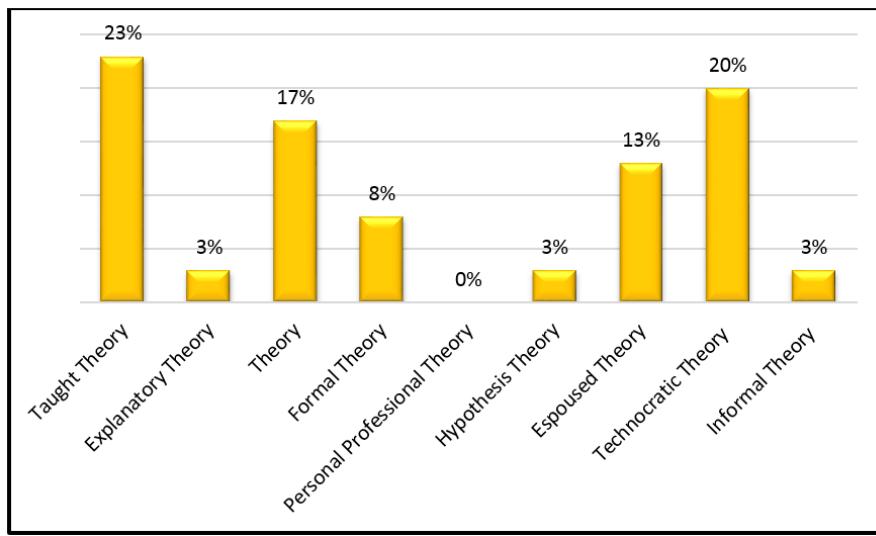
(N= 30 Practice Educator questionnaires)

Figure 5.4, below, compares student and Practice Educator perceptions of theory, with both groups' views being seen to be predominantly those of *Taught Theory.*

Figure 5.4 Students and Practice Educators' perceptions of 'theory'
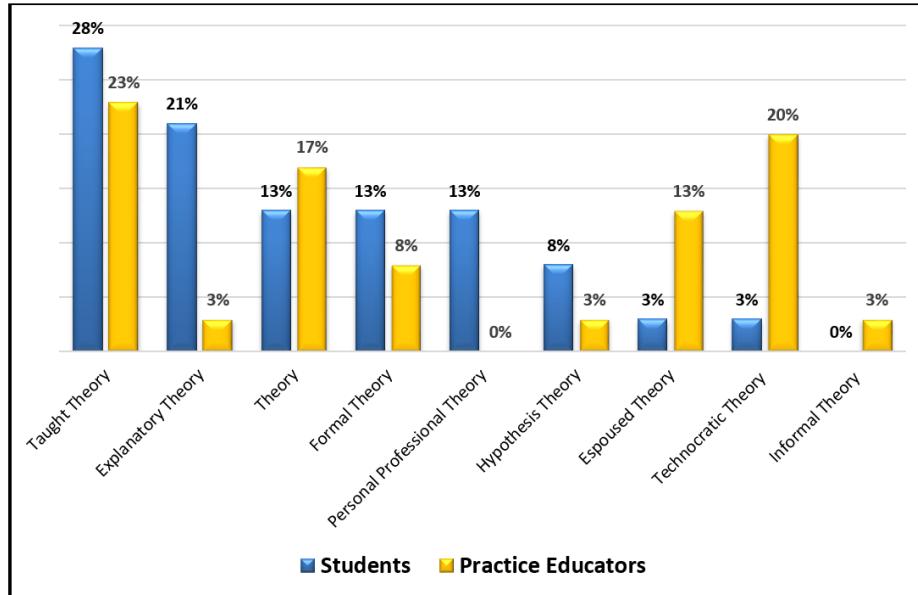
(N= 39 student questionnaires; 30 Practice Educator questionnaires)

Although the position of *Taught Theory* was predominant through the analysis, a relatively small proportion of both students (15%, n6) and Practice Educators (17%, n5) *explicitly* described theory as 'that which is taught in the classroom' (Polit & Hungler, 1987), e.g.:

> *"Classroom study. Learning without actual on the job practice." (PQ11)*

"Things you learn in a classroom." (PQ14)

Theory was directly associated with 'education' (Argyris & Schön, 1996; Baxter, 2007; Corlett, 2000; Elkan & Robinson, 1993; Rolfe, 1996) by thirteen percent of student respondents (n5), e.g.:

"Theory is the education and background into how something works" (SQ01)

with the links between theory and knowledge found in forty-six percent (n18) of student participants' and twenty-seven percent (n8) of Practice Educators' responses:

"Knowledge gained through education" (SQ37)

The types of knowledge that were presented were identified as *Taught Knowledge* and *Personal Professional Knowledge*. An example of a term identified as relating to *Personal Professional Knowledge* is that of SQ10, with the practice-based applicability of the knowledge being the key identifier:

"Bulk of knowledge that you can apply to practice or in practice." (SQ10)

Such considerations of the practical knowledge (Bruner, 1985; Grossman, 1995; Munby *et al.*, 2001) associated with *Personal Professional Knowledge* were, in the below example, combined with a more technocratic view (Chinn & Kramer, 1991):

"What knowledge you know and already exists. Knowledge that you can then apply to practice." (SQ9)

With examples of the concept of theory as a basis for 'knowing that' (Benner, 2001; Kuhn, 1970; Polanyi, 1958) also presented:

"Having a good underpinning of knowledge that allows you to understand the reasons behind what you 'practice'." (SQ14)

When considering 'knowledge' in their definition of theory, seven (24%) Practice Educators combined their definition to also incorporate the term 'practice', where practice was considered as the basis for requiring the knowledge accrued by theory, e.g.:

"The knowledge behind the practice." (PQ17)

"Underpinning knowledge that supports practice" (PQ26)

The apparent 'ranking' of the positions of theory, practice and knowledge will be further discussed at Section 5.2.6.

The data suggest that there is no single, universal view of theory which can be applied across the board to encompass both students' and Practice Educators' perceptions. There are, however, areas of agreement between the two participant groups, with *Taught Theory* being found to be the most dominant, supportive of Baxter's (2007) and Polit and Hungler's (1987) position of theory being *'that which is taught in the classroom'.*

This suggestion was further strengthened and expanded when discussion within the focus groups developed a clearer position in respect of the students' perceptions of what constitutes *Taught Theory*. When considering the balance between theory and practice within the programme, Lucy summed up the views of her focus group:

> *"Yeah, I think if we didn't have as many placements as we did I think then it might be a bit of a problem because it would all be theory and then you wouldn't be getting the experience you need to put the theory into practice, but, because we do do quite a lot of practice, it all seems to be quite well structured, that there is a system there to support the gap between the theory and the practice." (Lucy, FG1)*

Lucy has identified a perception of a potential 'gap' between 'the theory' and 'the practice'; however, she identifies that experiences gained in the practice-based learning environment address the challenges of putting 'theory into practice'. Lucy's implication that the absence of placements would result in the programme being all 'theory', is representative of the view of the majority of focus group participants that *all* aspects of university course delivery, including *Simulated Practice* and the learning of step-by-step approaches to the application of items of equipment or procedurally-based interventions, were viewed as being theory, even when *Activity-based Practice* was the outcome of those procedures. Further examples of the breadth of areas included within students' understanding of the term 'theory' will be presented throughout this and the following chapter.

This initial finding is suggestive of Mouly's (1978) view of theory as being a convenience of organisation, with the university being where students see such organisation as taking place. The breadth of the definitions presented by students goes to suggest that theory is considered by them to be an all-encompassing term,

one which aligns, in part, to Thomas' (1997) view of theory being the opposite of practice, but goes beyond Thomas' limitations of 'thinking and reflecting' by including 'doing', but not 'doing' that is representative of practice. The qualifying definition of the term 'practice' is, therefore, also required to appropriately position the students' view of theory.

### 5.2.3 Perceptions of the term 'practice'

Participants' understanding of the term 'practice' was analysed and considered against the definitions previously presented in Table 2.2. Figure 5.5 (page 166) shows the results with student views presented alongside those of the Practice Educators, and both shown as percentage of responses.

Situated Practice was the predominant view of both student participants (85%, n32) and Practice Educators (73%, n22). *Practice*, i.e. 'the opposite of theory', was identified in seventeen percent (n5) of Practice Educator definitions, but none of the student definitions. *Simulated Practice* was represented by a small number of students (10%, n4) and Practice Educators (3%, n1) who considered OSCE practice, skills workshops and simulated scenarios undertaken at the university to constitute practice, e.g.:

"OSCE, scenarios to practice our involvement and skills with patients" (SQ6)

This position was further explored in the focus groups where it became apparent that the border areas discussed in Section 2.3.3 were experienced by students. This will be discussed in Section 5.2.4.

Activity-based Practice was represented by a similar proportion of both students and Practice Educators (5%, n2 and 6%, n2 respectively) with *Evidence-based Practice, Practise, Professional Practice and Condition-based Practice* not considered to have been described by any participants. The absence of *Evidence-based Practice* as a consideration of the participants is surprising as it is a core subject within the curriculum, presented in both Research and Patient Assessment and Management modules. The student participants' views of the term 'practice' had a focus on the application of *'skills'* (14n, 36%), with *'applying'* (10n, 26%), *'real'* (8n, 20%) and '*doing the job'* (7n, 18%) being dominant, consistent terms, aligning with the views of Sellman (2010), Merz and Knorr-Cetina (1997) and Eraut (2002).

Figure 5.5 Participants' perceptions of 'practice'
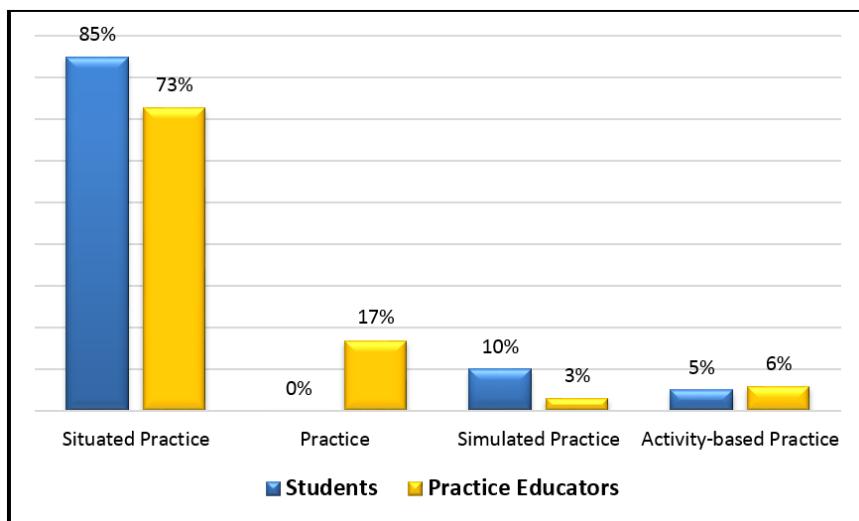
(N= 39 student questionnaires; 30 Practice Educator questionnaires)

Fifty percent (n15) of the Practice Educator participants explicitly identified that 'practice' was that which was undertaken within the ambulance service, dealing with patients, a view of holistic practice (Eraut, 2003). *'Skills'* were cited by twenty-one percent of Practice Educators (n6) when describing 'practice', a lower proportion of respondents than in the student group, with forty-five percent (n13) stating that practice was the application or implementation of theory, aligning to Wortham's (2010) views of practice as activity. Ten percent (n3) of Practice Educators used the term '*real*' in their definitions of practice, half the proportion of the student participants.

Although the concept of 'practice', and it's meaning when considered in relation to theory, has been debated at length (Carr, 1995; Hirst, 1993; Hirst & Carr, 2005; McIntyre, 1995; Misawa, 2011; Rajagopalan, 1998; Thomas, 1997; Thomas, 1999), the perception of the participants was found to be less contentious and relatively straightforward. The majority of participants identified with 'practice' as being the 'doing' aspects of the paramedic role, specifically the treating of real patients. This perception of *Situated Practice* informed the ongoing consideration of data as it was analysed, whilst also enabling a better understanding of perspectives of 'theory'.

5.2.4 Border areas

The student participants perceived that theory was predominantly derived from their university modular input, i.e. *Taught Theory*, and that 'practice' was the time spent in the ambulance service treating patients, either with or without a Practice Educator, i.e. *Situated Practice.* A third, 'in-between' area was also identified where the boundaries

between theory and practice were not so clearly defined. Examples were scenario-based exercises undertaken at university and practice-focussed simulation exercises such as the 'Hazard Alley' experience, an exercise undertaken by all students at the end of their first year at university, prior to entering practice placements with a Practice Educator for the first time. Hazard Alley, a simulated town environment primarily used to educate schoolchildren about the dangers of the road and the home, was utilised during a one-day exercise which simulated incidents in a safely controlled environment.

Following Hazard Alley, each student was required to reflect on one of their scenarios and present back to their peers. This activity was reported by some focus group participants to be their first real introduction to 'practice', and undertaking formal reflection, whilst remaining within the predominantly theoretical domain of the university. Key learning episodes from the Hazard Alley experience were recalled by students during the focus groups, which were taking place between two and three years after the initial event, highlighting the significant impact of simulation as a learning method (e.g. Ballangrud *et al.*, 2014; Bultas *et al.*, 2014; Lucas, 2008; Williams *et al.* 2009). The students who discussed Hazard Alley considered that the experience was as close to 'real-life' as it could be while retaining the knowledge that they were 'safe' (Cioffi, 2001), a notion supported by Hudgins (2017) and aligning with Alinier's (2007) Level 3 simulation, a level which Alinier considers to represent practice, rather than theory.

This initial evolution of the theory-practice relationship, albeit in simulation, was reported by student participants to have been a key point in their linking of theory and practice, a finding which aligns with those of Hope *et al.* (2011) who explored simulation undertaken by nursing students. The use of facilitated reflection during simulated scenarios was considered to be instrumental in preparing students for the realities of the practice environment. During simulation, students were allowed free rein to manage the scenarios with the patient's condition altering depending on their treatment. The result was that, more often than not, students' learning was based on their making mistakes and, hopefully, learning from those mistakes. In some cases, allowing scenarios to 'nose-dive' resulted in students feeling that the feedback given to them was overly harsh, with Harriet reporting that she felt it was '*humiliating*':

"But personally, some of the 1st year when we did scenarios, the way that you gave your feedback made me think 'next year, I don't want to go through that humiliation again' so I'm gonna go away and read it again'" (Harriet*, FG2*)

Although this approach did encourage Harriet to revise, it could be considered that the way in which this motivation was achieved was not entirely appropriate. Such situations can, however, be considered to be key in developing paradigm cases that can be added to the individuals' repertoire. In such simulations, key learning points can be considered and the scenario manufactured to ensure that the students experience an opportunity to draw on their knowledge in order to manage the situation, or to have gaps in their knowledge highlighted to them. The process of reflecting on the scenario enables the students to identify which aspects of their knowledge, and associated theory-base, were lacking when undertaking the simulated practice. By allowing the patients within the scenarios to rapidly deteriorate when the attending students were unable to demonstrably apply their knowledge, the importance of having, and be able to apply, sound underpinning knowledge is conveyed to the students.

The limitations of simulated scenarios were discussed, with *Julie* considering the role of her peers when acting as patients:

"… it's like in scenarios, you're talking to your peers, so you know they've got the same knowledge as you, so I think that's a bit different." (Julie, FG1)

This view was supported by *Lucy*, who made the distinction between scenario-based learning and *Situated Practice*:

"So, if you're in a scenario, or something, and you go 'so what's the problem today?' there'll be one thing, whereas, often, if you go to patients that starts them off and they tell you a ten-minute story of their fifty-year history of illness and all the things that are wrong. You've gotta say, 'but what's actually different today?'" (Lucy, FG1)

Lucy is identifying what can be considered both a key flaw and a key advantage to scenario-based learning; that of focus. When preparing simulated patient encounters, the facilitator can determine the focus of the scenario based on the desired learning outcomes, which are generally supported by recent *Taught Theory* (Alinier, 2007, 2008). In these circumstances, the focus is related to the level of the educational programme that the student has reached and to the areas of the curriculum that require

further exploration and consolidation. When a student encounters a patient in *Situated Practice,* such focus can rarely be considered and appropriate preparation undertaken. The simulated environment also lacks the extraneous distractions of the clinical setting (Eraut, 1994), distractions which will be considered in Section 6.2.4.

Lucy's challenge in this situation was to draw on the *Taught Theory* with a view to focussing back on what the problem was: what could she do to obtain the information that she needed. The *Taught Theory* of history-taking was not necessarily incorrect, it simply required modification for use with patients who were not trained in answering the clinical questions, a position considered by Yassin (1994). *Jane* concurred:

> *"Yeah, and if it's with your friends usually they know the answers, so their answers are leading towards what you're looking for, whereas, if you go to someone you don't know, they're not gonna sort of automatically say 'I've got appendicitis, ask me those questions.'" (Jane, FG1)*

In such situations, where the experience in practice is viewed by the student as being very different from that in the classroom, or in simulation, the application of *Taught Theory* can be more challenging, with distinctions being made between *Theoretical* and *Practical Knowledge* (Leinhardt *et al.*, 1995). In the same focus group, Lucy responded:

> *"Yes, you know that from OSCEs, 'cause if you're one of the last people to come in to history-taking and you say to them 'so what's the problem today?' and they go 'well I've had this abdo pain and it starts here goes here and I've vomited if twice' and 'blah, blah, blah'. They give you the whole history without you really asking them because they know what they've got to say. It's nothing like the real experiences with real people." (Lucy, FG1)*

The view that the simulation was nothing like the real experiences does not appear to have resulted in any negative connotations regarding the validity of the *Taught Theory* associated with the situation, in this example, history-taking. It was acknowledged that, while the experience in *Situated Practice* was different to that in the classroom, such differences were expected as being a normal part of undertaking the paramedic role, a position previously explored in nursing (Hope *et al.*, 2011). The use of simulation was found by Hope *et al.* (2011) to give students the confidence to approach situations in practice. In addition, it was found that, whilst students valued simulation as providing learning experiences commensurate with the practice setting, they also appreciated

that simulation was not an exact representation of the ever-changing and unpredictable nature of practice.

The concept that all patients and situations are different was acknowledged by the student participants, although it was also acknowledged that this had not necessarily been their expectation when first entering practice. The students' view of this challenge to first applying *Taught Theory* in *Situated Practice* was shown to have evolved over the course of their programme, with their development of *Informal Theory* and *Personal Professional Knowledge* leading them to appropriately adapt their approaches to patients to gain the required information in the less than ideal situations in which they were working. Such development aligns with the propositions of Dreyfus and Dreyfus (Figure 2.9) where the novice transitions towards becoming the competent practitioner.

One of the Practice Educator participants, PQ8, related their own experiences of assisting at Hazard Alley when they expressed the view that theory was sometimes not well related to practice experiences:

> *"Did Hazard Alley. I was a patient with an arterial bleed post traumatic amputation. My resp. rate was 31. They tried to BVM me when I was still conscious and still haemorrhaging! Hopefully the new C-ABC has helped that!!" (PQ08)*

There are interesting points raised here in that the Practice Educator is criticising the students for attempting to undertake assisted ventilations using a bag-valve-mask (BVM) because their patient's respiratory rate is greater than thirty respirations per minute- as dictated by clinical guidelines, a 'theory' of patient management. The 'C-ABC' cited by PQ8 refers to the introduction of 'catastrophic haemorrhage'- C - into the primary survey, the ABC of airway, breathing and circulation.

The two points here are, firstly, that the patient was still conscious and did not want to be ventilated - there are other methods of approaching tachypnoea in this type of situation- but the students had been taught to ventilate anyone with a respiratory rate below ten or above thirty. In this case, they apparently tried to apply that theory to a patient presentation where the wider situation did not relate specifically to the *Activity-based Practice* of ventilation. This is representative that the *Taught Knowledge* derived from *Taught Theory* is not necessarily directly transferable to a practice-based

situation, such knowledge not yet having been sufficiently contextualised, i.e. a 'novice', as defined by Dreyfus and Dreyfus (1986).

The second point is that the students should have been arresting the arterial bleed before considering the management of respirations. It is the wider considerations of the circumstances surrounding the event that should have highlighted to the students the need for a C-ABC approach, rather than an ABC approach. Although this seemed obvious to the experienced paramedic, who was acting as the patient, the students were still basing their practice solely on the *Taught Theory,* which they were attempting to apply to a situation which did not necessarily 'fit' with their perception of how that theory should be applied.

The experience of the student is that although simulation is not the same as practice, it goes beyond theory, in that it adds physical experience to theory and allows the evolution to more pragmatic theories-in-use prior to becoming theory-in-action (Argyris & Schön, 1996). The level of simulation in relation to that proposed by Alinier (2007) can be considered at this point. In the example discussed above, the patient was a real person, indicative of a Level 3 simulation; however, their presentation was such that the clinical observations could not be readily replicated, reducing the fidelity of some aspects of the incident. The level of fidelity can be an area where the students' perception of the simulation being representative of theory or of practice, or an inseparable amalgam of both, can be considered.

In addition to simulation, the areas of 'policy', 'procedures' and 'guidelines' were also found to be considered by some participants to represent practice, and by others to represent theory. These additional areas were not explored in as great a depth as simulation, which was experienced by all students. The resultant 'border areas' which sit between theory and practice will be discussed further in the context of individual curriculum areas throughout Section 5.3.

5.2.5 Theory as an 'ideal', practice as 'real'

The perspective of some of the Practice Educators (n7, 23%) was that the 'ideal world' of theory opposed the 'actual', or 'real', realm of practice, where theory is considered to rely on idealised situations to work;

"Most of the time theory is based on "ideal situations". Sometimes you need to think outside the box." (PQ05)

When defining theory, the role of theory in practice was raised by several of the Practice Educator participants, with a minority having an apparently negative view, for example:

"Something that sounds good on paper but usually is just there to cover someone's arse and has little relevance with everyday practice." (PQ17)

PQ17's view of the relationship between theory and practice was *'one of suspicion'*, with their view of practice aligning to Bourdieu's (2000) consideration of scholastic epistemocentrism:

"How things are done as opposed to how 'theory' states it should be done."

A similar view expressed when defining theory shows that, even when acknowledging that the associated theory represents the 'correct' way to undertake practice, it conflicts with the way practice is undertaken, positioning *Espoused Theory* in opposition to *Situated Practice* (Argyris & Schön, 1996; Corlett, 2000; Eraut, 2003):

"The right way to do it! As opposed to the way it is actually done!" (PQ8)

PQ08 is clearly presenting theory as the 'right', or 'ideal' way of undertaking practice, whilst acknowledging that the actual practice undertaken does not necessarily live up to that ideal. PQ08's definition of practice appears to qualify her definition of theory when she says:

"The real way things are done given that all students are different, all patients are different and every situation is completely unique!"

PQ08's identification of the differences between, and uniqueness of, students, patients and the situations encountered, demonstrates a position which acknowledges that not all theory can readily be applied to the wide-ranging situations encountered in paramedic practice, presenting a conflict between theory as an ideal and theories-in-use (Argyris & Schön, 1996; Barge & Craig, 2009; Corlett, 2000; McIntyre & Murphy, 2016).

PQ15's view of the relationship between theory and practice was that they were *'sometimes not closely related',* implying a degree of separation which could be

considered to represent a theory-practice gap. PQ15's view of theory was similar to that of PQ17 and PQ08, being:

"How it should work in an ideal world, on paper."

This was juxtaposed to their view of practice being:

"How it works in reality."

PQ24, a forty-nine-year-old male who had been a paramedic for thirteen years and a Practice Educator for eight years, as well as having supervised six higher education students during the previous year, was one of the most experienced Practice Educator participants. He was trained via the IHCD route and considered the relationship between theory and practice in the following way:

"Theory is a solid instruction as long as it isn't regarded as biblical directions."

As with the other Practice Educators in this section, PQ24 defined theory as:

"Indicating 'best practice' in 'ideal conditions' but lateral thinking should be encouraged at point of theoretical instruction."

This view appears to acknowledge that *Taught Theory* is based on 'ideals', whilst also identifying that *Taught Theory* should be sufficiently contextualised so that its application in practice can be supported by appropriate adaptation, in this case by way of 'lateral thinking', a representation of Argyris and Schön's (1996) theories-in-use.

These views, where theory was explicitly expressed, rather than implied, by the Practice Educators as representing an 'ideal', were not representative of the majority of Practice Educators, with thirteen percent (n4) holding this view. Two students (5%) also considered theory to represent an 'ideal or a 'perfect' worldview:

"The way something should be done/happens in the perfect world." (SQ32)

"Things which can be learnt as concepts and translated into practical experience. The theory may not always be directly transferable but gives an overview of the ideal." (SQ19)

SQ19's acknowledgement of the limitations of an *'ideal'* perspective is similar to that of PQ24, where the experiences of practice are not representative of the *'ideal'* suggested by some views of theory (Argyris & Schön, 1996; Bourdieu, 2000; Corlett, 2000; Eraut, 2003; Lave, 1996).

The analysis of the data gathered from the focus groups gave a view which also indicated that the teaching undertaken at the university presented an 'ideal' which was thought to be the best approach to be employed in practice; however, it was readily acknowledged that such an 'ideal' position came with caveats. Seventy percent (n11) of participants expressed the view that the application of knowledge gained through *Taught Theory* when in *Situated Practice* was undertaken with a degree of flexibility and adaptation to the circumstances presented, with none of the student participants expecting to experience *exactly* what was presented in the classroom when undertaking *Situated Practice*, a position which aligns with that of Buchanan (1994) and Bromme and Tillema (1995) (Section 3.2.1).

When it was suggested by the focus group facilitator that the basis behind the reported theory-practice gap in nursing was, in part, due to teaching things at university that were outdated, not appropriate for practice or not done in practice, the response was from one student was:

> *'I think it's actually the opposite with us because I think a lot of the stuff we're taught at university is more progressive and it's what the ideal should be. It doesn't always happen in practice, but things like doing cranial nerve examination, a lot of people don't do it, but more people are doing it, it's starting to come into practice, you've learnt, you're taught the ideal way and you start to bring some of it in to start to improve the paramedic profession.… I think the practice is behind the theory, not the other way around.' (Lucy, FG1)*

Lucy's view was that the paramedic theory communicated through university programmes was starting to become utilised within paramedic practice, but was not universally embedded amongst all paramedics or Practice Educators. Lucy's view of implementing the 'ideal' approach to improve the paramedic profession is interesting in that it appears to give more weight to *Taught Theory* when compared to the *Informal Theory* encountered in practice. The fact that such a small proportion of the participants considered theory to be representative of an 'ideal' indicates that the theory-practice gap discussed by Yassin (1994) and Draper (1991), may not be as prevalent a view of the theory-practice relationship in paramedic practice when compared to nursing.

Where students hold a view of theory which is idealised, and their Practice Educators hold a view that is realistic, there may be an experience of friction between the two,

potentially disrupting the development of an effective theory-practice relationship. In cases where a Practice Educator's views of theory as an 'ideal' is adopted as a negative position, they may be seen to actively discourage its implementation in practice, as will be seen in Section 5.3.

5.2.6 The hierarchy of theory and practice

The term hierarchy is used here to consider the participants' relative ranking of the perceived importance of theory and practice in respect of one other. The term 'practice' was used by twenty-eight percent (n11) of student participants to situate their understanding of the term 'theory', with eighteen percent (n7) using both 'practice' and 'knowledge' in their responses. Thirty-eight percent of the student participants (n15) differentiated between theory and the 'doing' of the paramedic role, with the majority of those presenting the relationship as a dependent, rather than an interdependent, one. For example, a definition of theory:

> *"Bulk of knowledge that you can apply to practice or in practice." (SQ10)*

And one of practice:

> *"Applying the theory that has been learnt." (SQ7)*

SQ5 presented a more expansive view of the relative positioning of theory and practice:

> *"Theory is the underpinning knowledge from which medicine and practice is based. You require the theory to develop the skill." (SQ5)*

In this case, the student clearly considers that theory is a pre-requisite for practice to be undertaken, aligning to the foundationalist views of Hirst (1973), Corlett (2000) and Shariff and Masoumi (2005). The consideration of theory being a pre-requisite for practice does not, however, necessarily imply that the student places more *importance* on theory, rather that it is viewed as being needed in order for practice to be subsequently undertaken, aligning to a technocratic model of professional education (Bines, 1992).

Twenty-seven percent of the Practice Educators (n8) also used 'practice' to situate their definition of theory, with a similarly ordinal relationship implied by some participants:

"Learning and knowledge gained in order to work in a practical setting." (PQ16)

The perception of a technocratic model of professional education (Bines, 1992), where the undertaking of *Situated Practice* is viewed as being dependent on the prior delivery of *Taught Theory*, was lower for the Practice Educators than the students, with theory reportedly assuming a more supportive, rather than dominant role, where it '*assisted'* or *'supported'* practice rather than dictated it:

"Background knowledge-base to assist you with practical" (PQ5)

"Underpinning knowledge that supports practice." (PQ26)

The term *'behind the practice'* was used to situate theory by two Practice Educator participants and could be viewed in various ways. On the one hand, it may be considered to reflect their view of the position of theory when compared to practice, i.e. that it is of less importance or, on the other hand, it could imply that theory represents a sound underpinning foundation on which practice can then be built. The considerations of *Informal Theory,* indicated by the use of the terms 'knowledge' and ideas', being used to support professional development in practice is demonstrative of Bines' (1992) post-technocratic approach:

"The ideas, knowledge, science behind the practice." (PQ28)

"The knowledge behind the practice" (PQ3)

It was acknowledged that undertaking practice was equally as important as theory, supporting Hirst's (2008) position, with the example below being a student defining practice:

"Applying the theory but also gaining more skills through actually doing the job and becoming better at it. Theory can only go so far." (SQ15)

Although Practice Educators' definitions of 'practice' did not significantly differ from those of the students, their perception of the balance of the theory-practice relationship was weighted more toward the practice elements. Theory was adaptable in its application in the pursuit of applying 'appropriate' practice:

"The adaption and application of theory to the real-world environment." (PQ6)

PQ6 has clearly indicated that practice is a 'real world' phenomenon, with the implication that theory is, by contrast, not a 'real world' entity, whilst also identifying

that theory requires *'adaption'* in order to be applied in practice, a view of theories-in-use (Argyris & Schön, 1996) and accrued *Personal Professional Knowledge*.

Forty percent (n12) of Practice Educators considered that, in undergraduate programmes, a greater emphasis was placed on the theoretical components of paramedic education and less regard given to practical experience, for example:

> *"I believe that some higher education courses put too much emphasis on theory and not enough on practice, and people do better having more experience at a lower level. (A&E support, technician etc.)" (PQ8)*

This Practice Educator was comparing the pre-technocratic (Bines, 1992) career pathway of 'in-house' trainees, who had undertaken a considerable amount of time in the practice environment, to the theoretical emphasis they consider is placed on university programmes, with the suggestion that such practice experience enables in-house staff to 'do better'. This is a view that has been expressed since the inception of degree level paramedic education and, more recently, within the PEEP report (2013). The report notes the polarised nature of views on the level of education required to be a paramedic, with strongly held views on both sides, i.e. that such a high level of award is, and is not, necessary to become a paramedic.

It could be argued that the 'in-house', pre-technocratic model of paramedic education builds on a sound experiential base; however, there is limited evidence to suggest that the clinical reasoning and decision-making undertaken by 'in-house' paramedics differs in any way from graduate paramedics. Indeed, determining if one paramedic is any 'better' than another is an incredibly challenging proposition, with the range of attributes being so broad as to be practically impossible to gauge against one another, making this an area for study outside of this research.

A small number of Practice Educators (10%, n3) specifically stated that their higher education students were *overly* reliant on theory, interpreted here as *Formal Theory*, for example:

> *"Not always beneficial, sometimes too much theory is considered by higher education students" (PQ13)*

Although a small proportion of the respondent group, this position appears to view *Formal Theory* in a negative light. Exactly why these Practice Educators considered too much *Formal Theory* to be negative is not clear. It appears from the data that the

Practice Educators who viewed theory negatively did so in comparison to its practical application. PQ25 makes a distinction between the books and the patient:

> *"HE students focus on what is in the books, other students focus on patient." (PQ25)*

The implication is that focussing on theory can detract from focussing on the '*real life*' presentation or situation in front of the student, with the attempt to rigidly translate theory into practice being in opposition to the ongoing, partly tacit, development of *Personal Professional Knowledge* within a community of practice (Cranefield & Yoong, 2009; Wenger, 1998). A comment from PQ14 highlights a potential for misunderstanding when supervising students:

> *"Higher education students tend to want evidence and textbook answers." (PQ14)*

It is unclear if PQ14 is presenting this as a positive or a negative statement. From a positive perspective, this is an encouraging statement in that it highlights the desire of higher education students to relate their practice experiences to the theoretical bases behind them, as presented in textbooks. The nature of the evidence that the Practice Educator is referring to is less clear; it may be evidence based on the experience of the Practice Educator, and their own *Informal Theory*, or evidence in the empirical, research-based sense. The comment could also be viewed in the alternative context of the Practice Educator presenting their frustration at the expectation of students to be given an 'answer' for every eventuality that they may experience in the practice environment. Adopting a shared reflective approach may make such links more apparent and less frustrating (Schön, 1987; Williams, 2013).

PQ27 challenged the 'depth' of theory required to undertake practice:

> *"…once you reach a level of theory, you overthink things. Staying hands on and top up your knowledge, but don't go too deep." (PQ27)*

This Practice Educator appears to be placing a limit on the usefulness of theory, with 'excessive' theory being ranked below practice in terms of relative importance, discouraging going *'too deep'* when considering theory. PQ27, a thirty-five-year-old male, had themselves been a higher education paramedic graduate, having completed a BSc degree nearly six years previously. With such a background, it appears unusual that he considered that one can *'overthink things'*, with the expectation being that a graduate paramedic would have a greater appreciation of the role of continued

professional development and the continued exploration of *Formal Theory*. The reference to *'staying hands on'*, with theory only needed to *'top up'* knowledge, suggests that PQ27 does not see a need to maintain a deep theoretical understanding. This position is reflective of Schön's (1987) metaphorical 'swampy lowlands', where the deep understanding of theory is seen as being on the 'high ground', thereby disconnected from practice.

The potential difficulty for students who are met with such an approach is determining what the appropriate 'depth' of engagement with theory is. In cases where the student presents as having a greater depth of knowledge and understanding than their Practice Educator, there is the potential for a change in the dynamic of the student/Practice Educator relationship, challenges which will be discussed in Section 6.2.4.

PQ23 also considered that there was too much emphasis on the 'high ground' of theory, resulting in a negative impact on practice-based situations:

> *"Too much emphasis on theory not enough on practice, therefore the student has the knowledge and skills but can't translate them into real situations and are not adaptable when situations become fluid." (PQ23)*

This Practice Educator's expectations of student paramedics appear to be that they should be able to adapt to situations; however, they do not appear to acknowledge that the practice placements undertaken by students are the primary method of achieving such adaptability by alleviating the reliance on technical rationality associated with theory (Schön, 1987). PQ23 had been a paramedic for sixteen years, having qualified through the IHCD route. With CSE's as their highest academic qualification, PQ23 considered that their own qualifications were;

> *"…below the theory level, but as an experienced Team Leader, it is that education that helps me to assist them."*

PQ23 presents his work-based experience, and resultant *Personal Professional Knowledge,* as key elements which support his role as a Practice Educator, whilst recognising that his own academic level falls below that of the theory understood by the students that he is supervising. PQ23 goes on to state that *"Students need to understand the correlation between theory and practice",* clearly acknowledging that there is a correlation, and one which needs to be understood by students. This relates

back to his previous comment where the translation of theory into practice by students is criticised, with the implication that theory is too rigid, as opposed to the *'fluid'* nature of practice-based situations, a position which aligns with that of Hirst (2008) and Bromme and Tillema (1995).

The role and purpose of theory for both Practice Educators and students must be considered when viewing these findings (Thomas, 1997). Practice Educators are professional registrants undertaking autonomous practise dealing with a full range of clinical presentations. They have developed their practice based on their experiences and the applied integration of both *Formal* and *Informal Theory* over time. Their *Personal Professional Knowledge* can be considered to consist of a high degree of *Tacit Knowledge* developed through their experiences.

