Experiences of learning, development and preparedness for clinical practice among undergraduate paramedicine students, graduate/intern paramedics and their preceptors: a qualitative systematic review

Submitted by:

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Table of Contents

Abstract

Objective

This systematic review aims to identify and explore the barriers to and facilitators of learning and preparedness for clinical practice among undergraduate paramedicine students, graduate/intern paramedics and their preceptors.

Introduction

The educational landscape for paramedicine has evolved considerably since the introduction of the first paramedicine Bachelor's degree. A need to identify the contemporary barriers to and facilitators of learning within the context of early career training in paramedicine education is needed.

Inclusion criteria

Participants were undergraduate paramedicine students, graduate/intern paramedics, newly qualified UK paramedics and their preceptors, within Australia, the UK and New Zealand. Published and unpublished English studies utilizing qualitative research designs were considered.

Methods

Five bibliographic databases (PubMed, CINAHL, ERIC, Embase and ProQuest dissertations and theses) were searched in 2018. Websites relevant to paramedic learning and a hand search of paramedicine journals (2019) were also undertaken. All studies identified from the search were examined against the inclusion criteria. Papers selected for inclusion were assessed by two independent reviewers for methodological quality prior to inclusion in the review. Qualitative research findings were extracted and pooled. Findings were assembled and categorized based on similarity in meaning. These categories were then subjected to a meta-synthesis in order to produce a single, comprehensive set of synthesized findings.

Results

Twenty-six studies were included in the review: eleven studies used semi-structured interviews, five used open-ended interviews and ten used focus groups, with a total sample size of 564 participants. Sixteen studies focussed on undergraduate paramedicine students, four involved paramedic preceptors, two focused on paramedic educators at paramedicine universities, and four included undergraduate

paramedicine students and their preceptors. A total of 295 findings were extracted and grouped into twenty-eight categories. Categories were grouped into five synthesised findings as follows;

- The role of mentoring/preceptorship
- Opportunities to develop emotional intelligence and communication skills
- The role of non-traditional placements/experiences
- The role of non-traditional classroom teaching methods
- Preparedness for practice

Conclusions

A variety of learning models exist with barriers and facilitators that impact on paramedicine students, graduate paramedics, and preceptors. The findings emphasize the importance of a preceptor to student learning; and the need to develop paramedicine students' skills/capacity in dealing with the emotional side of paramedic practice. Paramedicine students and paramedic graduates were found to be underprepared to communicate effectively with patients, families and other professionals. Most of these barriers could be mitigated by the utilization of non-traditional placements/experiences and with the use of non-traditional teaching methods. The introduction of a paramedic facilitator model was shown to have considerable benefits, suggesting that the introduction of a national model, similar to that of other allied health models, may be beneficial. The findings indicate a need for more effective communication between the education sector and industry in relation to the challenges that currently exist in paramedicine education and what models appear to facilitate learning, development and preparedness for clinical practice.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Acknowledgements

Chapter 1: Introduction

This chapter describes the context and nature of the role of paramedic practice, its challenges environmentally and the professional expectations, including the physical and mental burden paramedics face. An understanding and definition of the role of a paramedic is provided as conveys the history of paramedicine education. Finally, the rational for the systematic review is outlined.

The paramedicine practice environment

Paramedics are an important part of providing health services, yet they not only work in the health care environment but also as an emergency service. Paramedics work in challenging situations; often in uncontrolled and unpredictable environments with limited resources. The nature of the role and the contexts in which paramedics often find themselves requires the ability to work well under pressure in time-critical situations, while communicating with patients and family members. Paramedics require a high level of self-direction and capacity to problem solve and are required to cope with high levels of responsibility.[1,2] Clinical decision-making in these environments requires high levels of automaticity, good reasoning skills, and an ability to make critical decisions under pressure and in short time frames.[3,4] The increased complexity of paramedic decisions and multi-level system influences may also exacerbate risks.[4]

Paramedics also face an ever-increasing burden of physical and mental stress from repeated exposure to critical incidents and human suffering that occur daily in our society. This exposure can create personal mental health challenges due to what they observe and experience, and the responsibilities they assume when trying to help.[5,6]

Paramedic definition and role

The role and definition of a paramedic in an international setting can be challenging to grasp, and they are often referred to as an emergency medical technician in countries like America. Most countries have varying levels of training, which result in very different levels of care given at the scene from nothing more than basic first aid and transportation in third world countries, to highly trained paramedics able to deliver intensive care treatment at the scene in countries like Australia, which have both undergraduate and postgraduate qualifications in paramedicine. These intensive care skills have historically been exclusively within the scope of doctors, and the transition of these skills to paramedics has been a challenging journey

within the health care setting. Due to these considerable differences in educational requirements, training, scope of practice and job titles, the specific role and function of a paramedic can be difficult to define within an international context.[7] As such, the present review focuses on paramedicine within the context of Australia, the UK and New Zealand, as their systems are most easily comparable. [8,9] In this review, a paramedic is defined as a qualified clinician on an emergency ambulance team, responding to medical and traumatic cases, providing assessment, treatment and transportation.[10] Batt (2015) notes that paramedics are now increasingly seen as true healthcare professionals, as they are required to perform a detailed and through examination and history gathering, have knowledge of evidence-based treatment guidelines and therapy options, and formulate individualised plans for treatment, further care and, in some areas, even discharge plans for their patients.[11]

Educational preparation for paramedics

The challenges within the paramedic context/environment are important considerations when related to paramedic learning, especially in regard to educational preparation for the workplace. It is important to note that the educational landscape for paramedicine has evolved considerably since the introduction of the first paramedicine bachelor degree. In the mid-1990s, education for paramedics shifted from in-house training provided by ambulance services themselves to the university sector providing undergraduate tertiary qualifications in paramedicine. [7,12–14]In the UK, Australia and New Zealand, paramedics are required to complete a three-year undergraduate degree program. [8,12–14] This incorporates a combination of lectures and tutorials teaching anatomy, physiology, ethics, medical law, mental health and communication skills. Practical sessions are included to facilitate clinical skills, as well as on-road clinical placement with ambulance services to gain workplace exposure and experience. [8,12–14]

O'Meara highlights paramedicine education and training as having become an important issue, as the profession in Australia and New Zealand has transitioned from vocational training to a pre-employment, university-based model.[12] This shift came during a time of significant reform within the healthcare industry, calling for a more highly skilled work force.[15,16]

The conversion to a university-based education program in these three countries has given rise to new and emerging barriers to, and facilitators of, learning within the paramedic domain.[17]. Some of the barriers that have been identified in previous research in Australia and New Zealand include the lack of any

mandatory requirements for the duration of clinical placements and the lack of quality standards for reporting students' performance during clinical placements, unlike most other health professions within Australia and New Zealand.[8,12]

In contrast, the UK has defined standards for paramedicine clinical placements, including a commitment from ambulance services that 50% of undergraduate pre-employment education includes clinical placements with ambulance services.[12] This is a significant difference in job exposure, equating to an average of approximately 300 hours of placement in Australia and New Zealand, depending on the university, to approximately 2200 hours in the UK.[8,12]

In Australia and New Zealand, new graduates enter ''on-the- job'' initial training that involves completing a paramedic internship/graduate program. This involves working on an ambulance for up to 12 months, supervised by a preceptor and without the capacity to practice independently. During this period, the graduates are supported and mentored, and job performance is constantly measured and documented.[13,14,18]

In the UK, the graduate is considered almost job ready by ambulance services, only requiring a short induction program before commencing on road as a qualified paramedic able to practice unsupervised, which relates to spending 50% of their undergraduate degree on clinical placement.[8,13]

The lack of job readiness of Australian and New Zealand graduates has caused some barriers within Australian and New Zealand universities and ambulance services, because of the need to provide internship/graduate programs due to graduates not being considered job ready.[19,20] Some universities have increased the number of students enrolled with the expectation that ambulance services will provide extra placements for these students.[21]Ambulance services in Australia, with one or two exceptions, have not generally provided extra placements, some even reducing the number of available placements, although they would prefer students to be more job ready.[21]

Some Australian universities have tried to deal with the increasing lack of clinical placements available with Australian ambulance services by initiating other strategies, like sending students on placement with overseas ambulance services.[19,22] Reviewing participants' experiences of these programmes will give us

greater knowledge of whether these are suitable substitutes for Australian ambulance clinical placements.

The need for robust education programmes to prepare paramedics for the challenges they will face is great. Programmes that are relevant, realistic, purposeful and that create resilience so as to meet the ongoing demands faced in the real world setting of paramedicine are required. [23,24]

Rationale and approach for a systematic review

It is clear that the educational landscape for paramedicine has evolved considerably since the mid-1990s. The move to university education for paramedicine in countries such as Australia, New Zealand and the UK has had a substantial impact on the background of graduates and their preparedness for clinical practice.[14,25,26] As such, it is vital that learning opportunities are provided to support continuing education and that experiences of barriers and facilitators are identified so robust programs can be developed to ensure paramedics are adequately prepared for practice.[12] These programmes need to meet the needs of the paramedic workforce by being relevant, up to date and well researched, providing the education to create understanding of the role and the resilience to prepare the graduate paramedic to support themselves and the community they strive to care for.[23,27] A preliminary search of PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews and the *JBI Database of Systematic Reviews and Implementation Reports* was conducted and no current or underway systematic reviews in the area of paramedic learning and preparedness were identified.

The objective of this systematic review was to identify and explore the barriers to and facilitators of learning and preparedness for clinical practice among undergraduate paramedicine students, graduate/intern paramedics and their preceptors. The limited geographical contexts within paramedic learning have been chosen as they are most likely to provide valuable insight into the experiences of the journey to becoming a paramedic.

A qualitative approach was utilised to achieve this, gaining the expressed views and experiences of the participants to provide insight into the barriers and facilitators to learning, thereby providing reasoning for

evidence-based change to better prepare the current and future paramedicine workforce for the rigors of paramedic practice by facilitating change within paramedicine learning environments.

Definition of Terms

Paramedic is defined as a qualified clinician on an emergency ambulance team, responding to medical and traumatic cases, providing assessment, treatment and transportation.[28]

Paramedic Preceptor / Tutor / Clinical Instructor/coach and facilitator are terms used interchangeably to describe a preceptor of paramedicine students during undergraduate clinical placements and the graduate paramedic in the internship year. [28]

Student Paramedic is defined as **a** student enrolled in an undergraduate degree in paramedicine in Australia, New Zealand or the UK.[28]

Graduate/Intern Paramedic is defined as **a** graduate of a paramedic degree program working in Australia or New Zealand as intern and/or graduate paramedics in their first year of supervised practice[28]

Conclusion

This chapter has provided an understanding of the challenges faced by paramedics in their professional practice domains and giving a definition of each role. Paramedicine education was explored, including its transition from vocational training to tertiary education. Previous research on paramedic education was also discussed. These factors and the lack of any systematic review on what are the barriers and facilitators to paramedicine learning confirm the need for this review and its importance in influencing change to paramedicine education paradigms by providing evidence-based reasoning for change.

Chapter 2: Methodology and Methods

Introduction

This chapter begins by outlining the role of evidence-based practice within the paramedicine profession. It then describes the methodological approach used in this study, i.e. a qualitative systematic review utilising JBI meta-aggregation. Furthermore, this chapter provides a summary of the methods used to undertake the systematic review. Paramedicine as a professional discipline is relatively new, with registration for paramedics having been introduced in 2000 for the UK and only recently in Australia (2018) and New Zealand (2020).[29] The role of evidence-based health care in paramedicine is still developing along with the profession and its understanding of conducting meaningful research to instigate evidence-based change in professional practice.[30] The journey towards professionalism has had many challenges for paramedicine along the way, including evolving of the understanding of what it takes to become a profession and its relationship to evidence-based practice.[2]

Simpson (2012) comments that "paramedics with shorter lengths of service and those with tertiary education were significantly more supportive of, and had higher expectations of, research and evidence-based practice."[22] (p.197). Simpson (2012) talks about how, before the last decade, evidence-based practice had little impact on how ambulance services determined the scope of clinical practice available to paramedics and the related quality of care provided to patients, mainly because there was so little research evidence focusing specifically on prehospital care. However, the last decade has seen a dramatic increase in the volume of prehospital research, providing a rapidly-growing body of evidence, both quantitative and qualitative, upon which paramedic practice can be based. At the same time, paramedics themselves have been changing; evolving from vocationally-trained 'ambulance drivers' following rigid emergency department-based protocols, to tertiary-trained prehospital clinicians implementing flexible clinical guidelines with a high level of autonomy and critical thinking. The divergence of these two phenomena has led to the inevitable emergence of evidence-based practice within the paramedic profession. [30]

Evidence-based health care and qualitative evidence

The systematic review presented in this thesis has sought to synthesise qualitative research evidence. Qualitative research plays a meaningful role in understanding how persons within professional/non-professional communities identify issues by describing their lived experiences. It can help in understanding the culture of these communities in relation to implementing changes and overcoming barriers.

The history of evidence-based health care can be traced back to the days of Florence Nightingale. Applebaum (2010) has noted that the foundations underlying evidence-based practice have long-standing roots in efforts to help individuals. During the Crimean War in the 1850s, Florence Nightingale was engaged in evidence-based practice when she found a connection between poor sanitary conditions in the hospital and increasing death rates among wounded soldiers. Her subsequent changes to sanitize hospitals to save soldiers' lives led to dramatic drops in patient mortality. Her methods, described as a process of identifying, critically appraising, and summarising the best available evidence, led to the advent of today's standards for evidence-based practice.[31] Pearson (2007) commented that "Evidence synthesis is the evaluation or analysis of research evidence and opinion on a specific topic to aid in decision-making in health care" [32](p. 21).

In the present day context, most health institutions employ the use of evidence-based practice and use evidence-based strategies to inform clinical practice.[33] This evidence-based approach is underpinned by the historical and traditional positivist approach of scientific analysis focussed on effectiveness.[34] In more recent times, over the last 25 years or so, the positivist paradigm has been accompanied by qualitative research methods, which can expand and augment the view of what evidence entails.

Pearson (2016) reflected upon the past 40 years and how evidence for practice has increasingly influenced the improvement of health care. Although evidence for practice appears to be an integral component to decision-making in health care practice, it has historically been led by the results of quantitative research.[35] The results of qualitative research can provide evidence that investigates everyday clinical practices, deliver insight into the user's perspective, cultivate and evaluate interventions and provide vision into organisational culture and policy initiatives.[36] Porritt (2013) commented that "Evidence is therefore increasingly being seen as not merely the logically, measured observations from a positivist stance but as the outcome of any research that has been conducted systematically and adds

to the body of knowledge". This growing acceptance towards what constitutes evidence, and the need to have answers to questions not related to effect, has seen the growing use of qualitative findings within healthcare research"[37] (p.10).

Systematic reviews

Within evidence-based practice, a systematic review is deemed as the gold standard when synthesising evidence. Systematic reviews synthesise all the available evidence following internationally recognised steps that ensure transparency and rigour. Evidence-based practice requires the use of the most relevant, well conducted and current research to aid decision-making regarding patient care.[38] The goal of a systematic review in the context of evidence-based health care is to ascertain, critically evaluate and synthesise the best available evidence on the exact topic to enhance decision-making regarding education, clinical practice, policy, continued research and to improve patient outcomes. [39] The steps for conducting a systematic review entail:[40]

- Development of a rigorous study protocol;
- Clear statement of a study question;
- Identifying a detailed search strategy to find all relevant studies, with inclusion and exclusion criteria;
- Establishing a process for assessing the quality of each study to be included in the review through the critical appraisal process;
- Extracting data from the primary studies regarding participants, phenomena of interest, settings and key findings;
- Establishing a method of aggregating data to create a synthesised finding; and
- Interpreting the results and establishing confidence in the evidence.

Overview of qualitative evidence synthesis

Solitary primary qualitative studies have negligible impact to inform or guide institutions and practice. Walsh (2005) describes "Synthesising qualitative evidence through a method that is aggregative, systematic and rigorous can enable the nuances, taken for granted assumptions, and textured milieu of varying accounts to be exposed, described and explained that bring fresh insights."[41] (p.205).

However, there are different approaches to qualitative synthesis, including but not limited to meta-ethnography, thematic synthesis, realist synthesis and meta-aggregation (the approach followed in this review and described further below). Bearman (2013) defined qualitative synthesis as "any methodology whereby study findings are systematically interpreted through a series of expert judgements to represent the meaning of the collected work. In a qualitative synthesis, the findings of qualitative studies and sometimes mixed-methods studies are pooled. Judgement-based qualitative methodologies are used to draw conclusions regarding the collective meanings of this pool of research." [42] (p.253).

The nature of qualitative synthesis has provoked controversy and debate amongst the academic community. Conventionally, there has been strong criticism of qualitative synthesis because of its potential for bias. Qualitative data, by its nature, is not devised to be framed in the same way as quantitative data. Quantitative meta-analysis, for example, uses multiple randomised controlled trials on the basis that a large enough sample will effectively cancel out biases inherent in any particular study. Conversely, qualitative studies are interpretive and are drawn from data that are neither intended to be generalizable nor without bias.[42] Bearman said that "these are studies which, through their access to in-depth understanding of nuanced relationships and authentic perspectives, illuminate rather than direct." [42] (p.253).

There is ongoing controversy and argument from both qualitative and quantitative traditions that are uncomfortable with context-specific qualitative research and the notion of drawing more generalizable conclusions through synthesis.[42] Bearman felt that "despite the controversies, it is of great importance to gather what collective wisdom we can from a range of methodological perspectives. Moving past 'does it work' questions requires venturing beyond absolute mathematical systematicity to consider the possibilities of other types of syntheses, which can draw together qualitative, mixed-method and quantitative research. We also acknowledge the concerns of those in the higher education qualitative research community and note that synthesis processes may not do full justice to the originating studies. However, rather than adopt the all-or-nothing 'false dualism' of a qualitative versus quantitative dichotomy, we take the pragmatic perspective that different methodologies will yield different insights." [42] (p.254).

The methodological approach used to undertake this review is referred to as meta-aggregation, established by JBI.[43] Pearson has said of the development of this approach that "a small group of Australian scholars from various methodological backgrounds started work on trying to develop a

theoretically grounded approach to searching for, appraising and synthesizing the findings of qualitative studies. This work led to the development of meta-aggregation" [35] (p.2). Meta-aggregation enables linking the results of qualitative studies in a reliable manner.[38] Findings are combined into categories and the categories are then synthesised to form synthesised statements. Bearman commented that "a clearly described framework enables the readers to make a critical assessment of the work, using their own expertise, drawn from their own contexts."[42] (p.258).

The ConQual approach[44] is utilised to rate the quality and confidence of each of the synthesised findings in this review. This approach ranks synthesised findings based on their credibility and dependability. Each synthesised statement is initially presumed to be of high quality and then downgraded for any credibility and/or dependability rating less than high.

Criteria for Considering Studies for this Review

This systematic review was conducted in accordance with the JBI methodology for systematic reviews of qualitative evidence.[39] This review was conducted in accordance with an *a priori* protocol.[28] The review protocol is registered with PROSPERO (CRD42018119336).

Types of participants

This review considered qualitative studies that included the experiences of: i) paramedicine students enrolled in an undergraduate degree in paramedicine in Australia, New Zealand or the UK; ii) graduates of a paramedic degree program working in Australia or New Zealand as graduate paramedics in their first year of supervised practice; iii) graduates of the UK paramedic degree program practicing independently as a paramedic in their first year; and iv) preceptors of paramedicine students during undergraduate clinical placements, and preceptors of graduate paramedics in their graduate year.

Phenomena of interest

This review considered studies that explored the experiences and perceptions of barriers and facilitators related to learning, development and preparedness for clinical practice.

Context

This review considered experiences of participants during formal and informal paramedic learning contexts, including undergraduate university study/field placements, as well as in-service education programs provided by ambulance providers to staff during graduate training programs. To be eligible, the studies must have been conducted in or included participants from Australia, New Zealand and the UK. These are the only countries that have standardised undergraduate degrees in paramedicine as the minimum requirement for entry into the work-force.[12,45] Due to the lack of similar standardisation requirements, the relevance of experiences from paramedics learning in other countries may be limited.

Types of studies

This review considered studies that focused on qualitative data including, but not limited to, designs such as phenomenological studies, qualitative descriptive studies, ethnographic studies, grounded theory, action research and feminist research. Mixed methods studies were also included which is a deviation from the published protocol.[28]

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Studies published in the English language were included. Studies published from 1994 to 2019 were considered, as this start date marks the transition from vocational education programs to university tertiary education, marking a change in the setting and method of paramedic education.[15,16]

Methods

Search strategy

The search strategy aimed to locate both published and unpublished studies. A three-step search strategy was utilised in this review. First, an initial limited search of PubMed and CINAHL was undertaken, followed by analysis of the text words contained in the title, abstract and the index terms used to describe the articles. The search strategy, including all identified keywords and index terms, was adapted for each included information source and a second search was undertaken between July and August 2018. The full search strategies are provided in Appendix I. Finally, the reference list of all studies selected for critical appraisal was screened for additional studies.