For student paramedics, however, the role of theory can be quite different. They are required to not only undertake practice-based learning, where they must demonstrate a sound knowledge-base, but they are also required to complete academic coursework and assessments at the appropriate level to gain a higher education award. Such an academic level may include aspects of science, and social sciences, whose direct application to practice may appear to be limited (Willis *et al.,* 2010*)*, but are required for the underpinning of more obvious principles which can be more clearly applied to practice. The focus of higher education students on adopting a reflective approach to practice may be at odds with the experience and ability of their Practice Educator to do the same (Turner, 2015).

Where the views of the purpose of theory are not articulated between the student and their Practice Educator, there is the potential for differences of opinion to occur where each cannot fully appreciate the position of the other (Thomas, 1997). Where such a situation occurs, there may be the potential for perceptions of inconsistencies between theory and practice to manifest (Smart, 2011; Thomas, 1997; Turner, 2015; Willis, 2010).

5.3 Theory-practice relationships in specific curriculum areas

The links between the ambulance placement experience and the undergraduate curriculum's modules were explored with a view to ascertaining the students' perspectives of the correlation between theoretical components of the programme and

their practice experiences. Participants were asked how well they could relate the content of various academic modules delivered at university to their practice placement experiences. In addition, the students were asked how well they considered that their Practice Educators were able to relate practice experiences to academic module content.

The curriculum areas explored were bracketed under the following headings which were representative of the core curriculum components of the paramedic programmes: Patient Assessment and Management, Paramedic Skills, Biosciences, Social and Behavioural, and Research Methods.

Theory related to overtly profession-specific modules, such as 'Patient Assessment and Management' and 'Paramedic Skills', was found to be more easily related to students' experiences when in practice, aligning with the findings of Willis *et al.* (2010). This was the case for both students and Practice Educators. The students considered that their Practice Educators' ability to relate *Situated Practice* to *Taught Theory,* whilst present and well-reported, fell below their own in all areas.

Each of the curriculum areas will now be discussed with data from both the questionnaires and the focus groups presented, analysed and considered.

5.3.1 Patient Assessment and Management

Patient Assessment and Management modules occurred in each year of both FD and BSc programmes. The content of these modules was predominantly clinically focussed and addressed the clinical assessment and subsequent out-of-hospital management of patients, with specific content being drawn from both regulatory and professional body guidance.

The *Taught Theory* of this curriculum area was found to be readily related to *Situated Practice*, with eighty-two percent (n32) of students agreeing that they themselves could directly relate *Taught Theory* to their practice experiences. Sixty-two percent (n24) of students considered that their Practice Educator was able to relate *Situated Practice* experiences to *Taught Theory*. Ten percent (n4) of students considered that they could not directly relate the *Taught Theory* to their practice experiences with eighteen percent (n7) considering that their Practice Educator was unable to directly relate *Situated Practice* to *Taught Theory*. Eight percent (n3) of students neither

agreed nor disagreed with the statement in respect of themselves and twenty-one percent (n8) in respect of their Practice Educator (Figures 5.6 and 5.7 below).

Figure 5.6 Students' perceptions of Patient Assessment and Management modules
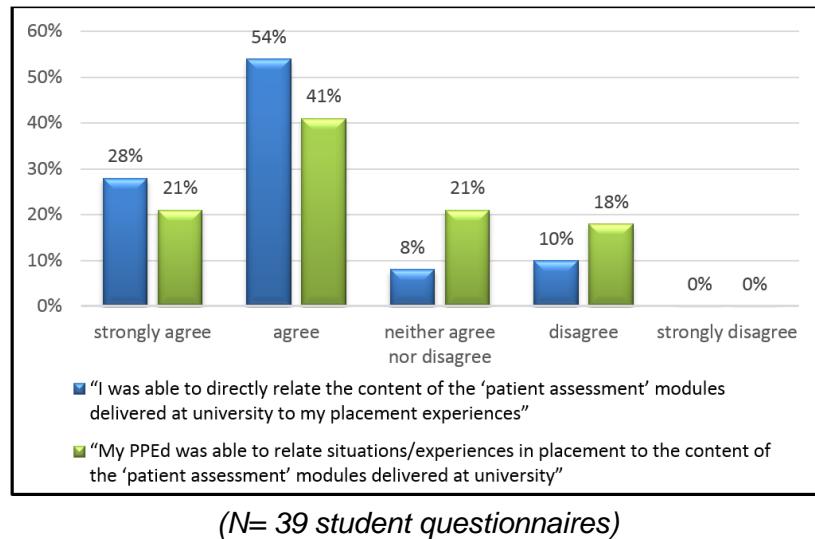
(N= 39 student questionnaires)

Figure 5.7 Cumulative results showing students' perceptions of Patient Assessment & Management modules
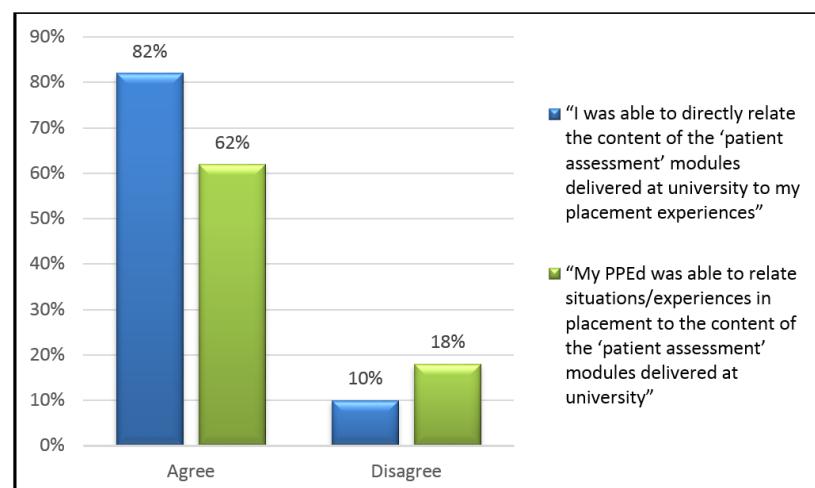
(N= 39 student questionnaires)

A third of students supported their questionnaire response with further statements, with some identifying that their Practice Educator had a positive impact on the theory-practice relationship;

"mainly because my PEd made me do thorough assessments of patients" (SQ18)

And others seemingly discouraged by their Practice Educator:

"some of the content was not relevant/discouraged by road staff/ PEds" (SQ11)

> *"although some road staff seemed unwilling to undertake full assessments"*
> *(SQ14)*

The response of SQ11, above, highlights a view of *Taught Theory* which can lead to the perception of a theory-practice gap. This student has identified that *'some of the content was not relevant'.* It is not clear if this was a self-determination, or one that was based on the second element of the comment, i.e. *'discouraged by road staff/PPEDs'.* The perceived relevance of theory has been identified in previous chapters as having an impact on its use in practice (Corlett *et al.*, 2003; Eraut, 2000; McCrae, 2012; McWilliam, 1992; Willis *et al.*, 2010), with the ability to recognise the relevance of a particular aspect of theory's application to practice considered to be a key component of *Personal Professional Knowledge* (Schaap *et al.*, 2011).

The perception of SQ14, above, was not expanded upon to demonstrate why there was a perceived lack of willingness, as opposed to a lack of understanding or ability. Other participants were more direct in their responses where they did cite a perceived lack of ability and/or understanding as being reasons for a lack of engagement in relating *Situated Practice* experiences to *Taught Theory*:

> *"PEd didn't have extended knowledge"* (SQ04)

> *"Some PEds were not aware of the further assessments taught at university and do not encourage a full system-based assessment"* (SQ08)

In this situation, the perceived lack of theoretical understanding on the part of a Practice Educator may negatively impact on the student's ability to be supported in engaging with such theory. If the level of understanding demonstrated by the Practice Educator is below that expected by the student, there may be a reduction in the credibility which the Practice Educator has with the student. This situation has been identified by Edgecombe *et al.* (1999) as being, in part, related to the practice supervisor's lack of knowledge of their student's learning outcomes. Practice Educators' knowledge will be considered in Section 6.2.4.

The varied approaches to patient assessment go toward identifying the individual nature of knowledge (Boud *et al.*, 1985; Chinn & Kramer, 1991), with each Practice Educator bringing their own *Informal Theory* and *Personal Professional Knowledge* to their practice. SQ19, below, presents a position which appears to be describing a tacit approach to patient assessment:

> *"The basic assessments were useful, but I found my PEd preferred to work off of the patient's appearance for assessing the patient. He believed a full head to toe cardiovascular, respiratory or abdominal assessment was rarely required."*
> *(SQ19)*

Where the student is aware of the *Tacit Knowledge* applied by their Practice Educator, due consideration can be given to the associated theory and its application, or apparent non-application. When students are not aware of the cognitive 'shortcuts' being taken by their Practice Educator, they can perceive a theory-practice gap.

From a 'learning opportunities' perspective, it was apparent that some Practice Educators were not engaging an approach to patient assessment which appreciated the students' level of experience and understanding, i.e. they were expecting the student to treat the patient in the way that they themselves would, rather than adopting a more systematic, recognisable approach for the benefit of the developing student. This could be considered an example of 'grey areas' (Taber *et al.*, 2008) being reported by student participants where the advocated 'A, B, C' approach is apparently bypassed by the Practice Educator, causing a perception of a degree of disconnect between the theory and the practice of patient assessment and management. Eraut's (2000) explanatory model of tacit knowledge (Figure 3.5) can also be considered to be representative of the apparent 'shortcuts' taken by some Practice Educators, where path 'A' and 'A*' are taken in contrast to the 'B', as expected by the student.

The focus groups further explored the move from classroom to practice, where having an appreciation that the simulated environment of the classroom can never be exactly the same as the practice setting, was found to be an important consideration for the student when situating *Taught Theory* in the practice environment. *Alan* considered this situation:

> *"It comes from being on the road and doing it. We knew that when we were learning it as well, we knew that it was going to be different on the road and doing it on a person it made some of it feel redundant, spending quite a lot of time practicing cannulation on a manikin and it was nothing like real life."* (Alan, FG4)

Alan's example is one of *Activity-based Practice,* real-life cannulation*,* being different to the simulation undertaken at university, considered by Alan to represent 'theory'. This is a further example of the apparent limits placed on the definitions of 'theory' and 'practice' by some participants. The undertaking of cannulation is a physical,

psychomotor, skills-based intervention, the teaching of which follows a set, step-by-step procedure. Such a procedure could be perceived to represent 'practice', based on the definitions of Sellman (2010), O'Connor (2017) and Merz and Knorr-Cetina (1997), in both its 'real life' application and in simulation (Alinier, 2007), and was identified as such by some students (Section 5.2.3). When discussing the teaching and simulation of such interventions, however, they were more readily identified by focus group participants as representing 'theory' (Section 5.2.2), with the absence of a 'real' patient appearing to be the limit set as the boundary of theory.

Alan asserts that he and his peers knew that things would be *'different on the road'*, even whilst they were undertaking learning at university. This was a view expressed by all focus group participants, with none reportedly expecting experiences in practice to *exactly* match their university input, although it was not clear at which point in their programme the students came to this realisation. This is a view found by Hope *et al.* (2011) to be shared by nursing students who also appreciated that simulation was not an exact representation of practice. Although Alan does recognise the differences between *Simulated Practice* and *Situated Practice*, he still asserts that simulation was *'nothing like real life'. Brian* made a move away from the psychomotor skills aspect of practice when he observed:

> "… I think that the skills we do fundamentally different are not necessarily skills with bits of kit, but more the way people approach the jobs is quite different to the way we are taught here [University]." (Brian, FG5)

The area that Brian went on to discuss was that of a structured patient assessment. Brian's perception was that, in practice, paramedics did not systematically approach and assess their patients in the way that the university programme had taught Brian to do. Brian went on to present his experiences of working on the Fast Response Unit (FRU). The FRU is a single-manned car which is sent to assess patients and to treat them appropriately whilst waiting for an ambulance, should one be required. Rather than adopting the structured approach of *Taught Theory*, Brian reported that the FRU paramedics would jump to treat obvious presentations:

> "*he was very much of the 'if you're hearing someone struggling with their breathing, straight away listen to the breathing and you can pass it on to the crew' … If you notice something, deal with that straight away.*" (Brian, FG5)

In this type of situation, it would appear that Taber *et al.'*s (2008) 'A, B, C' approach,

along with Eraut's (2000) and Dreyfus and Dreyfus' (1986) considerations of *Tacit Knowledge*, are again being described. The attending FRU paramedic may be making their conclusions and assessments on the basis of their *Tacit* and *Personal Professional Knowledge*. It may be the case that they feel that their experiences negate the need to follow the more 'formal' procedures, advocated during *Taught Theory,* for gaining information. However, if the paramedic has reached Level 5 of Dreyfus and Dreyfus' model (Figure 2.9) and is practicing as an 'expert', it may be the case that their intuitive grasp of situations is such that they do not consider the more formal procedures at all in their practice.

A potentially negative aspect of this situation was that Brian saw this approach as being fundamentally different in the practice environment when compared to his experiences of the *Taught Theory* of patient assessment. A different learning relationship between Brian and his Practice Educator may have brought out a more explicit explanation of the Practice Educator's approach to their assessment of patients, potentially lessening the differences considered to have been apparent to Brian. For such an explanation to be forthcoming, the Practice Educator would need to have an understanding and awareness of their own approaches to practice, with a further element of the Level 5 expert, that of using analytic approaches, needing to be employed. This key component of the role of the Practice Educator in being able to extract theory from practice by making their tacit actions explicit can be considered to set them apart from the non-Practice Educator paramedic.

Overall, the majority of student participants considered that the relationship between the *Taught Theory* of Patient Assessment and Management and the application of that *Taught Theory* in *Situated Practice*, was 'healthy', with links between both areas being readily established by students and Practice Educators alike, demonstrative of the interpenetrating relationship considered by Misawa (2011) to exist between theory and practice.

5.3.2 Paramedic Skills

Paramedic Skills modules, delivered in each year of the curriculum of both FD and BSc programmes, focussed on the more practical application of the skills required to manage patients as well as practice placement time which required the completion of Practice Assessment Documents (PADs). It was within these modules that specific psychomotor skills, such as cannulation, the insertion of a cannula/needle into a vein, and intubation, passing a tube into the airway, were taught, along with the use of the full range of ambulance equipment, as well as a considerable amount of simulation and scenario-based practical sessions.

The data suggest that the Paramedic Skills curriculum areas were the most relatable to *Situated Practice*, with ninety-seven percent (n38) of students agreeing that they could directly relate the university *Taught Theory* to their practice experiences. Eighty-two percent (n32) of students considered that their Practice Educator could relate the *Situated Practice* experiences to the *Taught Theory*. One student (3%) disagreed for themselves and two (5%) disagreed in respect of their Practice Educators. Five students (13%) neither agreed nor disagreed in respect of their Practice Educator (Figures 5.8 & 5.9 below).

Figure 5.8 Students' perceptions of Paramedic Skills modules
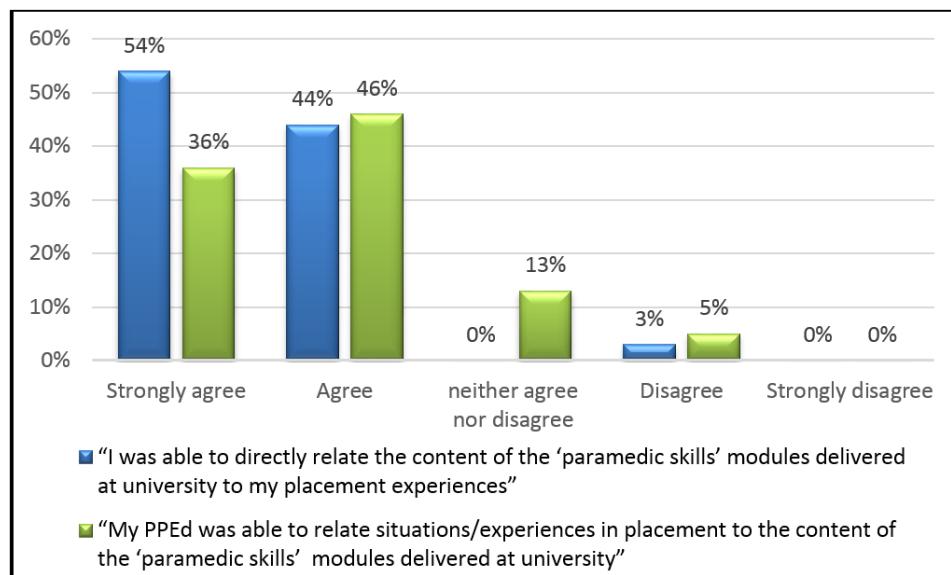
(N= 39 student questionnaires)

Figure 5.9 Cumulative results showing students' perceptions of Paramedic Skills modules
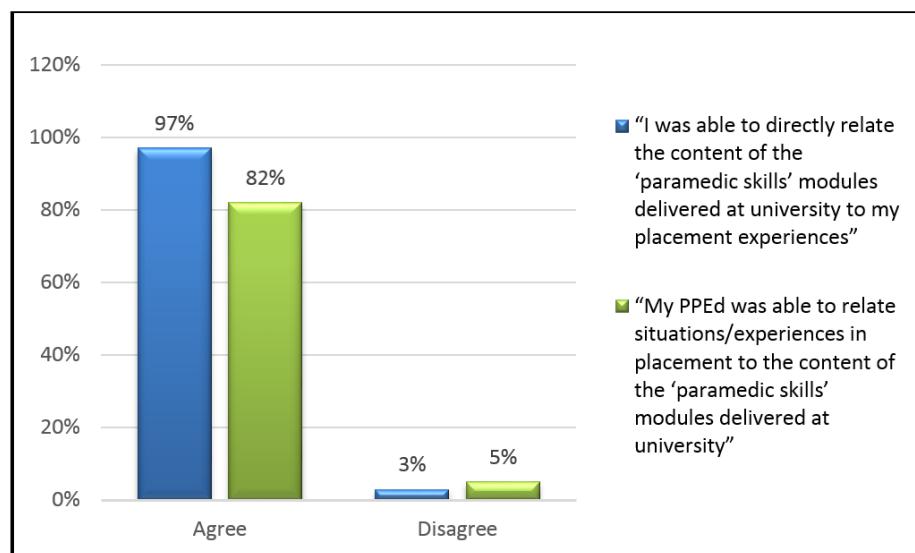
(N= 39 student questionnaires)

Students focussed on 'skills' being *'real-life'* with the *Taught Theory* being there to support the delivery of 'skills'. Students clearly identified with the development and delivery of clinical skills as equating to becoming a paramedic, the *'real-life'* role rather than the *Espoused Theory* of the classroom, with the term 'skills' strongly related to students' definitions of 'practice' (Section 5.2.3). The skills that students were found to be referring to were psychomotor skills such as cannulation, intubation and physical interventions, including drug administration and the acquisition of electro-cardiograms (ECGs). Comments associated with this question were further explored in the focus group discussions, e.g.: "*Skills done differently 'on the road'." (SQ18).*

The *Taught Theory* around the decision of whether or not to undertake a particular skill was not considered to be significantly different in *Situated Practice*, rather it was the way in which the skill was undertaken. Historically, an increase in 'skills level' has been the identifier of the paramedic, with psychomotor skills, such cannulation and intubation, having distinguished the paramedic from other grades of ambulance staff. The development of the professional role of the paramedic has resulted in a

considerable move away from a 'skills shopping-list' training approach and towards a much broader paramedic education-base which underpins the autonomous clinical decision-making processes required of the 21st century paramedic (Blaber, 2012; Donaghy, 2010a). 'Skills' do, however, appear to remain the most readily identifiable measure of the paramedic in the practice environment, and an area that is developed in the classroom prior to entering practice. As such, some students considered practical scenarios and skills simulation undertaken at the university to constitute 'practice', as discussed in Sections 5.2.3 and 5.2.4. Although a small minority of students reported their perception that skills were '*done differently on the road'*, the data gathered from the questionnaires determined that such 'differences' in practice were not perceived to impact on the relatability of *Taught Theory* to the *Activity-based Practice* experienced.

When the matter of such 'differences' was presented within the focus groups, all of the participants acknowledged that there were, indeed, 'differences'. When asked which particular skills were done differently on the road, the response from one member of focus group four was; *"All of them." (Alan, FG4)*

It appeared to be difficult, however, for students to identify any specific skills or examples of the differences, with those that were proffered being predominantly related to the *Activity-based Practice* of clinical intervention, and the differences being situationally-based;

> *"I think with skills being different in Uni and practice, mainly its having a really awkward situation to do the skill in, like doing a cannula in the dark, in a car, it's not that you need to do it differently, you need to adapt to doing it in different situations where they can sort of give you hints and tips around it which you can't really learn in a classroom. It's difficult to teach, isn't it?" (Clara, FG4)*

Clara's observation was accepted and supported by the rest of the group as being representative of their own experiences. The role of the Practice Educator in supporting the student in their adaptation of *Taught Theory* is apparent in Clara's comments, where the Practice Educator is considered to be able to give *"hints and tips.... which you can't really learn in the classroom."* This acknowledgement of the limitations of classroom-based learning and simulation, whilst also recognising the role of the Practice Educator as a source of *Informal Theory*, represents an appreciation

of the different roles of *Taught Theory* and *Situated Practice* within the theory-practice relationship, as presented by Baxter (2007) (Figure 3.10).

Cannulation and intubation, along with many of the intervention-based procedures taught to paramedics, have their foundations in other professions, generally nursing or medicine, and have been imported into the paramedic profession in the way proposed by Barrett (1991). As such, the initial teaching may be based on the way in which the procedure is undertaken in these other clinical settings, following a prescribed stepwise approach, thereby aligning with Peyton's (1998) model of skills teaching. When there is an absence of context for the undertaking of the skills, the 'differences' between profession-specific contexts noted by the participants may be seen to exist.

Mary also considered her Practice Educator's role in supporting her development of the *Activity-based Practice* of cannulation, with their undertaking to teach alternative methods based on their own *Personal Professional Knowledge*:

> *"For the theory taught at Uni we got the clinical skills procedure sheet and there was a very set way that we got taught in class, and I liked it that way. I know they say you can teach a monkey, but I just couldn't* [do it]*. I always missed and I never got it in and my PEd identified that and we went and spent some time in the station training room and he showed me five or six other ways of doing it and since then I've not had a problem. I think 'cos we got it on a sheet and it was an OSCE and I liked that set way and I couldn't deviate from it. It was a set way and that's how it should be done, and as soon as my PEd said try it this way, stand over here, do it from the side, do this differently, like when we were in houses, move the arm here and do this do that, it was just so much easier for me seeing him doing it and showing me different techniques, completely different to the Uni way, and I felt I could do it, and it showed. Now I get most of them in." (Mary, FG4)*

Mary considered such a set of procedural instructions to constitute the 'theory' of how to undertake this particular intervention, a further example of the breadth of participant's views of the concept of theory and a reflection of the 'skill drills' approach to training (Rogers, 2007). Mary's experience highlights one of the challenges faced by some students in their early placements; that they are expecting there to be only one way of doing things, the way that they have learned at university. As previously discussed at Section 5.3.1, the student participants did acknowledge that they knew that practice situations could not *exactly* match the *Taught Theory*, but it appears from Mary's comments that this was not the case when she first undertook cannulation in

the practice setting, where the procedure sheet did not take into account the situational aspects of the intervention.

The basic use of a simulated mannequin to practice cannulation is considered by Alinier (2007) to be representative of a Level 1, theory-based approach to psychomotor simulation. The Practice Educator's approach to supporting Mary, both during the intervention with a patient and as simulation in the ambulance station training room, brought greater context to the skill, better aligning to Studdy *et al.'s* (1994b) model of simulation and, potentially, moving beyond Alinier's Level 1.

As Mary gained more experience, she was able to adapt her techniques, with support from her Practice Educator, to make the most of the particular situation that she found herself in, progressing from Dreyfus and Dreyfus' (1986) level of 'novice' toward that of advanced beginner. Although Mary still considered that she was shown techniques *'completely different to the uni way'*, it became apparent that they were not, in fact, as different in practice as she initially perceived. When asked how, exactly, the techniques differed, Mary responded:

> *"Probably not that different. It's just little things about how to hold it differently or the angle you go in at or the way you position the arm. 'Cos the OSCE was the way you learnt, it was lying on a table and you stand at the side and you do this, yeah, just about positioning the patient differently. Little things that I probably would have figured out myself anyway, but it was an insight from an experienced PEd that had been doing it for years made it easier." (Mary, FG4)*

Mary's perspective of the differences between the technique of a particular skill taught at university, representative of Level 1 simulation and *Taught Theory* (Alinier, 2007), compared to the practical application of that skill, had altered from *'completely different'* to *'probably not that different'* on the basis of a single follow-up question seeking clarification, demonstrating that Mary's technique and ability to adapt to presenting situations had been developed with the support of her Practice Educator. The sharing of their own experiences by the Practice Educator demonstrates an additional source of *Informal Theory* to develop the student's development of *Personal Professional Knowledge*.

Remaining in the area of cannulation, Brian observed that the development of that particular skill was most enhanced during a placement in hospital operating theatres:

> *"I think I picked that up more in theatres than with my PEd in terms of skills. I remember my very first cannula, it went straight in but I kept kinking all the skin up. It was something that I didn't pick up on, so I did it again. It's little things like that that you don't pick up on when you're doing skills* [in the classroom] *but you do pick up on in theatres or on the road as well." (Brian, FG5)*

Hospital operating theatre placements are very skills focussed, with a requirement to achieve competency as well as a pre-determined number of interventions, in this case cannulation. The difference between operating theatres and front-line paramedic work is that the hospital environment is warm, dry, light, safe and has the patient presented on a bed fully prepared for you to carry out your intervention. It is a step nearer to the paramedic practice environment than the classroom, but not quite there in terms of the situational management that accompanies the application of any intervention. As such, theatre/hospital placements appear to be an ideal stepping stone to develop such specific psychomotor skills with a real patient in a safe way without the pressures of a potentially time-critical presentation.

Access to undertake skills/interventions in *Situated Practice* was also identified as presenting a challenge: *"though not all skills performed because of jobs done" (SQ07).* The majority of invasive techniques, particularly in relation to trauma, will not be experienced by student paramedics during placements, predominantly due to the limited number of serious trauma incidents attended (Michau *et al.,* 2009). Practice Educators may also be reluctant to give up their chance of undertaking the intervention themselves when the chance arises. This may be due to concerns over skill degradation or their trusting in the abilities of their students. There have been several studies relating to skill degradation where it has been claimed that paramedics who do not regularly apply skills lose their competence over time (Frascone *et al.*, 2011; Salinger, 2007; Taylor & Taylor, 1995). The view of some students was that their Practice Educator appeared reluctant to accept, or acknowledge, the evolution of the student into a novice practitioner:

> *"If there was a patient that was unwell, even at the beginning of my third year, she would always try and do it herself because she always felt I'm the student, would I be able to handle it? And I had to say to her, 'you won't know if I am able to handle it unless you let me try' and then we kind of worked out a new way of doing it." (Richard, FG4)*

Richard reported that he had to highlight to his Practice Educator when he felt he was ready to take on more responsibility on scene with patients, despite her reluctance to 'let go' of the responsibility. Other students in similar situations may not have the interpersonal skills or confidence to take such actions and may continue to be seen as students, rather than novice professionals, in the eyes of their Practice Educator. A lack of clinical experience may result in students not trusting such intuition when they first encounter it (Biswas, 2015), with the input of the Practice Educator being necessary to support its application in practice.

Even when there is an opportunity to undertake 'skills', there may be additional challenges, with the application of an item of equipment being an area that was raised by Alan as one where the relationship between *Taught Theory* and *Situated Practice* became strained. Alan recalled an experience where an item of immobilisation equipment, a traction splint, was required to be applied to a patient. Alan considered that the patient required the application of the splint, and he believed that he was the most 'current' person on scene, having just been taught about this item of equipment at university. Alan's Practice Educator intervened in the splint's application and took over:

> *"My PEd overrode me and told me that I'd put it in the wrong place and repositioned it and he put me in a very awkward position 'cos I knew I was right, having just done it…." (Alan, FG4)*

Alan's account demonstrates that his perception of his knowledge and understanding of the application of the traction splint was that he was more current than his Practice Educator. From Alan's perspective, there was a potential gap in the Practice Educator's *Personal Professional Knowledge* which meant that he was, potentially, unable to correctly apply the equipment when it was needed. This is not an uncommon occurrence, with skill degradation and the maintenance of clinical currency being key challenges for paramedics. Some interventions and/or equipment may not be required for extended periods of time resulting in a reduction in the functional ability of the paramedic to apply that intervention or equipment (Frascone *et al.*, 2011; Salinger, 2007). Students can sometimes be the most 'current' individuals in the practice environment, having been taught interventions and equipment usage much more recently than their Practice Educators.

The incident recalled by Alan demonstrates that some paramedics are not as willing as others to accept the input of their students, even when the student may have a more current perspective and understanding of the proposed intervention. In Alan's case, he was confident that his approach was correct, and that his Practice Educator was incorrect. Had another student been present instead of Alan, they may have accepted their Practice Educator's approach to applying the equipment and, perhaps wrongly, assumed that they had been shown incorrectly in the classroom.

Conversely, Alan's presumption that his knowledge was correct may have been erroneous, with his understanding of the application of the splint flawed. The Practice Educator may have developed their theories-in-use to generate new, *Informal Theories* based on their experiences of the traction splint with previous patients. In such circumstances, the ability of the student and the Practice Educator to have clear and open lines of communication is imperative to ensure that any potential misunderstandings are addressed appropriately, not only for the benefit of the student's development, but also in respect of patient care. Shared, or facilitated, reflection as part of the feedback process, where the alternative views of how to approach the situation can be discussed and explored, would be a way of addressing such matters in order that the theory-practice relationship is strengthened for both student and Practice Educator (Burton, 2000; Carney, 2000; Duke & Appleton, 2000; Fonteyn & Cahill, 1998; Foster & Greenwood, 1998; Getliffe, 1996; Kinsella, 2010; Koh, 2002; Maudsley & Scrivens, 2000; Perkins, 1996; Schön, 1987; Smith, 1998).

This type of situation has the potential to impact on the learning process of the student, with the extent of that impact being related to the relationship established between the student and their Practice Educator, an aspect considered in Chapter Six.

5.3.3 Biosciences

Bioscience modules were in the curriculum of both the FD and the BSc in each year of the programmes and addressed anatomy, physiology, pathophysiology and aspects of pharmacology. The Biosciences *Taught Theory* was found by the students to be less relatable to *Situated Practice* than the Patient Assessment and Skills areas, with fifty-one percent (n20) of students agreeing that the content was directly relatable to their practice experiences, and thirty-eighty percent (n15) considering that their Practice Educator was able to relate practice experiences to module content. Twenty-

eight percent of students (n11) disagreed for themselves and thirty-eight percent (n15) disagreed in respect of their Practice Educator (Figures 5.10 & 5.11, page 195). Biosciences therefore sat in the mid-range, being less directly relatable to *Situated Practice* than the more overtly paramedic profession-specific modules, but more so than 'Research Methods' and 'Social and Behavioural' modules.

Figure 5.10 Students' perceptions of Biosciences modules
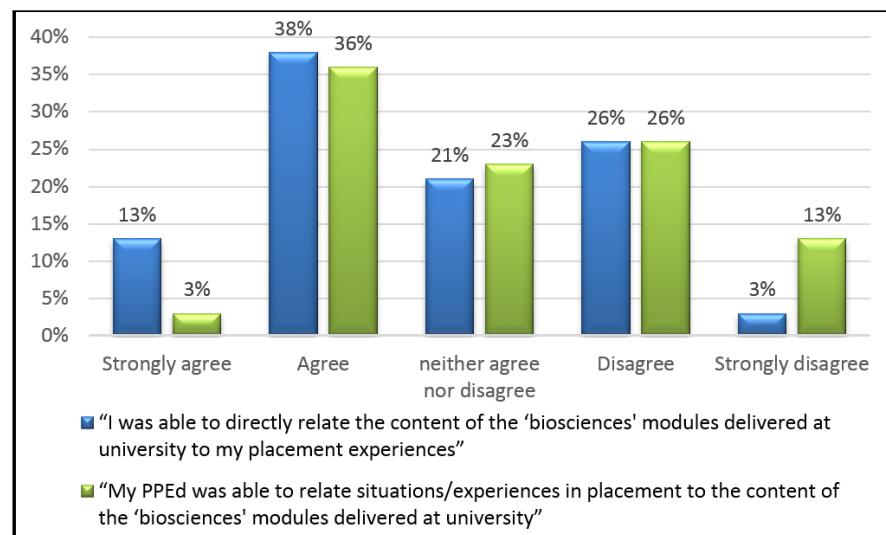
(N= 39 student questionnaires)

Figure 5.11 Cumulative results showing students' perceptions of Biosciences modules
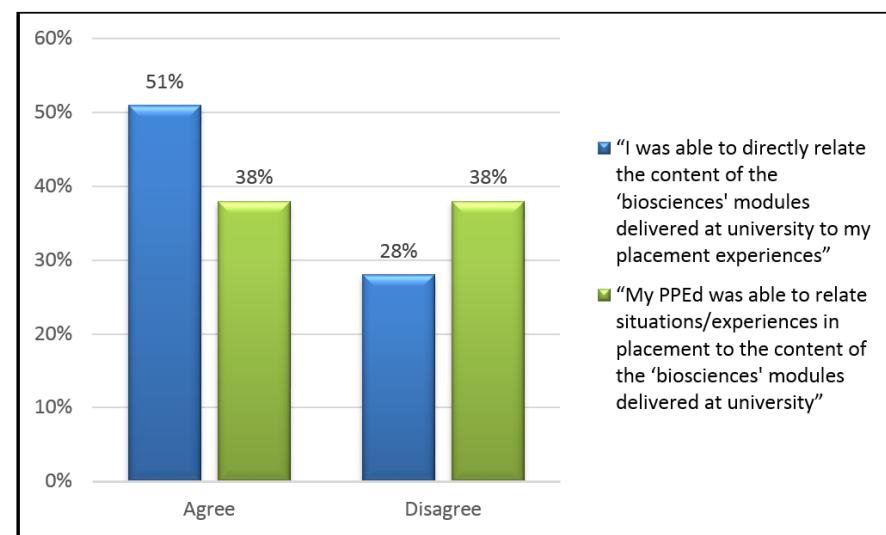
(N= 39 student questionnaires)

Bioscience is one of the more readily transferable and recognisable modules of the paramedic curriculum when viewed from the perspective of other allied healthcare professionals, consisting as it does of a high proportion of 'pure' science content and relying heavily on formal written examinations to assess students' knowledge.

Bioscience can, therefore, be considered to be a very 'theoretical' subject area. Although thirty-eight percent (n15) of students considered that their Practice Educators were able to relate their practice-based experiences to the *Taught Theory*, the same proportion considered that they were not, aligning with the findings of Willis *et al.* (2010). This is not necessarily a negative comment; indeed, the focus group participants indicated that they were not dissatisfied with their Practice Educators' role in this area. Students were aware that they would need to make such links for the purposes of academic assessment, for example written assignments and examinations, but they were not under any misapprehensions that they would need to relate their theoretical understanding to every practice opportunity, a position similar to that found in nursing (Jordan, Davies & Green, 1999; King, 2004). There was a broader range of student experiences in relation to the integration of the Biosciences *Taught Theory* in the practice environment, a situation which was suggested by some participants as being due to the differing levels of education undertaken by Practice Educators, with some apparently having only a rudimentary understanding of anatomy and pathophysiology. This lack of depth of understanding did not appear to reduce the Practice Educators' credibility from the students' perspective.