Information sources

The databases that were searched included: PubMed (OVID), CINAHL (EBSCOhost), ERIC (EBSCO) and Embase (ELSEVIER). Following the first phase of searching, it was identified that paramedicine journals were often not indexed in the aforementioned databases and thus an additional search was conducted using the Google advanced search function, based on advice from the university librarian. The search results were limited to the first 200 results and ordered by relevance. In order to ensure that all possible literature was included in the review, a supplemental hand search was also undertaken during October 2019. Following consultation with an academic in the area, the following journal titles were deemed to be of high relevance to paramedicine:

Australian Paramedic, Australasian Journal of Paramedicine (formerly the Journal of Emergency Primary Health Care), British Paramedic Journal, International Paramedic Practice, Irish Journal of Paramedicine, Journal of Paramedic Practice, Prehospital and Disaster Medicine and Prehospital Emergency Care.

The search for unpublished studies included a search of ProQuest dissertations and theses, and sources relevant to paramedic learning, such as the following websites: Council of Ambulance Authorities Australia, Paramedics Australasia, Health and Care Professionals Council, London, UK, Australian and New Zealand College of Paramedicine, New Zealand Paramedic Education and Research Charitable Trust, and The College of Paramedics UK.

Study selection

Following the search, all identified citations were collated and uploaded into EndNote 2016 (Clarivate Analytics, PA, USA), with any duplicates removed. Titles and abstracts were screened for assessment by the author against the inclusion criteria for the review any uncertancies were reviewed at full text. Potentially relevant studies were retrieved in full text by the author and two reviewers gaining consensus to include. The citation details were then imported into the Joanna Briggs Institute System for the Unified Management, Assessment and Review of Information (JBI SUMARI) (Joanna Briggs Institute, Adelaide, Australia). Full text studies that did not meet the inclusion criteria were excluded by the author and two reviewers and reasons for their exclusion are provided in Appendix II. Any disagreements that arose between the three reviewers were resolved through discussion, or in conjunction with a fourth reviewer.

Assessment of Methodological Quality/Critical Appraisal

Eligible studies were appraised critically by two independent reviewers for methodological quality prior to inclusion in the review. The standardised JBI critical appraisal instrument for qualitative research was used.[46,47] Any disagreements that occurred between the two independent reviewers were resolved through discussion therefore a third reviewer was ultimately not needed.[46]

Although no formal requirements for methodological quality were stated in the a priori protocol, a decision was made during methodological assessment that studies had to meet criteria 8 (were participants and their voices adequately represented?) in order to be included. Two studies were excluded for this reason (Appendix III).

Data extraction

Data were extracted by the author from papers included in the review using the standardised JBI data extraction tool, piloting of the tool was conducted on several studies by the author and two reviewers.[46,47] Data extracted included specific details about the phenomena of interest, populations, study methods, findings, illustrations and specific objectives. Findings and illustrations were extracted verbatim and assigned a level of credibility according to the JBI levels of credibility, which rated them either unequivocal or credible, depending on the level of the authenticity of the illustration.[44] The author contacted one author of a primary study for clarification of missing information and data without success. Depending on the available data in each included study, data were extracted at either the theme or subtheme level. A sample of the extracted findings and illustrations were verified by a second reviewer.

Data Synthesis

Qualitative research findings relevant to the question were pooled by the author and two reviewers using JBI SUMARI (Joanna Briggs Institute, Adelaide, Australia). The primary author undertook the bulk of the synthesis, the other authors provided feedback on five occasions to gain the final synthesis. This involved the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, assembling the findings according to their quality and categorising them on their similarity in meaning. These categories were then subjected to a meta-synthesis in order to produce a single comprehensive set of synthesised findings that could be used as a basis for evidence-based practice. [43] The results are organised by synthesised finding and include a description of the categories.

Assessing confidence in the findings

The final synthesised findings were graded according to the ConQual approach for establishing confidence in the output of qualitative research synthesis and presented in a Summary of Findings.[44] The Summary of Findings includes the major elements of the review and details how the ConQual score was

developed. Included in the table are the title, population, phenomena of interest and context for the specific review. Each synthesised finding from the review is presented, along with the type of research informing it, scores for dependability and credibility, and the overall ConQual score.

Conclusion

This chapter outlined the journey of paramedicine in relation to evidence-based practice, the history of evidence-based practice and introduced systematic reviews and the role of qualitative synthesis including the JBI approach to meta-aggregation. It then described the inclusion criteria for this review, and the methods for searching, screening, assessment of methodological quality, data extraction, data synthesis and assessing confidence in the findings.

Chapter 3: Results

Introduction

This chapter describes the search results, study selection and inclusion process, the methodological quality of the 26 included studies and their characteristics. A table of the critical appraisal results of the eligible studies is provided, along with a PRISMA flow diagram showing the number of records from the search. The results of the qualitative synthesis are broken down into the five synthesised findings, with a description of the twenty-eight individual categories within the synthesised findings, and a table of the 296 findings provided for each category.

Study inclusion

As shown in figure 1 (PRISMA [Preferred Reporting Items for Systematic Reviews and Meta-Analyses] flow diagram), 2731 records were identified from a detailed search process across a number of selected databases, a google search, and handsearching of journals and websites. This included one unpublished article sent to the author by a colleague. Generic search terms like 'emergency medical technician' and 'learning' were necessary due to the relatively new nature of paramedicine and language limitations of the field. Citations were imported from the databases into EndNote and 50 duplicate records were removed. A total of 2681 records were then reviewed by title and abstract and 2632 records not relevant to the topic were removed, leaving 49. The 49 full-text articles were reviewed and 21 were excluded that did not meet the inclusion criteria; 20 were excluded due to ineligible study design and one was excluded due to its ineligible population (Appendix II). Twenty-eight articles underwent appraisal; two were discarded due to methodological quality (a lack of illustrations and findings) (Appendix III). The remaining twenty-six articles were included in the systematic review (Appendix IV).
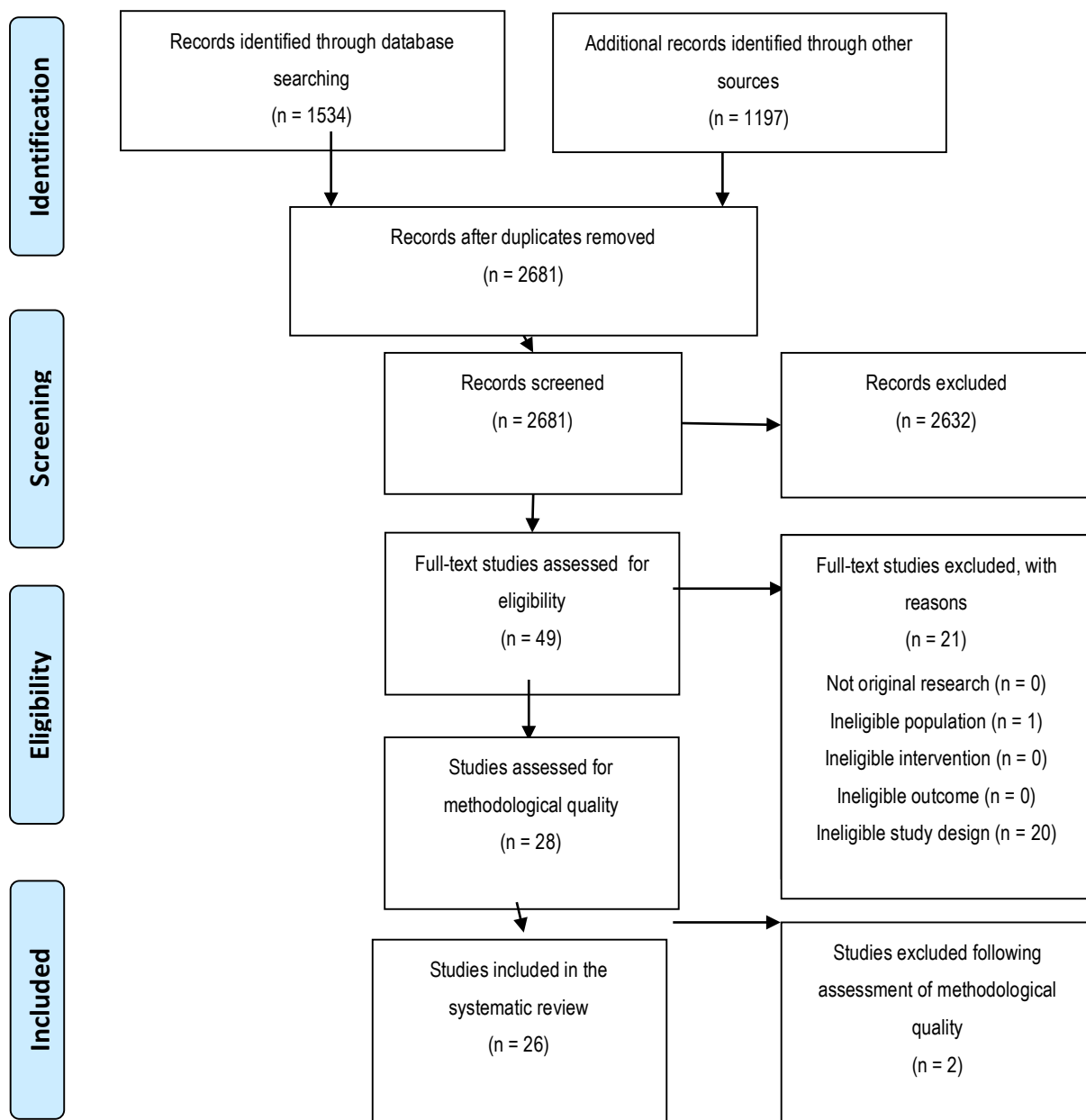
Figure 1: Search results and study selection and inclusion process[48]

Methodological quality of included studies

The methodological quality of the included studies varied. Three studies scored yeses to all ten criteria, three studies only scored yeses to three of the ten criteria and the remaining studies sat between them. Overall, studies scored poorly on the stated philosophical perspective (Q1), a statement locating the researcher culturally or theoretically (Q6) and the influence of the researcher on the research (Q7), with the total responses less than 25% for each criterion. The inclusion of participants' voices (Q8), was addressed by all of the studies since it was an essential criterion although it was not included in the a priori protocol.28 Congruity of research methodology and study question (Q2), data collection (Q3), analysis techniques (Q4), and interpretation of results (Q5) all scored highly. Ethical conduct of the research (Q9) and articulation of conclusions drawn (Q10) also scored well across the majority of studies. (See table 1).

Table 1: Critical appraisal results of eligible studies

Citation	Q1	Q2	Q3		Q5	Q6	Q7	Q8	Q9	Q10
Carver et al.[49]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Delisle et al.[50]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Devenish et al.[51]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Ford et al.[52]	U	U	U	U	U	N	N	Y	Y	Y
Gallagher et al.[53]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Henderson[54]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Howlett [55]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Lane et al.[56]	U	Y	Y	Y	Y	N	U	Y	Y	Y
Langford et al.[57]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lucas et al.[58]	U	U	U	U	U	N	N	Y	Y	Y
Lucas et al.[59]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Lucas et al.[60]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Maria et al.[61]	U	Y	N	N	N	N	N	Y	Y	U
McCall[62]	U	Y	Y	Y	Y	N	Y	Y	Y	Y
O'Meara et al.[63]	U	Y	Y	Y	Y	N	N	Y	Y	Y
O'Brien et al.[64]	U	Y	Y	Y	Y	N	N	Y	N	Y
Rae et al.[65]	Y	Y	Y	Y	Y	U	U	Y	N	Y
Rees et al.[66]	Y	Y	Y	Y	Y	U	Y	Y	Y	Y
Reid et al.[67]	U	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ross et al.[68]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Simpson et al.[22]	N	U	U	U	Y	N	N	Y	Y	Y
Williams[24]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Williams[69]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Williams et al.[70]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Willis et al.[71]	U	Y	Y	Y	Y	N	N	Y	Y	Y
Willis[72]	U	Y	Y	Y	Y	N	N	Y	Y	Y
%	21.42	89.28	85.71	85.71	89.28	14.28	21.42	100.00	92.85	96.42

Y = Yes, N = No, U = Unclear; JBI Critical Appraisal Checklist for Qualitative Research Q1 = Is there congruity between the stated philosophical perspective and the research methodology?; Q2 = Is there congruity between the research methodology and the research question or objectives?; Q3 Is there congruity between the research methodology and the methods used to collect data?; Q4 = Is there congruity between the research methodology and the representation and analysis of data?; Q5 = Were those delivering treatment blind to treatment assignment?; Q6 = Is there a statement locating the researcher culturally or theoretically?; Q7 = Is the influence of the researcher on the research, and vice-versa, addressed?; Q8 = Are participants, and their voices, adequately represented?; Q9 = Is the research ethical according to current criteria for recent studies, and is there

evidence of ethical approval by an appropriate body?; Q10 = Do the conclusions drawn in the research report flow from the analysis or interpretation of the data?

Characteristics of included studies

The twenty-six qualitative studies were published over a thirteen-year period from 2006 to 2019. Twenty-five studies used a phenomenological methodology and one study used a case study approach.[65] The studies used semi-structured, in person interviews; [26,49,51,53,59,65–68,72] open-ended interview questions via surveys [24,50,61,62,64,69] or focus groups [22,52,55–58,60,63,70,71] to collect data. Sample sizes ranged from 1 to 96 for studies using oral interviews or focus groups.[22,26,59,60,62,63,66–68,71,72,49,51–53,55–58] For studies that used a written survey approach, the sample size ranged from 8 to 54.[24,50,61,64,69] The total sample size for participants in this review was 564.

Three counties were represented in the studies: Australia,[49–52,57–60,62,64–66,68–70] Australia and New Zealand,[22,63] the UK,[24,26,53,55,56,72] and Australia and the UK.[61,67,71] The participants and contexts included within the studies were as follows:

- Five studies provided the perspectives of university undergraduate paramedicine students while they were undergoing clinical placements on ambulances.[22,24,26,62,64]
- Six studies showed the perspectives of undergraduate paramedicine students undertaking clinical placements in the allied heath environment.[50,51,58–60,66]
- Four studies provided the perspectives of paramedic preceptors of university undergraduate paramedicine students during clinical placements on ambulances.[56,61,63,67]
- Two studies focussed on the perspectives of university paramedic educators delivering training to undergraduate paramedicine students in the university setting.[65,70]
- Three studies gave the perspective of paramedicine undergraduate students in relation to non-traditional teaching methods in the paramedicine university setting.[55,69,72]
- Two studies gave the perspectives of graduate paramedic preceptors while providing mentorship to graduate paramedics during their graduate year.[49,71]
- One study provided the perspectives of university undergraduate paramedicine students and their paramedic preceptors during clinical placements on ambulances with a clinical facilitator model, giving the experiences of both preceptors and students together in the same location and time frame.[57]
- One study gave the views of undergraduate paramedicine students and their preceptors on professionalism in paramedicine.[53]
- One study gave the experiences of paramedicine undergraduate students undergoing a wilderness experience.[52]
- One study showed the experiences of undergraduate paramedicine students undergoing a community volunteering placement.[68]

Appendix IV provides the key characteristics of the included studies.

Review findings

A total of 295 findings were extracted from the included twenty-six studies (Appendix V) and combined to form 28 categories based on similarity of meaning. All findings were rated unequivocal. They were further organised into five synthesised findings. The results are organised by synthesised findings and include a description of the categories, and a sample of findings with corresponding illustrations. The relationships across the findings, categories and synthesised findings are presented in Tables 2-6. Appendix VI depicts the number of findings that are included in the categories and the categories that connect to each synthesised finding to illustrate the overall synthesis process.

Synthesized finding 1: The role of mentoring/ preceptorship

Providing mentoring and preceptorship for undergraduate paramedicine students and paramedic interns was highly valued for reducing the transitional learning gap from the university environment to real life professional paramedic practice. This meta-synthesis was created from six categories and 63 findings (Table 2).

Studies clearly described the ongoing demands of paramedic preceptors and paramedic sessionals wanting more time and consistency with paramedicine undergraduate students. Participants consistently reflected on the importance of good mentoring and coaching practices during undergraduate student placements and during paramedic internship. Participants from all the studies felt that the real-life setting was crucial to the learning experience and was where the most developmental opportunities existed, especially if they had good coaching and mentoring. Strong benefits were associated with the use of a paramedic facilitator model.

Table 2: Synthesized finding 1 – categories and findings

META-SYNTHESIS 1: THE ROLE OF MENTORING/ PRECEPTORSHIP
Providing mentoring and preceptorship for undergraduate paramedicine students and paramedic interns is critical to reducing the transitional learning gap from the university environment to real life professional paramedic practice

Findings	Categories
Lack of continuity of educators. (U)	Category 1. More time and consistency with students.
Paramedic instructors argued that short placements were lost opportunities to engage with students in their clinical education.(U)	
Paramedic instructors described wanting time at the end of their shift to talk with students and debrief any critical incidents that may have occurred.(U)	
Paramedic educators reported not being able to give proper feedback to students after cases due to a lack of time, and the pressure to get to the next job. This was identified as one of the biggest challenges in regards to undertaking effective education with students in the clinical environment.(U)	
Although many interviewees mentioned that they felt valued and were often thanked informally by academic staff for their efforts, there was a distinct lack of constructive feedback on their teaching performance. (U)	Category 2. The experiences of paramedicine sessional university educators.
This lack of feedback often led to feelings of uncertainty regarding their teaching capabilities or performance, and to feelings that there was a necessity to learn on the job through trial and error. (U)	
It was also mentioned that the majority of feedback received was in an informal manner from the students, not staff. (U)	
There was much discussion regarding the need for more consistency with information about where the students are in their studies with regard to the curriculum, as well as departmental expectations. That is, what have the students previously been taught and to what level they should be expected to operate educationally? There seemed to be little such information. (U)	
Pre-existing qualifications/experience. (U)	
Preparation provided by the workplace. (U)	
Observation of other educators was suggested as a method that could be employed to assist in learning how to teach. (U)	
Sessionals often reported difficulty in obtaining the information required for the smooth running of their class. (U)	
Others felt quite detached from the university workplace.(U)	
Some viewed this disconnect from the university as an inevitable part of the sessional experience. (U)	
None of the individuals had taken part in any professional development, apart from the induction day, while working as a sessional educator. Some had seen opportunities, but had chosen not to participate. (U)	

Table 2 continued: Synthesized finding 1 – categories and findings

The skill of urgent duty driving requires experience and practice, with real-time coaching from the preceptor.(U)	Category 3. Learning to work safety in the paramedic environment.
One participant, Alex, articulated the preceptor's facilitation of this knowing as imparting street sense.(U)	
Preceptors in this study strongly recognised their role in patient safety.(U)	
Each participant reported feeling that they were responsible for the actions of the novice.(U)	
Participants reported using several strategies in operationalising the patient safety aspect of the preceptor role. Listening and open communication between preceptor and preceptee appear to be key.(U)	
Preceptors in this study were cognisant of their role in ensuring that novice paramedics unfamiliar with the dangers of paramedic practice remained safe.(U)	
Despite the internship being an experiential learning period, preceptors sometimes felt that patient safety requires the novice take a more observational learning approach while the preceptor assumes care for the patient.(U)	
Preceptors are using strategies of support, guidance and advice: coaching would seem to be the most accurate description of the pedagogy being enacted between preceptor and preceptee.(U)	Category 4. Coaching strategies paramedic preceptors feel are important.
Participants in this study expressed the importance of establishing an understanding of their preceptees as individual learners who have come to paramedicine with different backgrounds, skills and experience.(U)	
An additional coaching strategy reported was for preceptors to create opportunities for learning in the practice environment.(U)	
Role modelling was reported being used in all aspects of the position of paramedic preceptor, whether interpersonal interactions with patients, colleagues or managers, driving and adherence to organisational policies and procedures.(U)	
Paramedics in this study reported that preceptors must 'walk the walk', emphasising that the novice is more likely to emulate how the preceptor behaves, rather than what they say should happen.(U)	
Participants in this study reported socialising their novices through a range of strategies. Facilitating a sense of belonging was achieved through introduction to colleagues and managers, but also the practical aspects of lockers and station familiarisation.(U)	
Preceptors in this study reported they were in a position to impart intangible knowledge to the preceptee, guiding the novice in their early introduction in the unwritten components of practice.(U)	
Preceptor reported that guidance and support can assist novices with their self- confidence and maintaining realistic expectations of their learning curve.(U)	
Paramedic educators reported that a key quality that impacted upon a student's capacity to learn was being approachable.(U)	
Paramedic educators reported the importance of the qualities of honesty, trustworthiness, supportiveness, patience, kindness, enthusiasm, respectfulness and maintaining high standards.(U)	
Paramedic educators reported that the paramedic educator should have an understanding of the student's level of education and their personal level of development.(U)	

Table 2 continued: Synthesized finding 1 – categories and findings

Both student and preceptor participants reported that, due to the preparatory work of the paramedic facilitator prior to the students attending their clinical placements, preceptors better understood the students' curriculum and learning outcomes for their clinical placements.(U)	
Participants reported that the facilitator modelled a positive learning environment, providing an example for preceptors. This lead to a culture of teaching and learning where preceptors were more willing to engage with students educationally.(U)	
Participants reported feeling an increase in overall confidence due to the role of the facilitator. This confidence boost led to students participating more actively in supervised patient management, and to preceptors' confidence in allowing the students to demonstrate their skills and knowledge.(U)	
Where possible, the paramedic facilitator introduced the student to the crew at the ambulance station at the commencement of their first placement. The facilitator re-enforced the capabilities of the students. Students felt increased confidence with this positive start.(U)	
Students and preceptors reported that the ambulance clinical placement was undertaken in a live emergency ambulance environment, where, understandably, operational issues were the priority, rather than student education. It was perceived by students that the preceptors were often reluctant to provide educational opportunities to students due to this competing priority. The paramedic facilitator helped to address this imbalance by being a dedicated educational resource. This increased the students' learning opportunities and maximised productive time while on placement.(U)	
Students especially appreciated the opportunity to debrief and reflect critically after cases. This allows an opportunity to strengthen the learning from each case.(U)	
Paramedic preceptors appreciated the enhanced, more personal clinical placement experience. They valued their contribution to the students' learning.(U)	Category 5. The introduction of a paramedic facilitator model.
Overall, students felt supported in an enhanced educational relationship with the paramedic facilitator. This reduced workplace stress, allowing students to perform at their best.(U)	
Students and preceptors found it advantageous to have a designated point of contact between the university and ambulance service to manage the issues which inevitably occurred with the day to day management of student clinical placements.(U)	
The facilitator, having prior knowledge of both the students' and preceptors' backgrounds and personalities, instigated pre-emptive strategies to improve team coherence prior to any issues becoming apparent, such as re-allocating students to more willing preceptors.(U)	
A number of issues occurred whereby the student had negative experiences with allocated preceptors. The facilitator was able to manage these conflict situations and implement an appropriate strategy, such as counselling the student or preceptor, or re-allocating the student to more receptive preceptors at an alternative station. This in turn, increased the learning opportunities and quality of placement.(U)	
Students reported that having access to the facilitator to support them after critical events resulted in potentially adverse events turning into learning experiences.(U)	
Students felt they were better supported at all times by the paramedic facilitator, due to the increase in socio-emotional and physical safety. This level of continuity and support resulted in increased student confidence.(U)	
Students and preceptors reported that while on clinical placement there were a number of incidents which had the potential to impact student welfare significantly. These included confronting and traumatic cases, preceptor hostility towards students, and stress and anxiety about workplace issues. The facilitator had a previously-established trusting relationship with both students and preceptors, and was seen as trustworthy and approachable with sensitive matters. Preceptors utilised the facilitator as a referral and intervention point for student welfare post incidents, including debriefing, and access to further services.(U)	

Table 2 continued: Synthesized finding 1 – categories and findings

Students identified the need for appropriately trained clinical educators.(U)	
Students perceived that clinical educators who were responsible and trained in teaching – much like clinical educators in nursing – would improve the quality of teaching and learning available to paramedic students.(U)	
Students indicated they preferred a staff member who was genuinely interested in teaching and had the time to work with students.(U)	
Participants considered an 'everyone is a mentor' approach resulted in a lack of depth in student education and placed an onus on individual paramedics, who may not want to be mentors.(U)	
Paramedic educators felt that it was important for mentors to have been through and understand the university model of paramedic education, in order to be a successful mentor.(U)	
Paramedic educators felt that expecting a paramedic to become a mentor immediately after leaving university was asking too much.(U)	
Paramedic educators identified that it may never be appropriate for an individual to take on a mentoring role.(U)	
Paramedic educators felt that their organisations currently do not do enough to recognise the role of the mentor.(U)	Category 6. What makes a good paramedic preceptor?
Paramedic educators reported being particularly interested in receiving feedback from students about their effectiveness as a mentor.(U)	
Paramedic educators identified that they themselves may require a mentor, to ensure they have someone to go to when they are challenged by the role or require support.(U)	
Paramedic educators identified a desire to learn about mentoring from allied health professions who have established systems of education and mentorship.(U)	
Paramedic educators reported that the long-term benefits of supporting mentors would enable students to have positive placement experiences and, therefore, when looking for a primary employer, they would be more likely to return.(U)	
Participant reported how preceptors provided feedback during placement and how they may prefer to do this during 'downtime' rather than on the road.(U)	
Participants reported a need to provide an overall open comment for feedback to the student.(U)	
Students from the mature student sample discussed the importance of working with mentors.(U)	
Students reported that staff who were trained mentors or who had come though the university were more proactive about utilising reflective practice.(U)	

Category 1: More time and consistency with students

Four findings were combined to form this category, which captured the experience of paramedic preceptors. This participant group felt that time and consistency with students were imperative to their learning experience, teaching them both in university with sessional staff and during clinical placement with preceptors, to allow for feedback and development. They argued that short placements and a lack of continuity of educators were lost opportunities to engage with students during their clinical education. Paramedic preceptors described wanting time at the end of their shift to talk with students and debrief any critical incidents that may have occurred.

"*We need time to provide feedback and do the paperwork. At the moment, the shift finishes and we have 10 minutes to sign the forms, shake hands and we never see them again.*" [63] p.1082

Category 2: Experiences of paramedicine sessional university educators

This category combined eleven findings showing that paramedicine sessional university educators experienced both barriers and facilitators while teaching in the university environment. The barriers related to feedback, administrative expectations and overall support provided by the university. Although many interviewees mentioned that they felt valued and were often thanked informally by academic staff for their efforts, there was a distinct lack of constructive feedback on their teaching performance. Sessionals often reported difficulty in obtaining the information required for the smooth running of their classes. There was much discussion regarding the need for more consistency in information about where the students are in their studies with regard to the curriculum, as well as departmental expectations. Sessionals felt they needed to learn how to teach, as no training had been provided in this area. Observation of other educators was suggested as a method that could be employed to assist in learning how to teach. Facilitators identified by sessional staff included the enjoyment they received from teaching the students, even though the financial rewards were not as great as working clinically. Another much cited facilitator of sessional teaching was that it was a way of staying current with information and continuing to develop professionally. The casual nature of the work was generally seen to be positive in the paramedic setting. Most reported having a good working relationship with the academic staff and were not aware of sessionals being treated in an unfair manner. Most expressed an interest in taking part in future professional development opportunities offered, and that their preferences were for education and communication strategies in delivering learning to the students, as they felt underprepared in this area.

"There should be some sort of training day, especially for the new sessionals...on how to teach... how to get the concepts across...and even to get some guidance on how [University name] permanent staff teach and how they try to get their message across."[70] (Tony) p.4.)

Category 3: Learning to work safety in the paramedic environment

Seven findings indicated that graduate paramedic preceptors felt a responsibility to i) ensure that graduate paramedics were safe when making patient treatment decisions and ii) play a role in teaching them to work safely when in unfamiliar and dangerous paramedic practice environments. Each participant reported feeling that they were responsible for the actions of the graduate paramedic in patient care decisions and were cognisant of their role in ensuring that graduate paramedics unfamiliar with the dangers of paramedic practice remained safe.

"Essentially the buck stops with us, being the only qualified operator in the car. And if something happens that compromises their safety it's pretty much our fault. We should be there to watch them like a hawk, so to speak."[49] (Drew) p.8.

Category 4: Coaching strategies paramedic preceptors feel are important

Eleven findings portrayed that paramedic preceptors employed a variety of strategies that they perceived as adding value to graduate paramedic and undergraduate student learning and development. Preceptors used strategies representative of a coaching pedagogy, such as offering support, guidance and advice to facilitate students. Participants in this study expressed the importance of establishing an understanding of their preceptees as individual learners who have come to paramedicine with different backgrounds, skills and experiences, and the importance of role modelling by walking the walk to show the students best practice.

"If I say, 'Oh, you need to build a rapport with that patient,' then I go to the next patient and go, 'Come with me,' be abrupt and stern and not be patient, it's not going to – it's going to fall on deaf ears. So, I guess it's like any leader. People learn from the leader's actions rather than their words." [49](Chris) p.6.

Category 5: The introduction of a paramedic facilitator model

Sixteen findings indicated that both paramedicine students and paramedic preceptors felt that a paramedic clinical facilitator model might improve the quality of ambulance service clinical placements for both undergraduate paramedicine students and their preceptors, leading to a more positive learning experience. Both student and preceptor participants reported that, due to the preparatory work of the paramedic facilitator prior to the students attending their clinical placements, preceptors better understood the students' curriculum and learning outcomes for their clinical placements. Where possible, the paramedic facilitator introduced the student to the crew at the ambulance station at the commencement of their first placement. The facilitator re-enforced the capabilities of the students. Students felt increased confidence with this positive start. Students especially appreciated the opportunity to debrief and reflect critically after cases. This allows an opportunity to strengthen the learning from each case, thereby reducing workplace stress and enabling students to perform at their best. Students and preceptors reported that while on clinical placement there were a number of incidents which had the potential to impact student welfare significantly. These included confronting and traumatic cases, preceptor hostility towards students, and stress and anxiety about workplace issues. The facilitator had a previously established trust relationship with both students and preceptors and was seen as trustworthy and approachable with sensitive matters. Preceptors utilised the facilitator as a referral and intervention point for student welfare post incidents, including debriefing and access to further services. The facilitator, having prior knowledge of both the students and preceptors' backgrounds and personalities, instigated pre-emptive strategies to improve team coherence prior to any issues becoming apparent, such as re-allocating students to more willing preceptors. Students and preceptors found it advantageous having a designated point of contact between the university and ambulance service to manage the issues that inevitably occurred with the day to day management of student clinical placements. Overall, students felt supported in an enhanced educational relationship with the paramedic facilitator.

"You don't feel bad about saying, "Can you help me?" or, "This happened". The facilitator's job is for students. They come in and you're like okay cool, I've got this, and you don't feel bad. It's such a breath of fresh air when he walks in." [57] – PSFG2, p.14.

Category 6: What makes a good paramedic preceptor?

Fourteen findings recorded that both paramedicine students and paramedic preceptors felt that what makes a good paramedic preceptor involved appropriate preceptor training in mentoring and teaching. There was a desire to learn about mentoring from allied health professions, who have established systems of education and mentorship. Preceptors felt they needed to be provided with support for their role both from the ambulance service and the university sector. They identified that they themselves may require a mentor, to ensure they have someone to go to when they are challenged by the role or require support. Preceptors felt that they needed a certain level of experience before taking on the role of mentoring students, expecting a paramedic to become a mentor immediately after leaving university was seen as asking too much. Recognition was also seen as an important facilitator to preceptor satisfaction; organisations were seen as not currently doing enough to recognise the role of the mentor. It was felt that staff members who become preceptors should genuinely be interested in teaching and have the time to work with students. An 'everyone is a mentor' approach was seen as resulting in a lack of depth in student education and placed an onus on individual paramedics, who may not want to be mentors. Preceptors also wanted to receive feedback from students about their effectiveness as a mentor.

"*It would be very nice to have a situation where the mentors have a mentor to mentor the mentoring.*" [56]p.7.

Synthesized finding 2: Opportunities to develop emotional intelligence and communication skills

This meta-synthesis summarizes 26 findings grouped into five categories (Table 3). Aside from the technical/clinical skills required, paramedicine students will also need to develop skills/capacity in dealing with the emotional side of paramedic practice, which includes communicating with patients, family members and other health professionals. Creating resilience requires training, education, exposure and support; allowing for the building of capacity to deal with the emotional and interpersonal communication aspects of paramedic practice.

Table 3: Synthesized finding 2 – categories and findings

META-SYNTHESIS 2: OPPORTUNITIES TO DEVELOP EMOTIONAL INTELLIGENCE AND COLLABORATION/COMMUNICATION SKILLS
Aside from the technical/clinical skills required, paramedicine students will also need to develop skills/capacity in dealing with the emotional side of paramedic practice, which includes collaborating/communicating with patients, family members and other health professionals. Creating resilience requires training, education, exposure, and support, allowing for the building of capacity to deal with the emotional and interpersonal communication aspects of paramedic practice.

Findings	Categories
Students reported generally coping well, but sometimes struggling with assertive communication.(U)	Category 7. Communication and collaboration challenges
Respondents described situations which necessitated responding to patients' and relatives' feelings of fear, anxiety and uncertainty in highly stressful circumstances.(U)	
It has been reported that novice paramedics frequently struggle with their interpersonal communication skills, especially early in their transition to practice.(U)	
Participants reported a lack of inter-professional collaboration skills.(U)	
Participants reported that non-clinical or soft skills were identified as a problematic area for graduates entering internship programs.(U)	
Participants felt the universities were failing in their role to supply graduates who were work-ready in non-clinical areas.(U)	
Respondents emphasised their professional responsibility and the need to deal with the situation.(U)	Category 8. Emotional regulation and psychological support
A number of the respondents emphasised the behaviours of mentors who were potent role models in the management of emotion.(U)	
Respondents described the need to focus on the job or protocol appeared to detract attention away from the person and contributed to a lack of realization that this was a person or patient.(U)	
Respondents reported when personal relevance was likened to family members or personal circumstances.(U)	
The personal relevance of these experiences to the respondents appeared to evoke strong emotions and feelings of empathy for those involved. Respondents struggled to control their emotions and to stop themselves from crying.(U)	
South African students reported high volumes of acute case-mix, predominantly traumatic in nature.(U)	
All the participants in this study recognised the need for providing psychological support to their novice, which also includes knowing when to escalate support to professional services.(U)	
Respondents made reference to the need to control, hide and suppress their emotions.(U)	Category 9. Suppressing, surface acting and hiding emotions
Some respondents suggested that being practically involved in the resuscitation helped to suppress their emotions.(U)	
Another respondent describes surface acting or hiding emotions and the importance of this as part of the job.(U)	
The respondents referred to the expectation to manage emotion and the negative attitudes towards the expression of emotion.(U)	

Table 3 continued: Synthesized finding 2 – categories and findings

Personal growth in a non-academic, non-clinical sense was a strong theme that was valued by the participants as being just as important as an outcome as the clinical experience.(U)	Category 10. Personal growth and student collaboration
It was apparent that the combination of pre- or post-placement independent travel and the placement experience itself had a profound impact on most participants.(U)	
The need to be self-sufficient and work as a team with fellow students in the same location was a strong theme.(U)	
Students reported leaning heavily on the other students they were placed with, especially when off shift, via constant debriefing and sharing experiences.(U)	
Students emphasized the importance of sending students overseas in small, compatible groups, indicating that without this structure the experiences would have been less positive.(U)	
The mature student sample group made links with attributes to age and previous experiences in relation to practice engagement.(U)	Category 11. The effect of life experience on undergraduate paramedic students' placement
The mature student sample reported that this programme was the last chance to achieve goals due to financial constraints and age.(U)	
Mature age sample students commented about the importance of life experience.(U)	
The mature student group reported about the positive aspects of their age, in fact they were protective of the fact; it is evident they feel this, in conjunction with life experience, offers them credibility with staff.(U)	

Category 7: Communication and collaboration challenges

Six findings captured paramedicine students and paramedic preceptors reporting paramedicine students and graduates struggling with being able to communicate with patients, relatives and allied professionals. Participants felt the universities were failing in their role to supply graduates who were work-ready in non-clinical areas. Paramedicine students reported generally coping well, but sometimes struggling with assertive communication. Students described situations which necessitated responding to patients' and relatives' feelings of fear, anxiety and uncertainty in highly stressful circumstances. Graduate paramedic preceptors talked about novice graduate paramedics' frequent struggle with their interpersonal communication skills, especially early in their transition to practice. Graduate paramedic preceptors also reported a lack of inter-professional collaboration skills on the part of the graduate paramedic.

"*So, interacting with triage nurses, bedside nurses and doctors when you have to give a handover. And just being confident in yourself and talking in a good, loud, strong voice, trying not to stop, um, ah and those sorts of things. And she (graduate intern) agreed, that it's not really anything that they teach them or they don't usually teach them a lot of those things at the university. It's a lot of clinical stuff, it's a lot of*

anat/phys, skills-based, not really interpersonal communications. And it's something that takes a long time to develop. I don't think you can really teach it in a classroom." [49](Alex) p.5.

Category 8: Emotional regulation and psychological support

Seven findings showed that paramedicine students and graduate paramedic preceptors recognised the importance of being able to deal with the emotional challenges associated with paramedic practice. Graduate paramedic preceptors recognised the need for providing psychological support to their novice, which also includes knowing when to escalate support to professional services. The experience of the paramedicine students being able to personally relate during ambulance placements to the issues they were attending appeared to evoke strong emotions and feelings of empathy for those involved, struggling at times to control their emotions and to stop themselves from crying. Paramedicine students described how the need to focus on the job or protocol appeared to detract attention from the person and contributed to a lack of realisation that this was a person or patient. Paramedicine students also emphasised the behaviours of mentors who were potent role models in the management of emotion. Paramedicine students felt they had a professional responsibility and the need to deal with situations.

R2: "I think its cos it's the first time anybody asked me am I going to die and we really couldn't say no you are not because you know he could have, so that was a really hard one." [24] p.516.

Category 9: Suppressing, surface acting and hiding emotions

Four findings indicated paramedicine students found themselves having to suppress or hide their emotions and at times 'surface act' to deal with the emotional side of paramedic practice. Respondents made reference to the need to control, hide and suppress their emotions. Another respondent describes surface acting or hiding emotions and the importance of this as part of the job. The respondents referred to the expectation to manage emotion and the negative attitudes towards the expression of emotion. Some respondents suggested that being practically involved in a resuscitation helped to suppress their emotions. Paramedicine students found themselves in situations during clinical placements on ambulances where they had to suppress their emotions to continue on during cases and the negative reaction to expression of emotion in ambulance culture.

R6: "Any situation they're exactly the same and I think even if they are bothered by it they don't show it, they'll tell me afterwards that was a hard one and I didn't even know, they manage it so well, it's

afterwards, that's why they are professionals they're used to it and they're used to hiding what they're feeling so you can't see."[24] *p.515.*

Catgory 10: Personal growth and student collaboration

Five findings reported enhanced personal growth of paramedicine students and collaborating with other students as benefits associated with overseas paramedicine placements. Personal growth in a non-academic, non-clinical sense was a strong theme that was valued by the participants as being just as important as the clinical experience. It was apparent that the combination of pre- or post-placement independent travel and the placement experience itself had a profound impact on most participants. The need to be self-sufficient and work as a team with fellow students in the same location was a strong theme. Students reported leaning heavily on the other students they were placed with, especially when off shift, through constant debriefing and sharing of experiences. Students also emphasised the importance of sending students overseas in small, compatible groups, indicating that without this structure the experiences would have been less positive.

"You're out of the country, you're by yourself, you have to learn to do it all yourself, like, you obviously have support through the people that are in the same area of you as well as you can contact family, but – but you can't always go back to that, you have to learn to deal with stuff yourself which is a big advantage especially in this, like, in this career." [22]p.191.

Category 11: The effect of life experience on undergraduate paramedic students' placements

Four findings showed paramedicine students with more life experience found that they adjusted to clinical placement well, utilising their communication and teamwork skills. Students with more life experience associated age and previous experiences with increased engagement in the placement, and felt that the program was their last chance to achieve their goals because of financial constraints and age. Students with more life experience reported the positive aspects of their age and they were protective of the fact. They felt that age, in conjunction with life experience, gave them credibility with staff during placement.

"Mature students are likely to have been in the working world and will have got used to the idea of working."[26] *(Participant FG). p.589.*

Synthesized finding 3: The role of non-traditional placements/experiences

This meta-synthesis summarizes eighty-nine findings organized into seven categories, indicating great value has been found in the development of the paramedicine student by utilising non-traditional placements within the community and allied health environment (Table 4).