In response to discussions regarding feedback, *Emma* was clear that her Practice Educator was focussed on the practicalities of patient management rather than the scientific basis underpinning clinical presentations or subsequent management and interventions, supporting the position found to exist by Willis *et al.* (2010) and Williams (2013):

> *"De-brief's normally about extrication or easier ways of getting them out. It's never about the path*[-ophysiology] *or like maybe the bioscience behind why you gave the drug you gave or things" (Emma, FG2)*

It was not clear if the absence of any bioscience consideration was due to Emma's approach to reflection-on-action, or her Practice Educator's method of feedback. Identifying where, when and how it would be appropriate to explore such links between

Situated Practice experiences and the related *Taught/Formal Theory* is a challenge that appears to be faced by both students and Practice Educators. The distinction, and relationship, between feedback and reflection is one that must be apparent to both students and their Practice Educators, and is an area that will be further discussed in Section 6.2.3.

Examples were also given of Practice Educators who would take a particular interest in the pathophysiology aspect of a patient incident, and who would incorporate such *Formal Theory* into their feedback sessions:

> *"Every time we had a patient that had a particular pathology we would discuss that pathology and how we may have treated it if XYZ has happened, even if it was quite simple……" (John, FG6)*

In John's case, he noted that his Practice Educator had undertaken a part-time degree in paramedic science and was particularly interested in the pure science aspects of that programme. For *Sarah*, her Practice Educator's particular interest in the scientific basis for patient interventions resulted in a different experience, with questions being asked that the she was unable to answer:

> *"It was finding the…level of what am I supposed to know, what am I supposed to be able to do confidently and what am I allowed to not know without looking stupid, …. that was hard, I'd think I'm crap 'cos I don't know this or that or whatever." (Sarah, FG5)*

This was reported as impacting on the student/Practice Educator relationship because the Practice Educator was under the impression that the student should have known all of the underpinning theory to a greater depth than they were able to express during a debrief in the field, a matter that will be further explored in Section 6.2.2.

It was also considered by some students that it was their role, rather than their Practice Educator's, to make such explicit links:

> *"In some cases, de-briefing on your own or with friends chatting about jobs and you start to run through in your head a bit more. On reflection, this patient probably presents like this because of this. You can relate it yourself." (Alan, FG4)*

Alan is describing a process of informal reflection-on-action (Schön, 1987) where the relaying of the incident to friends resulted in conversations where the scientific basis behind the presentation could be considered and explored. Alan's perspective

appears to be that this is the responsibility of the student to continue such thinking after the event to ensure learning takes place. Alan went on to consider how the contextualisation of theory into practice was often undertaken during taught input at the university:

> *"I think the university course itself, the theory is related back to the practice in a lot of it and anything that isn't tends to slot in quite nicely subconsciously particularly with patho* [-physiology] *when you're looking at some disease types and things you look at it on the road and you can associate how they're presenting a bit more with what you know. It's self-evident and doesn't necessarily need to be told to you by your PEd. They tend to know a lot of the stuff as well and tend to relate it to the A&P anyway."* *(Alan, FG4)*

Alan's view of the 'subconscious' slotting in of theory is representative of Marsick and Watkins (2015) view of professional knowledge development and is in opposition to the position presented by Willis *et al.* (2010) in respect of the integration of the supporting sciences in paramedic curricula. The 'self-evidence' of associating the experiences of *Situated Practice* to the *Taught Theory* was not a universally expressed view, with some students considering the relevance of making such links to be limited, aligning to the position presented by Willis *et al.* (2010). The range of views goes to demonstrate that, although the position proposed by Willis *et al.* (2010) is not universally experienced, some students, and a greater proportion of Practice Educators, remain unable, or unwilling, to consider the importance of sufficiently integrating the underpinning theory of the supporting sciences when undertaking *Situated Practice*. In this situation, the use of more overt links by university lecturers between the relevance of the *Taught Theory* and the undertaking of *Situated Practice* should be encouraged to ensure that students' resultant *Personal Professional Knowledge* has a sufficiently robust basis to support their progress from novice to expert (Benner, 2001).

5.3.4 Research

Research modules were delivered in the final year of the FD programme with an introduction to research methods and evidence-based practice. The BSc programme had similar content in the penultimate year, which was further developed in another, final year, module requiring the production of a research proposal. The module focussed on what research is, what makes good/bad research, how to evaluate published articles and how research is used to inform practice.

The Research curriculum areas were found to be less relatable to *Situated Practice* than the Bioscience areas, with a third of students (n13) agreeing that they could directly relate the *Taught Theory* to their practice experience, and twenty-six percent (n10) considering that their Practice Educator could relate the practice experience to the *Taught Theory*. Forty-three percent of students (n17) disagreed for themselves and forty-nine percent (n19) disagreed in respect of their Practice Educator's ability to relate theory and practice (Figures 5.12 & 5.13, page 199).

Figure 5.12 Students' perceptions of Research modules
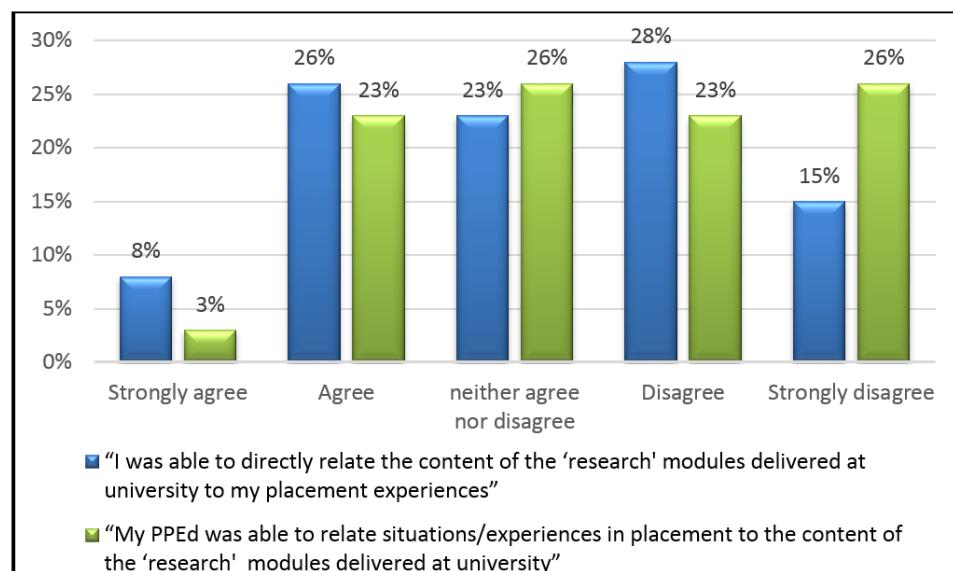
(N= 39 student questionnaires)

Figure 5.13 Cumulative results showing students' perceptions of Research modules
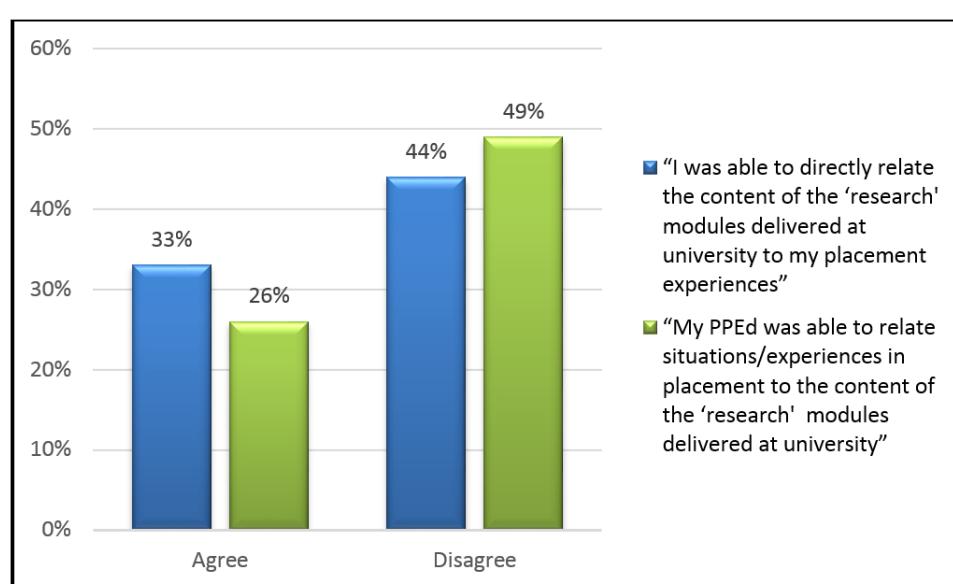
(N= 39 student questionnaires)

The relatability of the Research aspect of the curriculum was one that was specifically considered as being linked to the educational level of the Practice Educator. Some Practice Educators had been involved first-hand in research studies, with the students of these Practice Educators identifying that the level of understanding, engagement and general interest when discussing research was greater than those who had not been involved in research. Students whose Practice Educators had undertaken a BSc level degree were found to have been more engaged in relating *Situated Practice* experiences to the *Taught Theory* of Research.

Julie made a distinction based on her experience of 'old-school' paramedics;

> *"I think old-school paramedics……if you tell them you're doing a research module they're like "what's that got to do with being a paramedic?" I think they get that we need to do research so we can move further and all of our guidelines come from research... so I think that they think that some of the modules that we do aren't related and they're like "what was the point in that?"" (Julie, FG1)*

The role of research in developing an evidence-base for the profession has the potential to further highlight differences in the level of theoretical understanding of individual paramedics. Such challenges in practice-based learning, where there are disparate views between student and Practice Educator, were recognised by Wenger (1998) who considered that the benefits of interaction were lost when 'old-timer' and 'newcomers' were perceived as being engaged in separate practices. All students undertook research modules which exposed them to the most current study data and concepts related to paramedic practice. The rate at which such research becomes accepted and embedded as normal practice is relatively slow, which may have an effect on the perception of the theory-practice relationship among students who have undertaken degree level study.

Lucy highlighted the importance of research for the paramedic profession, whilst acknowledging that its relevance for the frontline paramedic, including Practice Educators, may be less clear:

> *"I think it's the big picture of the profession, opposed to the everyday job, is slightly different because to be a paramedic who just goes out every day don't necessarily need research, although it's very useful to be able to read research articles and to know whether it's good quality or not, but actually, as a profession, we need research modules to have more research that's paramedic based and enhances our status amongst other professions and progresses us and gives us more standing, but it can*

be easy to think it's not very relevant to me just going to work on a Saturday night. It doesn't make a difference for people who aren't necessarily involved in the development of the profession or in education. It's easy to think 'well it doesn't make a difference, it's just a waste of time.'" (Lucy, FG1)

Lucy's view of the importance of a profession-specific research base aligns with the views of McCrae (2012) and Campeau (2008b). This acknowledgement goes to demonstrate that students who engage in research modules may have a good understanding of their importance for the profession, but that they also have a realistic perspective of the direct application of the theory of research and research methods in the everyday role of the frontline paramedic. Such an insight could be considered to go some way to preparing students for the potentially differing views of the theoretical elements of their degree programmes held by Practice Educators.

An aspect that is not considered by Lucy is that of the use of *Formal Theory*, derived from research, in the reflective process. Although the use of research may not be apparent to the average paramedic *'going to work on a Saturday night',* having an appreciation and understanding of how to access the most up-to-date *Formal Theory* could be considered important for their continued professional development, as expected and required by the profession's regulator (HCPC, 2014), and advocated by those who have presented paramedic-specific approaches to reflection (Smart, 2011; Turner, 2015; Willis, 2010).

Another aspect of research is the way in which it may be considered within an operational ambulance service. Ambulance staff are more familiar with the clinical audit aspects of research, and are measured on their ability to complete sets of Clinical Performance Indicators (CPIs). These are elements that must be recorded on patient report forms in order to achieve a satisfactory score, which may be used in performance reviews and appraisals. This view of data gathering was reported to have caused frustration for some students, e.g.:

"It can be a bit frustrating because you will go to a patient and every patient gets the same set of obs [-ervations], *no matter what, from whoever you're working with they're like 'can you do a pupil check for me?' 'this person's got D&V, why are we doing a pupil check?' 'Cos there's a box on the PRF for it.'" (Jane, FG1)*

This aspect of data collection was viewed as being in conflict with the theories of patient assessment where the patient is assessed based on their presentation and

individual circumstances rather than on a 'check-list' approach to gathering observations. This highlights recognition of the differences between professional use of guidelines and basic use of protocols as Freidson's (2001) 'discretionary specialisation' of the professional as opposed to the 'mechanical specialisation' of the semi-skilled labourer, as well as indicating that such workplace policies are sometimes viewed as constituting 'theory'.

Other Practice Educators were seen as engaging with research developments and sharing their knowledge with students:

> "[My PEd was] … *motivated to read evidence-based research. I know it sounds really boring, but practice is going to move on in the future. I'm comparing PEds in my head that I know one PEd is always reading updates so that he can do."* (*Louise, FG2)*

Louise has identified an example of good practice from one Practice Educator, where a conscious effort to remain up-to-date was demonstrated and which supported Louise's integration of theory and practice. The unexpressed position, that this was one of a number of Practice Educators that Louise worked with, goes to demonstrate that the degree of engagement and focussed discussion regarding any particular aspect of *Situated Practice* in relation to *Taught Theory*, will be wholly dependent on the individual *Personal Professional Knowledge* that both student and Practice Educator bring to the learning relationship.

For example, two different students may experience identical incidents in *Situated Practice.* However, the degree to which they relate these experiences to *Taught/Formal Theory*, and the focus of that relation, will be dependent on the particular aspects of the incident that both the student and the Practice Educator prefer to focus on, aspects that may be related to any of the curriculum areas within the academic programme, an area explored by Williams (2013). The result is that two students, in identical situations, will develop differing links between aspects of *Situated Practice* and *Taught Theory*, resulting a personalised version of the event, and, subsequently, individualised, *Personal Professional Knowledge,* the development of which, along with its links to the theory-practice relationship, will be considered in Chapter Seven.

5.3.5 Social and Behavioural Sciences

The Social and Behavioural Sciences modules were delivered in the curriculum of both FD and BSc programmes in the second year of the programmes and included areas such as psychology, law and ethics, sociology, communication and social policy. These curriculum areas were found to be more relatable to *Situated Practice* than the Research areas, with the same proportion of students, a third (n13), agreeing that they could directly relate the *Taught Theory* to their practice experiences, and thirty-one percent (n12) considering that their Practice Educator could also relate the *Situated Practice* experience to the *Taught Theory*. When compared to the Research modules, fewer students (n11), twenty-eight percent, disagreed for themselves and a third (n13) disagreed in respect of their Practice Educator (Figures 5.14 & 5.15, below). The challenges around this area of curriculum relevance were apparent when some students were unable to recall the content of such modules during the focus group discussions.

Figure 5.14 Students' perceptions of Social and Behavioural Sciences modules
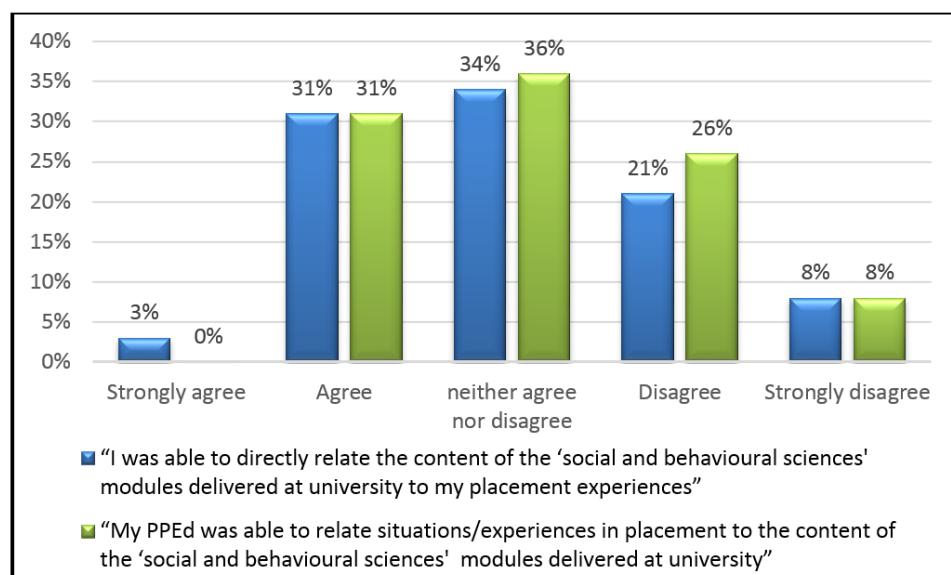
(N= 39 student questionnaires)

Figure 5.15 Cumulative results showing students' perceptions of Social and Behavioural Sciences modules
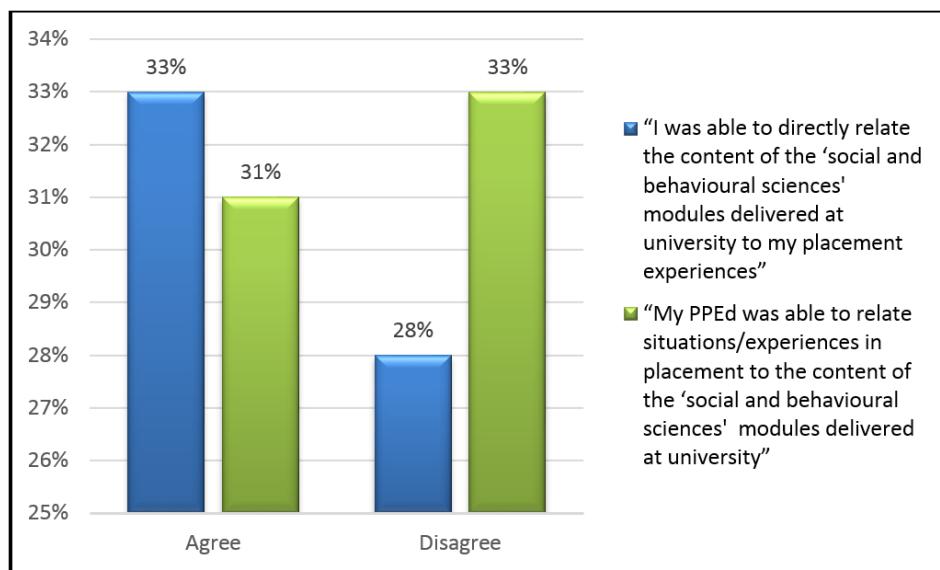
(N= 39 student questionnaires)

The key aspect considered by students as presenting a challenge in the theory-practice relationship was that of communication. A number of different examples of communication challenges were discussed within different inter-personal relationships. The 'student/Practice Educator' and the 'student/health-care professional' relationships were considered by students to be key, as well as the 'student/patient' relationship. The aspects of psychology and sociology associated with particular patient situations and presentations also impacted on the ability of students to effectively communicate. *Mary* related one particularly difficult practice-based situation for which she felt *Taught Theory* did not prepare her:

> *"… breaking bad news, and, also I can think of an example of a fourteen or fifteen-year-old that had been raped and I didn't know where to begin with them, really. You don't really cover that in uni; how you can…what to say to them, so I had to watch my PEd and learn from them." (Mary, FG4)*

With PQ9 describing another specific situation from the Practice Educator perspective:

> *"Dealing with a grieving husband who just lost his wife of 60 years cannot be taught in a classroom, on the road can." (PQ9)*

As well as highlighting the potentially distressing nature of some aspects of frontline ambulance work, Mary's and PQ9's experiences highlight the potential limitations of *Taught Theory* when undertaking *Situated Practice*. Mary's theory-based view of 'breaking bad news' and 'communication skills' would have been shaped by the input

of the Social and Behavioural Science modules, with both areas forming part of the core curriculum for paramedics. Communication models and theories identifying how individuals might approach the grieving process would have been presented as part of these modules; however, dealing with a victim of rape presents a host of challenges which may not have been addressed in the theoretical components of the paramedic curriculum. Such practice experiences may have prompted Mary to seek out alternative theory, both formal and informal, in order to support her reflective approach to practice by examining the differences between the decontextualized knowledge gained from *Taught Theory* and the embodied knowledge developed from practice encounters (Lave, 1996). Other students who had different practice experiences would not have necessarily felt the need to access such theory, particularly when it is their Practice Educator's assumption that dealing with the situation can be taught *'on the road'*.

Some of the challenges faced by the students in respect of this area of curriculum may be due to the nature of the theory that is being presented at university, with the majority of theories having been imported from other disciplines and professions (Williams, Onsman & Brown, 2009). The resultant theories may need a greater degree of contextualisation in order for paramedic students to acknowledge their place in practice (Marshall, 2009). The ability of undergraduate students to appropriately employ communication skills during paramedic practice placements has been explored by several researchers (Lazarsfeld-Jensen, 2010; Lucas *et al.*, 2013; O'Brien *et al.*, 2013; Ross, 2013), as has the ability of Practice Educators to objectively assess such attributes (Tanner, 2014). Tanner's production of a non-practical skills matrix (2014, p. 568-569) demonstrates the considerable challenges in remaining objective when assessing the 'soft' skills of the paramedic student, skills which are embodied and displayed in practice, but which have limitations when communicating their theoretical bases. Such challenges can result in the focus of feedback being on the more technical aspects of the role (Williams, 2013), aspects where more overt links can be made between *Situated Practice* and *Formal Theory.*

This presents an example of how the individual experiences of students in practice shape their *Personal Professional Knowledge* and develop their own, individual, repertoire of paradigm cases based both on key learning episodes and the influence and perceptions of their Practice Educator.

Responding to Mary's comments, Clara considered that the theory behind managing such situations would not be that straightforward to identify:

> *"I don't know how that would be taught at university cos it's so…it's so specific, isn't it?" (Clara, FG4)*

Clara's perspective appears to make a distinction between the broad theories of communication that may be discussed at university and the application of those same theories to specific situations. In cases where the student is expecting clear identification of how each theoretical approach may be applied to specific situations, there would appear to be a greater propensity for the theory-practice relationship to become strained and possibly perceived as unhealthy. The individual student's approach to learning will, therefore, impact on their understanding of situations and their subsequent development of appropriate *Personal Professional Knowledge.*

Alan recalled a different example when he experienced similar challenges:

> *"I had similar situations when asking about intent with people who have taken overdoses. You need to find out, but there's no easy way to approach the question of "were you doing this to self-harm?" "Were you doing this with the intention of killing yourself?" and it's difficult to broach, I don't know if there's guidelines for that." (Alan, FG4)*

In the context of the theory-practice relationship being discussed, 'guidelines' appear to be considered representative of 'theory', a representation that could be argued to align to that of a theory-for-practice (Barge & Craig, 2009; McIntyre & Murphy, 2016; Rae & Carswell, 2001). Although there is such guidance available, the application of that guidance in practice would be determined by the individual circumstances presented, and the ability of the practitioner to communicate appropriately with the patient. The experience of the Practice Educator would be expected to go some way to supporting the student in their attempts to manage such situations by assisting them with access to *Formal Theory* whilst also developing and sharing *Informal Theory*, with their own practice consisting of a considerable amount of *Tacit Knowledge* developed during their own experiences and the evolution of their *Personal Professional Knowledge.* The degree to which a Practice Educator can support such situations will also depend on their own experiences to date.

In a profession where the majority of paramedics working on front-line ambulances will have less than five years' experience (HCCPA, 2017), and a high proportion of newly

trained Practice Educators being at the end of their eighteen to twenty-four month newly qualified paramedic (NQP) period, the amount of experience that Practice Educators are able to bring to the learning environment can be expected to diminish in the future, a situation which requires a robust approach to both student and Practice Educator preparation and support in order to maintain an effective theory-practice relationship conducive to life-long learning.

In a different focus group, *Warren* proposed another example of a challenge with communication:

> *"I remember one example where I went in to one lady who was screaming because she thought she had lost her baby and the baby was wrapped up in a towel and there was blood everywhere and I had no idea how to even start the conversation at that point, so I just had to hand over to my PEd." (Warren, FG3)*

In a similar way to Alan, Warren was unable to apply the theoretical aspects of communication considered as part of the Social and Behavioural Science modules to the practice situation that he was presented with and withdrew to allow his Practice Educator to take the lead. Such situations can be so different that students cannot possibly experience every presentation during their time in placement under the supervision of their Practice Educator. It is also highly likely that their Practice Educator will not have come across the same type of situation before, but they are likely to have developed their *Personal Professional Knowledge* to the point where they can effectively approach and adapt to a situation in the role of 'expert' (Cellier *et al.*, 1997; Charness & Tuffiash, 2008; Dreyfus & Dreyfus, 1986; Feltovich *et al.*, 2006). The situation described by Warren can be considered to represent a 'key learning episode', in that it is a specific, memorable experience which precipitated the exploration of associated theory in order to make sense of the practice experience, following the stages of Eraut's (2000) learning process.

In some of these cases, students considered that they learned the most by stepping back and watching their Practice Educator take control of the situation. By then discussing the call in a de-brief, techniques and approaches were developed by the students to enhance their own communication skills, with the experiences of their Practice Educator being drawn on to enhance their own *Personal Professional Knowledge*. The use of feedback and facilitated reflection as methods of enhancing the theory-practice relationship will be discussed at Section 6.2.3.

There appeared to be little consideration given by the students to the underlying theoretical aspects of the sociological or the psychological factors related to a suicidal patient, or a victim of assault or rape. Having an understanding of how an individual's socio-economic background may impact on their experience of a life event, and its associated psychological effect, did not appear to enter into the students' appreciation of the critical incidents identified, in contrast to the expectations of the professional curriculum (Blaber, 2012; CoP, 2017; HCPC, 2014). Their perception was of a challenge to the theory-practice relationship because they had not specifically discussed or learned about how to manage that exact scenario at university. Having a greater appreciation for the application of their psychology and sociology *Taught Theory* may have enabled the students to better relate to their patients' experiences and, therefore, communicate more appropriately, or at least more empathetically.

That said, it is less likely that their experienced Practice Educators had any great depth of understanding around the *Formal Theory* of such situations. What is likely, however, is that the Practice Educators did have experience in dealing with people and a greater self-awareness than their students, representative of Klein and Militello's (2001) mental model of experts. By undertaking a shared, facilitated approach to feedback and reflection, both the student and the Practice Educator can develop their *Personal Professional Knowledge* (Smith & Lewis, 2015).

Another important aspect of communication where the theory-practice relationship was considered was that of body-language:

> *"I think you pick up on most body language things while you're out PPEding, as opposed to uni. You don't really learn anything at uni, you can't." (Clara, FG4)*

In this comment, Clara presents the opinion that body language is something that cannot be learned about at university, and that it is a practice-based phenomenon. Clearly, the distinction here should be between the *study* of the theory of body language, which can very easily be undertaken at university, versus the practical application of the knowledge gained as a result of that study. This highlights a potential deficit in the understanding of some students with respect to the purpose of learning the theoretical aspects of an area of practice before entering the practice environment and, subsequently, a potentially different understanding of the nature of theory itself,

linking to the differentiation made by Benner (2001) between 'knowing that' and 'knowing how'.

An experienced paramedic may identify a patient as being aggressive very easily, but they may be hard pressed to describe exactly how they recognised this. The text-book might describe an aggressive person as having clenched fists, tight facial muscles, rapid breathing, wide eyes and a raised voice, both in volume and pitch. The challenge for both the student and the Practice Educator is to recognise that the patient is becoming aggressive during the moment, and to later reflect on both the *Formal Theory* and *Situated Practice* aspects after the event, from a position of safety, to inform their future practice. In order to react in such a way, there can be expected to be a degree of reliance on *Tacit Knowledge* which enables active reflection-in-action (Schön, 1983) in order to adapt approaches as soon as such adaption is required.

This position was also raised in a response within a student participant questionnaire:

> *"the textbook version is not a representation of what really happens. e.g. theory on mental health and how to speak to them can become redundant when they are throwing things at you." (SQ13)*

Such situations are common in the paramedic role, and require multiple potential methods of management, rather than a single 'answer'. Ginsburg *et al.* (2000) proposed that the negotiation of a professional dilemma does not involve the simple selection of a 'right' course of action, rather it requires negotiating through different options. 'Reading' a patient and selecting the appropriate communication repertoire may be as important a judgement as the clinical judgement that will follow. Both Ginsburg *et al.* (2012) and Bennett *et al.* (2013) support this position, having undertaken studies with medical students and doctors. The matter of communication can be considered to be a situational element of the patient encounter that requires management in the same way as the rest of the scene, and one which can, therefore, present an aspect of the theory-practice relationship where tension can manifest.

5.3.6 Results for all curriculum areas

Figure 5.16, below, presents all the curriculum areas studied and shows where student participants agreed that they were able to directly relate the module *Taught Theory* to their *Situated Practice* experiences, with the modules considered to be the most relatable on the left and the less relatable on the right. In all areas of curriculum,

students are more able to relate *Taught Theory* to *Situated Practice* than their Practice Educators are to relate *Situated Practice* to *Taught Theory*.

Figure 5.16 Students' perceptions of positive relatability between theory and practice for all curriculum areas.
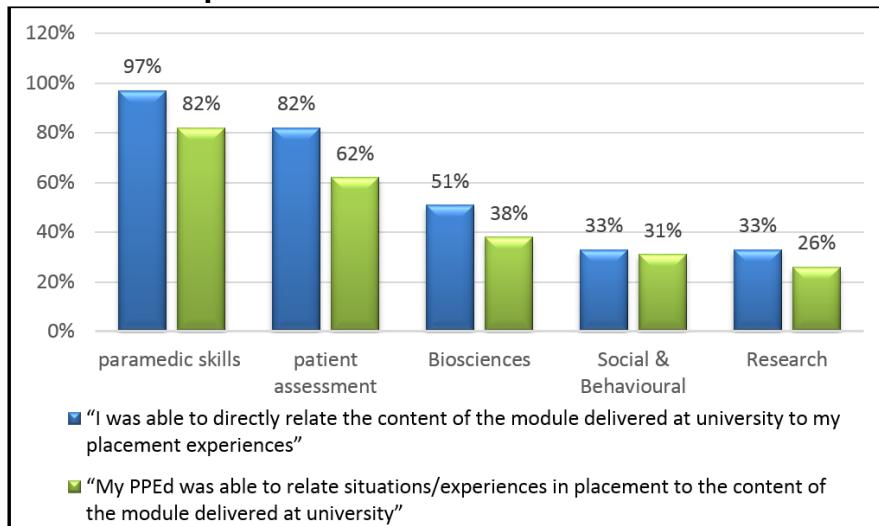

(N= 39 student questionnaires)

There has been found to be a direct correlation between the curriculum areas that consist of a high proportion of *Simulated Practice* and those more readily relatable to in the practice setting. The Paramedic Skills modules are the most relatable, followed by Patient Assessment and Management, and then Biosciences, with Social and Behavioural and Research Modules being the least relatable. This finding concurs with those of Willis *et al.* (2010) in their distribution; however, even the least relatable curriculum areas showed that a third of students could directly relate the content of the *Taught Theory* to their *Situated Practice* experience, indicating that supporting sciences are integrated into the practice setting to a reasonable degree, with overt links being considered to exist, in contrast to Willis *et al.'s* (2010) findings.

Figure 5.17, below, presents all the curriculum areas and shows where student participants did not agree that they, or their Practice Educator, were able to directly relate the theoretical module content to their role in the practice environment. Understandably, this spread appears to be the opposite of that presented in Figure 5.16, with the differences being accounted for in the responses where participants neither agreed nor disagreed.

Figure 5.17 Students' perceptions of negative relatability between theory and practice for all curriculum areas.
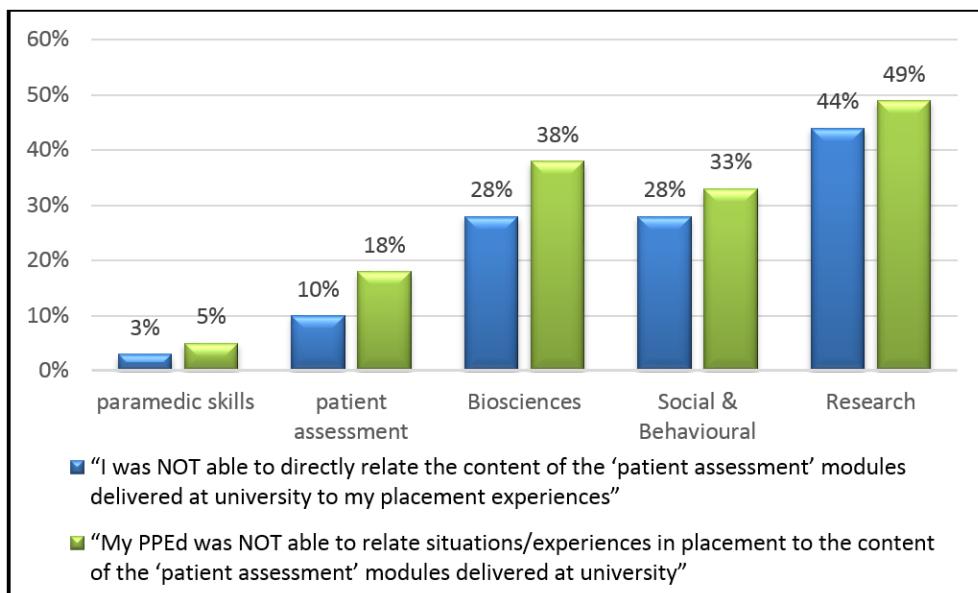
(N= 39 student questionnaires)

In Figure 5.18 (page 212), each of the curriculum areas has been overlaid on the Theory-practice Relationship conceptual framework with the position of each demonstrative of where it is viewed to sit in relation to the domains of theory and practice. Paramedic Skills spans both the theory and the practice domains with the subject being readily relatable between both domains. Patient Assessment is similarly positioned, but the breadth of the overlap is less than that of Paramedic Skills. Biosciences moves towards the theory domain, whilst retaining a strong foothold in the practice domain. Such a foothold is reduced for both Social and Behavioural and Research curriculum areas, with the predominant view of these subjects being that they are more 'theoretical' and, therefore, less relatable to practice.

A key aspect of adult learning is that of a problem-centred, rather than subject-centred approach (Knowles, 1980). One notable distinction between the curriculum areas where theory and practice were noted as being more relatable to each other is that they were, predominantly, those subjects which adopted such a problem-centred approach.

Figure 5.18 The position of curriculum areas in the theory-practice conceptual framework
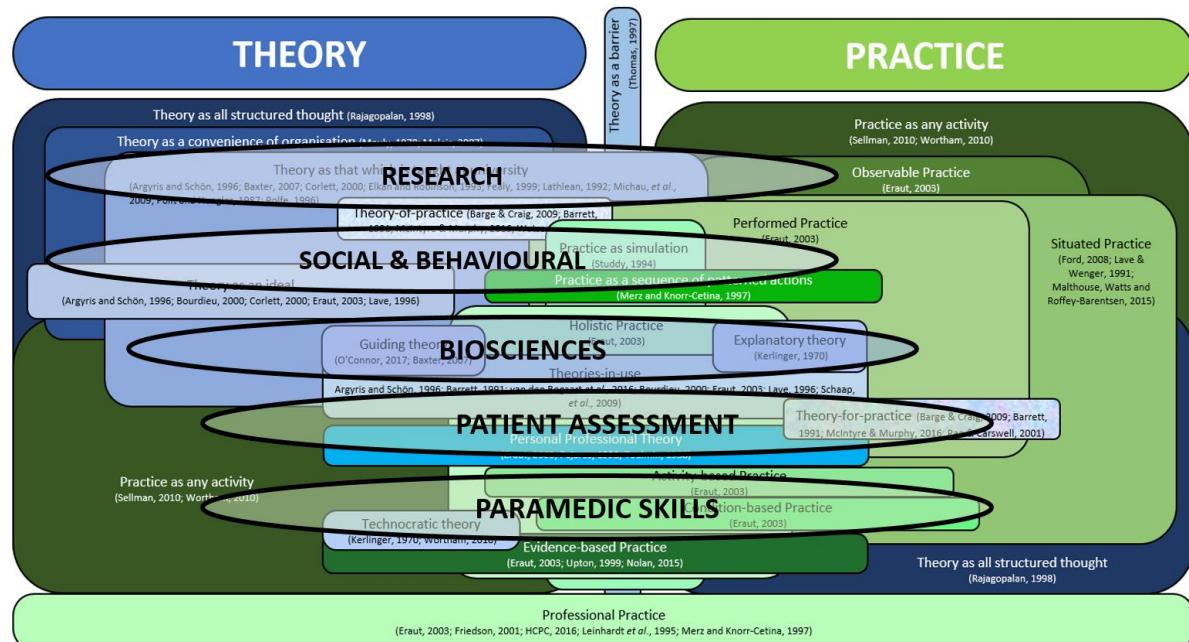
The representation of the relationships between theory and practice for these curriculum areas illustrates that such a relationship is sometimes unbalanced between the two domains. This is not presented as negative position. An appreciation of the degree of 'balance' of such relationships can help students, Practice Educators and university lecturers in their approaches to teaching and learning by focussing on greater, more overt, contextualisation of some subject areas.