Table 4: Synthesized finding 3 – categories and findings

META-SYNTHESIS 3: THE ROLE OF NON-TRADITIONAL PLACEMENTS/EXPERIENCES Although there were some barriers, many facilitators were found in the development of the paramedicine student by utilizing non-traditional placements within the community, international, wilderness and allied health environment.	
Findings	Categories
A number of students felt their volunteering experience highlighted prejudices and stereotypes that they were previously unaware they held.(U)	Category 12. Enhanced community awareness
The distinction between personal beliefs and the way you treat those around you was also highlighted.(U)	
A surprising number of students were unaware of the prevalence of various community issues, such as mental health problems, drug and alcohol addiction, and homelessness.(U)	
Students also commented on the value to individuals from these communities of "small acts"—the gift of time, an opportunity to chat, a shoulder to lean on, and someone to listen to them.(U)	
Students reported gaining the personal reward of helping out in the community.(U)	
Students felt a sense of improved connectedness to the community.(U)	
Students expressed a reinforced desire to help people through paramedicine.(U)	
Students commented on the value of volunteering in regard to improved employability.(U)	
Participants talked about how students from different professions and clinicians work together to deliver patient care.(U)	Category 13. Value of inter-professional collaboration
Positive IPSC interactions were thought to lead to better patient care (e.g., patient safety, patient dignity and positive patient experience).(U)	
Students reported wanting more clinical training, and suggested placements in different areas of hospital and healthcare.(U)	
Participants made clear that with paramedics able to be employed across a range of roles that are not only emergency ambulance based, there is a need for both ambulance and non-ambulance placements.(U)	

Table 4 continued: Synthesized finding 3 – categories and findings

Students reported they believed a greater knowledge of pathophysiology and pharmacology, and high level of pre-placement patient contact, would have enhanced their experience.(U)	Category 14. Feeling underprepared for international placements.
Students reported that the expectations of knowledge and scope of practice held by their respective mentors surpassed what they felt they were capable of, and led to students experiencing intermittent feelings of 'helplessness' and 'frustration within themselves'.(U)	
Students reported that the international placement should not be undertaken as the first clinical experience. This feeling was strongest amongst the South African students, but was still prevalent in the New Zealand cohort.(U)	
Students identified skills or discovered aptitudes in areas they previously thought they were weak in.(U)	Category 15. Increased confidence due to volunteering placements.
Students reported improved confidence with communication, particularly when interacting with people from a range of backgrounds and in a non-clinical environment. They felt they improved in their ability to build rapport quickly.(U)	
They felt increased confidence in leading paramedic cases on clinical placement involving mental health crises, drug and alcohol affected people, children (particularly those with special needs), and aggressive patients.(U)	
Participants related the relevance of the placement to their future work as paramedics, where they would increasingly have contact with people with dementia in a range of settings.(U)	Category 16. Clinical placements in nursing homes
Participants reported they were able to observe commonly occurring changes in dementia patients, such as sundowning, due to working varying shift cycles.(U)	
Participants reported concerns that the paramedic uniforms with reflective strips they wore on placement might exacerbate behaviour problems among residents with dementia.(U)	
Paramedic students working with first-year nursing students on the IPL activity found it was a good opportunity to provide guidance and advice to the novice nurses.(U)	
Participants considered the placement to be valuable and commented specifically about opportunities to spend time with residents.(U)	
Participants reported the placement to be valuable for learning how to deal with different patient behaviours(U)	
Participants reported a better understanding of the differences between the nursing and paramedic professions.(U)	
Paramedic students reported they enjoyed teaching nursing students about paramedic practice.(U)	
Paramedic students recounted how the nurses taught them useful strategies to engage with people with dementia during the performance of technical activities.(U)	
Participants reported that participation in the placement was helpful for developing their clinical practice by learning from other medical professions.(U)	
Participants reported being surprised by the positive interactions they had with medical students.(U)	
Participants reported that the placement helped them better understand the day-to-day workings of a facility.(U)	
Participants reported the placement also served to help break down preconceived ideas some had about such facilities.(U)	
Participants expressed that the concept of dementia palliation challenged them to consider this issue from different perspectives.(U)	
Participants reported that the manual handling component of the placement was helpful.(U)	
Participants found the placement helpful for developing their communication skills and understanding the skills needed for working with older people more generally(U)	

Table 4 continued: Synthesized finding 3 – categories and findings

Participants reported they were involved in a range of activities while on placement that provided them with the opportunity to develop new skills.(U)	
Participants reported that the placement also enabled students to develop an understanding of the unique environment of RACFs and the contrast between other healthcare settings with which they were more familiar.(U)	
Participants felt the placement was beneficial for helping them recognise the emerging status of paramedic practice as a profession.(U)	
Participants felt they gained an understanding of the operations of an nursing home and the roles of various staff within the facility. They thought this would be helpful in their profession once qualified.(U)	
Participants felt that the nursing staff were able to identify the skills of student paramedics and were keen to involve them in various aspects of resident care.(U)	
Building rapport with clinical staff was viewed as an important part of the placement experience and influenced student learning.(U)	
Students also highlighted that appropriate preparation for placements had an important influence on learning.(U)	
Student participants reported being unaware who their mentors were.(U)	
Mentor participants reported that they haven't been introduced to the students as a mentor.(U)	
Many students felt the education sessions on placement covered topics they had addressed previously in their course.(U)	
A number of students reported they had limited engagement with residents during their placement and noted this was a weakness.(U)	Category 16. (Continued) Clinical placements in nursing homes
Students reported problems with the placement structure, in particular with their timetable.(U)	
Mentor participants felt students needed to show initiative and let staff know if they were unsure of what they could do to facilitate their learning.(U)	
Students considered another weakness of the placement was what they perceived as limited interaction with nursing staff.(U)	
Students also expressed the view that staff struggled to recognise the skills they brought to the clinical area.(U)	
Some students reported that RACF staff perceived the students' presence in the facility to be an inconvenience.(U)	
Students reported that they had very limited contact with their tutors while on placement due to the school having a limited capacity to provide paramedic tutors across the two facilities.(U)	
Students reported the lack of appropriate geriatric assessment tools for paramedicine students they could use while on placement.(U)	
Mentors reported the lack of appropriate geriatric assessment tools for paramedicine students.(U)	
Students considered much of the placement was geared towards medical and nursing students and this represented a missed opportunity to provide insights into what paramedics do.(U)	
Some students said they struggled to see the relevance of many of the activities they were involved in during the placement to their work as paramedics.(U)	

Table 4 continued: Synthesized finding 3 – categories and findings

Participants realised the importance of appropriate communication within the team.(U)	
Participants recognised the existence of competitive personalities in teams, the behaviour of whom unsettled interpersonal relating and stymied accurate, reliable decision-making.(U)	
Participants recognised the importance of appropriate interpersonal communication, in this case, restraint and silence.(U)	
Participants quite quickly realised that the unfamiliar environment challenged them all equally and they needed to manage their own unease and be sensible and reliable within the team; that is, to demonstrate maturity, respect and tolerance.(U)	
Teams were occasionally under physical duress during simulations, in such situations some members stepped up to show a level of strength and resilience not previously seen by their teammates.(U)	
Participants felt that being in the middle of the bush having to improvise and think outside the square gave them greater confidence.(U)	
Participants found the experience of being in a completely different environment and putting everyone out of their comfort zone is a great equaliser.(U)	
Participants developed tolerance for, and acceptance of, others in the team.(U)	
Participants expressed a new respect for team members with whom they had little familiarity.(U)	Category 17. A wilderness experience for paramedicine students
Participants developed a growing awareness and respect for teamwork .(U)	
Participants expressed that they learnt from each other when working in a team environment.(U)	
Participants showed a self-awareness of their contribution to the team.(U)	
Participants developed new skills and leadership.(U)	
Participants recognised of themselves as belonging to a community of health professionals, and their first steps towards understanding the strength gained from professional identity.(U)	
Participants showed an awakening to the professionalism in other team members.(U)	
Participants felt a greater accountability for their own practice, and responsibility for the welfare of members of their team.(U)	
Participants learnt the importance of the inter relationship between communication, team work and leadership.(U)	

Table 4 continued: Synthesized finding 3 – categories and findings

Participants reported enjoying the clinical challenges provided when effort was made to be actively involved.(U)	Category 18. Paramedicine students working in medical clinics
Participants reported an increase in their ability to work in stressful situations.(U)	
Participants reported learning skills in dealing with their emotional and personal feelings when supporting patients' relatives.(U)	
Participants reported an increased cultural awareness, cultural respect, and global citizenship.(U)	
Participants reported learning to communicate with family members who did not speak English in stressful situations.(U)	
Participants reporting finding the challenging nature of the environment to be both rewarding and humbling.(U)	
Participants reported that medical rescue placement was seen as an opportunity to improve their job prospects with an alternative employer, other than a state-based ambulance service.(U)	
Participants reported being unprepared for a team of health professionals who had not necessarily worked together before and did not know each other's capabilities(U)	
Participants found working in the clinic and roaming the mountain with ski patrol to be surreal.(U)	
Participants were surprised to be afforded acceptance into the team compared with their experiences on traditional ambulance placements.(U)	
Participants found their university studies prepared them to manage major trauma, and were afforded greater respect by the clinical staff after proving their ability under stress.(U)	
Participants reported that it provided them with an understanding of how multi-disciplinary teams operate.(U)	
Participants reported that during down time they were able to shadow ski patrol and got to experience the challenges of providing trauma management to patients in the alpine setting.(U)	
Participants reported developing their professional networks with clinic staff.(U)	
Participants felt that undertaking an international placement enabled them to build maturity that would assist them to transition to the workplace.(U)	
Participants identified that medical cases were too limited, with the caseload being mainly traumatic injuries.(U)	
Participants highly recommended the placement to future student cohorts.(U)	

Category 12: Enhanced community awareness

Eight findings were grouped together with paramedicine students reporting an increased awareness of the community as a result of volunteer placements. Students were unaware of the prevalence of various community issues, such as mental health problems, drug and alcohol addiction, and homelessness. Students also commented on the value to individuals from these communities in regard to the gift of time,

an opportunity to chat, a shoulder to lean on, and someone to listen to them. A number of students felt their volunteering experience highlighted prejudices and stereotypes that they were previously unaware they held. The distinction between personal beliefs and the way you treat those around you was also highlighted. Students reported gaining the personal reward of helping out in the community, a sense of improved connectedness to the community and a reinforced desire to help people through paramedicine. Students commented on the value of volunteering in regard to improved employability.

"[Volunteering has] influenced the way I behave and the way I think generally... the ability to distance [your subconscious biases] from the way you treat the person is something I... learnt from my volunteering experience." [68]p.194.

Category 13: Value of inter-professional collaboration

Captured in four findings, paramedicine students felt they benefited from placements with other allied health care professionals. Participants talked about how students from different professions and clinicians work together to deliver patient care. Positive interprofessional student collaboration interactions were thought to lead to better patient care (e.g., patient safety, patient dignity and positive patient experience). Participants reported that paramedics are able to be employed across a range of roles that are not only emergency ambulance based, creating a need for both ambulance and non-ambulance placements.

"*It could be to do with teamwork and communication, and discharge planning, and joint assessments and paperwork.*" [66](Paramedicine clinician, F4PT2C2) p.4.

Category 14: Feeling underprepared for international placements

Three findings grouped together showed paramedicine students undertaking overseas paramedicine placements on ambulances reported feeling underprepared in terms of knowledge and interaction with patients. Students reported they believed a greater knowledge of pathophysiology and pharmacology, and a high level of pre-placement patient contact, would have enhanced their experience. Students reported that the expectations of knowledge and scope of practice held by their respective mentors surpassed what they felt they were capable of and led to students experiencing intermittent feelings of 'helplessness' and 'frustration within themselves'. Students reported that the international placement should not be undertaken as the first clinical experience. This feeling was strongest amongst the

Australian students sent to South Africa but was still prevalent in the Australian students sent to New Zealand.

"*There was (sic) too many times that I was left on-scene feeling useless and, um, ah, like I was basically taking up space*".[22] p.192.

Category 15: Increased confidence due to volunteering placements

Three findings indicated that paramedicine students felt that the experience of being on a volunteering placement greatly enhanced their confidence. Students identified skills or discovered aptitudes in areas in which they had previously thought they were weak. Students reported improved confidence with communication, particularly when interacting with people from a range of backgrounds and in a non-clinical environment. They felt they improved in their ability to build rapport quickly and felt increased confidence in leading paramedic cases on clinical placement involving mental health crises, drug and alcohol affected people, children (particularly those with special needs), and aggressive patients.

"Confidence in talking with patients frankly, on a person-to- person level, not always on that clinician-patient level . . . to make them feel more at ease, more comfortable, and I have no doubt [my volunteering experience] was a big help for that." [68]p.194.

Category 16: Clinical placements in nursing homes

Thirty-seven findings reported on barriers and facilitators experienced by undergraduate paramedicine students and their preceptors/mentors while on placement in residential aged care facilities (RACF). Barriers identified included organisational issues such as student participants being unaware who their mentors were and mentor participants reporting that they had not been introduced to the students as a mentor. Many students felt the education sessions on placement covered topics they had addressed previously in their course, a number of students reported they had limited engagement with residents during their placement and noted this was a weakness. Students reported problems with the placement structure, in particular with their timetable, and that there was limited interaction with nursing staff during the placement. Mentor participants felt students needed to show initiative and let staff know if they were unsure of what they could do to facilitate their learning.

Students also expressed the view that staff struggled to recognise the skills they brought to the clinical area, some students reported that nursing staff perceived the students' presence in the facility to be an inconvenience. Students reported that they had very limited contact with their tutors while on placement due to the school having a limited capacity to provide paramedic tutors across the two facilities. Students and mentors reported the lack of appropriate geriatric assessment tools for paramedicine students that they could use while on placement. Students considered much of the placement was geared towards medical and nursing students and this represented a missed opportunity to provide insights into what paramedics do. Some students said they struggled to see the relevance of many of the activities they were involved in during the placement to their work as paramedics.

Facilitators to learning reported during placement included students relating the relevance of the placement to their future work as paramedics, where they would increasingly have contact with people with dementia in a range of settings. Paramedicine students working with first-year nursing students during nursing home placement found it was a good opportunity to provide guidance and advice to the novice nurses. Students considered the placement to be valuable and commented specifically about opportunities to spend time with residents and learning how to deal with different patient behaviours.

Students reported a better understanding of the differences between the nursing and paramedic professions and they enjoyed teaching nursing students about paramedic practice. Students recounted how the nurses taught them useful strategies to engage with people with dementia during the performance of technical activities. This was helpful for developing their clinical practice by learning from other medical professions and being surprised by the positive interactions they had with medical students. Students reported that the placement helped them better understand the day-to-day workings of a facility and also served to help break down preconceived ideas some had about such facilities. Students expressed that the concept of dementia palliation challenged them to consider this issue from different perspectives, developing their communication skills and understanding the skills needed for working with older people more generally.

Students reported that the manual handling component of the placement was helpful, they were involved in a range of activities while on placement that provided them with the opportunity to develop new skills, develop an understanding of the unique environment of RACF and the contrast with other healthcare settings with which they were more familiar. Students felt that the nursing staff were able to identify the

skills of student paramedics and were keen to involve them in various aspects of resident care. Building a rapport with clinical staff was viewed as an important part of the placement experience and influenced student learning. Overall, paramedicine students benefited from placements in nursing homes increasing their clinical skills, communication skills and enhancing their interprofessional relationships.

"*A huge proportion of a paramedic's job is working with the elderly, not necessarily in nursing homes, so that opportunity to interact with the elderly is good.*"[60] (BP2012). p.403.

Category 17: A wilderness experience for paramedicine students

Seventeen findings were collated showing that paramedicine students gained many benefits by attending a wilderness experience, including enhanced teamwork, leadership and interpersonal experiences. Students recognized the existence of competitive personalities in teams and its effect on teamwork. The behaviour of other students had the potential to unsettle interpersonal relationships and stymie accurate, reliable decision-making. From this, students learned the importance of appropriate interpersonal communication, in this case, restraint and silence. Students quickly realised that the unfamiliar environment challenged them all equally and they needed to manage their own unease and be sensible and reliable within the team; that is, to demonstrate maturity, respect and tolerance.

Teams were occasionally under physical duress during simulations. In such situations, some members stepped up to show a level of strength and resilience not previously seen by their teammates. Students felt that being in the middle of the bush, having to improvise and think outside the square, gave them greater confidence: being in a completely different environment and putting everyone out of their comfort zone was considered a great equaliser. Students developed tolerance for, and acceptance of, others in the team, expressing a new respect for team members with whom they had little familiarity and developing a growing awareness and respect for teamwork. Students expressed their understanding that they learnt from each other when working in a team environment and showed a self-awareness of their contribution to the team, while developing new skills and leadership. Students recognised themselves as belonging to a community of health professionals, and their first steps towards understanding the strength gained from professional identity. They showed an awakening to the professionalism in other team members and felt a greater accountability for their own practice, and responsibility for the welfare of members of their team. Overall, students learnt the importance of the interrelationship between communication, teamwork and leadership.

"I think I learnt more about communication, teamwork and leadership than I did about my clinical skills. It became obvious... that leadership is very important, and communication/teamwork is vital to good care. I felt that... you don't understand how important it is until you are in that situation" [52](Field Diary). p.579.

Category 18: Paramedicine students working in medical clinics

Seventeen findings focussed on paramedicine students working in overseas medical clinics. Facilitators included working in a multi-discipline environment, clinical exposure to patients and relatives and greater autonomy in clinical practice. Students reported enjoying the clinical challenges provided when effort was made to be actively involved, increasing their ability to work in stressful situations and learning skills in dealing with their emotional and personal feelings when supporting patients' relatives. Students reported an increased cultural awareness, cultural respect and global citizenship, and learning to communicate with family members who did not speak English, in stressful situations. Students found the challenging nature of the environment to be both rewarding and humbling. Students believed that the placement was seen as an opportunity to improve their job prospects with an alternative employer other than a state-based ambulance service.

Students were surprised to be afforded acceptance into the team compared with their experiences on traditional ambulance placements and found their university studies prepared them to manage major trauma. They were afforded greater respect by the clinical staff after proving their ability under stress and that it provided them with an understanding of how multidisciplinary teams operate. Students reported that during down time they were able to shadow ski patrols and got to experience the challenges of providing trauma management to patients in the alpine setting and developed their professional networks with clinic staff. They felt that undertaking an international placement enabled them to build a maturity that would assist them to transition to the workplace. Barriers reported were feeling unprepared working for a team of health professionals who had not necessarily worked together before and did not know each other's capabilities and that the medical cases were too limited, with the caseload being mainly traumatic injuries. Overall, the students found placements in medical centres a positive developmental experience and highly recommended the placement to future student cohorts.

"Working in an environment that is challenging though beneficial, rewarding and humbling." [50](Respondent 1) p.24.

Synthesized finding 4: The role of non-traditional classroom teaching methods

This meta-synthesis summarises 35 findings divided into 4 categories indicating the utilisation of non-traditional classroom teaching methods was found to have strong positive influences in students' development of clinical reasoning, teamwork, reflection, self-direction and problem solving (Table 5).

Table 5: Synthesized finding 4 – categories and findings

Utilizing non-traditional classroom teaching methods was found to have strong positive influences on student development of clinical reasoning, teamwork, reflection, self-direction and problem solving

Findings	Categories
Participants identified how being involved in action learning allowed opportunities to clarify uncertainty within the practice setting.(U)	Category 19. Paramedicine students undertaking action learning
Participants reported that action learning made them feel at ease because other students were having similar problems.(U)	
Participants reported that action learning allowed them to discuss cases they were not sure about.(U)	
Participants reported that action learning was like a form of group therapy.(U)	
Participants reported that action learning resolved serious issues.(U)	
Participants reported that action learning allowed for the discussion of cases students had struggled with, issues on ambulance stations and at university.(U)	
Participants reported that sometimes things click within action learning groups supporting the overall benefits to all students involved.(U)	
Participants reported the importance of reflective practice and its influence on creating change.(U)	Category 20. Utilizing reflective practice for paramedicine students
Students reported that group reflection appeared to be more consistently encouraged in clinical practice.(U)	
Students found reflection to be useful and felt that it helped to improve their practice.(U)	
Students discussed their reflective ability improving the more they utilised it.(U)	
Students highlighted that reflection could be used to deal with feelings if they had experienced an upsetting case and felt they needed to talk it through.(U)	
Students reported that negative triggers seemed to be the most common prompt for reflection.(U)	
Students reported perceptions and viewpoints of reflection appeared to be affected by their educational experience.(U)	
Students reported they were confident that they would use reflection in their future practice.(U)	
Participant spoke of how the typical student-teacher relationship had been rearranged.(U)	Category 21. Project-based learning in paramedicine student education
Participant reported that the students influenced the academic in their own learning and teaching.(U)	
Participant reported that the positioning of the teacher as a facilitator rather than the controller is an important point.(U)	
Participant reported having to suspend his conventional beliefs and allow more student ownership.(U)	
Participant reported the importance of open communication and respect between teachers and students.(U)	
Participant reported the importance of guiding students in their understanding of team work and being part of a team.(U)	
Participant reported the value of a teaching outside of the box approach to increasing students' self-direction and independence.(U)	

Participants reported that case based learning gives them the ability to relate theory to practice.(U)	
Participants reported that cased based learning helped them remember pertinent points as it related to real situations.(U)	
Participants reported that case based learning allowed them to look at the case from all angles and bring different ideas into play.(U)	
Participants reported that case based learning helped them make sense of lecture material due to relating it to on road clinical practice.(U)	
Participants reported that with online case based learning there was no face to face interaction causing less motivation to engage during the session.(U)	
Participants reported that with online case based learning there was no opportunity to receive instant feedback about questions.(U)	
Participants reported that online case based learning allowed them to search the web during the session to get more information.(U)	Category 22. The role of case based online learning
Participants reported that online case based learning allowed them to post responses at any time of the day or night.(U)	
Participants reported that online case based learning allowed them to fit it in with other work commitments.(U)	
Participants reported that online case based learning allowed them to be self-directed and gave them a chance to share information.(U)	
Participants reported that online case based learning made it difficult to access information if they didn't have Internet access at home.(U)	
Participants reported that in person case based learning was more effective as it allowed for an immediate exchange of information.(U)	
Participants reported they often found it difficult to be online.(U)	

Category 19: Paramedicine students undertaking action learning

Seven findings showed paramedicine students increased their clinical knowledge and teamwork experience by applying action learning to reflecting on cases attended while on placement. Students identified how being involved in action learning allowed opportunities to clarify uncertainty within the practice setting and allowed them to discuss cases about which they were unsure. Students reported that action learning made them feel at ease because other students were having similar problems, it was like a form of group therapy and it resolved serious issues. Students felt that action learning allowed for the discussion of cases they had struggled with, issues on ambulance stations and at university. Students also reported that sometimes cliques within action learning groups affected the overall benefits to all students involved. Action learning was found to have many facilitators relating to developing clinical knowledge and its relationship to practice, while enhancing students' capacity to work in a team.

"That we all had issues that we brought to the table, whether they were jobs that we had been to that we struggled with or issues on our stations or university and we all discussed them [as part of the AL process]."[72] *(student 3).* p.630.

Category 20: Utilizing reflective practice for paramedicine students

Eight findings indicated that great value was found by paramedicine students engaging in reflective practice to develop their clinical knowledge and practice. Students reported the importance of reflective practice and its influence on creating change. They found reflection to be useful, felt that it helped to improve their practice, and they discussed their reflective ability improving the more they utilised it. Students highlighted that reflection could be used to deal with emotions if they had experienced an upsetting case and felt they needed to talk it through and that negative triggers seemed to be the most common prompt for reflection. Students reported perceptions and viewpoints of reflection appeared to be affected by their educational experience: they were confident that they would use reflection in their future practice.

"I think it has definitely made me a better clinician. By reflecting on what I didn't do well or [when] I was happy with what I was doing, I have been able to look at my practice and make improvements, and I have become a better clinician because of it." [55](P6b) p.260.

Category 21: Project-based learning in paramedicine student education

Seven findings involving project-based learning showed many facilitators to learning for paramedicine students and staff, including increased teamwork, enhanced communication between students and staff and more student independence and self-direction. Participant spoke of how the typical student-teacher relationship had been rearranged and that the students influenced the academic in their own learning and teaching. Participant emphasised that the positioning of the teacher as a facilitator rather than a controller is an important point and having to suspend this conventional belief allowed greater student ownership. Participant also reported the importance of open communication and respect between teachers and students and the importance of guiding students in the understanding of teamwork and being part of a team. Participant noted the value of teaching an outside of the box approach for increasing students' self-direction and independence.

"All of a sudden I was watching people's body language around the room, and I ... thought wow, there's something really magical going on here ... So, I was watching the back and forth, and I thought this is really something, there's a realignment going on here ... and here's the students showing us how they view it." [65]*(Academic)* p.3.

Category 22: The role of online case based learning

Thirteen findings showed paramedicine students found several facilitators and barriers while using case-based learning in an online environment. Facilitators included that case-based learning gives them the ability to relate theory to practice, helped them remember pertinent points as they related to real situations and allowed them to look at the case from all angles and bring different ideas into play. Students felt that case-based learning helped them make sense of lecture material due to relating it to on road clinical practice. Online case-based learning allowed them to search the web during the session to get more information, post responses at any time of the day or night, fit it in with other work commitments, to be self-directed and that such learning gives the chance to share information. Students did indicate that in person case-based learning was more effective, as it allowed for an immediate exchange of information.

Reported barriers included that with online case-based learning there was no face-to-face interaction, causing less motivation to engage during the session and there was no opportunity to receive instant feedback about questions. Students found that online case-based learning made it difficult to access information if the Internet were not available at home and they often found it difficult to access the internet.

"CBL gave us the opportunity to see where the theory in lectures fitted in with real world cases" [69](BEH 3rd year student 16) p.4.

Synthesized finding 5: Preparedness for practice

This meta-synthesis summarizes 82 findings divided into six categories (Table 6). It explores the barriers and facilitators that affected the paramedicine undergraduate students' and graduate paramedics' preparedness for practice during both their undergraduate university programme and the graduate year.

Table 6: Synthesized finding 5 – categories and findings

META-SYNTHESIS 5: PREPAREDNESS FOR PRACTICE	
There were noted barriers and facilitators that effected the paramedicine undergraduate students' and graduate paramedics' preparedness for practice during both their undergraduate university programme and the graduate year.	
Findings	**Categories**
Participants in this study consistently described their role in the learning and development of a novice paramedic as being focussed on the novice's practice-in-context.(U)	Category 23. The importance of the real life setting
Some participants felt that the simulation environment does not provide the opportunity for students to learn to engage with real patients in a sensitive and empathic manner.(U)	
Paramedic preceptors in this study recognised providing clinical care in a person's home often provides paramedics with a wealth of information on psychosocial impacts of their patient's health and wellbeing, which can be passed on to medical staff. It is an important dimension of assessment to emphasise to their neophyte practitioner, much different from the clinical simulations students experience at university.(U)	
Vocationally trained paramedics thought that placements should be restricted to field placements in paramedic services.(U)	
University degree qualified participants reported that students needed exposure to the work environment.(U)	
Vocationally trained participants reported that they thought it worked better when paramedics were vocationally trained.(U)	
Participants felt that the more exposure they got the better.(U)	
UK participants perceived a gap in the implementation of skills as part of the clinical reasoning and decision-making process.(U)	Category 24. Barriers faced by paramedic preceptors while mentoring graduate paramedics
Australian participants noted that graduates often did not get placed with mentors.(U)	
Participants suggested there remained a need for newly employed graduate paramedics to be oriented into the ambulance service organisation.(U)	
Participants identified that a newly-graduated paramedic would be very unlikely to operate effectively as an independent practitioner.(U)	
Participants reported that no matter how long students spent on clinical practicum, paramedic graduates required a period of supervised practice before being allowed to practise independently.(U)	
Participants' views on the length of the supervised practice period after graduation varied.(U)	
Participants reported the speed of graduate integration was suggested by interviewees to be multi-factorial and related to the individual's maturity, past work, and their ability to work in a high-pressure ambulance environment.(U)	
Paramedic educators reported that the complex clinical environment paramedics operate within was also identified as a significant challenge, while teaching students new skills.(U)	

Paramedic educators reported being concerned that the current infrastructure did not adequately supporting students to cope with situations they are faced with.(U)	
Participants reported that graduates were not work ready.(U)	
Participants reported a lack commitment, the right disposition or a willingness to take up the demands of the job, such as shift work.(U)	
Participants reported chauvinistic and non-inclusive attitudes and poor empathy with the elderly were identified as a problem among students.(U)	Category 24.(continued) Barriers faced by paramedic preceptors while mentoring graduate paramedics
Participants spoke of the value of psychometric testing for predicting a graduate's suitability for the work.(U)	
Paramedic participants reported that some staff were distrustful of university educated paramedics.(U)	
Paramedic participants reported the need to respect patient autonomy and rights.(U)	
Paramedic participants reported the importance of focusing on people rather than non-human resources.(U)	
Students reported feeling frustrated by a perceived lack of communication between the university and the ambulance service staff who would be supervising and teaching them.(U)	
Students perceived that paramedics unknowingly cast students as "observers" rather than "participant observers".(U)	
Students indicated that they were placed in an awkward position whereby they needed to state their learning objectives and outcomes at the outset of their placement.(U)	
Students cited the placement location as a significant influence on their placement experience.(U)	
Some students explained in despair that over the course of their placements they had not acquired practical experience of major emergencies, while others had a diverse range of experiences.(U)	
Students based in metropolitan sites constantly changed sites and supervisors did not cite added learning advantages for this.(U)	Category 25. Experiences of paramedicine students during ambulance placements
Students also noted that they required information about peer support during placements.(U)	
Students reported that rural paramedic work typically has a significantly lower number of call outs than metropolitan areas.(U)	
Participants reported the need to change the language around how a student perceived their role on a case. 'Lead with job' was replaced with 'lead with assistance'.(U)	
Students from the mature sample and the direct entry sample felt uncomfortable with some paramedic staff on stations who had not become a paramedic through the university stream.(U)	
Students in the direct entry sample felt the HEI route to paramedic registration was not fully understood by mentors who had not come through the university pathway. They reported there was a significant lack of understanding about what it aimed to achieve.(U)	

Students in the direct entry sample specifically placed considerable emphasis on their ability to get on with people.(U)	Category 25. (Continued) Experiences of paramedicine students during ambulance placements
Students in the direct entry group felt it was important to get involved.(U)	
The mature student sample group reported that when making mistakes they felt like they had let themselves down.(U)	
Participants reported that direct entry students can have a great deal of experience and maturity which can unsettle ambulance staff.(U)	
Direct entry students discussed learning during placement if they came across something that they had not previously seen, or did not understand.(U)	
Mature entry students felt the constant pressure of having to achieve academic study outcomes.(U)	
Direct entry students were keen to express their need to learn in contrast with mature entry students are more focussed on doing the job.(U)	
The mature student sample indicated they had settled into placement far sooner than the direct entry students.(U)	
Direct entry students reported that they had all, at some stage, experienced some negative interactions from colleagues or patients commenting on their age.(U)	
Direct entry students reported that age was not necessarily a reflection of life experience.(U)	
A common aspect reported by both sample groups was being ignored by a patient when working with older clinicians.(U)	
Participants from both jurisdictions identified that it was part of a paramedic's role to assist, educate and train the future workforce.(U)	Category 26. Understanding paramedic professionalism
Student paramedic participants reported they thought that professionalism is about communication, attitude and commitment to learning.(U)	
Student paramedic participant recalled an incident where she thought a paramedic demonstrated professionalism due to not judging low acuity patients that didn't require emergency care.(U)	
Student paramedic participants reported that professional presentation to patients is important and can improve your personal pride.(U)	
Paramedic participants reported that the issue of practising in ways that do not discriminate against patients was important.(U)	
Paramedic participants reported that professionalism was a combination of behaviours, attitudes and personal experience.(U)	
Student paramedic participants highlighted the importance of a regulatory body as part of professionalism.(U)	
Paramedic participants reported that having a university basis of education is an important part of being a profession.(U)	
Paramedic participants reported that education in professionalism was important.(U)	
Paramedic participants reported professionalism is about acting in a manner that creates trust and confidence in how you are practising.(U)	

Paramedic participants referred to the importance of integrity, adaptability and awareness of limitations.(U)	Category 26. (continued) Understanding paramedic professionalism
Paramedic participants suggested that the commitment of individual paramedics to improving their practice is important.(U)	
Paramedic participants reported the need to take personal responsibility for their professional standards.(U)	
Paramedic participants reported that leadership and accountability were important professionalism enablers.(U)	
Student paramedic participants reported that team work is an important part of professionalism.(U)	
Paramedic participants reported that it is a joint responsibility of both the organisation and the individual to promote professionalism.(U)	
Paramedic participants reported the importance of a professional regulatory body to enhance professionalism.(U)	
Paramedic participants reported the need to maintain skills as a personal professional responsibility not just organisational.(U)	
Paramedic participants reported the importance of a professional code of values to adhere to, although not all paramedics embodied these values.(U)	
Paramedic participants commented on the importance of culture and the challenge of creating change within paramedic culture.(U)	
Paramedic participants reported that poor organisational management, communication and staff support affects the professionalism of paramedic staff.(U)	
Paramedic participants reported being unsure that having a registered body necessarily helped people become a professional(U)	
Students indicated an appreciation of the fact that learning is a continuum and that it will consolidate and continue on the job.(U)	Category 27. Preparedness of graduate paramedics for practice
Students indicated not feeling prepared, and articulated the value of learning on the job once they began work.(U	
Students commented that clinical practice sessions are the best aspects of the course in preparing them for work as a paramedic.(U)	
Students found ambulance service placements were useful during the course in preparing the students for entering the ambulance workforce.(U)	
Students reported a need for practical training and placements in mental health.(U)	
Students reported the need for greater tailoring of units to paramedics.(U)	
Areas identified by Australian participants as being well taught included anatomy and physiology, treatment modalities and rationales for treatment; but students were found lacking in the application of skills learned.(U)	Category 28. Barriers found by paramedic preceptors/managers that affect paramedicine students' preparedness for practice
Participants reported disparity across Australian university paramedic degrees with respect to the suite of skills taught to students.(U)	
Both Australian and UK participants suggested that the length of time spent on ambulance placement with a paramedic crew did not necessarily result in optimal case-mix exposure for learning purposes.(U)	

Participants suggested that some graduates undertook practicums in primary care, alcohol and other drugs, mental health, aged care, emergency departments or overseas practicums.(U)	
Participants identified that the level of responsibility given to students on placement varied widely.(U)	
Participants suggested the principal reason students failed to develop their decision-making skills was because during practicum placements there was always a fully qualified paramedic taking responsibility for the patient.(U)	Category 28.(continued) Barriers found by paramedic preceptors/managers that affect paramedicine students' preparedness for practice
Participants reported that students could be placed on ambulances as a second during their third year to increase their exposure to clinical decision-making while still under supervision.(U)	
Participants suggested students could work as ambulance transport officers in order to gain the necessary pre-employment skills.(U)	
Participants suggested teaching clinical skills in context,(U)	

Category 23: The importance of the real-life setting

Seven findings related to the importance of real-life settings during learning and development for paramedic practice. Paramedic preceptors consistently described their role in the learning and development of a graduate paramedic as being focussed on the novice's practice-in-context. Paramedic sessionals felt that the simulation environment at university does not provide the opportunity for students to learn to engage with real patients in a sensitive and empathic manner. Graduate paramedic preceptors recognised providing clinical care in a person's home often provides paramedics with a wealth of information on the psychosocial impacts of their patient's health and wellbeing, which can be passed on to medical staff. It is an important dimension of assessment to emphasise to their neophyte practitioner, offering quite different insights to those experienced in clinical simulations at university. Paramedicine students felt that the more exposure they got the better, with their preceptors also reporting that students needed exposure to the work environment.

"*They have this million-dollar SIM room where they walk in and there's a mannequin lying on the ground and it coughs and vomits and talks to them, but they don't really have that chance to build a rapport, to communicate with the patients, understand body language or verbal cues, non-verbal cues.*"[49](Alex) p.4.

Category 24: Barriers faced by paramedic preceptors while mentoring graduate paramedics

Sixteen findings involved paramedic preceptors reporting barriers while providing mentorship to paramedicine graduates, including a lack of being job ready and the ability to work unsupervised. Preceptors perceived a gap in the implementation of skills as part of the clinical reasoning and decision-making process. Preceptors noted that graduates often did not get placed with mentors and there remained a need for newly employed graduate paramedics to be oriented into the ambulance service organisation. Preceptors identified that a newly graduated paramedic would be very unlikely to operate effectively as an independent practitioner and that no matter how long students spent on clinical practicum, paramedic graduates required a period of supervised practice before being allowed to practice independently. Preceptors' views on the length of the supervised practice period after graduation varied and the speed of graduate integration was suggested to be multi-factorial and related to the individual's maturity, past work, and their ability to work in a high-pressure ambulance environment. Preceptors reported that the complex clinical environment paramedics operate within was also identified as a significant challenge, while teaching students new skills and being concerned that the current infrastructure did not support students adequately to cope with situations they are faced with. Preceptors reported that graduates were not work ready, lacked commitment, the right disposition or a willingness to take up the demands of the job, such as shift work. Preceptors reported chauvinistic and non-inclusive attitudes and poor empathy with the elderly as being problems among students. Preceptors spoke of the value of psychometric testing for predicting a graduate's suitability for the work and that some staff were distrustful of university educated paramedics. Preceptors reported the need to respect patient autonomy and rights and the importance of focusing on people rather than non-human resources.

"Each university teaches differently and there is no consistent minimum skill set – so [they] have to teach additional content based on the university the graduate goes to." [67](Australian paramedic interviewee) p.5.

Category 25: Experiences of paramedicine students during ambulance placements

Twenty-two findings illustrated many experiences by paramedicine students during ambulance placements, including poor mentoring, lack of consistency with mentors and short placement duration.

Students reported feeling frustrated by a perceived lack of communication between the university and the ambulance service staff who would be supervising and teaching them and that paramedics unknowingly cast students as "observers" rather than "participant observers".

Students indicated that they were placed in an awkward position whereby they needed to state their learning objectives and outcomes at the outset of their placement, also that the placement location had a significant influence on their placement experience in regard to the number of cases attended. Some students explained despairingly that over the course of their placements they had not acquired practical experience of major emergencies, while others had a diverse range of experiences. Students based in metropolitan sites who constantly changed sites and supervisors saw this as a learning disadvantage due to having to build rapport repeatedly with new supervisors. Students also noted that they required information about peer support during placements, wanted more and/or longer clinical placements and that the nature of rural paramedic work meant the number of call outs is typically significantly less than in metropolitan areas.

Students reported the need to change the language around how a student perceived their role on a case: they felt that 'Lead with job' was replaced by 'lead with assistance'. Students who came from the mature sample, who had previous workplace experience, reported that when making mistakes they felt like they had let themselves down, they felt the constant pressure of having to achieve academic study outcomes, and that they had settled into placement far sooner than the direct entry students.

Students in the direct entry from high school sample felt that this route to paramedic registration was not fully understood by mentors who had not come through the university pathway. These students placed considerable emphasis on their ability to get on with people, felt it was important to get involved and reported that direct entry from high school students can have a great deal of experience and maturity, which can unsettle ambulance staff. Direct entry students from high school discussed learning during placement if they came across something that they had not previously seen or did not understand. They felt uncomfortable with some paramedic staff on stations who had not become a paramedic through the university stream. Direct entry students reported that they had all, at some stage, experienced some negative interaction from colleagues or patients commenting on their age and that age was not necessarily a reflection of life experience. A common aspect reported by both sample groups was being ignored by a patient when working with older clinicians.

"*Sometimes they weren't even expecting that you were coming. ... Half of them don't expect you. ... You turn up at 7 am and they say who are you? ...The branch gets the form [student placement notification] but the actual workers, who are on that day, I'm not sure if they look at the form.*" [62][BEHP student, final placement] p.4.

Category 26: Understanding paramedic professionalism

Twenty-two findings found paramedicine students and paramedic preceptors felt it was important to gain an understanding of professionalism. Preceptors identified that it was part of a paramedic's role to assist, educate and train the future workforce, practising in ways that do not discriminate against patients was important, and that professionalism was a combination of behaviours, attitudes and personal experience. Preceptors reported that having a university basis of education is an important part of being a profession, education in professionalism was important, and professionalism is about acting in a manner that creates trust and confidence in how you are practising. Preceptors referred to the importance of integrity, adaptability and awareness of limitations and they suggested that the commitment of individual paramedics to improving their practice is important and they need to take personal responsibility for their professional standards. Preceptors felt that leadership and accountability were important professionalism enablers, that it is a joint responsibility to promote professionalism by both the organization and the individual, as well as the importance of a professional regulatory body to enhance professionalism. Preceptors talked about the need to maintain skills as a personal professional responsibility, not just an organisational one, the importance of a professional code of values to adhere to, although not all paramedics embodied these values, and the importance of culture and the challenge of creating change within paramedic culture. Preceptors felt that poor organisational management, communication and staff support affects the professionalism of paramedic staff. They expressed being unsure that having a registered body necessarily helped you become a professional. Student paramedics reported that teamwork is an important part of professionalism, they thought that professionalism is about communication, attitude and commitment to learning, that professional presentation to patients is important and can improve your personal pride and highlighted the importance of a regulatory body as part of professionalism. One student paramedic recalled an incident where she thought a paramedic demonstrated professionalism due to not judging low acuity patients who did not require emergency care.

"*Quite difficult to define in a nutshell. I think it incorporates lots of different things such as communication, attitude and commitment to your learning in the paramedic context.*" [53](student paramedic). p.3.

Category 27: Preparedness of graduate paramedics for practice

Six findings identified graduate paramedics found facilitators and barriers that affected their preparedness for practice during their time as undergraduate paramedicine students. Graduate paramedics indicated an appreciation of the fact that learning is a continuum and that it will consolidate and continue on the job, they did not feel prepared, and articulated the value of learning on the job once they began work. Graduate paramedics commented that clinical practice sessions were the best aspects of the course in preparing them for work as a paramedic; they found ambulance service placements were useful during the course in preparing the students for entering the ambulance workforce. Graduate paramedics reported a need for practical training and placements in mental health and the need for greater tailoring of units to paramedics.

"*I feel as though I was not prepared. The answers I have given previously state how I was feeling in my first month on the road. I now feel as though I have learnt a lot and got motivation for self-learning whilst at work. I now feel very confident with everything because I had help from others (clinical instructors) going over things with me and teaching me things I had either forgotten or did not learn enough of.*" [4564](ID 14, employed). p.5.