In all areas of the curriculum, the students considered that their Practice Educators were less able than they themselves were to interrelate *Taught Theory* and *Situated Practice* during practice placements. Figure 5.19, below, shows the average percentage of responses across all five curriculum areas in relation to the agreement/disagreement. The columns to the left indicate that an average of fifty-nine percent of students agreed that they could relate *Taught Theory* to *Situated Practice*, with forty-eight percent agreeing that their Practice Educators could directly relate *Situated Practice* to *Taught Theory.* The columns to the right indicate that an average of twenty-three percent of students disagreed that they could relate *Taught Theory* to *Situated Practice*, with twenty-nine percent disagreeing that their Practice Educators could directly relate *Situated Practice* to *Taught Theory.*

Figure 5.19 Students' perceptions of relatability between theory and practice: Average cumulative responses for all curriculum areas
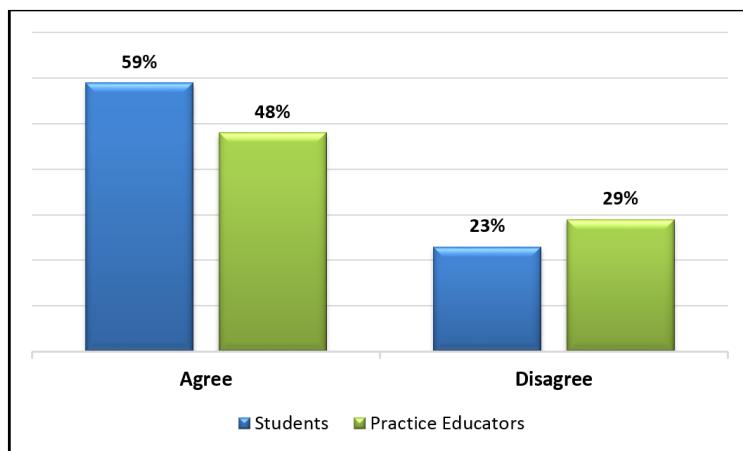

(N= 39 student questionnaires; 30 Practice Educator questionnaires)

The data was considered individually for each student questionnaire participant, with their perspectives of their own and their Practice Educator's ability to relate *Taught Theory* and *Situated Practice* compared. A number of students were identified who considered that they were able to directly relate *Taught Theory* to *Situated Practice,* in respective curriculum areas, while also responding that their Practice Educator was not able to make such links.

Figure 5.20 (page 214) displays the findings for each curriculum area, showing that 8% (n3) of students could directly relate *Taught Theory* to *Situated Practice* for Patient Assessment and Management, whilst also expressing that their Practice Educators were unable to relate *Situated Practice* to *Taught Theory.* The figure drops to five percent (n2) for Social and Behavioural and Paramedic Skills modules and rises to fifteen percent (n6) for Biosciences and Research modules. The responses within this category came from twenty-six percent (n10) of the students, with differences in which curriculum areas individuals considered there to be a disparity between themselves and their Practice Educator. This is an important aspect to consider as it was found that only one student participant considered that their Practice Educator was unable to relate *Situated Practice* experiences to *Taught Theory* in all five curriculum areas identified.

Figure 5.20 Students' ability to directly relate *Taught Theory* to *Situated Practice* when their Practice Educator was not, by module.

(N= 39 student questionnaires)
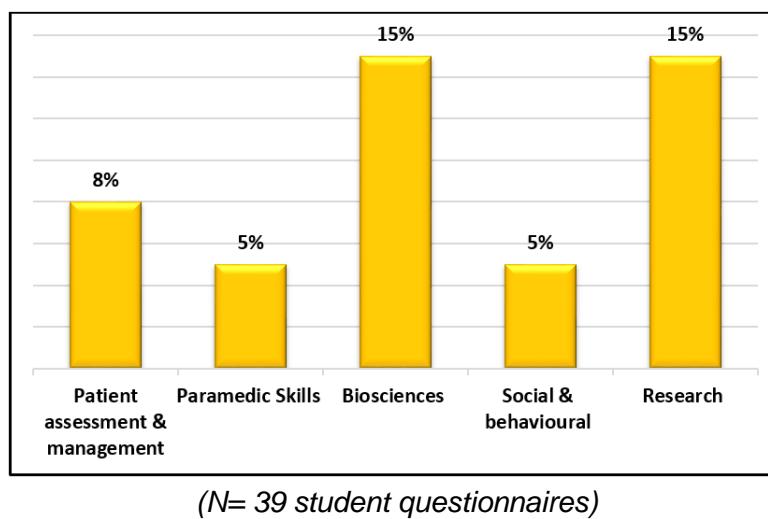
This data suggests that some students are able to directly relate *Taught Theory* to *Situated Practice* experiences without the direct, explicit input of their Practice Educators in the same process. This data informed some aspects of the focus group discussions where further data was sought in relation to the role played by Practice Educators in the development of understanding the links between *Taught Theory* and *Situated Practice*.

Conversely, a similar proportion of students (23%, n9) were identified as considering that their Practice Educator was able to relate *Situated Practice* experiences to *Taught Theory* in circumstances where the student themselves could not relate *Taught Theory* to *Situated Practice.* This was equally the case for Research (10%, n4) and Biosciences (10%, n4), with single students (3%) identified as considering this situation to have occurred in Social and Behavioural and Paramedic Skills. As previously discussed, the areas of Research and Biosciences are those where Practice Educators' experience and qualifications directly impact on perceptions of their ability and willingness to engage in discussing the associated *Taught Theory.*

The Practice Educators' own perspective of their role in relating practice-based experiences to *Taught Theory* will be further explored in Section 6.2.4.

5.4 Summary

Chapter Five has presented the key findings of the study in relation to participants' perceptions of theory and practice, both as abstract concepts and as the realities that

they experienced when undertaking their professional practice, as well as their perceptions of the theory-practice relationship within specific curriculum areas.

Paramedic students' views of 'theory' were found to be centred around the components of their programme taught at university, including simulated practice and procedural approaches to skills-based interventions. 'Practice' was predominantly seen as engaging with 'real' patients in the out-of-hospital environment, where theory was utilised in varying degrees based on the curriculum area to which the theory related. Practice was also considered by some participants to include university-based practical workshops and simulation exercises. Therefore, the resultant views of theory and practice included 'border areas' where no discrete delineation could be found to exist between the two concepts.

Although not all of the aspects of theory, practice and knowledge presented in The Praxis Model (Figure 3.20) were explicitly identified by the participants, their existence within paramedic practice-based learning can be inferred from the findings.

The data shows that students considered the theoretical aspects of some curriculum areas to be more readily relatable to the practice environment than others, with the degree of relatability for each area being broadly considered to be the same for students as it was for Practice Educators. The role of the Practice Educator in supporting the integration of *Taught Theory* and *Situated Practice* with a view to developing the *Personal Professional Knowledge* of the student was variable.

Paramedic students identified that there were areas where the existence of inconsistencies between *Taught Theory* and *Situated Practice* were perceived to exist; however, they were considered to be minimal in nature, expected to occur and did not have a negative impact on the learning experiences of the students. The predominant manifestation of such inconsistencies was found to be due to the contextual and situational challenges associated with the integration of *Taught Theory* with the *Situated Practice* experience. The reported inconsistencies were acknowledged as being an expected part of learning, with a degree of appreciation from the students that *Taught Theory* can never *exactly* match the experiences of *Situated Practice,* and not *all* experiences in *Situated Practice* can be readily unpicked and related to specific aspects of *Taught Theory.*

The process of integrating theory, from whatever source, and practice experiences has been found to be one that is variable between students and dependant on a number of factors, including the students' previous experiences and their prior and subsequent exposure and access to relevant *Formal Theory*. This proposition has come about from immersion in, and analysis of, the data.

Chapter Six will further explore, and seek to better understand, the relationship between theory and practice, beyond the *Taught Theory* of the curriculum, by considering the wider practice-based influences present in paramedic undergraduate education.

Chapter 6 : Findings: Practice-based influences on the theory-practice relationship

6.1 Introduction

Chapter Five presented the key findings of the study in relation to participants' perceptions of theory and practice, both as abstract concepts and as the realities that they experienced when undertaking their professional practice. Theory has been found to be viewed by students predominantly as everything undertaken at the university, with practice being considered as the patient-contact experienced when on practice placements. An in-between, border area was also identified, in which areas such as simulated practice, policy, procedures and guidelines sit. Students' perceptions of the relationships between *Taught Theory* and *Situated Practice* within specific curriculum areas have been explored, with a focus on the consideration and application of *Taught Theory* when undertaking *Situated Practice*.

This chapter will present and examine the findings in relation to the influences that students' undertaking of practice-based learning has on perceptions of the theory-practice relationship. The role of Practice Educators, who have variously described the relationship between theory and practice as *"important"* (*PQ2),* "*imperative*" (*PQ24*) and *"difficult" (PQ12),* will become a more dominant theme.

6.2 The theory-practice relationship in practice-based learning

Several students discussed within the focus groups how their perceptions of the relationship between theory and practice had altered over time, considering that there was, eventually, a 'falling into place' where everything 'came together', predominantly when undertaking practice-based learning. In some cases, this was reportedly due to 'key learning episodes' where a particular situation was experienced and subsequent reflection, drawing on *Formal* and *Taught Theory*, was undertaken. In other cases, such development was not linked with any specific incident in practice, it being instead put down to 'experience' and continued critical feedback and reflection.

The majority of students did not recognise that they had been generating their own *Informal Theory* in practice, even though such theory could be considered to have been apparent in the descriptions of their learning experiences and the resultant application of adapted approaches.

These approaches to learning, and their links to the theory-practice relationship, will now be discussed.

6.2.1 In at the deep end

The initial transition from classroom to practice can be challenging for students. The focus of university curricula is, necessarily, on situations where the individual requiring paramedic attendance is experiencing an acute or chronic medical problem or has suffered from trauma. Engagement with such theory can be considered to develop the students' knowledge-for-practice (Cochran-Smith & Lytle, 1999). The day-to-day role of the paramedic is generally much more mundane and predominantly centres on long-term and social problems rather than acute clinical presentations or major trauma cases. When students were faced with the extremely wide ranging and varied ambulance calls that they attended during practice placements, it is not surprising that there was a difference between their expectations and their experiences:

> *"…I didn't appreciate how many apparently well people would call an ambulance to access non-emergency presentations." (SQ22)*

Coupled with the challenges of experiencing the realities of the paramedic role, were students' feelings of apprehension about entering practice for the first time, with *Briony (FG5)* describing herself as being *"Like a deer in the headlights",* and John stating that:

> *"It was quite nerve-wracking … It was the first time we've ever treated a real patient and possibly the first time we'd ever been to that station, so yeah, a bit nerve wracking." (John, FG6)*

The understanding of *Taught Theory*, and its place within *Situated Practice*, was found to have influenced some students' transition to practice, as previously presented in Chapter Five, where the theoretical elements of the curriculum were not always clearly related to the practice that was experienced. Finding the move to practice daunting was associated with the actions and expectations of the Practice Educator, with the participants of three of the focus groups stating that they were expected to cope with any situation from the very beginning of their placement:

> *"I think when I first started, my PEd just shoved me in the back and made me get on with it and do it over and over again until I could do it, which sort of works for me, I don't know about anyone else." (Charlie, FG1)*

Charlie's experience was not uncommon, with Jane recognising that she had experienced this approach, while at the same time acknowledging that it was what she needed in order to learn:

> *"I kind of needed 'off you go, get on with it and we'll see what happens at the end and then talk about it afterwards'." (Jane, FG1)*

Harriet and Alan summed up their respective focus group's general feelings of being thrown in at the deep end:

> *"I found with my first PEd he threw me in the deep end, a bit like everyone else, and I think sometimes I sunk before I swam." (Harriet, FG2)*

> *"I remember a lot of it was just sink or swim- they would leave me until I said something..." (Alan, FG4)*

The challenge of being 'thrown in at the deep end' is that, as Harriet noted, you either 'sink' or 'swim', an aspect of practice-based learning identified by Hand (2006) as potentially having adverse consequences for patients. Some of the participants accepted this and considered that it was a 'tough love' approach and that it was okay for their learning to be managed in this way. Other students said that this approach, and their response to it, had an immediate impact on the relationship that they developed with their Practice Educator:

> *"It was finding the … level of what am I supposed to know, what am I supposed to be able to do confidently and what am I allowed to not know without looking stupid…, that was hard, I'd think I'm crap 'cos I don't know this or that or whatever." (Briony, FG5)*

Both *'not looking stupid'* and wanting to *'fit in'* were recurring themes within the focus groups, with participants identifying that they were worried how they would be perceived and accepted by their Practice Educator and other members of staff, a consideration of the communities of practice approach to socio-cultural theory (Lave & Wenger, 1991; Wenger, 1998). Donaghy (2010b) also found that paramedic students felt 'ill-equipped' with the communication skills required to support their integration into the ambulance service community of practice.

This apprehension was also considered to have contributed to the students' sometimes slower approach to questioning and patient assessment and management. They were trying to ensure that they did not get it wrong; however, what was

considered 'wrong' would differ between Practice Educators, some of whom expected the students to apply their theoretical understanding overtly to every case, whereas others were more focussed on achieving the most appropriate outcome for the patient without necessarily following the structured approaches advocated by *Formal Theory*. This slowed approach would sometimes result in obvious pauses in the students' assessment or management of a patient where their Practice Educator would reportedly step in and take over (Section 5.3.1).

Sarah stated how *'not looking stupid'* affected her development of a relationship with her Practice Educator:

> *"Trying to build that relationship with that person as well, with our PEd, very quickly because not only were you learning all the time that you were at work, and when you're at home, but I was really trying to read up on things so, like you said, I didn't look stupid, they'd ask me questions and I'd get in a panic because I didn't know the answer, "it's ok you don't know the answer cos I'm going to tell you because you're so new out," but not knowing that person* [Practice Educator] *at all, whereas at uni we'd built up relationships with lecturers and relationships with everybody else, we really quickly had to get to know that person and know where you stood with that person that's how I felt…" (Sarah, FG5)*

As Sarah discussed, the expectations of her Practice Educator did not necessarily match her own expectations, either in respect of the level of knowledge that she was expected to demonstrate or how she should respond when she did not know the answers. The potential conflict between *knowing* the theoretical basis for undertaking a particular approach, and *expressing* that theoretical basis to the Practice Educator, was one that was seen to be dependent on the learning relationship between the student and the Practice Educator. The implied importance and/or relevance of the knowing-of-practice (Lave, 1996) was dependant on the expectations of the individual Practice Educator, expectations that were considered by the students to differ considerably. Reflecting on their experiences of developing relationships demonstrates an approach towards situated reflective practice (Malthouse *et al.*, 2013), where the students are considering how their social position and interactions within the wider learning community influenced their feelings and actions.

Other students' experiences were broadly similar, with Emma and Harriet discussing their respective Practice Educators' differing approaches to student development. Harriet presented her Practice Educator's approach as a 'trial and error' style, an

approach which can be likened to Dewey's (1938) cycle of problem-solving through reflective thought:

> "'…he [Practice Educator] *was like, "you know you need to develop on your own and stuff, and work out where you've gone wrong." (Harriet, FG2)*

In this instance, the Practice Educator is clearly expressing their expectation that Harriet be able to reflect on her practice and determine action plans for future practice on her own, which could be viewed as an accommodating approach to learning (Kolb, 1984), which can be considered to be at odds with her apparently more reflective, assimilating learning style:

> *"Where I learn a lot by watching people, so if I watched a few good 'blue call' handovers then I'd learn from that, whereas he threw me straight in, making a tit of myself. I felt embarrassed 'cos it didn't come out properly and he's like "right, now you change this for the next one", so I had to make my own mistakes...." (Harriet, FG2)*

This situation highlights the consideration for both students and Practice Educators to have an awareness of different approaches to both teaching and learning. Where a student's style is completely at odds with their Practice Educator, there is a greater propensity for learning to be adversely affected, with individuals' views of the integration of *Theory* and *Practice* similarly affected.

This method of approaching practice education was clearly distressing for Harriet, but she discussed the fact that she felt there was nothing she could do about it. When asked how she found this approach she answered;

> *"Tough, really tough. 'Cos you're like very humiliated sometimes, especially in front of all these doctors and stuff, and it made my confidence really small but then in the end I got there and now I'm, yeah, sort of more confident." (Harriet, FG2)*

For Harriet, demonstrating her knowledge-for-practice (Cochran-Smith & Lytle, 1999) was a challenge. Her application of knowledge was critiqued by her Practice Educator, who supported Harriet in better applying her *Theoretical Knowledge* to the *Situated Practice* experience. As the application of her knowledge-for-practice became easier, evolving to represent knowledge-in-practice (Cochran-Smith & Lytle, 1999), Harriet's confidence in herself increased. Although the straightforward nature of some feedback can be uncomfortable or embarrassing for the recipient, Biswas (2015) considers that the Practice Educator's honest feedback is key to assist the novice to develop the

intuition associated with *Tacit Knowledge*. Understanding different approaches to learning can be beneficial when the Practice Educator or student is trying to forge links between theory and practice. Presenting theory in different ways may make it more pertinent and understandable for students with different approaches to learning, such as the use of diagrams or videos for more visual learners (Fleming, 2001).

Emma's perspective on her similar experiences was that it was an approach that *made* her learn;

> *"If you're too baby-stepped you don't actually get the confidence to do it and make your mistakes. It's, like, really off-putting when they're like "oh you did that wrong" and the doctors are like "who's that?" But, actually, by the end of it you learn, it's a lot better, I think." (Emma, FG2)*

Emma's approach to learning is one based on being allowed to make mistakes. Whether such learning also takes place in the *absence* of mistakes would be dependent on both student and Practice Educator adopting a robust approach to reflection-on-action in order to confirm and embed positive actions and experiences, as well as correcting potentially negative experiences in the form of 'mistakes'.

These approaches to practice-based learning, where the learner is expected to 'get on with it', may be beneficial in developing students' own knowledge-in-practice and associated, informal theories-for-practice. Whether or not the development of such theory is considered by the student is not clear. There is an inherent danger that the student would focus on the error, rather than focussing on the reasons behind that error and a potential lack of knowledge due to a deficit in their understanding of associated *Formal/Taught Theory*.

Thirty percent of students (n7) stated that their introduction to unfamiliar practice situations *'made'* them learn. In cases where they considered there to be differences in the theoretical elements behind the situation and the practice that they experienced, the majority of these students (n6) said that they would seek further information to consolidate their understanding of their experiences. This information was found to have come from their Practice Educator during de-briefs and self-directed study undertaken using the resources made available through the university. The degree to which students sought out further resources or information was variable and most

commonly related to the severity of the incident encountered, with more severe or unusual cases being researched to a greater degree.

This approach to situated learning (Lave & Wenger, 1991) and the use of reflection-on-action (Schön, 1987) will be considered at Section 6.2.3.

6.2.2 Approaches to practice-based learning

There were examples given by students of what they considered to be 'good' approaches to the informal learning undertaken in practice, with 'good' being linked to the effective embedding of knowledge. One particularly effective method discussed by Louise (FG2) was her Practice Educator's use of 'informative dialogue' during patient encounters, where the Practice Educator undertook to give a verbal commentary during their assessment and treatment of the patient. Louise suggested that this method allowed her to better understand the thought processes and problem-solving approach adopted by the Practice Educator, demonstrating their sharing of *Informal Theory*. To successfully adopt such an approach takes a high degree of skill on the part of the Practice Educator to ensure that the patient, as well as the student, is confident of the treatment that they are receiving. For a Practice Educator to explore the tacit elements of their practice requires the explicit, articulated understanding of their own knowledge, representative of metacognition (Dunlosky & Metcalfe, 2009). If the degree of self-awareness required to undertake such an approach is not held by the Practice Educator, then they may not be able to uncover their tacit approaches and make them explicit.

Louise said that when she undertook this approach and delivered a commentary on her own actions, her Practice Educator could ask questions to confirm reasoning and to open up unconsidered or unexpressed lines of questioning/clinical examination. Discussion of this method brought out comments from other participants relating to their Practice Educators not allowing them enough 'free rein' to arrive at their own conclusions when assessing a patient. The other three focus group participants all described situations where they were undertaking an 'internal monologue' and were taking a problem-based approach to the presenting situation when their Practice Educator stepped in and took over the management of the scene, often indicating that they, the student, were *'just about'* to take the action that the Practice Educator implemented.

The consideration of 'stepping in' is one that is often raised during the training of Practice Educators, with their not knowing how long to allow a student to consider their next step. The difference between the students' actions and those of the Practice Educator can be linked to Eraut's (2000) explanatory model of tacit knowledge (Figure 3.5) where the student is taking path 'B' and the Practice Educator is taking path 'A' or 'A*'. Because the student is undertaking to draw from propositional knowledge and apply it to a practice situation, they must first consider a range of components of propositional knowledge to determine which approach is needed. In contrast, the Practice Educator's process is much more rapid, with their practice experience and resultant episodic memory creating a tacit approach to the situation (Dreyfus & Dreyfus, 1986; Eraut, 2000). Greater consideration by Practice Educators of the different thinking processes involved in approaching practice-based situations, i.e. employing metacognition, could better their support of student learners.

The use of an internal monologue can be considered as an approach to reflection-in-action (Schön, 1987), where the consideration given to the commentary develops trains of thought which might otherwise have been overlooked. The challenge of the commentary being an internal one is that the Practice Educator is unaware of where in the decision-making pathway the student is, hence a propensity to step in too soon.

When discussing verbal commentary, two other focus group participants were supportive of the approach, considering that, if carried out in a subtle way, they would, potentially, have been able to prevent their Practice Educator from feeling the need to step in and take over. However, the remaining participant held the view that, although they would be happy to use it in their final placements, they would not have had the confidence to verbalise their thought processes and explicitly link theory and practice during the early stages of their programme. This was particularly the case where the relationship with their Practice Educator was still in the initial 'forming' stages and they did not want to either highlight knowledge deficits or to make their Practice Educator feel uncomfortable by introducing terminology or techniques that the Practice Educator may not be as current or familiar with.

Focus Group Five also considered the verbalising of thoughts, with *Sarah* indicating that it was her relationship with her Practice Educator that supported her in the process;

"I think they just gave me the confidence to actually have the voice and say what I was thinking. I knew that I just felt more confident knowing that he was there and he's given me that look that says there's something else going on and I got the confidence…. from that it kind of snowballed into 'right let's change treatment, let's do this let's do that, let's blue you into hospital because I think you need it', basically. Which was massive, I think." (Sarah, FG5)

The process of reflection-in-action appears to be being supported and facilitated by the Practice Educator in the above situation. By establishing a close working relationship, Sarah was able to let her Practice Educator know what she was thinking, and the Practice Educator was able to communicate their own opinion back in a subtle, sometimes non-verbal, way. The support of the Practice Educator allowed Sarah to develop greater confidence in her own ability to make clinical decisions.

In another focus group (FG1) *Jane* related her experiences of 'role-swapping' with her Practice Educator. At the later stages of the paramedic programme, Jane would 'supervise' her Practice Educator, allowing them to attend to patients and for her to offer feedback afterwards. This routine was considered by Jane to give both her and her Practice Educator opportunities to learn from each other in a relationship of equity where feedback could be given and received in a non-judgemental way to encourage learning. Such an approach would support the sharing of both parties' informal theories-of-practice, as well as being a catalyst for exploration of *Formal Theory* away from the situation. Whilst acknowledged as a good idea by the other three participants of the focus group, one considered that this approach would not work with their Practice Educator because they would not be receptive to receiving feedback from a student.

When describing her Practice Educator's role in facilitating links between theory and practice, Mary suggested how their experience and insight was instrumental in expanding her perspective:

"Little things that I probably would have figured out myself anyway, but it was an insight from an experienced PEd, that had been doing it for years, made it easier." (Mary, FG4)

By gaining her Practice Educator's view and input based on their experiences, Mary was able to develop her repertoire of cases in a way that was much more robust than if she had not had that input. This inclusion of *Informal Theory* and *Personal Professional Knowledge* by the Practice Educator reportedly better facilitates the

integration of *Taught Theory* and *Situated Practice* for the student. The data suggest, however, that Practice Educators do not always focus on making *explicit* links between practice-based experiences and *Formal Theory* during their supervision of higher education students, rather they support the student in making such links, a position reflective of Rogers (1969), Brookfield (1986) and Bently's (1994) view of the Practice Educator as a facilitator of learning (Section 3.3.3).

The Practice Educators were asked if they directly related their students' learning experiences in placement to their academic input at university (Figure 6.1, below), with the responses shown as blue columns, and if they encouraged their students to apply their academic knowledge to their experiences in placement, shown by the green columns. No Practice Educators considered that they always directly related their students' experiences to academic input, whereas twenty-four percent considered that they always encouraged their students to apply their academic knowledge. Thirty-one percent (n9) often directly related their students' experiences to academic input, with sixty-six percent (n19) often encouraging their students. Fifty-five percent (n16) only sometimes directly related their students' experiences to academic input and ten percent (n3) sometimes encouraged their students.

Figure 6.1 Practice Educators' role in undertaking to link practice-based learning experiences to academic knowledge
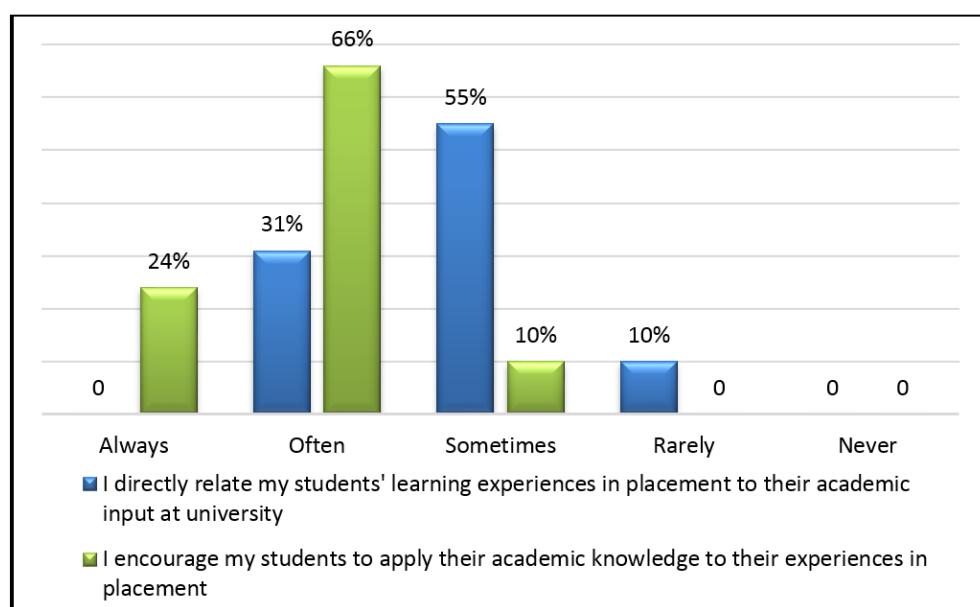
(N= 30 Practice Educator questionnaires)

Ten percent of Practice Educators considered that they rarely directly related their students' experiences to academic input, a situation previously discussed in nursing,

where Cahill (1996) found that nursing mentors failed to explicitly connect clinical nursing with academic knowledge. One result was that nurses viewed the theory-practice relationship as one where the two components are not integrated, thereby creating a dis-integrated learning environment (Fealy, 1999). The data here suggest that such a degree of dis-integrated learning does not exist throughout paramedic practice education and is a relatively rare occurrence.

The results indicate that Practice Educators are more likely to encourage their students to relate their practice experiences to *Formal Theory* than they are to undertake to do so themselves. The position that Practice Educators encouraged their students to apply academic knowledge in practice was supported by the focus group participants, with 'de-brief feedback' being the most common method of encouraging the integration of *Taught Theory* with *Situated Practice* (Section 6.2.3, below).

6.2.3 Feedback and facilitated reflection

This section will consider the closely related areas of feedback and facilitated reflection, the main distinction between the two being the focus and direction of the processes undertaken. Feedback in this context is a predominantly unidirectional process based on Practice Educators' perceptions of student performance, where the views of the Practice Educator and the actions of the student are the focus (Biggs & Tang, 2007; Gubbins, 2011; Nicol & MacFarlane, 2006; Willingham, 2000). Facilitated reflection is a multidirectional dialogue-based method of supporting the process of critical reflection by engaging the student to a greater degree and exploring their perspective as well as that of the Practice Educator (Blaber, 2012; Mann & Tang, 2012; Smith & Lewis, 2015; Williams, 2013). Such a distinction in terminology was not made by the student participants, the majority of whom discussed what was found to be facilitated reflection simply as being a form of more in-depth feedback.

All participants of the focus groups had experienced feedback, with the consensus being that approaches to feedback were variable, in both its form and its perceived effectiveness. Challenges were associated with opportunities for feedback, with the students considering that they were often given less formal feedback on the drive to the next incident, or during very brief periods of turnaround at hospital. This was not necessarily a negative position, as John discussed:

> *"I've had one PEd who was very much de-brief after every job, whereas I've had two PEds who have still de-briefed me and given me the opportunity to ask questions, but it's not so structured, a little bit more relaxed, and we bring it out as it goes along. I think that way it was easier to remember the feedback that you're given rather than go 'right, you've done this, this and this'. It works for me." (John, FG6)*

This seemingly ad-hoc, informal approach worked for John in that it allowed feedback to be incorporated into the working shift and take the form of general discussion rather than a formal, sit-down de-brief. John was able to relate to two different approaches which he experienced and found that he preferred the informal over the formal. John also highlights one of the major differences between feedback and facilitated reflection when he describes one style of feedback as *"right, you've done this, this and this."*

James also considered the approach of his Practice Educator in facilitating reflection and giving feedback to be less formal, often instigating interactions himself:

> *"… we would either do it after the job while we were doing paperwork. We would just, kind of, be chatting while we're doing it or, if we had any off the road time if we didn't get a job, we were discussing them. We would just fit it in. Rather than be quite structured and linear about it, like we were at the beginning, we would be driving to get fuel or something and I would ask 'so, with that patient if that had happened what would we have done?'" (James, FG7)*

James's description of the evolution of the way in which reflection and feedback were undertaken over time, is representative of both the developing relationship between the student and the Practice Educator and the progression of the student from novice to competent practitioner (Dreyfus & Dreyfus, 1986). By instigating such reflective discussions, the student is undertaking a deliberative approach to their learning (Eraut, 2000; Section 2.4.2) while beginning to demonstrate aspects of the proficient practitioner, viewing situations more holistically and seeking to examine what is most important (Dreyfus & Dreyfus, 1986; Eraut, 2000). Although such an informal approach may limit the opportunities of the student to be fully supported in the reflective process, it clearly demonstrates the sharing by the Practice Educator of their own *Personal Professional Knowledge*, and inherent *Informal Theory* and *Tacit Knowledge*. This sharing of experience moves the feedback toward the facilitative end of the continuum proposed by Randall and Thornton (2001) and can be considered to represent 'catalytic mentoring' where the Practice Educator is supporting the student in their *"ability to be self-evaluative and autonomous"* (Randall & Thornton, 2001, p120).

Links to *Taught/Formal Theory*, however, were not always made explicit by the Practice Educator during feedback, with the focus often being on the student's ability to communicate in order to manage presenting situations. PQ8 suggested a reason for this approach:

> *"A lot of students are young and inexperienced. They lack the ability to communicate on a level. The majority of my feedback is based on their handling and control of the situation. My view is if you get that sorted first, the clinical bit follows a lot easier."* (PQ8)

This position helps to understand the view of some Practice Educators who assert that they are not there to teach the students the theory of practice; that being the university's job; instead, they are there to support the students in their undertaking of practice, where the priorities may be more focussed on the interpersonal, communications-based aspects of the role as opposed to demonstrating theoretical knowledge, as previously discussed in Section 5.3.5.

John said that he did have a Practice Educator who actively sought to make links between *Situated Practice* and *Taught Theory*, although he was aware that this was not always the case:

> *"… I think she did quite well actually. I have heard from other people that they didn't get to link anything… some PEds had the impression that it's not like that, it's not how you learn in the class, you learn it all out on the road. But, actually, you consolidate it all out on the road and my PEd was always very much 'so what was the theory behind that and therefore why did we do that?'"* (John, FG6)

John said that some Practice Educators held the view that the classroom teaching was some way removed from the realities of practice, or 'on the road'. His view of practice placements as a way of 'consolidating' learning could be considered to be placing an emphasis on the classroom input as being the basis for undertaking practice, a position criticised by Rolfe (1996). However, the approach of his Practice Educator, by facilitating a more formal reflective approach, can be considered to be introducing the *Informal Theory* of the Practice Educator, combining both a reactive and a deliberative approach to learning (Eraut, 2000).

James also experienced a relatively formal structure of reflection facilitated by his Practice Educator during their early practice placement experiences:

> *"I think at the beginning it was very much after every job; If it was OK, what could have been done differently? How do you think that was? It was quite structured really." (James, FG7)*

Although discussing 'feedback', James can be seen to be describing a process of facilitated reflection, with the inclusion of questions about how he perceived that he had performed, with the Practice Educator again supporting a deliberative approach to practice-based learning (Eraut, 2000).

Ninety percent (n36) of questionnaire participants considered that the feedback that they were given was constructive. Post event de-briefs were found by Williams (2013) to tend to focus on the technical aspects of the job, with the reassurance of the Practice Educator that the student had done things correctly, even when the outcome was negative, being important in supporting the student's development. Such a focus was not found within this research, where more focussed development of approaches to situational awareness were inherent in the facilitated reflection supported by Practice Educators.

Students appreciated time spent by Practice Educators in providing clear feedback, which was seen as both improving their practice and encouraging independence, with effective Practice Educators seen as enabling students to transition from 'observers' (reflective observation) to 'doers' (active experimentation) (Kolb, 1984) by adopting a catalytic mentoring approach (Randall & Thornton, 2001).

The degree of Practice Educator involvement in facilitating the reflective process varied considerably between students. Sarah's Practice Educator was seen to do so after every incident:

> *"They would always help me and encourage me to look things up……..discuss things, they would ask me after every job 'are there any questions you've got, anything you don't understand?' they would always ask me that." (Sarah, FG5)*

Like Sarah, the majority of student participants considered that they themselves were responsible for their own learning and development during placements. It emerged from the focus groups that, in some cases, it had been the student's Practice Educator who had highlighted this responsibility to the student, either explicitly, as in Sarah's case by encouraging her 'to look things up', or implicitly by their lack of a structured approach resulting in a necessity on the part of the student.

The student participants were all familiar with the concept of reflective practice and all reported that they undertook reflection, to varying degrees, during their placement experiences. One Practice Educator participant also discussed how adopting a reflective approach consolidated the links between theory and practice as well as developing an approach to lifelong learning:

> *"Theory is the basis of the knowledge, practice is using the knowledge in a practical environment. Both help each other - using reflective practice enables you to visit the right bits of theory. A process which continues beyond higher education."* (*PQ1*)

This view of reflective practice demonstrates that the interdependent relationship between theory and practice is acknowledged by both students and Practice Educators, albeit a minority of one who expressed such in these terms. By adopting a formal approach to reflective practice, this participant was able to review the *'right bits of theory'* to support their development of *Personal Professional Knowledge* (Pocock, 2013; Smart, 2011; Turner, 2015; Willis, 2010).

The focus group participants considered how their Practice Educators facilitated reflection-on-action:

> *"Every time we had a patient that had a particular pathology we would discuss that pathology and how we may have treated it if XYZ has happened, even if it was quite simple and we thought it might be something and it wasn't, we did discuss if it was that, if it was that serious thing, we've identified that it wasn't, how?" (John, FG6)*

John went on to explain that the focus of the reflection was often to explore a range of *'what if?'* scenarios:

> *"…I'd have to sit and discuss how the signs and symptoms of the patient didn't actually fit that criteria and then we discussed ... what would we have done if he wasn't serious or if he was the worst case" (John, FG6)*

By going through these discussions, John was able to develop a critical approach to clinical decision making which he was able to implement in subsequent practice experiences:

> *"…because we used to do that, I always in my head now, always think 'well it could be this, it could be that'….so I go through everything that it could be and I kind of think well, if he was that, how would I have dealt with that in that situation." (John, FG6)*

John goes on to describe how he views his reflective process:

> *"So, although I didn't actually do it, I've done a little scenario in my head about what could have happened and what I could have done and how in that situation it could have been difficult." (John, FG6)*

By undertaking such an approach, John was able to consider not only his actions, but the actions that he might have taken had the situation differed in any respect. This is representative of the planning for future behaviour present both when undertaking deliberative learning (Eraut, 2000) and when following a reflective cycle approach to reflective practice (Section 3.2.4; Gibbs, 1988; Smart, 2011; Turner, 2015; Willis, 2010). John summed up the importance of this type of facilitated reflection for his personal development:

> *"And then we would sit and discuss, we could do this or maybe we could do that, and she would always go through the theory behind everything in order for me to learn the kind of 'just in case' and I think that improved my practice more than me on my own." (John, FG6)*

John's recognition that the reflection facilitated by his Practice Educator was more beneficial in improving his practice, when compared to the reflection that he would undertake individually, supports the existence of multiple 'levels' of learning being experienced in relation to the reflective approach (Atkins & Murphy, 1994; Burton, 2000; Cotton, 2001; Durgahee, 1998; Foster & Greenwood, 1998; Maudsley & Scrivens, 2000; Patton *et al.,* 1997).

This approach to feedback and facilitating reflection-on-action could be seen as a method of developing a broader repertoire of cases, albeit hypothetical ones, drawn from both the immediate situation and the experiences shared by the Practice Educator from their own repertoire, representing *Informal Theory* and being used to inform future practice.

The relationship between theory and practice can be seen to be enhanced by the undertaking of a reflective approach, with the seeking out of theory being supported and encouraged by Practice Educators in order to contextualise the practice-based experience of the student. This application of reflection supports the position presented by a number of researchers of it being an effective method of reducing the theory-practice gap (Burton, 2000; Carney, 2000; Duke & Appleton, 2000; Fonteyn & Cahill, 1998; Foster & Greenwood, 1998; Getliffe, 1996; Koh, 2002; Maudsley & Scrivens, 2000; Perkins, 1996; Smith, 1998).

The expectations of the role of the Practice Educator were considered by James when he was asked if he thought it was the Practice Educator's job to link practice-based learning experiences to academic input:

> "*I'm not sure. Obviously, they are paramedics, so they should know the theory and practice of it, and the skills, but the way I consider it, it's more their job to teach me how to relate to people, how things work on the road, how to develop good relationships with crewmates and patients, because that's what I feel the university is for- to teach you the most up-to-date theory, and the paramedic should know it. It should be less about teaching me all the theory and more about teaching me how to be with patients and supporting the theory sometimes if it needs to be." (James, FG7)*

James's view of the 'job' of the Practice Educator being to assist in the development of interpersonal skills, distinct from the university theoretical input, demonstrates an appreciation that such aspects of paramedic practice are not readily addressed within the university environment. James does not appear to be presenting this as a negative situation; rather, he accepts that it is an expected and anticipated phenomenon which he is able to manage as part of his overall approach to learning in practice, and incorporate into his approach to learning. This position can be linked to the views of communities of practice as proposed by Taber *et al.* (2008) and Lave and Wenger (1991), where the considerations of relationship development within the community is considered as important as knowing the theory of how to 'do the job'.

All students considered that they undertook reflective practice; however, not all considered that their Practice Educators were instrumental in facilitating this practice, with the relationship between the student and the Practice Educator influencing the degree to which such a shared process was undertaken.

Warren's perception of the importance of the relationship between student and Practice Educator was put succinctly:

> "*I think having a good relationship is really important because if you haven't got that then I don't know how learning can really take place. If you don't get on with someone, it can't be a productive environment, really." (Warren, FG3)*

This sentiment is supportive of Lane's (2014) findings where students were found to place significant emphasis on developing a good working relationship with their Practice Educator in order to benefit most from the practice placement experience. There are, however, challenges associated with developing *too good* a relationship

with one's supervisor in practice (Duffy, 2004; Hughes, *et al.*, 2016). These challenges will be considered in respect of their impact on perceptions of the theory-practice relationship in Section 6.2.4, below.

6.2.4 Challenges within the theory-practice relationship

There have been several challenging aspects found to exist when solidifying the theory-practice relationship, with the two main areas being the closely linked 'theory relies on idealised situations' (Section 5.2.5) and 'wider situational considerations' (Section 5.3). Other, less reported, areas included Practice Educator experience and qualifications and interpersonal relationships, all of which will be discussed below.

Student participants' perspectives of theory and practice were explored in order to identify inconsistencies, or differences, between any theoretical input, from whatever source, and their lived experiences in practice. Ten percent of students (n4) did not consider there to be any differences between theory and practice. The remaining ninety percent of students (n35) believed that there were differences between the theoretical input and their experiences in practice. This response could, on the face of it, give rise to the suggestion that there is a significant theory-practice gap in paramedic education, with the vast majority of the participants identifying 'differences' between theory and practice. Whether or not such 'differences' can be considered a 'gap', detrimental or otherwise, is less clear.

When asked for examples of the differences, 41% of responses (16n) were 'situational-based', i.e. the theory could not be applied as taught due to the different environmental and situational factors encountered (Section 5.3). The students acknowledged that to expect direct transference of all aspects of theoretical input to the practice situation was unrealistic, as discussed throughout Chapter Five and summed up by SQ3, below;

> *"The theory was often taught in a way that could be used in optimal circumstances. In placements, it was often shown that you had to adapt to make the best of a situation and often you had to tweak certain aspects to make it work the best way." (SQ3)*

The requirement to *'adapt'* and *'tweak' Taught Theory* presents a view of the theory-practice relationship which recognises the constraints of *Taught Theory* when applied to real-life situations, a position also presented by Lucy in Focus Group 1:

"The problem is, the patients haven't read the text-books…"

In this case, Lucy identified a specific example of her attendance at a patient who was suspected of having appendicitis, but did not display the classic, textbook signs and symptoms. She considered that her initial response might be:

"… so it's sometimes, you're like, patients are never how I've been taught..."

This initial consideration, which represents a theory-practice gap*,* was re-considered in light of the wider presentation and situation of the patient:

"… but if you actually look at the bigger picture, they have got those signs and symptoms, it's sometimes hidden by other things, or you have to ask specific questions and I think you can easily fall into the trap of 'oh well it's completely different being on the road to being in the university', but there is a lot of cross-over of the content and how you're thinking and what you've got to consider with patients."
Lucy (FG1)

By recognising that the *Taught Theory* was 'hidden' within the wider context, Lucy has been able to make links between that *Taught Theory* and her experience of *Condition-based Practice* resulting in development of her own *Personal Professional Knowledge*. The key aspect of Lucy's experience is that she reflected upon it, recognising that she could easily have fallen '*into the trap'* of dismissing the *Taught Theory* as being disconnected from *Situated Practice*. Adopting such a reflective approach, where actions and experiences are unpicked and analysed, is supportive of the development of a 'healthy' theory-practice relationship where theory and practice can be interrelated (Burton, 2000; Carney, 2000; Duke & Appleton, 2000; Fonteyn & Cahill, 1998; Foster & Greenwood, 1998; Getliffe, 1996; Koh, 2002; Maudsley & Scrivens, 2000; Perkins, 1996; Smith, 1998).

These views were not isolated and were supported by other student participants, as presented throughout Chapter Five, and summed up by SQ10:

"… practical application cannot always be as 'textbook' as the theory would sometimes suggest. However, this is largely situational and any differences can only be sought via placement." (SQ10)

Such an acknowledgement that 'textbook' theory may become a different prospect once in the practice environment is evidence of this student's appreciation of the importance of undertaking practice placements to develop their understanding of the

application and integration of *Taught Theory* in the practice setting. Such a position was reiterated by students throughout the focus group discussions, where participants considered that to expect all experiences in practice to be fully supported and underpinned by specific *Taught Theory* was unrealistic. The comments of one Practice Educator sum up the views of the students expressed above:

> *"A student may practice 100 times but, in real life, a patient never behaves how they think or presume. Each patient is different and the student is not always prepared for the change in situation." (PQ29)*

The 'unreliability' of patients in behaving or presenting clinically in ways students had had trained and prepared for, initially resulted in challenges to the application of *Taught Theory* in practice. Such challenges were reported to have diminished over time as students gained greater understanding of the contextual application of *Taught Theory* and developed their own *Informal Theory* from which to draw. Such development was considered to be necessary when managing the wider situational considerations of the paramedic role.

Ninety percent of Practice Educators (n27) agreed that there were times when the 'theory' of how to manage a clinical situation, either taught at university or advocated by policy or procedural instructions, did not work in the practice environment and alternative approaches needed to be adopted. The remaining ten percent (n3) neither agreed nor disagreed. The Practice Educators' responses indicated that it was predominantly the situational challenges presented by the practice environment when applying *Taught* or *Formal Theory* that resulted such disparity, with a minority (13%, n4), criticising theory as a 'necessary evil', a starting point that all paramedics needed, but that had little to do with the realities of the job (Section 5.2.5).

Thirty percent of Practice Educators (9n) considered the wider situational considerations of attending to patients to be a potential challenge to the developing relationship between theory and practice. This aspect is representative of a much wider range of factors that can influence the management of a situation/scene and can be considered to incorporate examples of 'idealised situations' within the wider context of scene management. Practice Educator participants were explicit when presenting this position, for example:

"Theory/role-play does not allow them to learn how to manage a patient screaming/rolling about in pain, mental health patients in crisis or difficult non-compliant patients". (PQ11)

"Not every patient/scenario/scene is text book, i.e. getting someone off the floor, difficult extractions, communication barriers." (PQ23)

In the above comment, PQ11 is linking the term 'theory' with role-play. As previously discussed, scenario management, or role-play, can be considered to be an area that borders both theory and practice (Section 5.2.4). The linking of these terms by PQ11 relates a view of theory being that which is taught at university, with the involvement of 'real' patients defining the boundary of practice. As previously discussed (Section 5.2), such a view appears to exclude any guideline, policy, procedure of protocol from the definition of 'practice', instead placing such concepts within the bounds of 'theory'.

The Practice Educator participants quoted above related key situational considerations including communication and manual handling, both areas also cited by student focus group participants as presenting particular challenges. Manual handling was an area explored by Swain *et al.* (2003) in relation to nurses. Swain *et al.* (2003) found that nurses were frequently unable to use recommended techniques in practice, often due to the influence of colleagues, aligning with the position of Kane and Parahoo (1994) and Kneafsey (2000). Exactly how much 'wider' these considerations go varies to a significant extent and was shown to include aspects such as relatives and bystanders on scene, weather, time of day, location of the incident, location of the patient, the state of repair of the patient's property and the ability of the patient to communicate.

The perspective that emerged from the focus group discussions was one where it may be valid and appropriate to believe *Taught Theory* is *intended* to support a particular approach, e.g. a theory-of-practice. However, there would *always* be situational circumstances which could not be accounted for when preparing for practice in the classroom, requiring theory-for-practice to be implemented. This view was summarised by one Practice Educator:

"It's learning to adapt that theory to the situation, not that it does not work." (PQ18)

This Practice Educator is apparently accepting theory as a basis for undertaking *Situated Practice*, whilst also expressing the need for adaptable approaches to the

application of such theory in the practice setting, a view of adaptability which was summed up by another Practice Educator:

"Every situation is different and improvisation is necessary." (PQ24)

When explored during the focus groups it was, at first, apparently difficult for students to articulate and identify the nature of such situational challenges. It was presented by a number of participants that it was their experience that exposure to such situations had the potential to raise the perception of disconnect between theory and practice. John summarised his Practice Educator's approach to situational awareness:

"For example, when you do a scenario in the classroom with that pathology, with that problem, you can run through in your head, through the stages, but then when you do it with a patient…. For example, if we had a patient who could have XYZ problems cramped up in a loft or something, then my PEd would be like 'OK, they did have chest pains, but actually it wasn't a respiratory problem and we've done an ECG up there.' And then she would say, 'well, how would you have got them down if they were having a heart attack?' (John FG6)

John's Practice Educator was reportedly using the situational and the environmental factors to widen the scope of the patient encounter when de-briefing by introducing a range of 'what if?' questions based on differing clinical presentations with the same environmental factors being present. Once a student had been in a particular situation, such as John with his patient in the loft, it was apparently easier to develop the problem-solving methods employed to discuss a wider range of clinical presentations. Without the exposure to the situation in the first place, the management of clinical presentations would generally be discussed only in the context of treating the presenting condition, as per the textbook. Such a consideration of the setting of the experience during reflection aligns with the approach to situated reflective practice described by Malthouse *et al.* (2013). The development of a repertoire of *situational* cases can, therefore, be considered to be being developed alongside a repertoire of the purely *clinical* aspects of cases, further expanding the students' *Informal Theory* and resultant *Personal Professional Knowledge*.

An example that was repeated in more than one focus group was that of attending a patient who was upside-down in a car, in the rain, at night. Student participants considered that their *Taught Theory* of how to manage a patient in such a situation was of limited use and improvisation would be needed. Interestingly, when asked,

none of the student participants had ever actually attended a road traffic collision where they had had to attend to a patient who was trapped upside-down, in the rain, at night. This situation was used by the students as an example, albeit extreme, where their perceptions of the applicability of *Taught Theory* to their *Situated Practice* experiences could be reported with greater clarity. The subtler situational challenges reportedly perceived by students appeared to be more difficult for them to articulate clearly. In the example adopted, the wider situational considerations included the weather, the time of day, the location of the incident and the location of the patient, examples also presented by Practice Educators as wider situational considerations.

Such wider situational considerations were considered by Practice Educators to present the most immediately dangerous factors when attending patients, as well as being those which were poorly addressed by the theoretical learning undertaken by students. The Practice Educators felt their students were not situationally aware. Flin *et al.* (2008) identify that the most common definition of situation awareness is that proposed by Endsley (1995) who states that situation awareness is:

> *"the perception of the elements in the environment within a volume of space and time, the comprehension of their meaning and the projection of their status in the near future."* (p36).

With this in mind, it is easy to understand why a paramedic should be required to have effective situation awareness skills, with the HCPC (2011) identifying situational awareness as a key component of professionalism. Such skills are developed over time and with experience (Eraut, 2000; Malthouse *et al.*, 2013; Schaap *et al.,* 2011). It would, therefore, be unrealistic to expect a student to have a fully developed approach to situation awareness in the early stages of their programme when they are still considered to be a novice practitioner (Benner, 2001; Dreyfus & Dreyfus, 1986) (see Section 2.4.2).

By having an appreciation of the expectation to develop such an awareness, both on the part of the student and the Practice Educator, the context of *Taught Theory* can be better considered both in the university setting and in the practice setting, with a view to using it as a tool for developing *Personal Professional Knowledge,* as proposed by Campeau (2008b).

Student participants also identified qualifications and experience as key aspects when considering the role of the Practice Educator in the theory-practice relationship. The level of qualification of the Practice Educator was presented by five student questionnaire respondents (13%) as negatively impacting on their effectiveness when supporting the linking of *Situated Practice* and *Taught Theory*:

> *"Where PEds and students have very different educational backgrounds, conflict of opinion can occur. Basic theory is there for both, but often degree students generate/share ideas that seem alien or very different to the PEd. This may present challenges where a student wants to demonstrate advanced practice (based on theory) but is not, or cannot, be supported by the PEd." (SQ15)*

This position demonstrates the potential conflict which can occur when the student has, or believes that they have, gained a level of theoretical understanding which is beyond that of their Practice Educator, potentially reducing the credibility of the Practice Educator as a source of feedback (Van De Ridder *et al.*, 2015). Such a difference in 'level' cannot, however, be solely based on academic qualifications. The comment *'demonstrating advanced practice (based on theory)'* shows how this student links theory and practice, with advanced practice seen as being based on theory, with such theory having associated 'levels'. As well as being linked to level of qualification of the Practice Educator, this view can also be considered in respect of the move to a graduate profession and the recognition of advanced levels of clinical practice within the profession (Figure 2.7).

A different student suggests that it is not qualifications, but currency of knowledge that is key:

> *"Old styles of teaching and outdated knowledge can conflict with newer ways of thinking." (SQ19)*

A further comment acknowledges that the experience of existing paramedics is valuable, whilst also expressing the opinion that such experienced paramedics can be reluctant to learn from 'new' paramedics:

> *"Paramedics who went through the old tech route are still adapting to new ways of working and providing care in the community. They have experience and are not keen for new paramedics with theory to contradict their methods." (SQ23)*

This comment reflects the considerable changes that the paramedic profession has undergone in recent years, acknowledging that the role of the paramedic has evolved

over a very short period. Edwards and Miller (2008) identified that such a difference in qualification levels may, due to 'academic drift', alienate the vocationally qualified Practice Educator. Any reluctance of non-higher education paramedics to accept 'new theory' could influence the way in which they approach the integration of theory and practice when supervising students. The route by which the Practice Educator participants had gained their paramedic qualification was, therefore, explored (Figure 6.2, below). Those who had undertaken the 'traditional' IHCD route will have had no higher education input as part of their initial basic training. Of the seventeen (57%) in this group, nine (30%) had gained a higher education qualification; five (17%) Foundation Degree and four (13%) BSc. It was not determined if this higher education had been paramedic specific. Of the nine (30%) Practice Educators who had qualified as an 'in-house' student paramedic, only one had any experience of higher education as a student. All four (13%) of those who attended a partner university will have had a BSc or FD in Paramedic Science.

Figure 6.2 Practice Educators' route to paramedic qualification
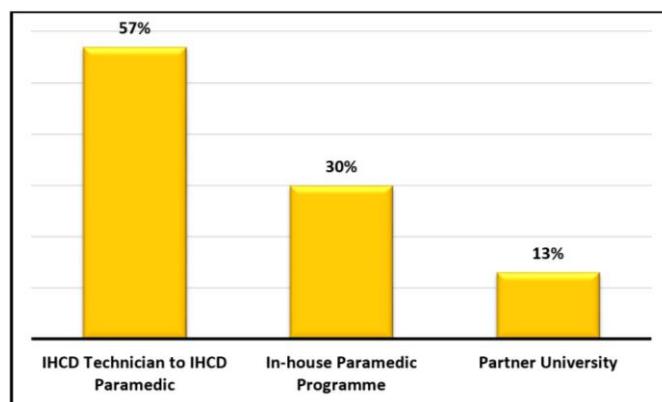
(N= 30 Practice Educator questionnaires)

This spread of qualifications amongst Practice Educators will alter over time, with the requirement to have a BSc to enter the register (HCPC, 2018) resulting in a shift from the majority of Practice Educators having gone through traditional, pre-technocratic training routes (Bines, 1992) to the majority having undertaken degrees. The impact of this shift on students' perceptions of the theory-practice relationship may be deduced from the data presented below.

Practice Educators' perceptions of their own academic qualifications, and their relevance to supervising university students, varied. The perceptions which emerged from the data fell into three categories; those that considered their qualifications

sufficient (27%, 8n), those that considered them insufficient (30%, 9n), and those that had a neutral perspective (43%, 13n). The respondents considered that their professional experience tended to 'trump' academic qualifications, but that this was only 'up to a point', as described by two participants below:

> "I believe that experience is vital as a PEd - university qualifications do not make a good clinician. There is no replacement for patient contact hours…my personal qualifications are more than sufficient to guide students and, to ensure I am ahead of them academically, I have chosen to undertake the degree myself." (PQ26)

> "Whilst mentoring 1st year uni students my BTEC 'Hannibal house' [in-house training route] qualifications suffice. I feel mentoring 2nd/3rd year students may be more challenging. This is one reason I am to commence an 'ECP' [Emergency Care Practitioner] degree shortly." (PQ6)

Such situations, where a Practice Educator recognises that their understanding of *Formal/Taught Theory* may be limited in comparison to their student, could be of some consideration when determining the appropriateness of individual Practice Educators, in respect of their qualifications and experience, when placing students during a paramedic programme. Interestingly, both of the above participants were seeking to increase the level of their academic qualification, in part, to better support their students in the future. Student participants in the focus groups discussed how they sometimes considered that they had 'outgrown' their Practice Educator, concurring with *PQ6* above:

> "I don't think non-graduate paramedics should be PEding past second year, like third and fourth year, because I don't feel…, I haven't had anything really over the last two years PEding. I've been doing it to get in my hours not for my development because there's nothing they can teach me that makes sense other than skills which I can do. I've had one PEd from this Uni in my third year and he was brilliant and he was still teaching me stuff." (Brian, FG5)

Brian considered that any Practice Educator who was supervising a student beyond their second year should have a higher education qualification, either Foundation Degree or BSc Degree. Brian considered that there was nothing that his Practice Educator could teach him, with the view of 'teaching' here appearing to be directly related to *Formal Theory.* Brian's view of undertaking practice as a way of achieving the requirements of the course, rather than a method of developing his wider *Personal Professional Knowledge*, could be considered to demonstrate a lack of appreciation

of the importance of *Informal Theory,* ultimately generated out of *Situated Practice,* which can inform and influence his continued development.

Brian's colleague, Alan, a BSc student, had a stronger opinion of the value of qualifications:

> *".. If you want me to be taught at level six, I need someone who has done level six so you can go beyond. It's mental to have someone who's got an FD …. who has got no further academic learning could be teaching me, and I think that's mental, how's that going to help me compound what I've learnt in that year and apply it on the road?"* *(Alan, FG4)*

Although supported in principle by other members of the focus group, which was made up of other BSc students, Alan's demand to have only degree qualified Practice Educators supporting final year students was not universally supported:

> *"They need to have an appreciation of what uni does as opposed to sort of in-house training. It's not essential to be degree educated or higher education, but at least have an appreciation of what we do." (Charlie, FG1)*

Approximately half of the members of the other focus groups, both BSc and FD, were content to have non-degree Practice Educators, as they considered their support and approach to continued learning to be of equal benefit to 'academic' understanding.

Responses from questionnaires also represented views of the qualifications and experiences of Practice Educators:

> *"As my final PEd has not done a higher education degree programme they were often basing their theory on past experiences from on the road. On certain jobs I would be able to explain what is occurring due to my knowledge and theory taught through uni, whereas they were using past experiences from similar presenting patients to explain possible causes to their presentation. Did not affect our relationship and I feel both are valid ways." (SQ9)*

This student has clearly indicated that their Practice Educator had developed their own *Informal Theory* which was based on their previous experiences rather than on formally taught educational programmes. This aligns, in part, with Rolfe's (1996) model of nursing praxis (Section 3.3.5) where, in this case, it is the student who provides a source of *Formal Theory* for the Practice Educator whilst themselves drawing on the *Informal Theory* of the Practice Educator. SQ9 considered this approach to be 'valid', implying that they viewed their Practice Educator as a credible source of feedback.

Van De Ridder *et al.* (2015) found that the degree of credibility that a provider of feedback has impacts on both the students' later performance and satisfaction, with credibility found not only to be related to qualifications, knowledge and experience, but also to reliability, accuracy and trustworthiness.

One Practice Educator proposed a potential drawback of students who had 'clinical classroom-based knowledge':

> *"Their clinical classroom-based knowledge can inform me when out on the road or become a hindrance - when it's not a textbook diagnosis needed, but hospital." (PQ1)*

In this context, clinical classroom-based knowledge can be considered *Taught Knowledge.* As suggested by PQ1, sometimes a student's perceived higher level of theoretical understanding can be shared and be of benefit, and in other circumstances it can be a hindrance, with the example used implying that one does not require a greater depth of *Taught Knowledge* in order to determine that a patient needs to go to hospital quickly. The implication from PQ1 appears to be that it is the application of *Informal Theory, Personal Professional Theory* and *Tacit Knowledge* which will support such a decision in that the recognition of the seriously ill patient is an ability which is not, necessarily, related to fully understanding the theoretical bases behind the patient's presentation.

Such situations are sometimes reported by experienced paramedics when they consider that they 'just knew' that a patient was unwell, but a junior colleague, or student, did not see the presentation in the same way because it did not 'fit' with their expectations based on their *Taught Knowledge,* a situation directly related to the acquisition of *Tacit Knowledge* explored in Section 2.4.2.

Alan presented a situation where he was teaching his Practice Educator about a patient assessment technique with which the Practice Educator was unfamiliar:

> *"We went to a patient with who was having cardiac thrills, you could feel them. There was transient loss of consciousness, all of his physiology and his history fitted with cardiac myopathy, so I had a feel and I could feel the thrill and I had to explain to my PEd what I was doing and gave him the option to do it and explained what was going on, and that's backwards." (Alan, FG4)*

Alan's expectations were that his Practice Educator would always know more than he himself did. He considered it frustrating when this was found not to be the case, with

the credibility of the Practice Educator as a provider of feedback seemingly being reduced. Other student participants were more accepting of the apparent limitations of their Practice Educators in respect of their depth of knowledge or apparent 'currency':

> *"Academically things also change. The paramedic course, essentially years ago, would have been different to what it is now in terms of the theory that you are taught, and if you're taught studies and to look at current things." (Brian, FG5)*

Brian accepted that it would not necessarily be appropriate to expect all Practice Educators to be 'academically current'. Students perceived that a minority of Practice Educators lacked currency, but this did not appear to present a significant challenge in their facilitating the integration of theory and practice.

With respect to their relationship with students, seventy-three percent (n22) of the Practice Educator participants agreed that the better they got on with their students, the more productive the student's learning in placement was. Forty-one percent (n9) strongly agreed that this was the case with twenty-three percent (n7) neutral and a single (3%) Practice Educator disagreeing. This is comparable with the responses of the student participants, eighty-seven percent (n34) of whom agreed, ten percent (n4) were neutral and a single student (3%) disagreed.

6.3 Summary

This chapter has presented key findings of this research. It has been found that the relationship between theory and practice is one that is complex and changeable depending on a number of factors, including the perspectives of the individual student and their Practice Educator/s and the unique circumstances that individual students encounter during their practice placements. Such circumstances are not only the incidents that the student attends, but also the relationships that students develop with their Practice Educator/s and the way in which associated *Formal Theory* is accessed in order to inform their ongoing learning.

Although the majority (96%) of paramedic students did identify areas where the existence of a 'disconnect' between theory and practice could be perceived to exist, it was not considered by them to be detrimental to their learning nor was it representative of the negative connotations often associated with the theory-practice gap. The predominant manifestation of such disconnect was found to be due to the contextual

and situational challenges associated with the integration of *Taught Theory* in the practice environment. This perception was reported to diminish over time.

The reported disconnect was acknowledged as being an expected part of learning, with a clear appreciation from the students that *Taught Theory* can never *exactly* match the experiences of *Situated Practice*. The existence of any perceived gaps was not, therefore, considered to be a detrimental representation of the theory-practice relationship. Some students reported that, in some instances, the recognition and acknowledgement of a 'gap' in their knowledge provided the impetus to seek to forge clearer links between theory and practice and further develop their understanding of the phenomenon encountered by undertaking a reflective approach to their practice.

Students' understanding of the theory-practice relationship evolved over time, as students progressed through their educational programme, supported by a number of internal and external factors. Simulation and scenario-based learning, including problem-based clinical decision-making, reportedly prepared the students well for the inconsistencies and challenges of delivering emergency medical care in the out-of-hospital environment. Students saw this aspect of their educational programme as a clear 'bridge' between theory and practice, and one which supported their transition to practice-based learning whilst minimising the potential for any overtly detrimental gaps to emerge, thereby establishing healthy theory-practice relationships.

Students' perceptions of the theory-practice relationship were found to be influenced by their perceptions of the approach and ability of their Practice Educator, both as a paramedic and as a facilitator of learning. In some cases, this was as a response to Practice Educators who were perceived by students as having a limited depth of theoretical understanding or an apparent lack of interest in developing the student. In others it was as a positive response to working alongside Practice Educators who were considered as being inspirational in supporting the development of knowledge by demonstrably relating theory and practice to each other, regardless of whether or not they themselves had a similar, or greater level of theoretical knowledge than the student. There were not found to be significant links between the level of formal education of the Practice Educator participants' and perceptions of their ability to facilitate learning.

The Practice Educator is seen as being a catalyst for learning, particularly when they are an active, engaged partner in the learning process where the theory-practice relationship is considered to be an effective one. The establishment of a healthy theory-practice relationship, where learning was undertaken by engaging in a reflective approach to practice, was also apparent in the few cases where the absence of an 'effective' Practice Educator was identified. This indicates that, whilst their structured input into more 'formal' learning processes, including reflection, was undoubtedly important and beneficial, an absence of such formal engagement did not adversely impact on the perceived ability of the student to develop appropriate theory-practice links.

The following chapter will present a proposed model to represent the development of student paramedics' praxis, representative of the wider theory-practice relationship, as established from the data.

Chapter 7 : A proposition of Paramedic Praxis

7.1 Introduction

This chapter will draw out the significance of the findings by discussing the way in which the development of the theory-practice relationship for undergraduate paramedic students can be considered in the context of the future of paramedic practice education. A model representative of Paramedic Praxis will be presented, then a simplified model will be introduced, followed by a discussion regarding the significance of the research and the contributions made to both knowledge and practice.

The models presented have been developed adopting an interpretive description approach to pragmatic qualitative research, where a predominantly subjective position has been adopted (Section 4.1.1). The position of the author as an expert in paramedic education, undertaking practice-based, insider research, has informed the development process and the degree of subjectivity applied.

Considerations of the limitations of the study, along with recommendations for areas of further research, will be presented to conclude the submission.

7.2 Developing a model of paramedic praxis

This section will present a model of Paramedic Praxis based on how the findings can inform the development of paramedic practice. As discussed in Chapter Three, Rolfe (1996) proposed a model of nursing praxis which he considered to present a 'dissolution' of the theory-practice gap considered to exist within nursing education at the time. Rolfe's model has been deconstructed and rebuilt based on the findings of this research in order to present a representation of praxis as it exists specifically within paramedic undergraduate practice-based learning. The resultant model can be considered to represent a theory-of-practice (McIntyre & Murphy, 2016).

The nature of the relationship between theory and practice has been shown to be variable, with some initial perspectives suggesting a hierarchical structure where theory underpins, leads and informs practice, aligning with Hirst (1973), whereas others indicated that practice takes 'precedence' and is more important than the idealised world view considered to be presented by theory (Section 5.2), aligning more

with Hirst's (1993, 2008) later views. Both positions are represented below in Figure 7.1.

Figure 7.1 Initial views of the theory-practice relationship
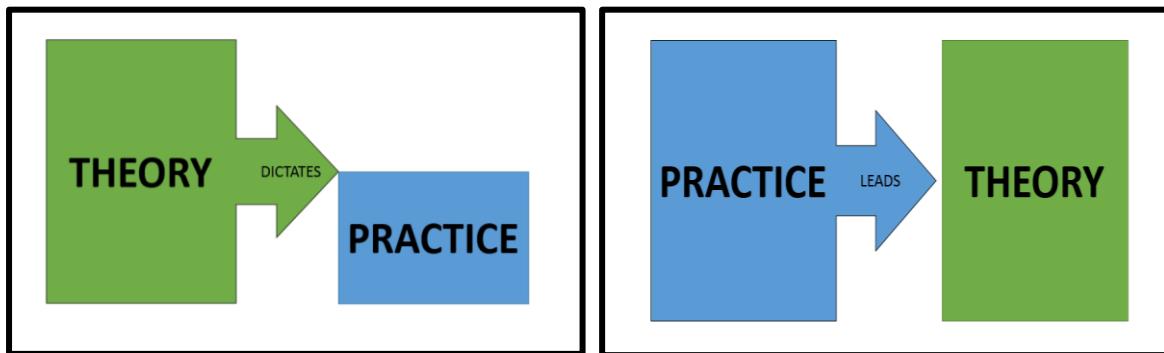
This initial position was subsequently found to be less straightforward, with the relationship between theory and practice not so clearly delineated, nor so obviously hierarchical in structure, supporting Carr's (1995) and Misawa's (2011) views of the inseparability of theory and practice. Although Practice Educators placed greater emphasis on practice, with theory's position seen as an underpinning or supporting component, such an emphasis cannot be considered as placing less importance on theory, which was universally acknowledged as being necessary in order to undertake paramedic practice. Students were found to have a more balanced view of the roles of theory and practice in relation to each other. The relative importance and applicability of theory, of any kind, when undertaking practice was found to be dependent on the specific circumstances encountered. Similarly, the relatability of practice experiences to *Taught Theory* was found to be variable and situationally dependant, a situation that was both expected and anticipated by students. This expectation is in contrast to the findings of previous researchers who found that nursing students' experiences of the theory-practice relationship was one of a detrimental gap which poorly prepared them for practice (Ferguson & Jinks, 1994; Jones, 1997; Rafferty *et al.,* 1996; Nematollahi & Isaac, 2012).

Such a position informed the model presented in Figure 7.2 (page 250), where theory and practice are of equal import, with each informing the other. The left-hand model presents theory and practice as separate entities, with a gap between them, whereas the right-hand model has been developed to represent the overlaps between theory and practice, with each becoming integrated with the other, a concept described by

Misawa (2011, p.694) as *"interpenetrating"*. This representation is considered to be one of a 'healthy' theory-practice relationship.

Figure 7.2 Developing views of the theory-practice relationship (i)
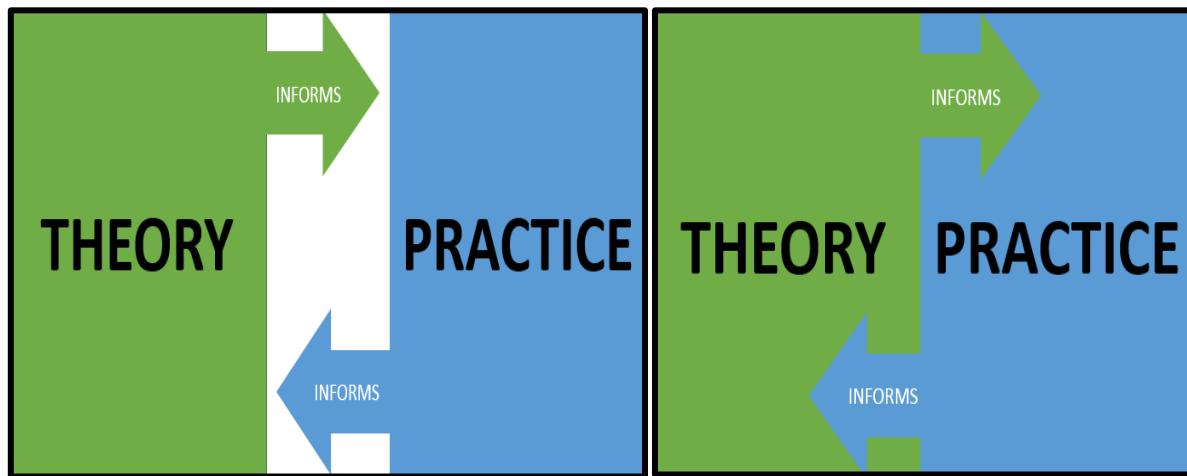
This position was further considered based on the findings of the study which indicated that the inter-relation and integration of theory and practice was a continually iterative process which was only formalised during focussed feedback and reflection-on-action. Such a view informed the models presented at Figure 7.3, below, with the left-hand model indicating the continual overlap between theory and practice and the right-hand model having the addition of arrows to represent the cyclic nature of the inter-relationship where both theory and practice continually inter-play to develop Paramedic Praxis. This concept can be seen to align with that described by Misawa (2011, p.695) as *"intertwined and shifting"* and the views of Carr (1995), Rolfe (1996), and Misawa (2011) of the distinction between theory and practice being an unhelpful one.