Category 28: Barriers found by paramedic preceptors/managers that affect paramedicine student's preparedness for practice

Nine findings showed that paramedic preceptors and managers found several barriers within paramedicine undergraduate programmes, including a lack of clinical skills and poor clinical decision-making, that affected paramedicine students' preparedness for practice.

Areas identified by Australian participants as being well taught included anatomy and physiology, treatment modalities and rationales for treatment; however, students were found lacking in the application of skills learned. Participants reported disparity across Australian university paramedic degrees with respect to the suite of skills taught to students. Both Australian and UK participants suggested that the length of time spent on ambulance placement with a paramedic crew did not necessarily result in optimal case-mix exposure for learning purposes. Participants suggested that some graduates undertook

practicums in primary care, alcohol and other drugs, mental health, aged care, emergency departments or overseas practicums and identified that the level of responsibility given to students on placement varied widely. Participants suggested the principal reason students failed to develop their decision-making skills was because during practicum placements there was always a fully qualified paramedic taking responsibility for the patient. Participants reported that students could be placed on ambulances as 'a second' during their third year to increase their exposure to clinical decision-making while still under supervision and teaching clinical skills in context. Participants suggested that students could work as non-emergency ambulance transport officers first in order to gain the necessary pre-employment skills like communicating with patients, relatives and hospital staff.

'Each university teaches differently and there is no consistent minimum skill set – so have to teach additional content based on the university the graduate goes to.' [67] (Australian paramedic interviewee) p.5

Conclusion

This chapter described the search results and study selection process, the critical appraisal results of eligible studies, as well as their study characteristics. Additionally, the results of the qualitative synthesis are provided in detail, including the rich findings from participants in each category and a summary of each category developed from the amalgamation of the findings. The five synthesised findings and 28 categories identified in this review reveal novel, new approaches to paramedicine learning and education that can overcome established barriers to paramedicine learning.

Chapter 4: Discussion and Conclusion

Introduction

This chapter provides a summary of the findings and results of the systematic review. It discusses a range of key themes identified through the conduct of the review as they relate to the broader literature and current paramedicine education context. This includes the evolving paramedicine education paradigm, the importance of "real world" experiences, building emotional intelligence, confidence and communication skills in high demand/stressful environments, empowering students to be autonomous clinicians, the introduction of a paramedic facilitator model, evidence based health science learning, and the need for change in paramedince education. It also outlines the review's limitations and provides implications for education, practice and future research.

Summary of review results

This is the first systematic review of qualitative studies exploring the experiences of learning, development and preparedness for clinical practice among undergraduate paramedicine students, graduate/intern paramedics and their preceptors. It was undertaken to better understand the learning experiences of undergraduate paramedicine students, graduate paramedics and the teaching experiences of their preceptors/educators. These experiences were captured within five over-arching themes:

- The role of mentoring/ preceptorship
- Opportunities to develop emotional intelligence and communication skills
- The role of non-traditional placements/experiences
- The role of non-traditional classroom teaching methods
- Preparedness for practice

Twenty-six studies,[22,24,57–66,49,67–72,50–56] were included in the review after an exhaustive search and inclusion process. Participants from three countries yielded qualitative data. The confidence of the evidence, using ConQual, was interpreted for the five synthesised findings; overall all were rated as moderate. The 295 findings gave rich and expressive information on the facilitators and barriers to learning in the paramedicine domain, from both participants receiving teaching and those responsible for delivering learning. Five synthesised findings were developed from twenty-eight categories, describing

the contemporary experiences of the participants both in the university sector and the real life setting of paramedic practice.

Due to the professionalization of paramedicine, there has been a shift to university education in Australia, New Zealand and the UK. With this shift comes challenges and tensions related to ensuring the preparedness of graduates and achieving the right balance of developing technical/academic knowledge and clinical placement experience.[12,73] This move has resulted in the availability of a rich discourse related to the experiences of those involved in the transition and the identification of facilitators and barriers to learning. It is clear that many facilitators to learning were lost in this transition and new barriers created that have often been offset by novel non-traditional approaches to learning.[7,12,13,73]

A review of the current discourse located in the qualitative literature provides an opportunity to inform the profession of the development of new approaches to meeting the contemporary needs of paramedicine students and to better support those charged with facilitating their professional development; preparing the future workforce and bringing it into line with other health disciplines, while acknowledging its unique role in the broader health system.

Sumary of findings table

Experiences of learning, development and preparedness for clinical practice among undergraduate paramedicine students, graduate/intern paramedics and their preceptors: a qualitative systematic review.					
Synthesised Finding	**Type of Research**	**Dependability**	**Credibility**	**ConQual Score**	**Comments**
The role of mentoring/ preceptorship *Providing mentoring and preceptorship for undergraduate paramedicine students and paramedic interns is critical to reducing the transitional learning gap from the university environment to real life, professional paramedic practice.*	Qualitative	Moderate	High (no downgrading, all studies unequivocal	Moderate	ConQual score moderate due to 5 studies scoring high dependability and 4 moderate dependability (4 studies downgraded to moderate due to no statement relating to the researcher culturally or theoretically and not addressing the influence of the researcher on the research and vice versa)
Opportunities to develop emotional intelligence and communication skills *Aside from the technical/clinical skills required, paramedicine students will also need to develop skills/capacity in dealing with the emotional side*	Qualitative	Moderate	High (no downgrading, all studies unequivocal)	Moderate	ConQual score moderate due to 2 studies scoring high dependability and 1 moderate dependability (1 study downgraded to moderate due to no statement relating to the

of paramedic practice, which includes communicating with patients, family members and other health professionals. Creating resilience requires training, education, exposure and support, enabling the building of capacity to deal with the emotional and interpersonal communication aspects of paramedic practice.					researcher culturally or theoretically and not addressing the influence of the researcher on the research and vice versa)
The role of non-traditional placements/experiences *Great value has been found in the development of the paramedicine student by utilizing non-traditional placements within the community and allied health environment.*	Qualitative	Moderate	High (no downgrading, all studies unequivocal	Moderate	ConQual score moderate due to 1 study scoring high dependability and 6 moderate dependability (6 studies downgraded to moderate due to no statement relating to the researcher culturally or theoretically and not addressing the influence of the researcher on the research and vice versa)
The role of non-traditional classroom teaching methods *Utilizing non-traditional classroom teaching methods was found to have strong positive influences on students' development of clinical reasoning, teamwork, reflection, self direction and problem solving.*	Qualitative	Moderate	High (no downgrading, all studies unequivocal)	Moderate	ConQual score moderate due to all 4 studies scoring moderate dependability (4 studies downgraded to moderate due to no statement relating to the researcher culturally or theoretically and not addressing the influence of the researcher on the research and vice versa)
5: *Preparedness for practice* *There were noted barriers and facilitators that affected the paramedicine undergraduate students' and graduate paramedic's preparedness for practice during both their undergraduate university programme and the graduate year.*	Qualitative	Moderate	High (no downgrading, all studies unequivocal	Moderate	ConQual score moderate due to 3 studies scoring high dependability and 6 moderate dependability (6 studies downgraded to moderate due to no statement relating to the researcher culturally or theoretically and not addressing the influence of the researcher on the research and vice versa)

Evolving the paramedicine education paradigm

There is clearly tension between ambulance services and the university sector as to what qualifies as a "job ready" graduate.[12] Australian ambulance services have a graduate paramedic programme from six to twelve months long of supervised practice due to graduates not being deemed job ready.[8,12] The view of whether a new graduate should be job ready varies significantly. There is a view that in order to make

students more job ready through experiential learning opportunities, there will be a potentially significant increase in university costs (i.e. increasing placements incurs additional costs related to student insurance and placement fees to some ambulance services). The opposing view is that if students are not sufficiently prepared after graduation, the cost will be incurred by the ambulance service who believe they need to provide a graduate programme and additional supervision and off roster training. O'Brien (2013) has argued that "a common understanding of what 'work readiness' entails, between employers and educators, is needed."[64] (p.9).

Smith (2017) commented that "It is possible that as the profession redefines itself, it may be necessary to look at other health professions, such as medicine, in order to identify how best to compress an ever-changing body of knowledge into a 3-year teaching program. This in itself will require significant cooperation between service providers and universities to identify expectations and deliverables regarding graduate capabilities and specific knowledge of local service provider clinical practice guideline content. In particular, skills maintenance will be a feature and challenge in providing future 'work-ready' graduates."[74] (p.2).

The advent of paramedicine registration in Australia and New Zealand creates the opportunity to explore what qualifies as a job ready graduate through the provision of a third player, that being the registration regulating authority, which has neither a conflict of interest nor is influenced by cost. The skills and attributes of paramedicine graduates would be defined by the regulating registration authority, requiring all universities to meet that standard to gain registration for their graduates. Employers would base their transitional training for graduates on the standard required for registration as the base point.

The UK has minimal transition to unsupervised practice. This occurs through a short induction course and then graduates work as qualified paramedics, as the senior officer working with an emergency medical technician. It must be noted that in the UK it is mandated that paramedicine students spend 50% of the undergraduate degree in a real life clinical practice environment.[8]

An Australian study on paramedic graduates who moved to the UK found that they were underprepared for the UK system as it did not offer a graduate programme. Australian graduates struggled and were shown to have a large transformational learning gap, especially with hands on clinical skills and overall practice experience.[8] There is currently no mandated minimum clinical practice hours for Australian students nor a directive as to how they should spend those hours.[8,12] Clinical practice hours vary

substantially from university to university, starting at fewer than 300 hours to a maximum of 800 hours, unlike the UK system, which equates to approximately 2200hrs.[8]

O'Brien (2013) also talked about how "students felt the paramedic course provided them with a good theoretical background; however, they felt underprepared in terms of the practical experience in working with the ambulance service."[64](p.8).

Paramedicine undergraduate degrees need to incorporate learning that meets the needs of the student; robust programs that realistically prepare the student for the rigours of paramedic practice, incorporating real life learning that not only builds their technical skills but also their emotional resilience and capacity to communicate effectively.[24] Programs should facilitate the development of team work and leadership skills, utilizing an evidence-based standardized approach to undergraduate paramedicine curricula that gives all students the same opportunities. They need to incorporate non-traditional classroom teaching methods showing the influence of reflective practice, action learning, case-based learning and project-based learning. These non-traditional, dynamic teaching practices, when delivered in undergraduate paramedicine courses, showed many positive influences on student learning, including enhanced teamwork, independence, communication, clinical reasoning, problem solving and self-directed learning.[55,65,69,72]

Empirical investigations of the science of learning comes from many fields such as cognitive psychology, neuroscience, sociology, anthropology, and behavioural economics. The evidence highlighted in this review is supported by the growing application of this science of learning to the health professions. Gooding (2017) has previously commented that teaching health sciences students to "engage in structured reflection as they compare and contrast cases with similar presentations has been shown to improve both retention and transfer."[75](p. 28). Gooding also referenced Ericsson (2015), who "proposes that medical education adopt deliberate practice by creating libraries of cases for learners to engage with in repeated practice supported by a teacher or mentor.".[75](p. 28) Gooding found that teaching with multiple, varied examples allowed learners to perform a critical task of germane load; that is, the creation of schemas (frameworks of memory in long term memory).[75] This correlates directly to the findings in utilising the non-traditional classroom learning methods of reflective practice, case based learning, action learning and project based learning.[55,65,69,72]

Mind the Gap: the importance of "real world" experiences

Placing undergraduate paramedicine students in other clinical environments, outside the usual ambulance setting, showed multiple benefits for learning. Innovative programmes that placed students with other allied health professionals encouraged them to gain an understanding of patient care in an holistic sense and challenged students to work in different environments, enhancing communication skills with patients and other practioners in multiple settings.[22,50,51,59,60,66] These placements would be considered "non-traditional", like the community volunteer placements provided by one Australian university.[68] Another Australian study exposed paramedicine students to a weekend wilderness experience[52]. These studies showed strong facilitators that developed students' teamwork, communication, interpersonal skills, resilience and conflict managements skills.[52] These are strong, positive developments that would offset some of the barriers identified in other studies.[24,49,71] O'Brien commented that "what final year students value in terms of preparing them for practice: whilst respondents valued the clinical practice opportunities they had had, they wanted more clinical placements with more variety, for example placements in different areas of healthcare."[64](p.1).

The importance of learning in different contexts should not be undervalued. Gooding acknowledges that "learning does not occur in an individual vacuum. Individuals learn in interaction with the environment in a reciprocal, dynamic way; they interact with people, processes, attitudes, and beliefs related to the social culture."[75](p. 29). Gooding further acknowledged that "workplace learning draws on both cognitive and sociocultural approaches, with particular emphasis on situated learning. The premise underlying situated learning is that learning is always situated or attached to the context in which it is learned."[75](p. 29). This is also highlighted in the current review, with the experiences of students undertaking non-traditional placements/experiences overseas, with the Salvation Army, in medical clinics, nursing homes, allied heath environments and the wilderness setting.[22,50–52,60,66] This experience has also been described by O'Brien using Situated Learning Theory (SLT) as "embedded in everyday activity, context, and culture; fundamentally social; often unintentional rather than deliberate; and progressive with respect to learners' participation. SLT offered new ways of conceptualizing and studying learning processes, particularly in non-classroom settings."[76](p.2).

Building emotional intelligence, confidence and communication skills in high demand/stressful environments

The need to build on the students' and graduate paramedics' capacity for dealing with the emotional challenges of paramedicine practice and the communication skills needed featured strongly, indicating a need for more focus on these areas during the development of student and graduate paramedics.[24,49,71] This would better prepare them for the rigours and challenges they will face in this line of work, potentially increasing resilience, job longevity and reducing the development of mental health problems.[1,5,6,23] Students and graduates in Australia and the UK were found to be underprepared for the emotional and communication challenges they face while doing ambulance placements/ graduate shifts.[24,49,67,71] They often did not cope with the emotional or communication challenges they were exposed to when dealing with patients and relatives in a real life setting. The importance of being able to communicate effectively is clearly identified in the findings, as is the lack of preparation for the challenges students and graduates face when attempting to communicate with patients, family and other professionals.[24,49,67,71] Clearly, provision for dealing with the emotional challenges a paramedic will have placed on them is a critical preparation requirement that needs strong emphasis in paramedic training and development. [5,57,77,78]

Empowering students to be autonomous clinicians

Participants in many of the included studies felt that the real life setting was crucial to the learning experience and was where the most developmental opportunities existed, especially if they had good coaching and mentoring.[49,56,63,67,70,71] Not having a consistent sessional educator at university or paramedic preceptor during placements on ambulances equates to lost opportunities to develop learning bonds and engage with students in their clinical education. The lack of capacity for student paramedic preceptors to have time at the end of their shift to talk with students and debrief any critical incidents that may have occurred is concerning and may inhibit the learning value of the placement, affect the students' well-being and overall development.[7,18,56]

Although a qualitative systematic review on this topic and its population has not been conducted previously, the current findings of this review are not necessarily all new to the world of paramedicine. The Australian Health Workforce Report[12], published in 2014, focused on changes required in paramedicine education, including making the best of student placement experiences. Some of the

recommendations developed in that report align with the findings of this systematic review; for example, the need for instructors to be allocated time to better prepare for:

- "The responsibility of supervising students, including appropriate clinical education or instructor training"[12] (p.41).
- "Allocation of time at the end of each shift for the instructor and student to review and reflect on the placement experience, to debrief any particularly challenging activities from the shift and to complete the associated paperwork"[12] (p.41).

The relevance of the student having a consistent mentor seems unequivocal to forming relationships over time that allow the mentor to develop confidence in and understanding of the student and facilitate the progression of skills. The importance of good mentoring, both in the university environment and in the real life setting, was consistently highlighted in multiple studies.[49,56,61,63,67,70,71]

The unpredictable nature of the paramedic practice environment was also highlighted, along with the challenges this presented for preceptors when having to monitor paramedic graduates' practice and safety.[49,79–81] The use of coaching strategies, including support, guidance and advice, and the importance of establishing an understanding of graduates as individual learners, was refreshing to see in this study.[49,67]

The importance of the paramedic preceptor role is highlighted in these findings and has been identified previously by Edwards (2011), where he comments that "With the changes in scope of practice for paramedics there is an increased importance on the skills of people assessing paramedic skills, such as preceptors."[18](p.81). Edwards also identified that "there is no national standard curriculum for paramedic preceptors."[18](p.82). This situation has not changed and begs the question as to whether there should be a national approach to standards for preceptor training in Australia. Furthermore, should this be provided in both undergraduate and graduate programmes by both universities so students can gain the fundamentals and by employers to provide more in-depth training?[12,18,67] Edwards commented that "This issue also highlights the question of who holds responsibility or to what extent there is a shared responsibility for the development of the paramedic preceptor. Is this a true element of work readiness, or is it something to be developed post qualification?"[18](p.82). With the registration of paramedicine, fundamental preceptor training could be introduced as part of the skills and attributes of paramedicine graduates, as defined by the regulating registration authority, requiring all universities to meet that standard to gain registration for their graduates.

The importance of coaching and mentoring is also supported by evidence from creating learning orientated goals rather than performance goals. Elliott and Dweck describe students who were learning oriented as trying to improve their competence, see mistakes as a learning opportunity, and less likely to disengage from challenging tasks. Unlike performance oriented students, who set out to prove their competence, and are more likely to disengage during challenging tasks and saw mistakes as failure.[75] Gooding commented that "Teachers can help promote learning goals by framing assessments as opportunities to learn and improve on one's relative weaknesses as opposed to opportunities to prove one's abilities."[75](p. 28). The use of coaching strategies of support, guidance and advice, and the importance of establishing an understanding of graduates as individual learners evidenced in this review reflects positively on supporting students to become learning oriented.[49,57,67]

The concern is that facets of ambulance service culture and the academic pre-learning environment can influence students to take on a performance orientation in those environments, especially when poor mentoring deprives them of the best learning opportunities.[24,56,57,62] As Lave and Wenger emphasised, what is critical is "relationships and interactions between newcomers and old-timers or more knowledgeable others to frame learning as a dynamic process of guidance, support, and co-construction or reconceptualization of practice."[76](p. 2). This also supports the findings within this review of the importance of good coaching and mentoring alongside the importance of a real life setting.[49,52,56,57,67,71]

The introduction of a paramedic facilitator model

The introduction of a paramedic facilitator model provided considerable positive experiences for both students and preceptors in its provision of coaching and mentoring.[57] An Australian study showed strong benefits from the introduction of a paramedic facilitator model aligned with other identified allied health student facilitator models.[57,82–84] This was the first known study into the introduction of a facilitator model in Australia for undergraduate paramedicine students during field placements on ambulances. The study showed multiple benefits from the perspective of the students themselves and their paramedic preceptors: all agreed that the placement experience was significantly enhanced in all areas of the students' developmental needs.

The facilitator model showed that it had the capacity to deal with some of the barriers identified in other studies, such as opportunities to develop emotional intelligence, communication skills and dealing with

suppressing, surface acting and hiding emotions.[24,49,57] It was able to address at times the barrier identified in other studies in regard to the lack of capacity for paramedic preceptors to have time at the end of their shift to talk with students and debrief any critical incidents that may have occurred.[56,57,63] The absence of a permanent paramedic facilitator model for undergraduate paramedicine students seems somewhat of a quandary when it is considered standard practice within the allied health domain, indicating a potential need for alignment with other allied health undergraduate degrees.[82–84]

The need for change in paramedicine education

The findings in this review represent some of the contemporary challenges facing paramedicine education. They identify programmes developed using innovative and holistic perspectives, utilising a non-traditional approach to create broader learning and development opportunites.[8,14,85–87]

All of the findings in this systematic review impact on the job readiness of paramedicine graduates and their transition into practice. It is clear that some of the findings, like non-traditional placements/experiences and non-traditional teaching methods, having a paramedic facilitator and good coaching and mentoring, have shown that these are facilitators that have the potential to make the transition smoother. These facilitators may also work to balance some of the barriers identified in the review, including preceptors wanting more time and consistency with students, communication and collaboration challenges, emotional regulation and psychological support and suppressing, surface acting and hiding emotions. Although the facilitators identified are currently not widespread, they have the potential for significant impact if implemented in a more robust way as part of national programmes or curricula planning.

On the international stage, it is time for paramedicine to seek to drive the next phase of its collective evolution. It is a profession that has been emergent and unformed, but with a renewed focus on education and with a unified approach between the clinical and education sectors, there could be exciting developments ahead. If this is not addressed/managed now, then the strain on the system and those who work within it will continue. Professions tend to change over time, typically becoming more scholarly as information is generated and incorporated into practice. We have seen this with medicine and nursing in particular, maybe now paramedicine's time has come. Like medicine and nursing, the understanding and

the conduct of evidence-based practice may be the best way to move paramedicine forward as an autonomous profession.