Figure 7.3 Developing views of the theory-practice relationship (ii)
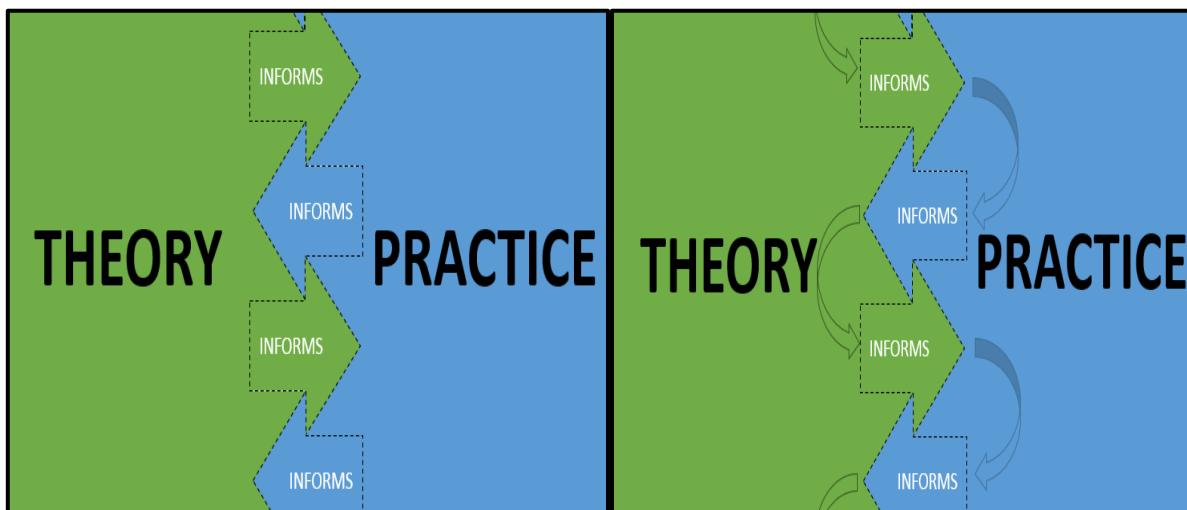
The role of reflection, both in-action and on-action, facilitated or self-initiated, in the consolidation of the theory-practice relationship, and the resultant evolution of *Personal Professional Knowledge* is represented in Figure 7.4, below. Here, the theory-practice relationship can be seen to be an embedded element of the overall development of *Personal Professional Knowledge* as considered by Cranefield and Yoong (2009), Baartman and de Bruijn (2011), Borko and Putnam (2000), Bromme and Tillema (1995) and Tillema (1995). The undertaking of reflection-in-action and reflection-on-action (Schön, 1983) is considered to be a process which takes place in order to consolidate the links between theory and practice, resulting in the production of *Personal Professional Knowledge*, whilst not being, in itself, a form of knowledge.

Figure 7.4   The theory-practice relationship as a component of personal professional knowledge

The models presented here were further considered by viewing ways in which the theory-practice relationship developed for the individual student, which will be presented below.

7.2.1 Stage 1: An introduction to theory

The development of a model of paramedic praxis necessitated starting at the beginning of the initial stages of the undergraduate programme, before the students were exposed to any practice environments or placement experiences, where *Taught Theory* is the dominant influence on students' *Personal Knowledge*, as demonstrated in Figure 7.5 (page 252). At this stage, *Formal Theory* forms the predominant component of *Taught Theory*. This differs from the initial stages of Rolfe's model

(Section 3.3.5), where the cycle starts in practice with only minimal skills being taught to the student.

Additionally, in this model, *Personal Knowledge* is broader than Rolfe's (1996) view, having been expanded to include all aspects of 'knowing' that the student brings with them to the educational environment (Eraut, 2003). This includes the student's own experiences of health-care, their knowledge and experience of communication and inter-personal interaction and their informal understanding of the paramedic role as well as *Codified Knowledge* gained from 'formal' sources. Because all students will engage in different experiences in practice, their resultant knowledge can be considered to be an individual construct, aligning with the socio-cultural theory of learning (Wertsch, 1991).

Figure 7.5 Stage 1: Introduction to theory
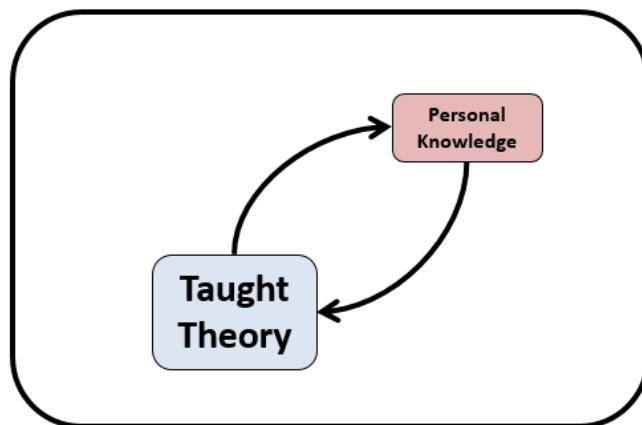
Taught Theory is considered to 'outweigh' the students' *Personal Knowledge*, in that it is more representative of the paramedic role, represented here by the differing sizes of the components in the diagram. Students may bring with them their own experiences of paramedic practice, either as a service user, employee or volunteer, or from exposure through the media. Individuals' *Personal Knowledge* will, therefore, have the potential to differ considerably even at this very early stage, impacting on the students' expectations of *Situated Practice* and their approach to the practice environment. The *Taught Theory* which comprises the initial stages of the programme will add to the *Personal Knowledge* of each student. This element of the proposed model of paramedic praxis was informed by the data relating to students' initial experiences of exposure to practice along with their expectations of the paramedic role (Section 6.2.1).

7.2.2 Stage 2: The introduction of simulated practice

Simulated Practice was considered to be a discrete aspect of *Taught Theory,* thought by some participants to represent practice and by others to represent theory, therefore being situated in the border area between the two. *Simulated Practice* is not a consideration within Rolfe's model, but it is incorporated here to demonstrate how its use is recognised as being key in making the initial links between theory and practice.

Such simulation may involve individual skills or the utilisation of items of equipment, or may be more complex, problem-based learning scenarios. During simulation, formal reflection-on-action is facilitated by university lecturers and/or ambulance tutors, generally by utilising recognised reflective cycles that the students have been introduced to during lectures. In this stage of the model (Figure 7.6, below), the reflective approach of Borton (1970), which was later expanded by Driscoll (1994), is adopted utilising the *'What? So what? Now what?'* approach to reflection. In these simulated practice exercises, the *'what?'* of the scenario has been pre-determined by the tutor in order to situate specific elements of *Formal Theory* in the context of its application in *Situated Practice*. The *'so what?'* and *'now what?'* elements are similarly considered with a view to achieving the maximum learning opportunity from the simulated practice exercises, exercises which comprise Levels 1-5 of Alinier's framework (2007). The process of reflection-on-action informs and develops the students' *Personal Knowledge*, whilst still being heavily reliant on the associated *Taught Theory*.

Figure 7.6 Stage 2: Introduction of simulated practice
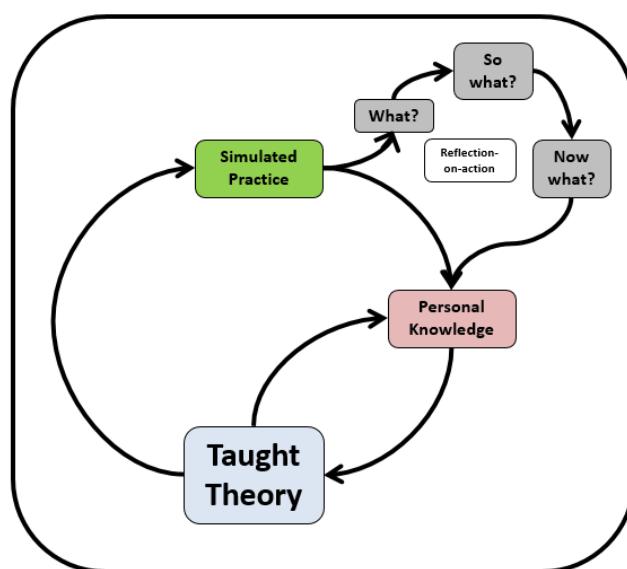
The role which a student plays in the simulation, as well as the level and fidelity of the simulation, will have an impact on the degree and nature of *Personal/Personal Professional Knowledge* that is aquired at this stage (Alinier, 2009).

In contrast to Rolfe's model, the process of engaging with reflection-on-action here begins within the university setting. The use of facilitated reflection during simulated scenarios was cited by participants as being instrumental in preparing them for the realities of the practice environment, both by way of their management of clinical presentations and by developing their approaches to learning. These border areas, where the deliniation between theory and practice was much less defined, began to give the students a greater awareness of the complexities of the theory-practice relationship and better prepared them for their experiences in the practice setting (Section 5.2.4.).

The process of undertaking simulation can be considered to be the starting-point for the development of students' individual repertoire of paradigm cases, with key learning episodes from simulation having been discussed during the focus groups (Section 5.2.4).

7.2.3 Stage 3: Introduction to practice

Figure 7.7 (page 255) represents the initial placement experiences of students where their *Personal Knowledge* is developed. During initial practice placements, the students' *Personal Knowledge* further develops to become *Personal Professional Knowledge*, that is to say the knowledge aquired is more directly situated in the profession-specific domain where there is a reciprocal relationship whereby *Taught Theory* informs *Situated Practice* and *Situated Practice* informs *Personal Professional Theory.* This contrasts with the predominantly unidirectional translation of theory into practice experienced in Stage 2. This acknowledgement that the individuals must undertake a continually iterative process to abstract theories from practice supports the expectations of a reflective and analytical approach to paramedic practice education. As practice is undertaken, students begin to develop their own *Personal Professional Knowledge,* informed both by Practice Educator feedback and by undertaking reflection-on-action (Section 6.2.3). Such learning in situated practice is considered by Yardley *et al.* (2012) to be representative of Dewy's (1938) 'progressive

approach' to education where there is an expectation of a relationship between education and actual experiences.

At this early stage, '*Taught Theory*' is considered to remain the dominant element in the students' learning experience. The *'Simulated Practice'* of Stage 2 is replaced by '*Situated Practice*', representing actual practice-based learning undertaken during ambulance service practice placements. This engagement with *Situated Practice*, and the undertaking of reflection-on-action, has its foundation in the S*imulated Practice* reflected upon within the university setting. The use of reflection in practice differentiates this stage of the cycle from that of Rolfe (1996), who considered that such could only be undertaken within the university.

Figure 7.7 Stage 3: Introduction to practice (i)
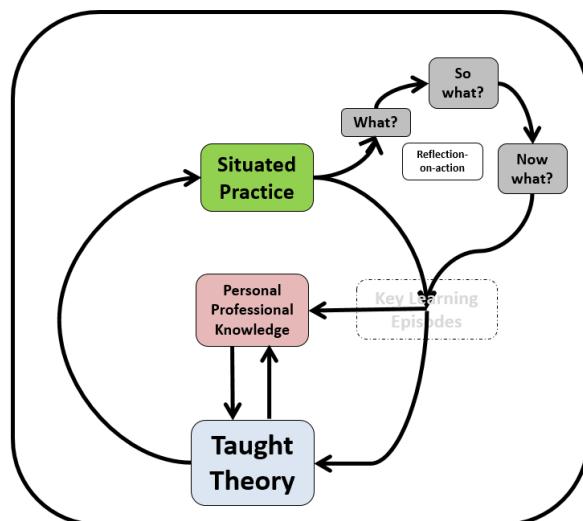
The route from reflection-on-action to *Personal Professional Knowledge* may not always involve key learning episodes, with reflection developing *Personal Professional Knowledge* based on varied elements, such as discrete, *Activity-based Practice* experiences, *Condition-based Practice* episodes or hypothetical encounters developed through facilitated, or individual, critical reflection. Where a key learning episode is experienced, it reportedly encourages greater engagement with the associated *Formal Theory* through a process of reflection-on-action (Section 6.2.3), represented by the inclusion of the key learning episodes element in Figure 7.8 (page 256).

In this model, 'key learning episodes' and '*Personal Professional Knowledge'* can be considered to be linked to Rolfe's 'repertoire of paradigm cases'. The main difference

is that the components of *Personal Professional Knowledge* go beyond a collection of cases, with each experience being broken down into its constituent parts representative of the clinical, social, behavioural, scientific and situational aspects of the encounter, any one of which may have constituted a key learning episode.

Figure 7.8 Stage 3a: Introduction to practice (ii)
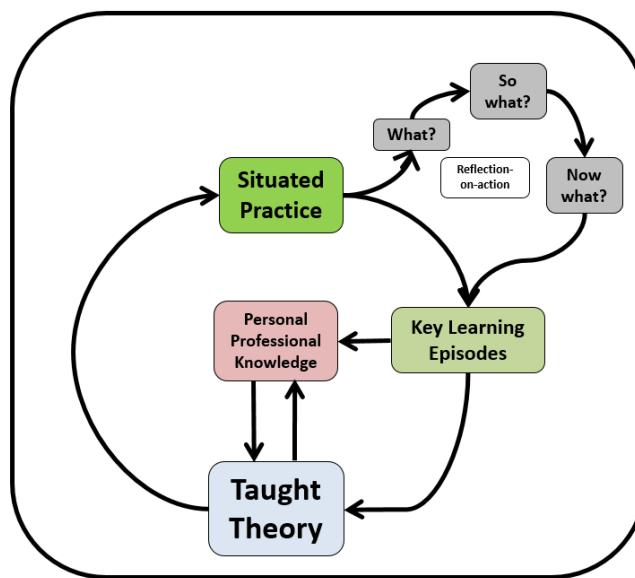
Personal Professional Knowledge is, therefore, furthered by exposure to, and exploration of, key learning episodes. The overall process of informal learning was supported by the findings of this study, with participants often encountering a trigger in the workplace, which resulted in their engagement in an informal learning process (Marsick & Watkins, 2015).

7.2.4 Stage 4: Development in practice

Taught Theory has less impact on students' learning when they are undertaking *Situated Practice,* with greater importance seemingly placed on informal learning. *Informal Theory,* constructed through abductive reasoning from a combination of *Personal Professional Knowledge, Taught Theory* and key learning episodes, is developed as students gain greater experience through practice-based learning. This *Informal Theory* is used when approaching situations in practice, combining with the notion of hypothesising presented by Rolfe (1996). The influence of the Practice Educator is considered a key component in the development of students' *Informal Theory* (Section 6.2.2).

The broken red line in Figure 7.9, below, represents the potential for a degree of disconnect between some aspects of *Taught Theory* and *Situated Practice* to be experienced by students when in the practice environment. It is during this stage that the relationship between the student and their Practice Educator, along with their respective approaches to learning, may influence the nature of the theory-practice relationship experienced by individual students (Section 6.2).

Figure 7.9 Stage 4: Development in practice
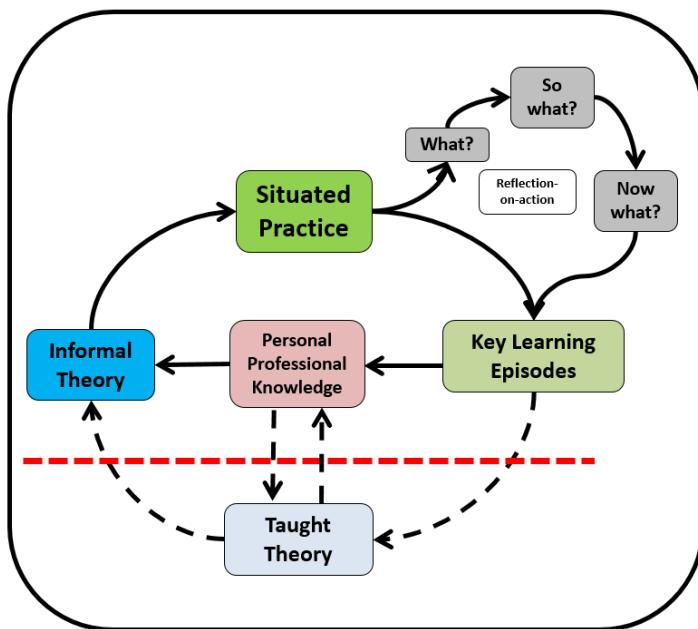
The broken lines between *Key Learning Episodes* and *Taught Theory,* between *Taught Theory* and *Personal Professional Knowledge* and between *Taught Theory* and *Informal Theory* also represent the variable degrees of integration of *Taught Theory* with *Situated Practice* across various curriculum areas reported by both student and Practice Educator participants (Sections 5.2 and 5.3).

For some students, the model may be complete at Stage 4 and they will progress through their programme with a focus on reflection-on-action with varying degrees of support and input from their Practice Educator/s. The conscious integration of aspects of *Taught Theory* during *Situated Practice,* and the degree of consideration of *Taught Theory* during reflection will be variable and based on the approaches of both the student and the Practice Educator to practice-based learning (Section 6.2.2).

This may be due to the relationship between student and Practice Educator or to the approaches to learning adopted in practice. A proportion of participants considered

that they moved beyond this stage, particularly during the final placements of their programme, where they began to further develop their *Personal Professional Knowledge* with the introduction of a degree of reflection-in-action being undertaken which developed their *Tacit Knowledge* (Section 5.3).

7.2.5 Stage 5: The application of informal theory

Figure 7.10, below, represents the inclusion of the development of a degree of reflection-in-action by the student in their use of *Informal Theory.* Under the guidance of their Practice Educator, the student is able to undertake '*facilitated reflection-in-action',* whereby their initial approaches to situational management and subsequent actions are closely supported by their Practice Educator. This facilitated reflection-in-action often draws on the *Tacit Knowledge* of the Practice Educator as well as the student's own *Informal Theory*, requiring the Practice Educator to consider their approach and articulate to the student how and why they are making certain decisions about the management of a patient or situation, potentially resulting in Biswas' (2015) symbiotic relationship between technical and tacit knowledge.

Figure 7.10 Stage 5: The application of *Informal Theory*
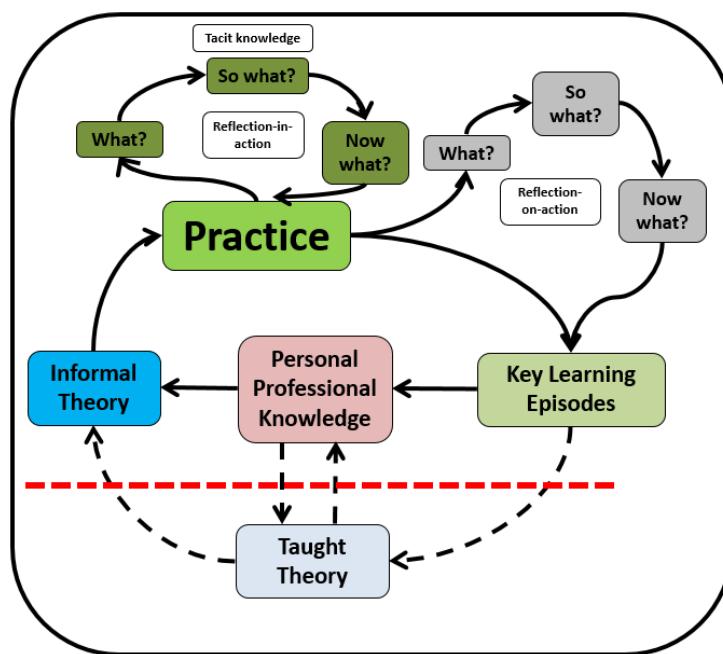
The Practice Educator may be making such decisions in partnership with the student or in parallel with the student's treatment whilst standing back and allowing the student to take the lead. When such a partnership approach is used, students considered that they were able to come to conclusions more confidently (Sections 6.2.2 & 6.2.3). By

sharing their thought processes, the Practice Educator can begin to articulate to the student on what basis they are altering their approach, getting as close as possible to sharing their *Tacit Knowledge* by making the tacit explicit.

The model so far presented provides a representation of student paramedics' experiences with respect to the relationship between theory and practice within the practice environment. The other key factor that impacts on this relationship is the involvement of the Practice Educator, which will now be considered.

7.2.6 Stage 6: The influence of the Practice Educator

The view that there exists a continuum of learning from childhood to adulthood (Knowles, 1980) distinguishes the way in which adults learn, with a key aspect of effective adult learning being that learners collaborate in partnerships with a teacher.

This partnership is evident in the student/Practice Educator relationship, with the Practice Educator being seen to be instrumental in reducing perceptions of the theory-practice gap by their encouragement of students to undertake a reflective approach to practice (Section 6.2.3). The view of the teacher as a guide, or facilitator of learning, as opposed to being a conduit for transferring knowledge and truths, in not a new one, having been proposed by Dewy as long ago as 1897 (Dewey, 1938).

Figure 7.11 (page 260) represents this involvement of the Practice Educator in the paramedic students' theory-practice relationship. The models developed through Figures 7.5 to 7.10 have been expanded, with the top half representing of the Practice Educator and the lower half the student. Both cycles merge in the centre where the shared experience of practice-based learning takes place.

Figure 7.11 The influence of the Practice Educator
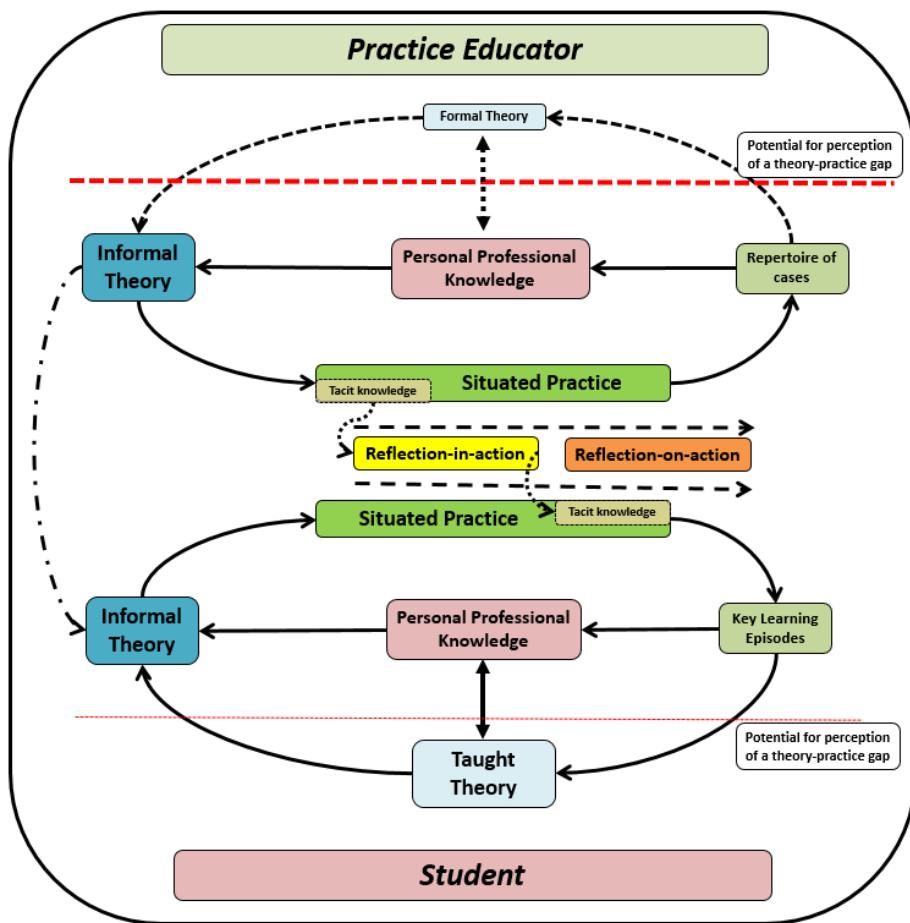
The exact nature of the Practice Educators' own integration of theory and practice were not sufficiently explored within this research to confidently map all the elements of the learning cycle that they undertake. Therefore, in addition to the findings from the data, such unexplored aspects have been based on the existing literature related to professional development in practice. Where the Practice Educator interacts with the student, however, the data has been able to more robustly inform the production of an 'overlap' where the role of the Practice Educator can be seen to directly influence the theory-practice relationship as perceived by the student. This overarching representation will be unpicked and presented as a developmental model discussing each component in turn.

The Practice Educators' cycle first aligns with that of the student in their shared experience of *Situated Practice* (Figure 7.12, page 261). Following experiences in practice placements, the Practice Educator gives feedback to the student and either facilitates or provokes learning, generally by supporting the students' undertaking of a reflective approach (Blaber, 2012; Mann & Tang, 2012; Smith & Lewis, 2015; Williams,

2013). By engaging in such reflection-on-action in partnership with the student, the Practice Educator has the opportunity to add to their repertoire of paradigm cases, expanding their own *Personal Professional Knowledge.* The degree of support for, or facilitation of, learning, will vary between Practice Educators, with some students having to take a more active role in gaining such support than others.

Figure 7.12 *Situated Practice*
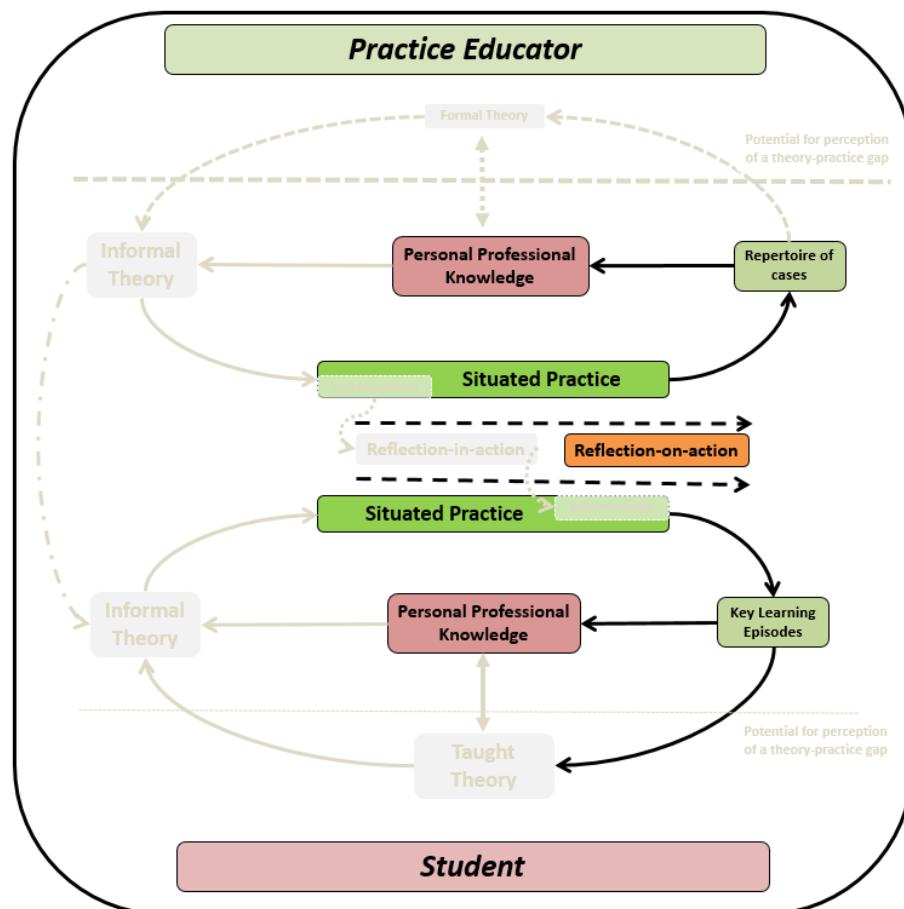
Whilst the same process occurs for the student, with their repertoire of cases continually developing, at this early stage of their professional development there is greater consideration given to the key learning episodes. Such episodes may represent the entirety of a patient encounter, or discrete elements within the encounter, based on the feedback and reflection facilitated by the Practice Educator or undertaken by the student in isolation or with their peers.

There is, at this stage, the opportunity for *Formal Theory* to be sought out by the Practice Educator in order to consolidate the reflection-on-action that has been undertaken (Figure 7.13, page 262). The degree to which *Formal Theory* is sought out and incorporated into the learning cycle varies between Practice Educators, with the

accessing of *Formal Theory* being generally regarded as less important than the application of *Informal Theory* in practice (Section 5.2). In some cases, it may be that the *Formal Theory* which explains a *Situated Practice* experience is known by the student, who becomes an indirect source of *Formal Theory* for the Practice Educator.

Figure 7.13 Accessing theory
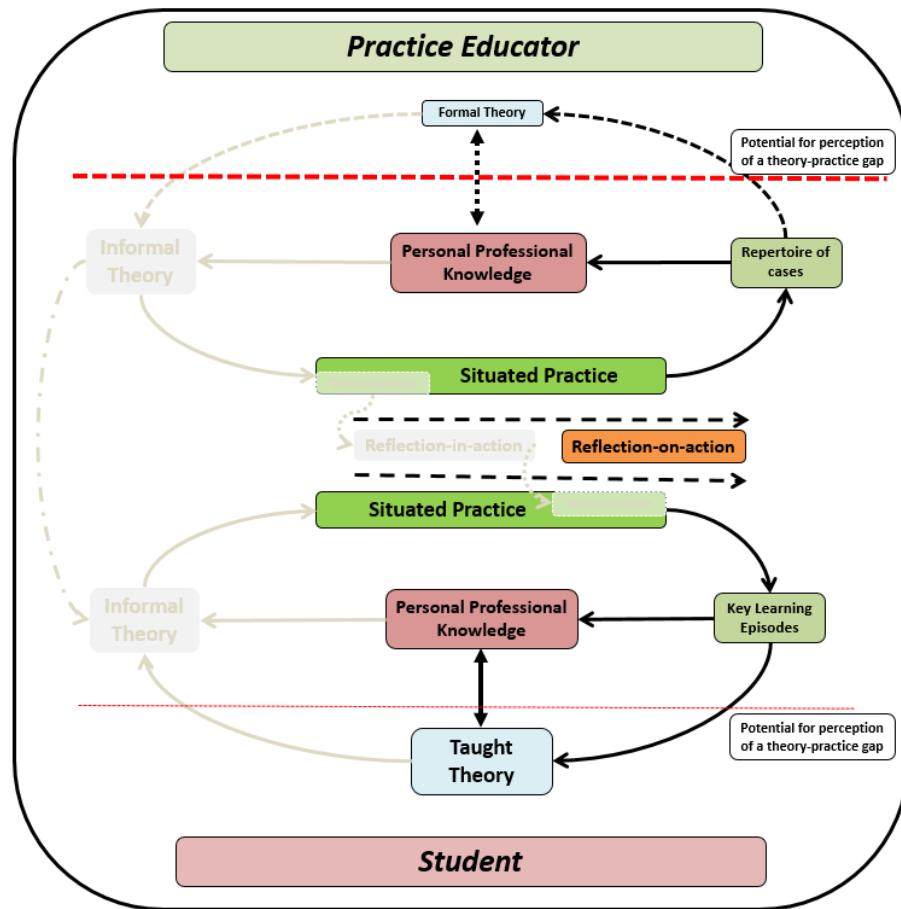
Their close proximity to *Taught Theory,* and greater accessibility to *Formal Theory,* allows students to consider their experiences in light of the theoretical aspects that support their practice. In some cases, this may require the students to deconstruct their *Situated Practice* experiences in order to determine which aspects of *Formal* or *Taught Theory* they need to consider to further develop their understanding. It is during this exploration of experiences and theory when the individual's approach, along with that of their Practice Educator, may influence the resultant theory-practice relationship perceived to exist by the student.

The apparent 'mistrust' of *Formal Theory* reported by a minority of Practice Educators (Section 5.2.5) may give rise to the manifestation of a perceived theory-practice gap

at this stage of the cycle, indicated by the horizontal, broken red line. This 'mistrust' is by no means universal and a significant proportion of Practice Educators reportedly engage in seeking out relevant *Formal Theory* in order to continue to enhance their *Personal Professional Knowledge* whilst supervising students. This stage of the Practice Educator's cycle differs from that of the students, where the likelihood of a student experiencing a detrimental theory-practice gap is significantly reduced due both to their proximity to *Taught Theory,* and, therefore, *Formal Theory,* and their expressed expectations that *Situated Practice* cannot be expected to be an exact facsimile of *Taught Theory* (Section 5.3).

The Practice Educator's *Informal Theory*, developed predominantly through their practice experiences, is considered to underpin future approaches to *Situated Practice* as well as supporting the evolution of *Tacit Knowledge* (Figure 7.14, page 264). When the Practice Educator can consider and uncover their *Tacit Knowledge,* by making the tacit explicit*,* they can support the student by facilitating reflection-in-action to shape the student's approach to *Situated Practice.* Such facilitation will result in the continued development of the student's own *Informal Theory* and, eventually, in their *Tacit Knowledge* as a result of continued exposure to developmental practice-based experiences (Section 6.2).

The overlapping of both student and Practice Educator cycles demonstrates the potential benefits that can be brought to the students' learning experiences by the Practice Educator, as well as the influence of the Practice Educator on students' perceptions of theory-practice relationship. The student has the potential to draw on the greater experience of the Practice Educator by tapping in to their much broader repertoire of cases and utilising the examples shared by the Practice Educator to bolster their own repertoire. The shared process of reflection, both in-action and on-action, is effectively a two-way learning opportunity, with the Practice Educator drawing on their *Informal Theory* and introducing learning examples from their repertoire whilst also renewing their own understanding of situations, often by drawing out the most current *Formal Theory* from their students.

Figure 7.14 The application of *Informal Theory* to develop *Tacit Knowledge*
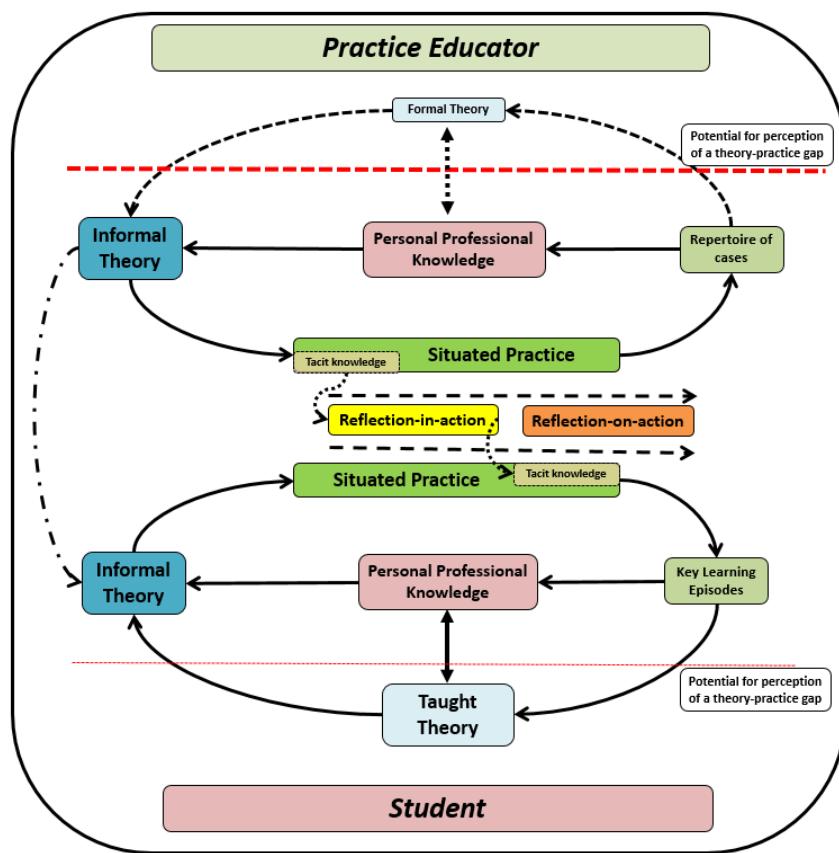
The Practice Educator's *Tacit Knowledge* can be 'unhidden' by themselves, allowing the student to enhance their own *Informal Theory* ready for application in practice. Such an approach can work only where the Practice Educator is able to make their tacit practice explicit (Section 6.2.2). As a result, not all students will experience this level of learning and theory-practice integration, with their learning relationship with the Practice Educator being a key influence in this stage of the process.

7.3 A simplified model

Analysis of the data gathered during this study has resulted in the production of a series of models which have been used to demonstrate how students experience the relationship between theory and practice (Section 7.2). A simplified model was developed because it effectively conveys the overarching principles found to be of note in respect of the student paramedics' perceptions of the relationship between theory and practice. This was in order to share the findings of the study with a view to informing current and future practice in the training and education of student paramedics and Practice Educators, as well as informing future developments within the wider paramedic profession.

The models presented in Section 7.2 were further considered in respect of the roles of the individual student and Practice Educator within the theory-practice relationship, with the resultant representation being that of the 'zip' analogy.

7.3.1 The zip analogy

The purpose of adopting a metaphorical comparison is to enable understanding of a lesser-known concept by its analogy to a better-known concept (Hamm, 1989; Jobst *et al.*1999; Lakoff & Johnson, 1980). To demonstrate the different ways in which students consider the relationship between theory and practice, their experiences have here been likened to the workings of a zip. The zip analogy works on several different levels and can be adapted to describe different students' experiences of the theory-practice relationship. The model can be used as a basis for exploring potential challenges to the relationship as well as demonstrating how practice-based learning can be approached by both students and Practice Educators to maximise learning opportunities and minimise the potential for detrimental theory-practice gaps to be perceived.

7.3.2 The rationale for developing the zip analogy

The rationale for the development of a model was, initially, to facilitate dissemination of the key findings of the study to student paramedics and Practice Educators. The development of a model aligns with pragmatic qualitative research which aims to describe an experience or event as interpreted by the researcher. Pragmatic qualitative research seeks to link theory and practice by drawing upon the most sensible and practical methods available to address a research question. Developing a model to do so is, therefore, entirely appropriate. Students and Practice Educators found the zip analogy helped them understand some of the more complex findings (Section 7.3.8).

In the development of this model, the study moved further toward the 'subjective' end of the continuum proposed by Savin-Baden and Major (2013), meaning that there was less basic/fundamental/generic qualitative description and more subjective interpretation. The development of the model also enabled a more defined method of applying the theory extracted from practice by the research process back into practice, thereby creating a new theory-for-practice (Campeau, 2008).

The zip analogy is a contribution to paramedic practice developed as a result of the contribution to knowledge made by this submission presented in Chapters Five and Six and Section 7.2. The overall aim of the zip analogy is to demonstrate how the relationship between theory and practice can be influenced by many factors. The effect of this influence on the acquisition of *Personal Professional Knowledge* will, implicitly, effect the ongoing, continued development of the student paramedic as they enter the profession as an autonomous practitioner.

To achieve this aim, the following objectives were considered:

1. To assist and encourage students in undertaking a reflective approach to their practice in order to better integrate theory and practice.

By giving basic guidance on approaches to reflection in the practice environment, specifically by drawing on students' reflective approach to classroom-based, simulated practice experiences.

2. To assist Practice Educators in identifying how they can best support learners in their integration of theory and practice.

By identifying specific methods for facilitating the integration of theory into the practice environment and supporting and facilitating a reflective approach to practice. By expanding the concept of 'making the tacit explicit' in order to better engage the student in the consideration of theory, of all types, in relation to their *Situated Practice*.

3. To assist both students and Practice Educators in identifying how perceptions of the theory-practice relationship may manifest as barriers to learning in practice.

By highlighting specific examples gathered from the data and extrapolating case-studies for use in both Practice Educator education and student paramedic preparation for practice.

4. To assist both students and Practice Educators in identifying strategies to overcome challenges associated with perceptions of the theory-practice relationship.

By giving examples of both good and bad practice as gathered from the data and from wider literature and professional practice.

These considerations/objectives are based on the findings of the study and are specific to paramedic practice education. It was considered that the development of such an approach would support both students and Practice Educators in being appropriately prepared for the paramedic practice-based learning environment, identifying the best and most appropriate methods of relating theory to practice, and vice versa, which could be adopted by all parties to best support student paramedics in their professional development.

The zip analogy forms a framework from which each of the above objectives can be considered rather than fully addressing them in great depth at the first viewing.

The following sections will present an overview of the zip analogy, identifying how the above objectives can be met. There will also be discussion around how the zip analogy has already been employed in the development of Practice Educator teaching and learning resources, as well as its being adopted as a key component of the College of Paramedics' national approach to Practice Educator development.

7.3.3 The constituent components of the zip analogy

The zip analogy is based on the normally functioning zipper fastener which can be found on boots, bags, coats, trousers and many other commonplace items. The function of the zip is to join two sides of an item, for example a jacket, to form an extremely strong bond. Each side of the item is attached to the zip by the 'tape', which itself has a set of 'teeth' attached. The other key components essential for a zip to perform its role correctly are the insertion pin, retainer box, slider and pull-tab.

There are a number of different styles of zip with the two main types being classified as 'closed end', for example those found on trousers, and 'open end' or 'seperating' zips, such as those found on a jacket. From a structural perspective, the key difference between these two types of zip is that the 'open end' comprises an insertion pin and a retainer box, with one on each side of the zip, and the 'closed end' has a single 'bottom stop' which permanantly joins the bottom of the zip (Figure 7.15, page 268). These differences will impact on several aspects of the zip-analogy as presented later.

Figure 7.15 Types of zip
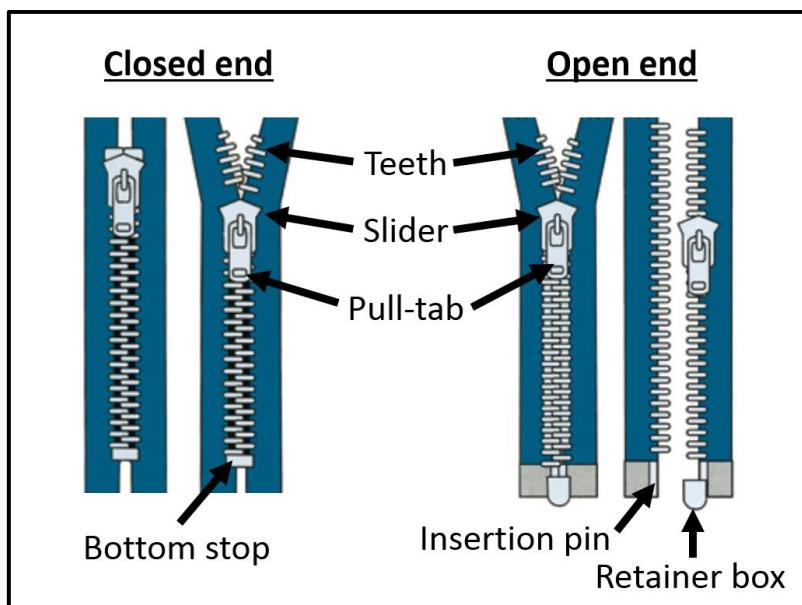
The slider is the main functioning element of the zip, the part that moves up and down, opening or closing the zip. Attached to the slider is a pull-tab which facilitates movement of the slider, making operation of the zip easier.

Figure 7.16 (page 269) shows how a zip functions, with the front of the slider removed to view the internal workings. Each tooth has a ball or dome on the top of one end and a pocket on the underneath. As the slider is raised, its neck positions the teeth at the appropriate angle and distance for the ball of one tooth to fit into the pocket of the opposite tooth. The flanges then push the teeth together. When opening the zip, the neck pushes the teeth apart. There is a wide variety of different shaped teeth available, but the principle of operation remains the same.

In normal function, all of the component parts of the zip are attached to each other and can be considered to be integral both to the zip and to the item to which the zip is attached. The zip analogy model presents the teeth of the zip as being theory, with the focus on *Taught Theory,* on one tape and practice, with *Situated Practice* being the main consideration, on the other. By focussing on these two concepts of theory and practice, the roles of both the student and the Practice Educator can be examined in greater depth without the need to consider the wider ranging definitions and sub-sets of both theory and practice discussed in Chapter Two and Section 5.2.

Figure 7.16 The functioning of a zip
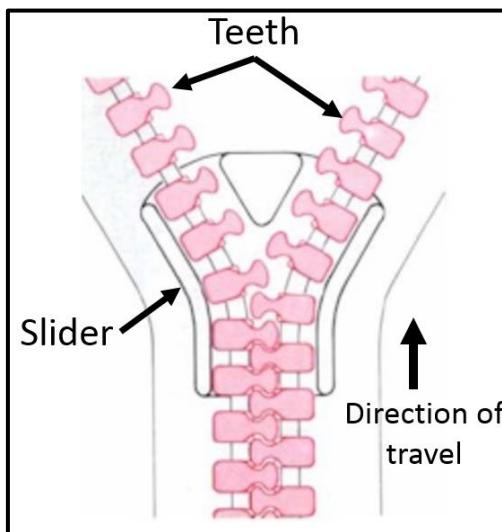
Figure 7.17, below, shows the representation of each element of the zip in relation to Paramedic Praxis, identifying the slider as the student and the pull-tab as the Practice Educator.

Figure 7.17 The elements of the zip analogy

Element of Zip	Representation in Zip Analogy	Notes
Teeth	Elements of *Taught Theory* and *Situated Practice*	The teeth are representative of elements of both *Taught Theory*, on one side of the zip, and *Situated Practice* on the other.
Slider	The Student	The student is required to make appropriate links between theory and practice in order to develop their *Personal Professional Knowledge.*
Pull-tab	The Practice Educator	The Practice Educator is seen to support the development of the student's *Personal Professional Knowledge* by facilitating their learning in practice

The tape of both sides of the zip is attached to what can be considered to be the entirety of paramedic practice, made up of a combination of theory, practice and knowledge, both public and personal, and which is represented by the Paramedic Praxis Model (Figure 7.18, page 270). This represents the fact that paramedic practice is made up of a combination of all aspects of theory and practice with both aspects often being so closely linked that the theory and practice are considered to be one and the same.

In this context, all of the aspects of Paramedic Praxis can be considered to exist in the world (Chinn & Kramer, 1991), but not yet necessarily encountered or known by the

individual student (Benner, 1982; Boud *et al.*, 1985). In this simplified representation of the model, the areas attached to the tape will later be referred to simply as 'theory' and 'practice'.

The teeth of the zip are representative of the more overt aspects of theory or practice which are at the forefront of the student paramedics' experiences and, therefore, become known by them, developing their *Personal Professional Knowledge*. Such teeth may present, initially, as an introduction to a theoretical element at university, or by accessing *Formal Theory*, or through an experience encountered in *Situated Practice*, be it a situational aspect or a *Condition-based* or *Activity-based* example.

Figure 7.18 The Zip applied to the Paramedic Praxis Model
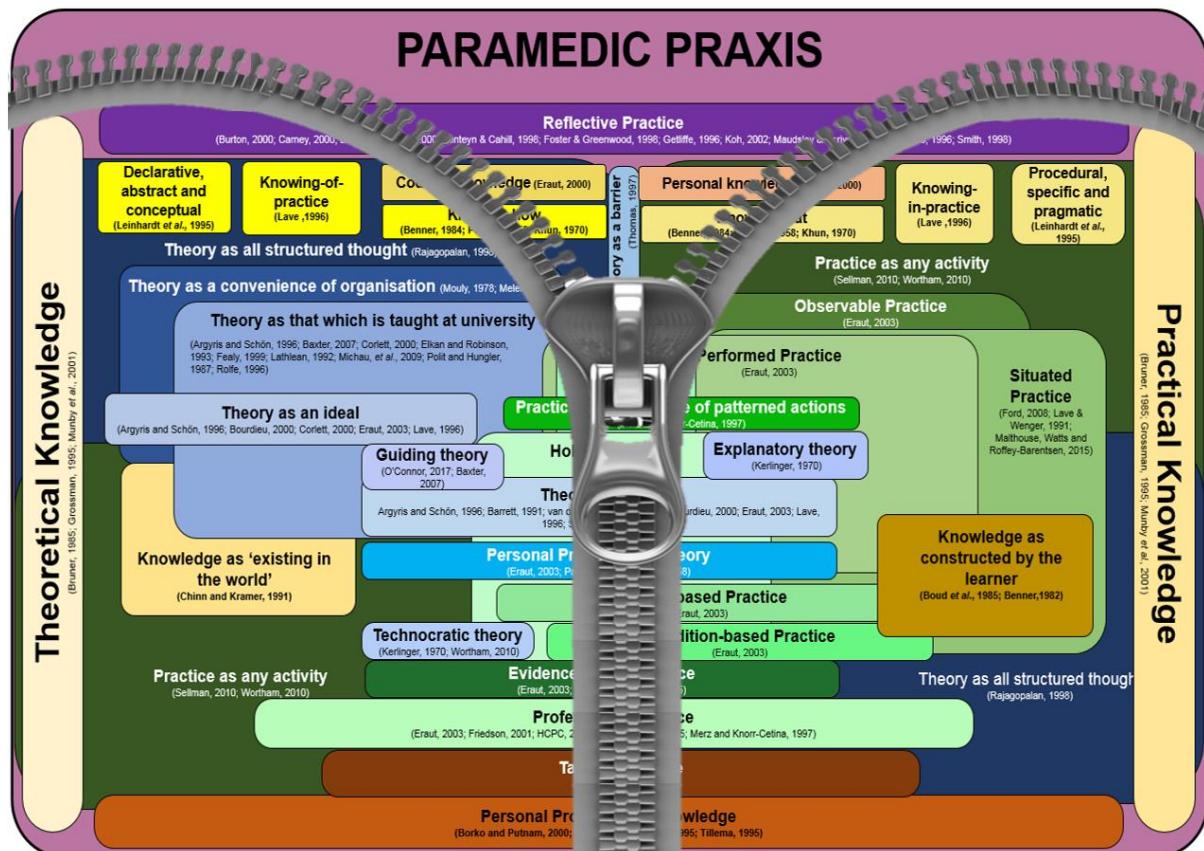
7.3.4 Getting the zip started

The purpose of the zip is to relate *Taught Theory* and *Situated Practice* to each other to result in the development of *Personal Professional Knowledge* on the part of the student. This is achieved by 'doing up' the zip, resulting in paramedic theory and practice being intrinsically combined with each other and producing a robust, securely done-up zip where the, initially apparently separate, elements of theory and practice

become conjoined, equating to *Personal Professional Knowledge.* This resultant knowledge draws from both the student's and the Practice Educator's understanding of theory, experiences of practice and engagement with a reflective approach to learning.

To do up the zip, the bottom stop is inserted into the retainer box by being passed through the slider. Once secure in the retainer box, the slider can be drawn up the zip by pulling on the pull-tab. The insertion of the bottom stop can sometimes be fiddly and it can take some time, or several goes, to successfully connect the two sides of the zip in the slider (Figure 7.19, below). This delay is representative of the initial interaction between the student and their Practice Educator where expectations are set and relationships begun. Some students find the transition to practice to be relatively straightforward, whereas others face a range of challenges, potentially needing to re-start the process with each new Practice Educator and at the start of each placement period (Section 6.2.1).

Figure 7.19 Getting started
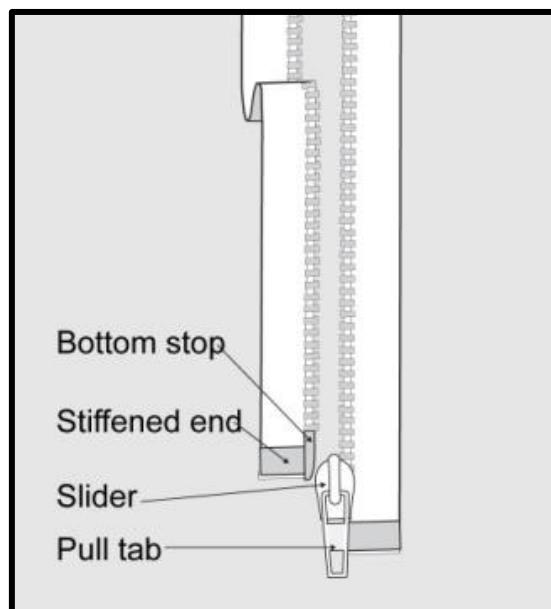
Similarly, Practice Educators have different experiences and approaches to bring to this initial connection. Practice Educators reported that information was the key to facilitating the initial move of students into the practice environment, with it considered that the more information available to the Practice Educator, then the easier the transition could be made for the student (Section 6.2). Where there was insufficient or inaccurate information made available to Practice Educators, students perceived that

the Practice Educators had too high an expectation of students' abilities, putting them in situations for which they were not yet fully prepared (Section 6.2.1).

Another area that reportedly caused some challenges for students was a lack of understanding by their Practice Educator of the student's scope of practice during placements. The key elements of information that should be shared with Practice Educators include details regarding the *Taught Theory* that a student has engaged with to better facilitate the integration of such into reflective approaches to practice.

When presenting this aspect of the zip analogy, attention is drawn to the need for a good retainer box and insertion pin, both of which can be considered to represent pre-placement communication with the Practice Educators by way of documentation and other information, as well as giving the students a thorough pre-placement briefing to best prepare them for the realities of practice-based learning.

The initial challenges of integrating theory and practice can sometimes result in students perceiving that their experiences are 'not the same' as they were expecting, based on their understanding of *Taught Theory*. Where a Practice Educator shares this view of *Taught Theory*, it can be difficult to get the zip started and theory and practice may continue to be seen as separate entities, with some aspects of *Taught Theory* being considered to not have a place in *Situated Practice*. By making both student and Practice Educator more aware of the respective roles of theory and practice, particularly in relation to specific curriculum areas, the relationship between the two that is developed can become more robust and supportive, rather than disparate.

7.3.5 The student as the slider

Once the placement has begun, the student will consider both *Taught Theory* and their *Personal Professional Knowledge* in relation to their *Situated Practice* experiences, often utilising a reflective approach facilitated by their Practice Educator. The process of acquiring such knowledge is based on the learning cycle proposed by Kolb (1984) (Section 3.2.3.). The slider of the zip represents the student and their individual learning both in university and in the practice environment. Most of the students taking part in the study indicated that they regularly used a form of reflective cycle to approach their development of knowledge based on their practice-based learning

experiences (Section 6.2.3). In the zip analogy, this use of reflection is the process which links the pairs of teeth together. The exact method of reflection employed by individual students is not key to understanding the principles of the zip analogy.

The principle of the student-as-slider approach focusses on the position that it is the responsibility of each individual student to approach the development of their knowledge in a way that suits them. They are the conduit by which theory and practice will both be experienced and integrated into their understanding of their professional role and the development of their own *Personal Professional Knowledge*.

There are, however, external factors that can have an effect on the functioning of the slider as an effective mechanism for linking the teeth of the zip, with one of the key factors being the 'pull-tab'. The student is the only participant in the educational process who fully experiences both *Taught Theory* and *Situated Practice*. It must, therefore, be the student who is the focus of any attempts to ensure an effective theory-practice relationship which supports knowledge acquisition through their experiences in both settings, with a key role of the Practice Educator being to facilitate such learning.

7.3.6 The Practice Educator as the pull-tab

Although a zip slider can be used to bring together the teeth of a zip on its own, albeit with a certain amount of fumbling, it generally functions much more effectively with the addition of a 'pull-tab' to pull the slider along and do up the zip in a more effective and efficient manner. In the zip analogy, the pull-tab is representative of factors external to the student which may have an impact on their acquisition of knowledge, with one of the key factors being the Practice Educator. In Figure 7.20 (page 274) the concept of the Practice Educator as the pull-tab is presented diagrammatically, with the term 'learner' used to represent the student-as-slider. This terminology was adopted to demonstrate that not all of the individuals supported by Practice Educators are necessarily 'students' in the sense of their being on a higher education undergraduate programme.

Figure 7.20 The Practice Educator as the pull-tab
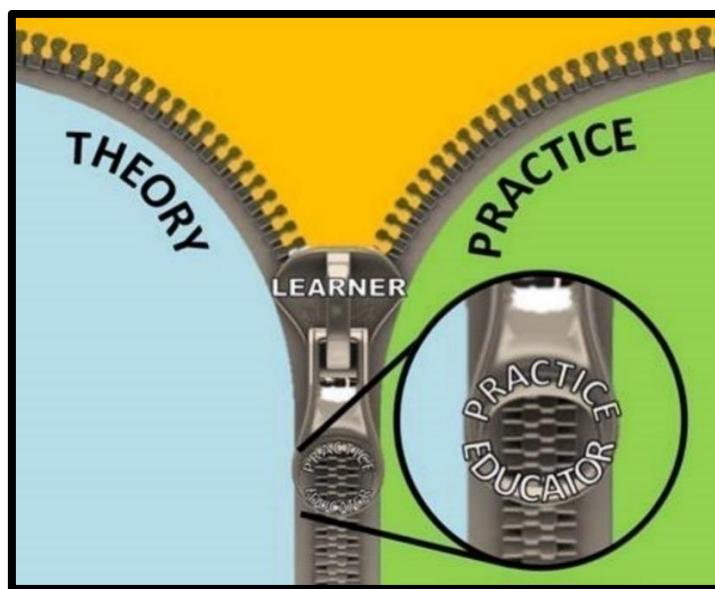
The Practice Educator is not necessarily the only 'pull' on the student, with university lecturers, colleagues, peers, and family and friends all influencing the developing student in their own way. Although a small number of students were found to be able to develop effective theory-practice relationships without significant involvement from their Practice Educator, in the majority of cases the input of Practice Educators was found to better support students' learning, facilitating the student to embed their understanding at a sufficient level to develop their own *Personal Professional Knowledge* and associated *Informal Theories* (Sections 5.3 and 6.2.2).

7.3.7 Addressing the objectives of the zip analogy

With the principles of the zip-analogy established, the way in which it is used as a framework to address its associated objectives will now be briefly discussed.

In relation to objective one; *to assist and encourage students in undertaking a reflective approach to their practice*; the ongoing, cyclic process of the linking of teeth as the slider progresses up the zip can be linked to the cyclic process of reflection and learning undertaken during practice placements. The first of Kolb's (1984) stages, that of 'concrete experience', is representative of the 'practice' tooth, with the 'theory' tooth being representative of the *Formal Theory* drawn on when undertaking the second of Kolb's stages, that of 'reflective observation'. The process of linking the teeth is representative of Kolb's third stage; that of 'abstract conceptualisation', where *Informal Theory* is developed. As the zip moves on to the next pair of teeth, the final of Kolb's

stages, that of 'active experimentation' can be applied, where possible, to the practice that is experienced. The process then continues in a cyclic and, ideally, a spiral way (Section 3.2.3). When such an approach to reflection is not undertaken, the two sides of the zip come apart after the slider has passed them, representing an absence of continually developing *Personal Professional Knowledge,* where the relationship between theory and practice can be considered to be 'unhealthy'.

The same analogy is used to address objective two; *to assist Practice Educators in identifying how they can support learners in their integration of theory and practice*; by encouraging their input in facilitating the reflective process undertaken by the student. The 'coming apart' of the zip is used to highlight how well-supported reflection is more likely to embed learning than a more superficial approach to feedback which does not encourage engagement with appropriate, associated *Formal Theory.*

There are several ways in which the third objective; *to assist both students and Practice Educators in identifying how perceptions of the theory-practice relationship may manifest as barriers to learning in practice*; can be considered. The attachment of the pull-tab to the slider is one aspect, with the misalignment of the teeth of theory and those of practice another. 'Missing teeth', where certain aspects of *Taught Theory* are not experienced in practice, or experiences in practice cannot be readily aligned to *Taught Theory*, are another potential barrier which can be introduced by use of the zip analogy. Such examples also support the meeting of the final objective; *to assist both students and Practice Educators in identifying strategies to overcome challenges associated with perceptions of the theory-practice relationship*; where specific examples and case-studies can be aligned to the zip analogy, for example to use of 'safety pins' or 'stitches' as a way of supporting the embedding of learning from key episodes experienced in practice (Section 6.2.2).

This aspect of the zip analogy can also be used to represent situations where an experience is significant, and links between theory and practice have been considered to have been made, but is later challenged. Such a challenge may come from subsequent experiences or from further engagement with the *Formal Theory* associated with the event, particularly when such *Formal Theory* develops over time. When such later experiences take place, the unpicking of the practice experience and its relationship to both the 'old' and the 'new' theory may be more challenging,

particularly when the understanding or engagement with such theory may differ between the participants, i.e. the student and the Practice Educator. The attitude and approach of both parties will influence the degree to which the stitches across the zip can be unpicked as the reflective approach undoes the previously connected sides of the zip to explore the situation afresh.

In this sense, the slider can be seen to be able to both 'do up' the zip, by bringing together theory and practice, but also to 'undo' the zip by unpicking an experience when previous perceptions are subsequently challenged.

The zip analogy can be further extended to consider several aspects of the theory-practice relationship which have been identified throughout this submission. Examples of such considerations are presented in Table 7.1 (pages 277 to 281).

Table 7.1 Considerations of the theory-practice relationship utilising the zip analogy

Presenting Situation	How the zip analogy can be applied	Comments
Aspects covered in *Taught Theory* are not experienced in *Situated Practice*.	**'Missing Teeth'** THEORY PRACTICE THEORY PRACTICE	On some occasions, students did not experience in practice elements which they had learned about in university. This can be represented by 'missing teeth'. Where such instances are specific examples of cases, or particular 'skill-based' interventions, the surrounding teeth of the zip, where *Taught Theory*, including *Simulated Practice*, has been experienced, can be seen to link together. The absence of experiences of specific encounters can be seen to not interfere with the overall cohesion of the zip, with the experienced elements of theory and practice effectively 'splinting' the areas that are seen to be absent or not experienced. In such circumstances, the demonstration of the similarities between related patient encounters goes to show that the basis of paramedic practice can be seen to be an underpinning of any eventuality in the future, negating the need for *every* student to see *every* presentation and undertake *every* skill in practice. The way in which such similarities may be demonstrated would be dependent on the approach of the student and the Practice Educator to feedback and reflection.
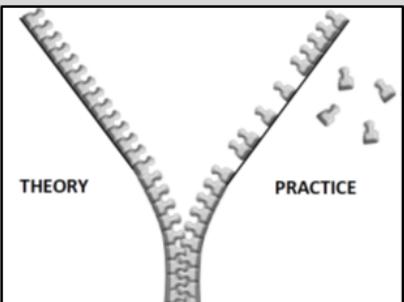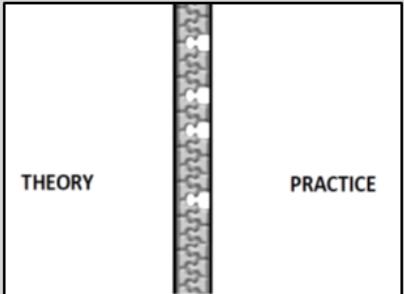
Table 7.1 Considerations of the theory-practice relationship utilising the zip analogy (cont.)

Presenting Situation	How the zip analogy can be applied	Comments
Aspects experienced in *Situated Practice* have not been covered in *Taught Theory*.	**'Missing Teeth Too'** THEORY PRACTICE THEORY PRACTICE	On some occasions, students experience situations in practice which they have not yet considered within the *Taught Theory* of the programme. In a similar way to the example above, such experiences can be supported by the wider aspects of both theory and practice engaged with up to that point, with elements of the curriculum that have not yet been covered identified but not explored in-depth. In a similar way to the previous example, the existing knowledge and experience will 'splint' the absence of *Taught Theory* up until such theory is delivered at university. When that occasion arises, the student will have the opportunity to draw from their previous practice-based learning experiences to better situate and understand the theory as it is presented. This situation is more readily addressed when the practice encounter is one which is easily identifiable with an aspect of the curriculum which is yet to be delivered and is 'discrete', e.g. obstetric emergencies, paediatric cases, maternity cases. Where the subject matter is less discrete, the situation presented below may be experienced.
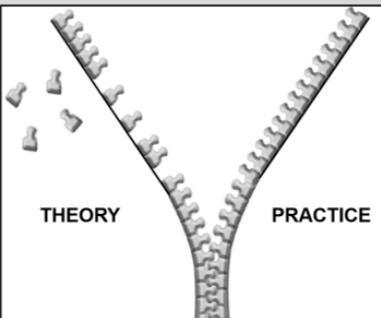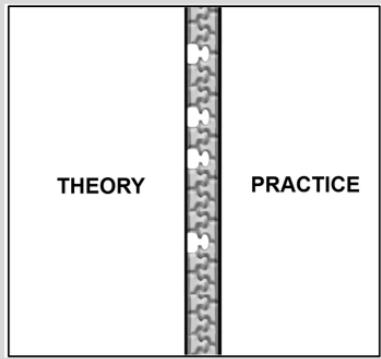
Table 7.1 Considerations of the theory-practice relationship utilising the zip analogy (cont.)

Presenting Situation	How the zip analogy can be applied	Comments
Aspects experienced in *Situated Practice* cannot be explained/supported by elements covered in *Taught Theory*.	THEORY PRACTICE	Some of the aspects of paramedic practice have been shown to be a challenge when linking theory and practice, particularly in to the context of the wider situational considerations present. Identifying *Formal Theory* to support some of the situational occurrences that occur in practice may prove challenging to both students and to Practice Educators. An absence of such *Formal Theory* does not, however, negate the role of *Informal Theory*, developed from the practice-based experience of the participants. In such cases, the understanding of the role of different types of theory is important in order to prevent the appearance of an unhealthy theory-practice relationship.
Students appear less able to consolidate their learning by relating *Situated Practice* and *Taught Theory* to each other.	THEORY PRACTICE	In situations where the student does not have a sound grounding in theory, and they subsequently do not encounter a significant range of situations in practice, the absence of teeth can be seen to be greater. This increases the potential for the zip to become unstable and the component elements of theory and practice to separate from each other, resulting in the experience of a detrimental theory-practice gap. The identification of reasons why the student lacks either theory or practice teeth can be a method of supporting the student in those particular areas in order to reinforce learning. In rare circumstances, it may be that the Practice Educator has not been able to sufficiently support the student in their making of such links and it is the Practice Educator who is identified as needing further support.
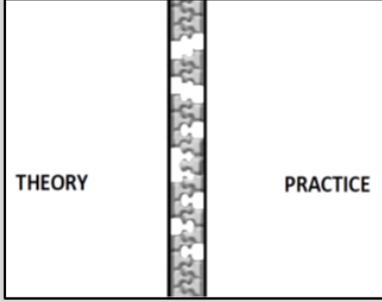
Table 7.1 Considerations of the theory-practice relationship utilising the zip analogy (cont.)

| Presenting Situation	How the zip analogy can be applied	Comments
A student has multiple Practice Educators		In cases where a student has multiple Practice Educators, a number of potential challenges to the theory-practice relationship may manifest. There are two analogies which can be employed to consider this circumstance, the first being the use of the 'double-slider zip'. The double-slider is representative the different experiences that a student may have during different placements with different Practice Educators. In the first, left-hand zip, the student and Practice Educator can be seen to have successfully negotiated a placement period by relating theory and practice to each other and robustly conjoining the two elements. On a subsequent placement, the student may have a different experience, as represented by the second, right-hand zip. On this occasion, the second Practice Educator has a different approach to supporting the student and may be seen to 'undo' some of the links previously made. Such experiences have been found to be rare in the data, but they do present a particular challenge when the student is expected to apply themselves in an apparently different way to which they had with previous Practice Educators. Anecdotal evidence suggests that Practice Educators who take on a struggling student are often required to 'undo' the work of their predecessors in the development of the student, sometimes identifying that the student has not has made appropriately deep links between theory and practice.
A student has multiple Practice Educators		The second analogy that can be used is that of the 'heavy pull-tab'. Again, this is relatively rarely encountered phenomenon, based both on the data and anecdotal evidence. When a Practice Educator takes over the supervision of a student, more generally within a placement period for a small number of shifts, their approach and considerations of the relationship of theory and practice may differ from those of the previous Practice Educator and, potentially, those of the student. The result may be a slowing down of the student's progress, with the pull-tab being less easy to move, or the weight of the pull-tab may be seen to start to undo the links previously made, either by actively challenging them or by passively not supporting their continuation by facilitating critical reflection. The different approaches, attitudes and qualities of Practice Educators can be applied to the zip analogy by way the multitude of different styles of pull-tab that can found on zips.
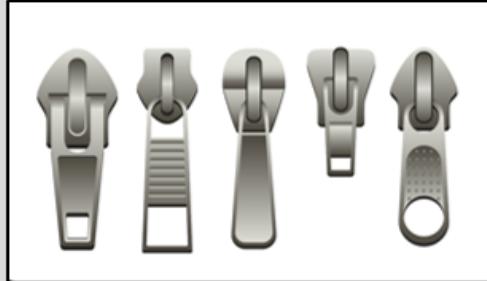
Table 7.1 Considerations of the theory-practice relationship utilising the zip analogy (cont.)

Presenting Situation	How the zip analogy can be applied	Comments
Misalignment of theory and practice		This can occur where the curriculum and the practice-based experience do not align. The reasons for this may be due to the sequencing of input, or the nature of the practice setting encountered. Such a misalignment was found to not exist in the paramedic programmes explored within this research; however, the representation of the misaligned zip, where theory and practice do not conjoin and the required *Personal Professional Knowledge* is not sufficiently robust, can be used to demonstrate the potential challenges associated with perceptions of *Taught Theory* and curricula that Practice Educators or students may have.
Key learning episodes		Key learning episodes have been identified as those which a student experiences and which are reflected upon in order to inform future practice. Where such incidents are considered to be significant, either by their impact on the student on a personal level or through their resulting in a 'falling into place' of a previously poorly understood concept, they are represented in the analogy as being 'stitched' or 'safety-pinned'. This represents the additional strength that is added to the links made between theory and practice which go beyond the 'normal' level of critical reflection undertaken. Where such incidents are representative of a negative experience, it may be that the stitching requires unpicking at a later point in order that the zip can be undone and then re-done up to consolidate a positive learning experience from the negative practice experience encountered.
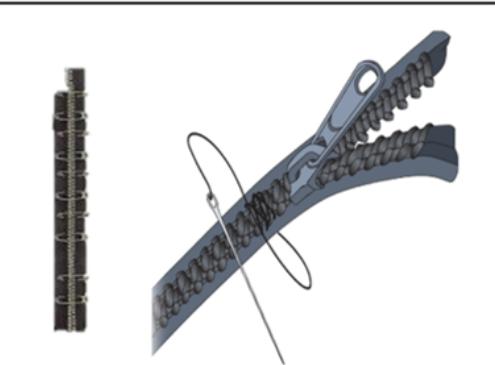
7.3.8 Feeding back into the profession

The initial findings of this research, including the zip analogy, were shared at the National Student Paramedic Conference 2014 by way of a thirty-minute keynote presentation. This was followed by a poster presentation in the foyer/break area where thirty-seven delegates completed very brief questionnaires. They represented all student year-groups from a wide range of different United Kingdom universities' paramedic programmes, as well as former students, paramedics, recent graduates, an MSc student and a higher education 'educator' (Figure 7.21, below).