Paramedicine has commenced its journey to becoming a truly independent profession within the medicine and allied health sector, while still maintaining its origins as an emergency service. Its understanding of evidence-based practice has grown dramatically in a short period. Simpson (2012) stated that, "While firmly established as an entity in medicine and allied health professions such as nursing and physiotherapy, it is only in recent years that evidence-based practice (EBP) has begun to permeate into the area of prehospital care. As paramedicine continues towards establishing itself as a true clinical discipline and not merely an extension of the emergency department or a transport service, EBP is becoming increasingly visible on the international emergency medical service (EMS) agenda."[30] (p.197).

As evidence-based practice can lead to professional change and identity, the organisational culture of the profession needs to be understood. Ambulance service culture has in the past been resistant to change, often inhibiting the move to professionalism. Dwan (2004) described, "Organisational culture is typically defined as how an organisation sees itself and how the people within it feel about the organisation. It includes staff's commitment to the organisation, how staff respond to management, and what the organisation stands for." [88](p.36). Training of paramedics is a key component of influencing organisational change and cultural shifts. O'Meara made the comment that "Clinical instructors raised several issues of concern about the organisational culture of the ambulance services in relation to student clinical placements and education in general"[12] (p.40). This culture is often not supportive of undergraduate paramedicine students, as they are not seen as employees, unfortunately this may be reflective of the fledgling nature of the paramedicine profession, as it is not yet seen as a professional responsibility to mentor students. Paramedicine needs to understand that it has a professional responsibility to raise the next generation of paramedics and not see them as a burden. Wankhade (2015) commented that a "lack of clinical education and training of the ambulance workforce is still seen as a big cultural challenge. There needs to be further debate about shifting the educational base from local training with a broader emphasis on diagnostic medical assessment and greater standardisation."[89] (p.70).

Research in health care education that can influence cultural change is only more recently being explored in paramedicine to shape the future of paramedicine education. Mylopoulos (2016) argues that "preparation for future learning (PLF) and the associated capacity of being adaptive as one learns in and

from training and clinical practice have been missed in most contemporary training and assessment systems."[90] (p.115). It seems, therefore, that it will be important, moving forward, to be cognisant of the cultural challenges that lie before the profession in order for this nascent occupation to recalibrate or reconstruct current educational frameworks to better prepare those entering into paramedicine careers. Mylopoulos proposed a research agenda that "(i) explores how real world adaptive expert activity unfolds in the health care workplace to inform the design of instruction for developing PFL, (ii) identifies measures of behaviours that relate to PFL, and (iii) addresses potential sociocultural barriers that limit clinicians' opportunities to learn from their daily practice."[90](p. 115).

Cultural change needs to be driven by organisational leaders both within the ambulance industry and tertiary sectors. Leaders need to place value on educational programmes and staff development. They need to be seen as valuing staff and students, rather than just being focussed on meeting performance criteria. Wankhade (2015) also talked about the key to transformation of the culture of the organisation being through improvements in leadership. While ambulance services were effective at delivery of services, there has been a lack of investment in the development of staff, from ambulance crews through to managers. He also noted that ambulance service staff did not feel valued by their management.[89]

There is always resistance to change, but equally dissonance can be a powerful catalyst and perhaps that is the lens the findings of this review bring to this process. Heifetz (2009) suggested that "what is needed from a leadership perspective are new forms of improvisational expertise, a kind of process expertise that knows prudently how to experiment with never been tried before relationships, means of communicating and ways of interacting."[91] (p.13). Heifetz also indicated that adaptive challenges can only be addressed through changes in people's priorities, beliefs, habits, and loyalties. Making progress requires going beyond any authoritative expertise to mobilise discovery, shedding certain entrenched ways, tolerating losses, and generating the capacity to thrive anew.[91]

Paramedicine needs to continue the journey it has already started to undertake around what needs to occur in the education of paramedics to take it from "vocation to profession" or "technician to clinician", in order to support new care paradigms and be "fit for purpose". Batt (2015) stated that "The eventual move towards full professionalization of the paramedic requires a paradigm shift from (i) training to education; (ii) trade representation to professional representation and (iii) a change in mind-set and attitude from technician to clinician."[11] (p.2).

It is clear that we can learn much from our colleagues in other health professions with respect to the educational journey they have taken to professionalism, their contempory challenges and available evidence. Although there is an understanding of research and its importance to paramedicine, there is a need for further growth in paramedicine in the understanding of the role of research and the implementation of research results in meaningful evidence-based models in the paramedicine workplace and pre-workplace university environment.[30] Stronger more meaningful leadership, better educational processes and understanding, greater valuing and support of staff and students will enable cultural shift. This will require more integration, communication and understanding between the university sector and ambulance services, to achieve the best results for our greatest resource: our future paramedics. Hopefully this review can assist key stakeholders to formulate a new direction for learning pathways and the provision of a supportive transition from education to clinical practice.

Limitations of the review

i) There were many publications that included multiple disciplines, inclusive of paramedicine; however, if there were not a discernible paramedicine voice, the study was excluded; consequently, it is possible that some findings were missed.

ii) There were some concerns around the methodological quality of studies, such as the congruity between the stated philosophical perspective and the research methodology not being adequately reported, with only five studies scoring a yes. Also, the existence of a statement locating the researcher culturally or theoretically was only completely addressed by four of the studies and the influence of the researcher on the research, and vice-versa, was only completely addressed by six studies. These limitations may have some impact in regard to the researcher's possible influence on the results, although primarily the illustrations and findings would remain unchanged.

iii) Contributing to the difficulty in finding studies were the varying definitions of paramedicine by different researchers. It is possible that studies were not discovered due to the broad spectrum of international terms used to define ambulance personnel.

iv) Also contributing to the difficulty in finding studies was that many paramedicine journals are not indexed in the main international databases, requiring a hand search of known paramedicine journals.

v) Countries that did not have a national standardisation requirement of an undergraduate degree in paramedicine were not included in the review (although some countries like Canada and the United States have the option in some regions).

vi) Studies conducted since the search was undertaken have not been included in the review.

Implications for research/practice

Recommendations for practice

- This review recommends creating a supportive paramedicine learning environment with strategies to do this requiring both individual and organisational commitment. Recommendations are rated according the JBI Grades of Recommendation.[92]

- A national, standardised curriculum that includes appropriate topics related to communication, paramedic emotional/mental health issues/support, working safely in the paramedic environment, utilising non-traditional classroom teaching methods that engage students and alternative placements/experiences in non-traditional settings that build on teamwork, communication, emotional resilience and leadership. (Grade A)

- The introduction of a paramedic facilitator model to all university undergraduate paramedicine degrees to support students during placements, aligned with other allied health models. (Grade A)

- Creating a national standardised approach to the provision of professional support and development initiatives/programs for preceptors and sessional educators. (Grade A)

- Provision of time and consistency for paramedic preceptors with students both in university with sessional staff and during clinical placement, to allow for feedback and development. (Grade A)

Recommendations for research

- Due to the limitations of this review's inclusion criteria, future research utilising a mixed methods approach may yield a greater breadth and depth of findings.

- Review the evidence to develop a national standardised tool for provision of feedback and assessment for paramedicine students during clinical placements.

- Review the evidence to establish a standardisation of the number of clinical placement hours required for paramedicine students during their undergraduate year for registration, aligned with other allied health domains.

- Ongoing research is needed due to the continuing evolution of the paramedicine profession. Changes made to the curriculum must be based on a national model, be evidence-based and must be reviewed using an evidence-based approach.
- Further research is needed into the emotional and mental health challenges faced by paramedics to allow for inclusion in undergraduate and graduate paramedicine curriculum.

Conclusion

The review has corroborated, clarified and reinforced knowledge about contemporary paramedicine learning. The twenty-six studies and 296 illustrated findings have provided a rich source of evidence for understanding both facilitators and barriers to paramedicine learning in multiple contexts within three countries. The major implications of this review are that paramedicine learning must be brought to the forefront of the paramedicine profession, both in the university sector and ambulance services. Better preparation and more robust models that take into account the identified barriers and facilitators to paramedicine learning need to be formulated, put into practice, consistently reviewed and adaptive responses are needed to keep the paramedicine practitioner holistically prepared for the challenges of the role.

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Appendices

Appendix I: Search strategy

PubMed (OVID)

Conducted July, 2018

Search	Query	Records retrieved
#1	Emergency medical technicians[mh] OR emergency responders[mh:noexp] OR paramedicine[tiab] OR paramedic[tiab] OR paramedics[tiab] OR emergency medical technician*[tiab] OR emergency responder*[tiab] OR Allied Health Personnel[tiab] Ambulances[mh] OR paramedicine student[tiab] OR paramedicine student[mh] OR graduate paramedic[mh] OR Graduate paramedic[tiab] OR intern paramedic[mh] OR intern paramedic[tiab] OR paramedic preceptor*[tiab]	
#2	Universities[mh] OR nonmedical internship[mh] [mh:noexp] OR preceptorship[mh] OR university*[tiab] OR preceptorship*[tiab] OR Inservice training[mh] OR Inservice training[tw] OR Learning[mh:noexp] OR Learning[tw] OR Ambulance education*[tiab] OR Post graduate learning[tw] OR lecturer*[tiab] OR Ambulance officer[tiab] OR ambulance[tiab]	
#3	qualitative research[mh] OR qualitative research[tw] OR experience[tw] OR Lived experience[tw] OR Perception[tw] OR Perceived[tw] OR Understanding[tw] OR Ethnography[tw] OR Phenomenology[tw] OR Feminist research[tw] OR Critical research[tw] OR Action research[tw] OR Phenomenolog*[tw] OR Anthropology(MeSH) OR Cultural(MeSH)	
#4	#1 AND #2 AND #3	937

Limited to 1994 onwards, English language

ERIC (EBSCO)

Conducted August 2018

Search	Query	Records retrieved
#1	Emergency medical technicians[mh] OR emergency responders[mh:noexp] OR paramedicine[tiab] OR paramedic[tiab] OR paramedics[tiab] OR emergency medical technician*[tiab] OR emergency responder*[tiab] OR Allied Health Personnel[tiab] Ambulances[mh] OR paramedicine student[tiab] OR paramedicine student[mh] OR graduate paramedic[mh] OR Graduate paramedic[tiab] OR intern paramedic[mh] OR intern paramedic[tiab] OR paramedic preceptor*[tiab]	
#2	Universities[mh] OR nonmedical internship[mh] [mh:noexp] OR preceptorship[mh] OR university*[tiab] OR preceptorship*[tiab] OR Inservice training[mh] OR Inservice training[tw] OR Learning[mh:noexp] OR Learning[tw] OR Ambulance education*[tiab] OR Post graduate learning[tw] OR lecturer*[tiab] OR Ambulance officer[tiab] OR ambulance[tiab]	
#3	qualitative research[mh] OR qualitative research[tw] OR experience[tw] OR Lived experience[tw] OR Perception[tw] OR Perceived[tw] OR Understanding[tw] OR Ethnography[tw] OR Phenomenology[tw] OR Feminist research[tw] OR Critical research[tw] OR Action research[tw] OR Phenomenolog*[tw] OR Anthropology(MeSH) OR Cultural(MeSH)	
#4	#1 AND #2 AND #3	23

Limited to 1994 onwards, English language

CINAHL (EBSCOhost)

Conducted July 2018

Search	Query	Records retrieved
#1	MH Emergency medical technicians+ OR TI emergency medical technicians* OR AB emergency medical technicians* OR TI paramedicine* OR AB paramedicine* OR TI paramedic* OR AB paramedic* OR TI Ambulance officer*OR AB ambulance officer* OR TI paramedicine student* OR AB paramedicine student*OR TI graduate paramedic* OR AB graduate paramedic*OR TI intern paramedic*OR AB intern paramedic*OR TI paramedic preceptor* OR AB paramedic preceptor* OR TI paramedicine lecturer* OR AB paramedicine lecturer*	
#2	MH education emergency medical services+ OR TI "education emergency medical services" OR AB "education emergency medical services" OR TI "emergency medical services education" OR AB "emergency medical services education" OR TI "EMS education" OR AB "EMS education" OR TI "paramedic program*" OR AB "paramedic program*" OR TI Universities OR AB universities OR TI education OR AB education OR TI internship OR AB internship OR TI preceptorship OR AB preceptorship OR TI Inservice training ORAB Inservice training OR TI Learning OR AB Learning OR TI "Ambulance education" OR AB "ambulance education" OR TI graduate learning OR AB graduate learning	
#3	MH qualitative research OR TI qualitative research OR AB qualitative research OR TI experience OR AB experience OR TI Lived experience OR AB lived experience OR TI Perception OR AB perception OR TI Perceived OR AB perceived OR TI Understanding OR AB understanding OR TI Ethnography OR AB ethnography OR TI Phenomenology OR AB phenomenology OR TI Feminist research OR	

AB feminist research OR TI Critical research OR AB critical research OR TI Action research OR AB action research

#4　　　#1 AND #2 AND #3　　　　　　　　　　　　　　　272

Limited to 1994 onwards, English language

EMBASE (ELSEVIER)

Conducted August 2018

Search	Query	Records retrieved
#1	'paramedical personnel'/exp OR 'paramedical personnel*':ti,ab OR 'rescue personnel'/exp OR 'rescue personnel*':ti,ab OR 'allied health student'/exp OR 'allied health student*':ti,ab OR paramedicine:ti,ab OR paramedic:ti,ab OR paramedics:ti,ab OR 'Emergency medical technicians'/exp OR 'emergency medical technician*':ti,ab OR 'emergency responder*':ti,ab OR 'Allied Health Personnel':ti,ab OR 'paramedicine student':ti,ab OR 'Graduate paramedic':ti,ab OR 'intern paramedic':ti,ab OR 'paramedic preceptor*':ti,ab	
#2	Universities/de OR universities:ti,ab OR education/de OR education:ti,ab OR Inservice training/de OR Inservice training:ti,ab OR 'emergency medical services education'/de OR 'emergency medical services education':ti,ab OR Learning/de OR Learning:ti,ab OR ambulance/de or ambulance:ti,ab OR Preceptorship/de OR preceptorship*:ti,ab OR ambulance education/de OR Ambulance education*:ti,ab OR lecturer/de OR lecturer*:ti,ab	
#3	qualitative research/exp OR qualitative research:ti,ab OR experience/exp OR experience:ti,ab OR Personal experience/exp OR personal experience:ti,ab OR understanding/exp or understanding:ti,ab OR Ethnography/exp OR Ethnography:ti,ab Phenomenology/exp OR Phenomenology:ti,ab OR Action research/exp OR Action research:ti,ab	
#4	#1 AND #2 AND #3	437

Limited to 1994 onwards, English language

Google Scholar, conducted 15/10/19

Keywords: student paramedic, qualitative, education. Results: 198

Journal search

Australian Paramedic Journal 23/10/19 Hand search. Results: 0

Australasian Journal of Paramedicine 23/10/19 Keywords: student, student paramedic, qualitative, education. Results: 135

Colledge of Paramedics 25/10/19 Keywords: student, student paramedic, qualitative, education. Results: 237

International Journal of Paramedic Practice 25/10/19 Keywords: student, student paramedic, qualitative, education. Results: 36

Irish Journal of Paramedicine 25/10/19 Keywords: student, student paramedic, qualitative, education. Results: 14

Journal of Paramedic Practice 26/10/19 Keywords: student, student paramedic, qualitative, education. Results: 214

Prehospital Emergency Care 28/10/19 Keywords: student, student paramedic, qualitative, education. Results: 414

British Paramedic Journal 28/10/19 Keywords: student, student paramedic, qualitative, education. Results: 62

Prehospital and Disaster Medicine 28/10/19 Keywords: student, student paramedic, qualitative, education. Results: 208

ProQuest Dissertations and Theses 14/10/19

Search 1 keywords: paramedic education, results 2931

Search 2 keywords: paramedic education Australia, results 25

Search 3 keywords: paramedic education United Kingdom, results 398

Search 4 keywords: paramedic education New Zealand, results 0

Search 5 keywords: qualitative paramedic education, results 71,287

Search 6 keywords: qualitative paramedic education Australia, results 20

Search 7 keywords: qualitative education United Kingdom, results 338

Search 8 keywords: qualitative education New Zealand, results 0

Search 9 keywords: student paramedic, results 135,248

Search 10 keywords: student paramedic Australia, results 26

Search 11 keywords: student paramedic United Kingdom, results 390

Search 12 keywords: student paramedic New Zealand, results 0

Websites 10-12/10/19: Council of Ambulance Authorities Australia, Paramedics Australasia, Health and Care Professionals Council, London, UK, Australian and New Zealand College of Paramedicine, New Zealand Paramedic Education and Research Charitable Trust, and the College of Paramedics UK

Keywords: student, student paramedic, qualitative, education. Results: 0

Appendix II: Studies ineligible following full text review

Devenish S, Clark M, Fleming M, Tippett V. Australian paramedic graduates transitioning into UK NHS ambulance services: what are the potential challenges? Int Paramed Pract. 2015;7(10):492–8.

Reason for exclusion: not a qualitative study.

Devenish AS, Clark MJ, Flemming M. Experiences in Becoming a Paramedic: The Professional Socialization of University Qualified Paramedics. Creat Educ. 2016;07(06):786–801.

Reason for exclusion: not a qualitative study.

O'Meara P. Paramedics marching towards professionalism. J Emerg Prim Heal Care. 2009;7(1):14–9.

Reason for exclusion: not a qualitative study.

Hickson H, Williams B, O'Meara P. Paramedicine students' perception of preparedness for clinical placement in Australia and New Zealand. BMC Med Educ. 2015;15(1):168.

Reason for exclusion: not a qualitative study.

Melby V. Experiential learning in pre-hospital emergency care: a qualitative study. Nurse Educ Today [Internet]. 2000 Nov;20(8):638–45.

Reason for exclusion: nursing participants

Waxman A, Williams B. Paramedic pre-employment education and the concerns of our future: what are our expectations? J Emerg Prim Heal Care [Internet]. 2006 Dec;4(4):10p–10p.

Reason for exclusion: not a qualitative study.

Williams B, Brown T, W. W. The Mismatch Between Perceived and Preferred Expectations of Undergraduate Paramedic Students. Internet J Allied Heal Sci Pract]. 2012 Oct;10(4):8p–8p.

Reason for exclusion: not a qualitative study.

Wyatt A, Archer F, Fallows B. Use of simulators in teaching and learning: paramedics' evaluation of a patient simulator? J Emerg Prim Heal Care. 2007 Jun;5(2):16p–16p.

Reason for exclusion: not a qualitative study.

Williams B, Teese D. A cross-institutional analysis of Australian undergraduate paramedic students' attitudes towards interprofessional collaboration. J Interprof Care [Internet]. 2016 Jan;30(1):97–102.

Reason for exclusion: not a qualitative study.

Tavares W, Leblanc VR, Mausz J, Sun V, Eva KW. Simulation-based assessment of paramedics and performance in real clinical contexts. Prehospital Emerg Care. 2014;18(1):116-22.

Reason for exclusion: not a qualitative study.

Tavares W, Mausz J. Assessment of non-clinical attributes in paramedicine using multiple mini-interviews. Emerg Med J. 2015;32(1):70-75

Reason for exclusion: not a qualitative study.

Kennedy S, Kenny A, O'Meara P. Student paramedic experience of transition into the workforce: A scoping review. Nurse Education Today. 2015;35(10):1037-43.

Reason for exclusion: not a qualitative study.

Michau R, Roberts S, Williams B, Boyle M. An investigation of theory-practice gap in undergraduate paramedic education. BMC Med Educ. 2009;9(1):23.

Reason for exclusion: not a qualitative study.

Ross L, Jennings P, Williams B. Experience, knowledge and attitudes: Are paramedic students prepared to care for older patients? Educ Gerontol [Internet]. 2016 Apr;42(4):241–52.

Reason for exclusion: not a qualitative study.

O'Meara P, Williams B, Dicker B, Hickson H. Health Workforce Australia. Final report on Paramedicine

clinical placement duration and quality variance : international benchmarking study [Internet]. 2014.

Reason for exclusion: not a qualitative study.

Gibson B, Brightwell R. The Developments in Paramedical Science and the implications of National and International Accreditation and Registration in Alliance with Ambulance Authorities. EDU-COM 2006 Int Conf. 2006;(22–24 November):1–11.

Reason for exclusion: not a qualitative study.

Williams B, Brown T, Winship C. Learning style preferences of undergraduate paramedic students: A pilot study. J Nurs Educ Pract [Internet]. 2013;3(1).

Reason for exclusion: not a qualitative study.

Best G. Peer Mentoring as a Strategy to Improve Paramedic Students ' Clinical Skills. Journal of Peer Learning.2008;1(1):13–25.

Reason for exclusion: not a qualitative study.

Edwards D. Paramedic preceptor: Work readiness in graduate paramedics. Clin Teach. 2011;8(2):79–82.
 Reason for exclusion: not a qualitative study.

Hou X-Y, Rego J, Service M. Paramedic education opportunities and challenges in Australia. Emergency Medicine Australasia.2013;25(2):114–9.