Figure 7.21 Respondents to post-presentation questionnaire
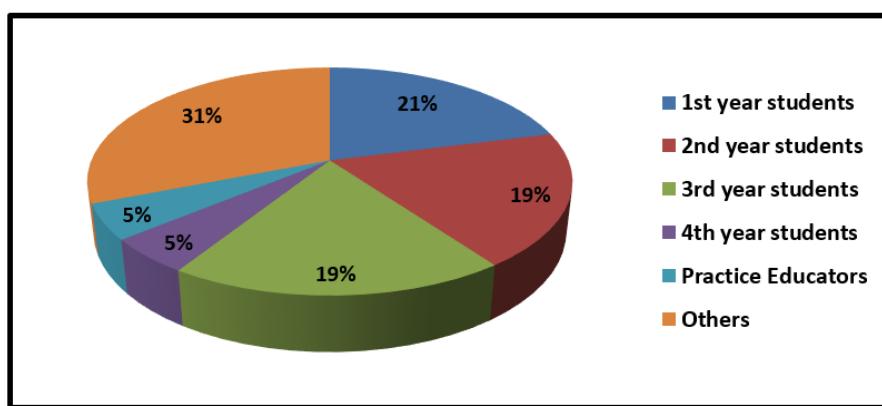
(N= 37 Conference delegate questionnaires)

The concept of the student as a 'slider' was easily related to by the respondents, with ninety-seven percent (n36) happy with the analogy. Slightly less, eighty-nine percent (n33), were happy with the representation of the Practice Educator as a 'pull-tab'. At the time of the presentation, the role of the 'pull-tab' was presented as being much more directly involved in the development of students when compared to the more facilitative role as later fully revealed from the data. Eighty-three percent (n31) of respondents considered that the findings of the study would be 'useful' for the paramedic profession.

The zip analogy has been adopted as a key aspect of the College of Paramedics' approach to Practice Educator training and development and was referenced in the Practice Educator Guidance Handbook launched at the 2017 College Conference, as well as forming part of a poster presentation at the National Association of Educators in Practice (NAEP) Conference in 2017 (Figure 7.22, page 283). The findings of this

study, along with the zip analogy, have informed the development and delivery of university accredited Paramedic Practice Educator courses.

Figure 7.22 NAEP Conference 2017: Poster Presentation

7.4 A summary of the significance of the thesis

This research has found that there exists a 'paramedic praxis' within undergraduate paramedic education in which the theory-practice gap, previously proposed as existing within nursing education, does not manifest in the same detrimental form. This new appreciation of the relationship that students perceive to exist between theory and practice has implications for how both students and Practice Educators are prepared

to undertake practice-based learning as well as informing future approaches to curriculum design.

By having a profession-specific perspective, future research can focus on the issues, identified below, raised specifically by paramedic students rather than being led by findings from other professional groups. The resultant contributions to knowledge and to practice will now be summarised.

7.4.1 The contribution to knowledge

This study has developed our understanding of student paramedics' views of the concepts of theory and practice as well as the relationship that is seen to exist between them. The contributions to knowledge that emerged from the data can be summarised by the five points below:

1. A greater understanding of students' and Practice Educators' perceptions of 'theory' and 'practice'. Section 5.2 presented the findings in relation to this area, with *Taught Theory* and *Situated Practice* being seen to be the predominant perspectives of both groups. Section 5.2.4 presented the emergence of 'border areas' where aspects of undergraduate education, such as practical workshops and simulation exercises, were viewed as representing both theory and practice. Findings presented within Section 5.3 further the position held by some student participants that practice can only be considered such when they are faced with a 'real-life' situation and patient.

2. Both paramedic students and Practice Educators perceive that the relationship between theory, specifically *Taught Theory,* and *Situated Practice,* can be inconsistent, where the 'real' nature of *Situated Practice* is such that it is not, and cannot be, always representative of the 'ideal' perspective often presented within *Taught Theory* (Sections 5.3 & 6.2.4)

3. These inconsistencies were found to be predominantly due to the contextual and situational challenges associated with the undertaking of paramedic practice (Sections 5.2, 5.3 & 6.2).

4. Such inconsistencies were considered by the students to be an expected part of practice-based learning and not detrimental to their learning experience. There was found to be a clear appreciation among students that theory can never be an *exact* reflection of their experiences of practice, and not all aspects

of practice-based experiences can be fully 'unpicked' by reviewing the associated theory, particularly when considering aspects of practice related to the social sciences (Sections 5.3 & 6.2).

5. The recognition of apparent inconsistencies between *Taught Theory* and *Situated Practice* can be achieved by adopting a reflective approach to practice (Section 6.2.3).

There is, therefore, evidence to indicate the theory-practice relationship experienced by undergraduate paramedic students is based on a wider Paramedic Praxis from which a variety of learning, as well as theory-practice, relationships can be established and cemented. These findings will now be placed in the current context of the paramedic profession.

7.4.2 The contribution to paramedic practice

The paramedic profession is at a point in time similar to that of nursing in the run up to Project 2000. For nursing, the result was a move into higher education and an 'academicalisation' of nursing into a profession (Elkan & Robinson, 1993). One of the reported results was a lack of connection between the universities, and the nurses that they educated, and the practice environment in which they were required to work (Rolfe, 1996). The desire for academic rigour, and the move to an entry level to the paramedic profession of BSc, may impact on the relationship between theory and practice, creating significant gaps which may adversely affect the ability of graduate paramedics to undertake the autonomous role required of them. This position is based on the possible impact of reduced practice-based learning opportunities in newly created BSc programmes, where the required level of theoretical input may be seen to outweigh, or overbalance the theory-practice relationship shown to exist in the programmes explored in this research.

The continued development of paramedic curricula, including the move to introduce paramedic degree apprenticeships, should be undertaken with a view to ensuring that the challenges previously encountered within nursing do not present themselves and result in the creation of a detrimental theory-practice gap, one which does not appear to currently exist within paramedic undergraduate education.

The Health and Care Professions Council (HCPC) (2011) suggest one view of professionalism is that of a *"meta-skill of situational awareness and contextual judgement"*. It could be argued that such situational awareness can only be derived from immersion in the practice of the profession (Lave & Wenger, 1991; Wenger, 1998) and contextual judgement can only be applied with sufficient personal professional knowledge (Schaap *et al.,* 2009) resulting from the symbiotic relationship of theory and practice (Biswas, 2015). The zip analogy is a representation of this symbiotic relationship.

Continued Practice Educator development and support, as well as promoting greater clarity in respect of the theory-practice relationship when preparing students for practice, will go to address the potential increase in 'distance' between the practice role and the education role which may manifest as a result of this move to a purely BSc entry-level qualification. A clearer understanding of the different approaches to the relationship between theory and practice within paramedic undergraduate education will enable greater emphasis to be placed on focussed learning in practice. The result will be a more cognisant Practice Educator workforce who can better facilitate learning in the limited time made available to students in the practice setting.

This research has enabled the implementation of practices to enhance existing undergraduate paramedic and Practice Educator educational programmes. The zip analogy has been utilised when preparing students for practice placements with greater attention being given to encouraging students to prepare themselves to make the links between theory and practice. Approaches to reflection and reflective practice have been made more practical and applicable to the realities of the practice-based learning environment, supporting students to enter the practice environment with a clearer individual strategy of learning already considered.

Practice Educator education has also been developed, both locally and nationally (CoP, 2017), with the zip analogy having been referenced in the Guidance Handbook for Practice Educators (CoP, 2017), a document so far shared with fifteen thousand Paramedic Practice Educators across the United Kingdom. This recognition by the professional body of the usefulness of the zip analogy goes to demonstrate its impact as a method of presenting the Practice Educator's role as one of a 'facilitator' of learning. The emphasis has been placed on them supporting students by facilitating a

reflective approach to practice and making the tacit explicit in order to maximise the opportunity for students to develop and consolidate effective theory-practice relationships.

The changes made to local paramedic and Practice Educator programmes based on the findings of this research will, in the future, be recommended to be implemented in the remainder of the United Kingdom, via the College of Paramedics, as the benchmark standard for Practice Educator and student support when undertaking practice-based learning within ambulance service settings.

Continued development of these approaches will go to supporting the development of student paramedics into lifelong learners who will, themselves, become the Practice Educators of the future.

7.4.3 Reflections on the research

This section will briefly reflect on the research to further demonstrate the reflexive approach adopted by the author throughout the doctoral process.

The moment in time that this research sits is very specific to the development of paramedic practice education, with the speed at which the profession is evolving being apparent in the context of this work. A number of significant changes were experienced by the profession during the time from commencement of the research to completion of the submission, including the implementation of the recommendations of the PEEP report and the development of a post-registration career framework.

Changes within UK NHS ambulance services have also resulted in the creation of the Newly Qualified Paramedic (NQP) role which graduate paramedics undertake for the first eighteen to twenty-four months of employment, post-registration. Part of the NQP process requires training as a Practice Educator, followed by the undertaking of the role in practice. This significant change in the profile and motivations of future Practice Educators may be seen to differ from the current situation and may be found to influence the theory-practice relationship experienced by students in the future. As such, this is an area where further research would better inform the ongoing development of paramedic practice education.

This research considered one higher education institution and one ambulance service. Other institutions have alternative approaches to their programmes which may have resulted in different findings. Such different approaches include the scheduling and duration of practice placements within the academic year. Some higher education institutions have their students undertake placements on a weekly basis, spending two or three days each week during term-time working in the practice environment. These approaches present a different range of challenges in respect of the consistency of Practice Educator provision, which would also have the potential to influence students' views of both the theory-practice relationship and their learning relationship with their Practice Educator. Consideration of different approaches to curriculum design, and the contextualisation of curriculum content may have provided an alternative perspective. Future research should, therefore, look to include a range of different approaches to programme delivery and practice-based learning.

Although the purposeful selection of the focus group participants allowed specific targeting, it may have resulted in a narrower range of students coming forward to participate, potentially limiting the range of perceptions explored. Similarly, the Practice Educators selected to participate came from within a narrow range, utilising only those who had decided to continue their development to unit three of the Certificate in Practice Education. These participants' views may have differed from those who had only undertaken the minimal, one-day training required to undertake the role.

All the student participants had reached the end of their studies and their views were retrospective and offered with a degree of hindsight. A longitudinal study design would have enabled a clearer understanding of any perceived evolution of the theory-practice relationship. Future research may benefit from adopting a longitudinal study design which may elicit data which would more explicitly identify the evolution of students' perceptions of the theory-practice relationship, rather than being considered wholly in hindsight.

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Appendix 1: Example of Consent Form

Informed Consent Form for Ambulance Service Practice Placement Educators

Name of Principle Investigator: Vince Clarke

Name of Organisation: London Ambulance Service NHS Trust

Title of Project: An exploration of the practice placement experience of higher education student paramedics within UK ambulance services

This Informed Consent Form has two parts:

> • Information Sheet (to share information about the study with you)
> • Certificate of Consent (for signatures if you choose to participate)
>
> You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

I am a Principal Paramedic Tutor working for the London Ambulance Service at the University of Hertfordshire and am currently studying towards my Doctorate in Education (EdD). I am undertaking research into the practice placement learning experiences of paramedic students and invite you to be part of this research.

Purpose of the research

The purpose of this study is to explore both students' and practice educators' experiences of ambulance service practice placements, in particular how students learn in the practice environment. It is hoped that a greater understanding of the learning experience will inform future academic programme development as well as informing practice educator training and support.

Type of Research Method

This phase of the study will explore your experiences as a practice placement educator by the self completion of a questionnaire. The majority of the questionnaire requires you to read a statement and then indicate your response by circling the most appropriate box below the question. There are some 'free text' answers where you are asked to write a few lines in response to a question or statement.

Participant Selection

You have been selected to take part in this study due to your experience as a practice placement educator.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate it will not in any way impact on your opportunities to continue to act as a Practice Placement Educator.

Procedures

You will be asked to fill out a questionnaire which will be distributed and collected by Vince Clarke during your attendance at day two of the Certificate in Practice Education programme. If you do not wish to answer any of the questions included in the survey, you may skip them and move on to the next question. The information recorded is confidential, your name is not being included on the forms, only a number will identify your responses in the final study, and no one else except Vince Clarke will have access to your completed survey.

Duration

The questionnaire is the only element of the study being implemented at this time and should take approximately fifteen to twenty minutes to complete.

You will not be required or expected to participate in any further elements of this study based on your agreement to participate in this questionnaire stage. Separate information will be given and consent sought should you be approached to participate in another phase of the study.

Risks

The nature of the questionnaire requires you to reflect on your experiences supervising students during their practice placements within the ambulance service. You do not have to share any experiences that you are not comfortable sharing. Although no questions directed at particular events will be asked, you may recall events/patient encounters that may provoke distress or emotional discomfort. If this does become the case, please bring this to the attention of Vince Clarke so that appropriate support can be offered. Should such recollections prevent you from continuing with the questionnaire, please remember that you can withdraw from this study at any time.

You may be asked for your opinion on certain services/strategies/management approaches within your organisation. You can be assured that any opinions that you express will remain completely confidential and only used for the purposes of this study as previously explained.

Benefits

Your participation will help to shape the future development of both higher education paramedic programmes as well as the development of Practice Educator programmes at both a local and national level.

Confidentiality

The questionnaire will not include any participant identifiable data. Information gathered from the questionnaires will only be shared in the final doctoral submission or any part thereof that is accepted for publication. At no point will any of the participants be individually identified. All questionnaires will remain secured in a locked cabinet throughout the duration of the study and suitably disposed of via the confidential waste system upon completion of the study.

There are some limitations to confidentiality in that it may be possible for a reader of the final study to surmise the organisation in which the research was undertaken and form conclusions regarding the job role of the participants, however, the names and locations of all participants will remain entirely confidential.

Sharing the Results

The results of this study will form part of a doctoral submission due to take place in 2014. The research findings may also be shared more broadly, for example, through publications and conferences, however the exact nature of such sharing is not yet finalised. The anonymity of all participants will be protected throughout any sharing of the findings of the study. All participants will be notified before publication/submission and will be sent an abstract of the final study.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your role as a Practice Educator in any way. You may stop participating at any time that you wish without any negative consequences to you.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact:

Vince Clarke

Tel.07786 390206
e-mail: vince.clarke@lond-amb.nhs.uk

Part II: Certificate of Consent

I have been invited to participate in research about paramedic students' practice placement experiences.

1. **I have read and understood the attached information giving details of this study.**
2. **I have had the opportunity to ask questions about the study and any questions I have asked have been answered to my satisfaction.**
3. **I understand my role in the study.**
4. **My decision to consent is entirely voluntary and I understand that I am free to withdraw at any time without giving a reason.**
5. **I understand that data gathered in this study may form the basis of a report or other form of publication or presentation.**
6. **I understand that my name will not be used in any report or other form of publication or presentation, and that every effort will be made to protect my confidentiality.**

Print Name of Participant_____

Signature of Participant _____

Date _____

    Day/month/year

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Print Name of Researcher/person taking the consent_____

Signature of Researcher /person taking the consent_____

Date _____

    Day/month/year

Appendix 2: Practice Educator Questionnaire

How to complete the questionnaire

Some questions require you to read the question/statement and then circle the answer that most closely fits your response, some require you to consider the start of a sentence and then complete the sentence in your own words. You can write as much or as little as you feel necessary to convey your feelings.

If you do not wish to answer any of the questions, or are not sure how to answer a question, you may skip them and move on to the next question.

There is space for you to add free text information to enhance your response if you wish to do so- the more information that you are able to give, the better.

The information recorded is confidential, your name is not being included on the forms, only a number will identify your responses in the final study, and no one else except Vince Clarke will have access to your completed survey.

Duration

The questionnaire is the only element of the study being implemented at this time and should take approximately twenty to twenty-five minutes to complete.

About you

1. I am	MALE	FEMALE
	(delete as applicable)	

2. My age is	_____ years

3. I have been a Paramedic for _____ years _____ months

4. I became a paramedic through the following route (Please circle the appropriate option)

'traditional' IHCD technician to IHCD paramedic route	LAS Student Paramedic Programme	Other service Student Paramedic Programme	LAS Partner University	Other University	Other route (please specify) _____

5. My formal academic qualifications (Please circle your highest qualification level attained to date)

GCSEs/'O' levels	'A' Levels	BTEC/HND	Foundation Degree/Diploma in Higher Education	Bachelors Degree
Post Graduate Certificate	Masters Degree	Other (please specify)		

6. Before I became a paramedic, my work experience was.... (briefly note your job history)

_____

_____

_____

_____

7. I have been a Practice Educator for _____ years _____months

(Please fill in as appropriate)

8. I became a Practice Educator because.................... (please complete the sentence indicating **why** you became a Practice Placement Educator)

_____

_____

_____

_____

_____

_____

_____

_____

_____

Your experiences as a Practice Educator

9. Over the last twelve month period, how many university students have you supervised?

_____

_____

_____

_____

10. I think that the role of a Practice Educator is....................(please complete the sentence making as many points as you wish)

11. My understanding of the university paramedic degree programmes is
(including curriculum content and design, assessment methods, modes of attendance etc)
(Please circle the appropriate option)

very good	good	sufficient	limited	very limited

12. A more in-depth understanding of the university paramedic degree programmes does/would help to make me a better placement educator

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

13. I directly relate my students' learning experiences in placement to their academic input at university

Always	Often	Sometimes	Rarely	Never

---

14. I encourage my students to apply their academic knowledge to their experiences in placement

Always	Often	Sometimes	Rarely	Never

---

15. When supervising university student paramedics, I think that my own academic qualifications...................(complete the sentence)

16. I learn from my students				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Please give examples below				

_____

_____

_____

_____

17. There are times when the 'theory' of how to manage a clinical situation does not work in the practice environment and alternative approaches need to be adopted				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Please give examples below				

_____

_____

_____

18. I try to develop my students' non-clinical skills as well as their clinical skills ('non-clinical skills' may include communication, attitudes, professionalism, self-awareness etc.)				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Please give examples below				

_____

_____

_____

19. I adapt my teaching style to meet my students' individual needs as learners				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Please give examples below				

_____

_____

_____

20. I have taught students aspects of the paramedic role that they had not been taught at university				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
(please give examples below)				

_____

_____

_____

21. There is conflict between ambulance service operational demands and my ability to educate students in practice				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Please give examples below				

_____

_____

_____

22. I am confident to document in their PAD when a student does not meet the required standard				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

_____

About your relationships

23. Please write down a metaphor describing your perception of your relationship with your students. If you consider that your relationship has been different with different students, please put down all relationships that apply. If you consider that the nature of your relationship alters over time, note this in the comments section. You can draw on familial relationships, fictional characters/relationships from any media or celebrities to represent your relationships if this is appropriate- please feel free to use your imagination!! Make any additional comments in the space provided to further explain your metaphor if necessary.

Practice Educator	Student	Comments
master	_servant_	_For first year placements- I am in charge and the student must do as I say_
parent	_child_	_For first year students- I am supportive and caring_

24. I get on well with my students				
All of the time	Mostly	Sometimes	Rarely	Never

25. The better I get on with my students, the more productive their learning in placement				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

26. When I consider their approaches to learning, the difference between higher education students and other student paramedics is... (complete the sentence)

27. My definition of theory is...............(complete the sentence)

28. My definition of practice is...................(complete the sentence)

29. My view of the relationship between theory and practice in paramedic higher education is................(please complete the sentence)

Thank you for completing this questionnaire.

Appendix 3: Student Questionnaire

How to complete the questionnaire

Please read the question/statement and then circle the answer that most closely fits your response.

If you do not wish to answer any of the questions included in the survey, or are not sure how to answer a question, you may skip them and move on to the next question.

There is space for you to add free text information to your response if you wish to do so- the more information that you are able to give, the better.

The information recorded is confidential, your name is not being included on the forms, only a number will identify your responses in the final study, and no one else except Vince Clarke will have access to your completed survey.

Duration

The questionnaire is the only element of the study being implemented at this time and should take approximately fifteen to twenty minutes to complete.

About you

1. I am	MALE	FEMALE

2. My age is	

Ambulance Service Placements and the University Curriculum

3. My experiences of ambulance placements matched my expectations				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

4. I was able to directly relate the content of the **'patient assessment'** modules delivered at university to my placement experiences				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

5. I was able to directly relate the content of the **'paramedic skills'** modules delivered at university to my placement experiences				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

6. I was able to directly relate the content of the **'biosciences'** modules delivered at university to my placement experiences				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

7. I was able to directly relate content of the **'social/behavioural sciences'** modules delivered at university to my placement experiences				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

8. I was able to directly relate content of the **'research'** modules delivered at university to my placement experiences				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

_____

About your Practice Placement Educators (PPEds)

Where possible, please answer based on your 'primary' or 'named' PPEd. If this is not appropriate, please consider the PPEd from your most recent placement.

9. My PPEd was supportive				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Please explain how below				

_____

_____

_____

_____

10. My PPEd adapted their teaching style to meet my needs as a learner				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

11. I had to adapt my approach to learning to fit the teaching style of my PPEd				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

_____

Page **333** of **346**

12. My PPEd's feedback				
was always constructive	was often constructive	was sometimes constructive	was rarely constructive	was never constructive

_____

_____

_____

_____

13. My PPEd taught me aspects of paramedic work that I had not been taught at university				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
(please give examples below)				

_____

_____

_____

_____

14. My PPEd made the most of potential learning opportunities				
All of the time	Mostly	Sometimes	Rarely	Never

_____

_____

_____

_____

15. My PPEd's knowledge and understanding of my degree programme was				
Very good	Good	Neither good nor limited	limited	Very limited

16. My PPEd was able to relate situations/experiences in placement to the content of the **'patient assessment'** modules delivered at university				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

17. My PPEd was able to relate situations/experiences in placement to the content of the **'paramedic skills'** modules delivered at university				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

18. My PPEd was able to relate situations/experiences in placement to the content of the **'biosciences'** modules delivered at university				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

19. My PPEd was able to relate situations/experiences in placement to the content of the **'social/behavioural sciences'** modules delivered at university				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

20. My PPEd was able to relate situations/experiences in placement to the content of the **'research'** modules delivered at university				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

21. I feel that my learning experiences were enhanced by working with more than one PPEd throughout my degree				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

22. I have developed a professional identity as a paramedic				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

About your relationships

23. I got on well with my PPEd(s)				
All of the time	Mostly	Sometimes	Rarely	Never

_____

_____

_____

24. The better I got on with my PPEd, the more productive my learning in placement				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

25. My PPEd was open to my input in cases where I had received more up-to-date training in a particular area				
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

_____

_____

_____

Theory and Practice

26. What do you understand by the term 'theory'?

_____

_____

_____

_____

27. Where do you consider 'theory' to come from?

(Please cite as many sources as you wish)

_____

_____

_____

_____

_____

28. In relation to your degree programme, what do you understand by the term 'practice'?

_____

_____

_____

_____

_____

29. Based on your answers to the previous questions, how would you describe the relationship between 'theory' and 'practice' throughout your paramedic degree?

_____

_____

_____

_____

_____

30. Do you perceive any differences between the theory that you learn (from whatever source) and what you are taught/experience during practice placements?

YES- go to 31	NO- go to 32

31. How would you describe these differences? Give examples where possible.

_____

_____

_____

_____

_____

_____

_____

_____

32. Please add any comments that you would like to make in relation to your learning experiences during your paramedic programme

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for completing this questionnaire

Appendix 4: Excerpt of focus group transcript

Focus Group 1- excerpt of transcript

VC-	and how does what you're actually doing in practice differ from what you were told in the classroom? Is it always exactly the same, or is there any difference?
FG1C -	Yeah.
VC-	what's the difference?
FG1C -	Well, like you get taught things like presenting complaint, but if you went to a patient and said 'presenting complaint', they're not goin' to understand you. Like you've gotta kinda' use terms that they're going to understand and not necessarily get, its like in scenarios, you're talking to your peers, so you know they've got the same knowledge kind of as you, so I think that's a bit different.
FG1D-	So if you're in a scenario or something and you go 'so what's the problem today?' there'll be one thing, whereas often if you go to patients that starts them off and they tell you a ten minute story of their fifty year history of illness and all the things that are wrong you've gotta say, but what's actually different today?
FG1A-	Yeah, and if it's with your friends usually they know the answers so their answers are leading towards what you're looking for, whereas if you go to someone you don't know, they're not gonna sort of automatically say 'I've got appendicitis, ask me those questions'
FG1D-	yes, they give you all of the history whether it's relevant or not
FG1A-	You've got to pick out the things you need and think of their answers
FG1D-	You've got to phrase it, if you say something to one patient and it means one thing, the same thing to a different patient and it means a different thing entirely. If you ask about what colour, if they look pale- I said to somebody once "does your friend look her normal colour" and then she looked at me and went "black" and I said "no, no, no, are they pale or" like you've got to think about what you phrase these things
FG1A-	Especially with like different languages like phrasing in one way or if someone doesn't speak English as their first language you have to go through several different ways of phrasing stuff to try and get an answer that vaguely relates to your question.
FG1D-	There's a lot of words if the pain 'hurty' 'ow'
VC-	and have your practice educators helped you to work on those skills?
FG1D-	Yeah
FG1A-	Yeah. I think when you are new and they can see you're struggling with the and they go along the technical line of stuff they re-phrase things for you and help you kind of think more, less technical about everything
FG1D-	And also by watching them communicate with patients you can gain a lot of "ah, that's how they phrase that question" and then they ask this before this which makes sense but is not necessary how I would phrase it in that sort of context
VC-	do you think that sort of approach is something you can learn in University or must it be done in practice?
FG1A-	Not really

FG1D-	I think it's just exposure to different types of situations with different patients and you do that in practice
FG1C -	I think you could be made more aware of it though at university as like when you do all your scenarios and everything everyone speaks English everyone will answer you like you never get the person whose pretending to be polish or something so you could maybe have some exposure to like, this is a six-year-old child and they don't understand that word sort of thing to make you think a bit more about rephrasing stuff
FG1B-	I think it's possible for to get people that are not your peers to be patients, I don't think it's impossible. I think it's much easier when you're on placement
FG1A-	Yeah, even when you get people to play patients, they still know what you need to be doing and what the answers are
FG1D-	Yes you know that from OSCEs 'cause if you're one of the last people to come in to history taking and you say to them "so what's the problem today?" and they go "well I've had this abdo pain and it starts here goes here and I've vomited if twice" and blah blah blah. they give you the whole history without you really asking them because they know what they've got to say. It's nothing like the real experiences with real people
VC-	so one of the methods that you use that you mentioned there was that you watch your PPEds do the communication and then you pick up tips from that- any other ways in which they help out with those situations?
FG1B-	I think when I first started my practice placement educator just shoved me in the back and made me get on with it and do it over and over again until I could do it, which sort of works for me, I don't know about anyone else?
FG1A-	I kind of needed to off you go, go on with it and we'll see what happens at the end and then talk about it afterwards.
FG1C -	I got given a sheet with a bit more of a breakdown of presenting complaint history of presenting complaint and things that you would like to ask for abdo pain. Cause you like asked things about the system by then I was never like like "right, abdo pain what do I need to do?" know that the abdo like D&V is pregnant if it is a woman in a that sort of stuff just never came into my head. yeah, so I got given a sheet.
VC-	so that's from you practice placement educator?
FG1C -	Yeah. He let you take the history and then would ask questions that I missed, and that would really highlight to you bits I had missed out and it didn't sort of the detriment the patient because they still had the full history taken just from two people rather than one
VC-	So they'd let you have a go and then...
FG1C -	Yeah
VC-	whereas you were chucked in the back and left to get on with it
FG1B-	yeah, it did happen, but I'm talking about talking to patients in general
FG1A-	Yet as the general chat that you need to learn 'cause you when you drive to hospital you can't just sit in silence with patients especially when they're anxious or with relatives you've got to think about what to say so often it's best to get left to it and you sat there like this is awkward I couldn't think of things to say

FG1D-	You have to learn how to make small talk
FG1C -	My practice placement educator set me a challenge of I had to find five things out about my patient before we got to hospital. like non-clinical things....
FG1A-	..That's good...
FG1C -	....To make me talk to patients
VC-	so how did that work
FG1C -	Alright; I met someone had made a sofa for Prince Charles, that's quite interesting, most of them were not interesting, but yeah.
VC-	it's a good challenge though isn't it?
FG1C -	Yeah
VC-	gives you a target to try and do something.
FG1C -	Yeah
FG1A -	I must admit, You realise that there's some patients who happily don't want to talk to you they just want to be quiet as well, when's appropriate but other people will just chat and a chat and chat . It's just judging it really.
VC-	so communications up there is sort of a broad history taking and handovers and PRFs a couple of times. What about things that are a bit more quantifiable- I think there was cannulation somewhere, so there's a specific skill. What about the way that specific skills or procedures are taught here and then compared to what you actually doing in practice. Do you find different ways of doing things
FG1CD -	Definitely with cannulation I found, cause on the mannequin you don't need to hold the arm to cannulate and you can do it from a mile away and throw it and get it in where It's very different on real patients even its different to in hospitals as well as a lot of cannulations I did in hospital were on young fit healthy people with good veins it was relatively easy and in fact if it wasn't a lot of the anaesthetists would say "oh no, you shouldn't do this one I'll do this it'll be too difficult for you" whereas in the actually urm out in practice you've got lots of patients and they're often elderly with who have been cannulated various times before for various things and it's not the same technique you can't you can't hold it in the same way. I found watching my practice placement educator and lots of other people as well doing it and I sort of picked up on "ah, that's a good way of doing it" I try different things and also my practice placement educator picked up on "well, you're fine, you get it in but then you let go of holding on to the skin so then it disappears and that's why you're having trouble every time" they showed me different ways of doing things and said "don't think that the why I'm doing it is right is the way, it's just the way for me" it's knowing there's different ways to do it that's quite important
FG1A-	I suppose there's more consideration of the patient 'cause if you're doing it in OSCEs you've just got like a plastic arm and although you say " I will tell the patient that I'm going to do this" actually explaining it to them and making sure they understand like what's going on you have to think more about that than before just shoving a needle in and digging around a bit trying to find a vein you have to be a bit more considerate than what you would be on an arm that isn't attached to a real person.
FG1C-	I think it's more tweaking though, oh, this is how I like to do it maybe you should try that and then it's up to you if you do it or not. This is what I do it's up to you. Like someone showed

	me that they kind of bend the needle a little bit or something and that that worked for them but I tried it and didn't like it so I don't do it. But they're kinda like yeah, you need to kind of find your own way but this is one way of doing it maybe it might work
FG1D-	Yeah, it's the practical considerations as well, I've been on the car quite a few times and we cannulating before the ambulance crew arrived, people would say to me well really you Gotta think about when patients are in the vehicle if it's the left arm you've cannulated it makes it more tricky so look on the right first of is not anything and things like this patient does this with their arms a lot so the ACF is like not gonna be good because they're just going to knock it off . You've got to think about where's going to be most appropriate for this patient is not just "it'll go there so we'll put it there."
VC-	so you got forward planning up there I think. To forward plan outside the box so can you use an example of moving people
FG1A-	Yes so like if you go somewhere and you know what the guidelines say and you know linearly how your meant to do something but then it doesn't always go according to plan, like moving people if you can't physically get them somewhere you've got to think "do I need another crew" or could I use something else to sort of help move them whereas in scenarios it's all just very much like "up you get" or it's your friends and are small, able to support their own weight
FG1D-	Here you don't really have to think about moving people who are either unwilling to move or can't physically help themselves. Then erm kind of thinking about that as you go along sort of with their treatment rather than thinking yeah we will do this in the truck you might as well do it like cannulate or something in the house and then move them. It's like having to think a bit more
FG1A	It's like yeah when I very first started I was amazed that whoever was driving would go and get the chair instantly or whatever and would say "oh, I'm just gonna move all this" and it's like how have they thought that but it's as you're going in to the patient they are already thinking about if I have to get them out that's gonna have to move out the way I'm not gonna get trolley-bed through here and various things and using other people around and things you would necessarily think outside of the box of the sort of other alternatives to doing things. Like people with back pain often don't want to get up but once they're up they can be a lot better so you've got a patient that's laying on the floor and your Like right how my gonna get them up and it's not until you've had somebody go to a back pain with you and say right let's stand you up and you find that the patient actually gets quite a lot of relief from just standing up and your Like ah, that's a better thing to do than trying to sit them on to a chair which is actually going to be more uncomfortable but that's what the patient might think is going to be better
FG1D-	patients fall in awkward places which I don't think you get in the training school and you've got to try and wiggle them out from behind a toilet or something and you got to work out like that. I had someone who fell face first on the stairs and was halfway up the stairs and we had to try work out how to turn them round and shuffle them down on their bum cause we couldn't put them on a chair there and it was all a bit like gotta try to work your way through , ah I could do that or I could do it this way or just slide down on his front but trying to work it all out
VC-	how does your practice educator help you in that process or do they, what sort of experience do you have with them supporting you to come up with these different plans and think outside the box?
FG1C-	To start with the I found that they would say "right let's try this" and so we'll try something then we'll try something else, but by further on they'd get to say "well what you want to do? how do you think we're gonna get them out?" Like make me think, ok, right, then I would suggest something and they might say "yep, we'll try that" or they I might say "well, have

	you thought about this as alternative" and sort of discussing between you what's going to be the most beneficial to makes you think more than if they did just did it for you.
FG1B-	yeah, I think they might have a plan B before we started moving, obviously when you're halfway down the stairs and you realise it's not going to fit then it's a bit difficult to go actually we need to stop and re-think, if you've got another plan then it's quite cos i think it in the scenarios there's always one way out and you can just do that and it's fine but old people have so much as stuff.
FG1A-	yeah I think they kind of like because they've had so much more like practical experience sort of especially with people that have fallen in awkward places they think well, could we put the chair flat and then put them on the chair and then sit it all up together which you're never taught and probably technically isn't the right way of doing stuff but it works but you wouldn't necessarily think of doing that so then at the beginning if your shown that then as you go along it is what you want to do and you sort of remember I was shown this it might work we'll give it a go If it doesn't and then you have like you plan B for If it doesn't work just try something else. But it's more sort of at the beginning they'll sort of suggest what you could be doing and then by the end it's more what do you think we should be doing which makes you think more about what you need to rather than them telling you
FG1C	I think I come up with two plans and then maybe ask the patient which one do you think's gonna work best for you as well which I think is important.
FG1D	Yeah, talking to the patient about how they normally get around the house are they normally able to walk to be able to establish whether it's even feasible. Sort of discussing why you need to do certain things often makes the patient more willing to try for you
FG1A	Yeah, just encouraging them that they can stand and they can walk often seems to work rather than just sort of oh we'll just get the chair and do something like encouraging the patient to do as much as they can for themselves just to make it sort of easier to help them as well.
FG1B	It often helps if you explain, that I'd like to see you try and stand up and try and walk so that I can assess how this fall has affected you or how this injury has affected you. If you've got any pain or if it doesn't work then we'll stop, but it's good idea for us to be able to see so patients realise that we're not just being cruel trying to get them to stand and walk there is a reason behind it . or you've got so much stuff in your house there's nothing we can do to get you out you 're going to need to walk. Often works as well.
VC-	there're differences there the in what you actually do in practice I wouldn't expect that you would expect to have all of those different things taught at university because there's so many different presentations you can go to so that's perhaps an example of where the theory that you're taught, so, specifically manual handling is quite clear about what you should do and what you should use and the techniques you should use whereas in practice that's nice but you have work around that. Would that be fair?
FG1A	Yeah
FG1D	Yeah, I think so
VC-	okay thank you. What was the Septic patient one?
FG1C	That was my one. cause we learn a lot of theory about patients who are septic and severe sepsis and the presentation of it and one of my PPEds was quite keen on it and he taught me a lot about it and why it's important to recognise it and how effects in hospital management and things like that are then I did a placement with a different practice placement educator and went to a patient and I said I think this is severe sepsis and she said well what why would you say that? They're systemically unwell but ... so then I sort of went through the steps of well they've got this and this and are presenting with this and I

	was sort of convincing her of my ideas so that made me sort of realise yes I was right and she is like yeah, I can see what you saying yeah absolutely so we'll treat it as severe sepsis and that was what it was so sort of sort of by questioning me and challenging me on why have you said this made me have to think about the theory and uni, sort of justify it and stand by what I've said and yeah.
VC-	and how receptive was the second PPED?
FG1C	Quite good actually, cos I think I had enough knowledge of it and how it all presented and could sort of justify it well enough that they said yeah it's fine- I don't know as much about this as you do so I'll happily take what you say as right because everything you've said sort of makes sense well accepted. Especially as I could say we've done it at university and my practice placement educator has gone over this as well there have been bulletins about it and stuff which has helped backed up my argument.
VC-	is there anything else like had that that experience where you've been telling, or teaching a practice placement educator about things?
FG1D	I find PPEd's do it with ECGs when they get you to tell them what's wrong with it and then they go yeah, OK I agree, I get that a lot, but I think that's the only kind of thing I can think of.