Reason for exclusion: Mixed methods scoping review.

Trede F, McEwen C, Kenny A, O'Meara P. Supervisors' experiences of workplace supervision of nursing and paramedic students in rural settings: A scoping review. Nurse Educ Today [Internet]. 2014 May;34(5):783–8.

Reason for exclusion: Mixed methods scoping review.

Appendix III: Studies excluded on methodological quality

Devenish AS, Clark MJ, Flemming M. Experiences in Becoming a Paramedic: The Professional Socialization of University Qualified Paramedics. Creat Educ. 2016;07(06):786–801.

Reason for exclusion: Participants, and their voices, were not adequately represented due to a lack of being able to substantiate the findings due to a lack of illustrations.

Lazarsfeld-Jensen A. Telling stories out of school: Experiencing the paramedic's oral traditions and role dissonance. Nurse Educ Pract. 2014;14(6):734–9.

Reason for exclusion: Participants, and their voices, were not adequately represented due to a lack of being able to substantiate the findings due to a lack of illustrations.

Appendix IV: Characteristics of Included Studies

Study	Methodology/study design and methods for data collection and analysis	Country	Phenomena of interest	Setting/context/culture	Participant characteristics and sample size	Description of main results
Carver H, Lazarsfeld-Jensen A. [49] (2018).	Gadamerian hermeneutic approach using a qualitative approach which favoured language and narrative. Interviews were audio-recorded and later transcribed verbatim by a professional transcription service and subsequently uploaded into QSR NViVO 10TM to assist with data analysis	Australia	Doctoral study by the first author, which explored the lived experience of being a paramedic preceptor to novice paramedics in their first year of on-road practice.	A single state government-funded ambulance service within Australia.	A purposive sample of 11 paramedic preceptors from an Australian government-funded ambulance service.	The operationalisation of the paramedic preceptor role to be a complex and broad ranging set of responsibilities that may be categorised into four key dimensions: coach, role model, socialiser and protector.
Delisle B, Ebbs P. [50] (2019).	A mixed methods qualitative/quantitative study. A 60-question survey and free-text responses Survey response frequencies have been presented and free-text responses have been used to provide further descriptive detail.	Australian paramedicine students in Vanuatu	Whether an international work integrated learning experience in Vanuatu provided a useful clinical and cultural learning experience for undergraduate paramedicine students.	Paramedicine students undertaking a 4-week clinical and cultural learning experience in Efate, Vanuatu in 2017.	All 9 paramedicine student attendees were female; four survey participants were in their second year of study with all others in their third year.	This international work intergrated learning experience appears to have provided a very useful clinical and cultural learning experience for undergraduate paramedicine students.

Devenish A S, McKay G, Long D N, Horrocks P D, Smith M. [51](2019).	An interpretive qualitative study utilizing one on one interviews with participants Interviews were digitally recorded, and transcribed, analysed using qualitative content analysis. Holistic coding was used followed by code contestation. Codes were then sorted into categories, concepts and themes	New Zealand	The aim of this study was to identify the experiences of undergraduate students undertaking an international clinical placement in an interprofessional snow resort medical clinic.	Clinical placement in the New Zealand ski resort clinics operated by Medical Rescue	Six final year paramedic students from Queensland University of Technology (QUT), Brisbane, Australia were chosen to take part in the clinical placement with Medical Rescue.	Interprofessional clinical placement appears to be a valid alternative to traditional ambulance placements. However, using this model to replace mainstream placements is problematic due to the costs involved, the limited number of spots available and the seasonal occurrence of snow sports.
Ford R, Webb H. [52](2014).	An interpretative qualitative design, used a convenience sample. Thematic analyses of field diary and focus group data were conducted in small teams	Australia	The aim of the study was to assess the impact of a cognitively and physically challenging simulated wilderness exercise (SWE) on the development of relational competence in senior paramedic students.	Data collection occurred in 2013, during and after the three-day simulated wilderness excercise conducted in a wilderness landscape in Central Victoria, Australia.	The study sample comprised a convenience sample of senior students enrolled in the Bachelor Nursing/ Bachelor Paramedic (double degree) at a regional university in Victoria (n=29).	The practice implication of this finding is that these graduates will perform the relational aspects of their work role with greater ease, thus strengthening transition to normal work pressures in their first professional work role.
Gallagher A, Vyvyan E, Juniper J, HorsfieldC A, Rutland S. [53](2016).	A dual method Delphi and qualitative study design Data were analysed thematically and utilised two methods of data collection: a Delphi process seeking expert views on	United Kingdom	To understand the views of paramedics and paramedic students in regard to professionalism in paramedic practice.	The qualitative component of the study was conducted in one university and one ambulance National Health Service (NHS) Foundation Trust in the South East of England.	16 clinical managers, specialist paramedics and student paramedics.	Paramedic professionalism enablers and inhibitors relate to three levels: individual, organisational and regulatory/societal levels.

	paramedic professionalism; and a qualitative approach.				
Henderson T. [54]2012.	Qualitative research design. Data collection was carried out through semi-structured interviews and a focus group. Interviews were recorded then transcribed verbatim by the author, following this the data was thematically analysed through a series of coding that identified repeated concepts/experiences	United Kingdom	To explore relationships between the prior life experience and placement engagement of first–year paramedic students.	First year undergraduate paramedic students in a UK university undertaking ambulance placements.	Paramedic students divided into two sample groups; Mature students, over 25 and Direct entry students, under 25.	Findings highlighted the multi-faceted nature of engagement in placement and emphasised the need for provision of quality clinical placements and suitably qualified/experienced mentors.
Howlett G. [55](2019).	An interpretist qualitative research design, purposive sampling was used in order to select the participants, focus groups were chosen as the method of data collection, analysis was chosen as the most suitable data analysis tool.	United Kingdom	To learn about nearly qualified student paramedics' perceptions of reflection and their intended use of reflection post qualification.	Nearly qualified student paramedics at a UK university utilising reflective practice	Nine nearly qualified student paramedics four participants were male and five were female, there was a mix of ages and experience in the group.	The findings showed a positive attitude towards reflection among the students. There appeared to be a lack of reflection and reflective practice in some sections of the paramedic workforce.

Lane M, Rouse J, Docking R E. [56](2016).	A interpretive qualitative study. A convenient sample of paramedic educators were identified across two ambulance services. Focus groups were conducted and thematic content analysis was used to identify key themes,	United Kingdom	To explore paramedic educators perspective of 'mentoring' issues specific to the paramedic profession	Paramedic educators drawn from two ambulance service trusts; all Paramedic Educators (PEds) had more than one year's experience of mentoring students from a higher education setting.	A total of 14 Paramedic educators participated in the focus groups across the two ambulance services: six females (43%) and eight males (57%).	Results demonstrated the importance of learning through observation, teaching skills and personal qualities in relation to the paramedic educator role.
Langford L, Pearce J. [57](2019).	A qualitative study. Focus groups and semi-structed interviews. Purposive sampling was used to recruit participants. The field notes of the clinical facilitator were also included in the data analysis. Thematic analysis was used to code and identify themes in the data	Australia	This study reports on a collaboration between an Australian university and ambulance service to pilot a paramedic clinical facilitator for undergraduate paramedic students during their ambulance clinical placements.	The context was an Australian territory government-funded ambulance service, where students from a government-funded university were rostered for their ambulance clinical placement shifts.	A total of 11 paramedic students. and three paramedic preceptors	Three broad, over-arching themes arise from the data; 1.) Increased educational opportunities, 2.) Improved clinical placement management, and 3.) Greater student support and welfare.
Lucas P, McCall M. [58](2015).	A mixed methods quantitative/ qualitative study. Collection of qualitative data during student feedback meetings. The data were analysed using a thematic analysis approach. Additionally,	Australia	The benefits of residential-aged care clinical placements undertaken by undergraduate paramedic students in facilitating the development of critical interpersonal skills.	Four residential-aged care facilities (RACFs) in the Australian state of Tasmania participated. The facilities ranged in size from 70 to 140 beds.	A group of final year fast-track undergraduate paramedic students (n=31) participated in a five-day residential-aged care facility clinical placement. The majority of	The research found that students benefited from the placement in terms of developing their interpersonal skills. Students demonstrated an increased understanding of dementia and improved communication strategies for working with people with dementia.

	quantitative data from pre- and post-placement surveys were collected and analysed using IBM SPSS Statistics 20.0.				students were female (58%).	
Lucas P, McCall M, Lea E and Eccleston C, Crisp E and Robinson A. [59](2013).	A mixed methods qualitative/quantitative study. Feedback meetings with students and mentors were recorded and transcribed Quantitative data were also collected as another component of the research and analysed using IBM SPSS Statistics 20.0.	Australia	Clinical placements undertaken by final year undergraduate paramedic students in residential aged care facilities. Barriers to effective teaching and learning are identified in order to tailor placements to better meet future health system demands.	A cohort of final year paramedic undergraduate students (n=17) completed a five-day clinical placement in one of two residential aged care facilities in Tasmania, Australia.	Second year fast-track undergraduate paramedic students (n=17) Other participants included nursing and carer staff (n=31) in the role of mentors.	Barriers to teaching and learning while on clinical placement were identified and categorised into a number of key themes. These include: a lack of clarity of the placement structure, inadequate clinical liaison support, and limited contact with residents and facility staff.
Lucas P, McCall M, Lea E, Eccleston C, Crisp E, Andrews S. [60](2013).	A mixed methods qualitative/quantitative study. Collection of qualitative data during weekly student feedback meetings whilst on placement that were recorded and transcribed. Quantitative data from pre- and post-placement questionnaires were collected and analysed using	Australia	Placements in nursing homes for student paramedics sought to enhance the students' understanding of working with older people, including older people with dementia.	A cohort of final year undergraduate students (n=17) completed a 5-day clinical placement in two participating residential aged care facilities in Tasmania, Australia.	A cohort of second year fast-track undergraduate paramedic students (n=17). Participants included nursing and carer staff (n=31) from the two facilities that volunteered to mentor the students in a preceptor role.	Positive learning experiences identified by students include: an increased understanding of dementia and dementia palliation; development of 'soft skills' such as empathy and communication skills; and improved understanding of the operations of residential aged care facilities.

	IBM SPSS Statistics 20.0.					
Maria S, Hlushak A, Diamond A. [61](2019).	A mixed methods qualitative/quantitative study. Four surveys by Survey Monkey, complete a questionnaire using 5-point Likert scale and open text questions after each placement	Australia and the UK	To develop a time sensitive web-based application that delivers timely feedback, improves communication, provides access to clinical reflections and flags critical events.	Undergraduate paramedicine students and their preceptors on placement in the New South Wales, 5.6% in the Australian Capital Territory, 9.3% in the London, and 1.8% in Queensland.	A total of 54 undergraduate paramedicine students on placement. Also 261 preceptors were involved.	CompTracker© can be used to support students and preceptors in clinical placement. The flexibility of this online tool makes it adaptable to most clinical workplaces,
McCall L. [62](2009).	A qualitative study. Focus group discussions. Open-ended questions. All transcripts were managed within QSR NVivo (Version 2.0.161). The qualitative data was analysed, guided by Strauss and Corbin's grounded theory.	Australia	To identify factors that affect the education of pre-employment paramedic students during the clinical practicum.	Undergraduate students from the Bachelor of Emergency Health (Paramedic) (BEHP) who had recently completed their first or final clinical placement.	21 paramedic students One group included students who had completed their first placement and two focus group discussions included those who had completed their final clinical placement.	Students perceived four factors as influencing learning in the clinical practicum: communication, appropriate placements; capacity building; and, adequate preparation for students.

O'Meara P, Williams B. [63](2015).	A qualitative study. Face to face semi-structured interviews. Inductive thematic analysis of the transcripts was completed using Nvivo software.	Australia and NZ	To determine the elements of quality clinical and field placements for Paramedicine undergraduate students through the eyes of paramedic instructors.	Two large paramedic services in two countries where the entry to practice qualification for paramedics has been set at the Bachelor's degree level. Paramedicine field placements are understood to be planned, scheduled, educational time spent in emergency paramedic services that include observation and skill development.	Fifteen purposively selected paramedic instructors. The criterion for inclusion was that they had supervised at least one university paramedicine student on a field placement.	The main findings are that in the absence of agreed standards there is considerable diversity in the focus of field placement in paramedic services, the value placed on broader clinical placement settings, and the shared expectations of paramedicine students and paramedic instructors.
O'Brien K. [64](2013).	A mixed methods qualitative/quantitative study. Survey requiring participants to choose from six possible responses and 5 open-ended questions. Data from survey was analysed. Open ended questions were transcribed and imported into NVivo8, where each part of the questions was analysed and	Australia	The objective of the study was to investigate perceptions of preparedness for the workforce of final year paramedic students at Victoria University, Melbourne, Australia.	Final year paramedic students in their last semester at Victoria University, Melbourne, Australia.	23 final year paramedic students in their last semester at Victoria University, Melbourne, Australia.	Respondents felt 'somewhat adequately' to 'adequately' prepared for the workforce. Responses to Part 2 indicated a range of perceptions in relation to preparedness to enter the paramedic workforce, ranging from feeling unprepared to putting knowledge into practice, prepared in some aspects but not in others, through to feeling prepared but with a realisation that there would be much to learn on the job.

	grouped into themes.				
Rae J, MacQuarrie A. [65](2017).	A qualitative design. The research methodology was critical reflection. The interview was recorded and transcribed verbatim. The transcript was coded according to the phases of content analysis considered, grouping of comments with a common theme.	Australia	Explore the student-teacher relationship and pedagogical traditions in the context of project-based teaching in paramedicine and create a set of principles to guide future project-based teaching.	University undergraduate paramedic students in their second year of study participated in a two-day mass casualty exercise at a national army barracks.	Five university undergraduate paramedic students in their second year of study working with one academic	The data highlights tensions around the roles and responsibilities of students and their teacher, and also the student-teacher relationship, in project-based learning. The importance of suspending conventional belief, open communication and respect, and reflection on professional practice.
Rees C E, Crampton P. [66](2018).	A qualitative design involving group and individual semi-structured interviews. The study employed a social constructionist perspective. The data were analysed using an inductive five-step process of framework analysis	Australia	The current study investigated preregistration students' informal interprofessional workplace learning by exploring students' and clinicians' experiences of interprofessional student-clinician (IPSC) interactions.	Student placements across multiple clinical sites in Victoria, Australia.	Through maximum variation sampling, 61 participants (38 students and 23 clinicians) were recruited from six professions (medicine, midwifery, nursing, occupational therapy, paramedicine and physiotherapy).	Total of 343 positive consequences of informal interprofessional workplace learning interactions across the data (The most frequently narrated were better learning, such as students practising clinical skills and enhancing their knowledge, students learning how to work effectively in the healthcare team and their better understanding of patient care pathways).
Reid D, Kenneth S, Vencatachellum S, Mills B. [67](2019).	A qualitative study design Fifteen semi-structured interviews were conducted. The research used an interpretivist	Australia and the UK	To compare the viewpoints of professional paramedics and their managers on whether newly graduated paramedic students	Australian and UK ambulance services	Sixteen paramedic educators, mentors and managers in Australia and the UK. Selection	Interviewees in Australia and the UK identified that newly graduated paramedics require an internship period before independent practice. Interviewees in both

	Interview paradigm. Notes were then transcribed and entered into NVivo® for analysis.		are prepared for practice under each system of education.		criteria for interviewees included having had experience of graduate paramedics and be currently practising in the relevant jurisdiction.	jurisdictions recognised the robust theoretical knowledge and practical skills of graduates.
Ross L, Kabidi S.[68](2017).	A qualitative study using one on one interviews utilising a convenience sample. For data analysis, thematic analysis of the interview transcripts was conducted. A consensus was reached between the authors on the major themes discussed by the students regarding their volunteer activity.	Australia	Embedding volunteer activity into paramedic education to meet the demands of the role to provide quality and compassionate care to patients by placing Paramedicine students into the community to improve their interpersonal skills.	Placements undertaken while the student was in their third year of study in Paramedicine. Volunteering placement was conducted in various community settings affected by mental health problems, drug and alcohol abuse, homelessness, and a range of other issues.	12 third year bachelor of emergency health Paramedicine students from Monash University in Victoria, who had completed the unit "the paramedic in the community" and volunteer programme.	Analysis of the interview transcripts identified a number of key themes common throughout the participant group. Results suggest that paramedic students see volunteering as a highly valuable means of developing a number of skills crucial to their future roles and paramedic practice. Volunteering also provided students with an opportunity to learn about themselves and the broader community, develop confidence, and improve overall job-readiness and employability
Simpson P, Thyer L.[22](2016).	Qualitative methodology utilising a purposeful sampling approach focus groups were conducted using a semi-structured approach – discussions recorded digitally. data were	South Africa and New Zealand	The experiences of Australian undergraduate paramedicine students undertaking inaugural International work-integrated learning (WIL) placements in either South Africa or New Zealand.	Students from the undergraduate paramedicine program at Western Sydney University (WSU) travelled abroad to complete three weeks of WIL in either New Zealand or South Africa.	12 second year student paramedics	The results overall suggest a successful initiative that, from the students' perspective, provided a valuable learning experience in a clinical and non- clinical sense that surpassed expectations.

	managed using NVivo qualitative data analysis software.				
Williams A. [24](2013).	A qualitative, exploratory design and semi-structured interviews utilising interpretive philosophy. Words and meaningful statements were then manually coded and organised into themes. Data was then extracted to support and evidence the themes.	Wales UK	To identify and explore emotion work within student paramedic practice.	Student paramedics studying a Diploma in Paramedic Science in a large university in the UK. Students were in the second year of a two-year diploma programme and had undertaken four clinical practice placements, which would allow them experiences of emotion work.	A purposive sample of eight preregistration paramedic science students was sought from a cohort of 51 students. The sample included six males and two females.	The descriptions provided by the students highlight the emotional labour needed in students' first encounters with emergency resuscitation and trauma and provide insight into the professional expectations to manage emotion. Paramedic education has failed to recognise the importance of emotion work: the findings indicate a strong relevance for the inclusion of emotion work education in paramedicine undergraduate degrees.
Williams B. [69](2006).	A qualitative study Open-ended questions underwent thematic analysis as described by Bender & Ewbank by three independent, experienced qualitative researchers, and the results compared across data sets.	Australia	The goal of the study was to 'map the terrain' of students' attitudes and responses to case based learning (CBL) in an online teaching and learning environment, whilst also investigating the pedagogical application of case based learning in a blended learning environment.	2nd and 3rd year paramedic undergraduate students at an Australian university undertaking case-based learning.	A purposive sample of 2nd year (n=40) and 3rd year (n=29) undergraduate bachelor of emergency health students was undertaken. Both student cohorts consisted of a (64%) female to (36%) male ratio, with a combined median age of 26.5 years.	The study concludes that case-based learning is a congruent teaching methodology in clinical curricula for prehospital bachelor of emergency health undergraduate students. The results have suggested that the 2nd and 3rd year bachelor of emergency health students generally enjoyed CBL as a teaching and learning paradigm. However, reservations still exist on its 'perfect' delivery via an online learning management system.

Williams B, Beovich B. [70](2017).	A qualitative study Questions inviting experiential reflection. The semi structured interviews were conducted via telephone, audio recorded, transcribed verbatim by an external transcribing service and de-identified by pseudonym prior to analysis. Based on a thematic-analysis approach QSR NVivo 10 was used to organise the data and assist with this process.	Australia	To explore the experiences of sessional educators in an undergraduate program within the paramedic department of a university in Melbourne, Australia.	The study was conducted in the paramedic department of a major university located in an outer metropolitan area of Melbourne, Australia.	A purposive sample of sessional teachers employed to teach in an undergraduate paramedic program within an Australian university were invited to participate. Sampling in this manner sourced 10 participants with valuable knowledge of the subject matter.	Overall, the need for institutional and local support of casual educators was highlighted in terms of promotion of effective communication, connection to the workplace, education in teaching methodologies and professional development.
Willis E, Williams B. [71](2010).	A qualitative study. Semi-structured interviews and focus groups. The data was manually coded, initially by the researcher who conducted the focus group, then checked by three other members of the research team and a thematic analysis was employed.	Australia	What is understood by road-ready; is it facility in the performance of clinical skills or is it the capacity to respond appropriately to the social and interpersonal issues that arise during challenging cases, such as complex emergencies or confronting social situations?	The focus groups of approximately one hour each were held in South Australia, New South Wales, Western Australia, Queensland, Victoria, Tasmania, and Victoria.	Each focus group comprised approximately twelve participants and was drawn from a standardised group of union officials, academic staff, students and industry personnel.	First, that universities can only produce novices; and second, that a more overt integration between clinical skills, clinical evidence and the supporting sciences would facilitate the transition from novice to beginning practitioner.
Willis S. [72](2014).	This was an exploratory study with a concurrent, mixed methods	United Kingdom	Investigate whether or not student paramedics from a UK university, as	Student paramedics from a UK university	Second-year student paramedics enrolled in the	Students reported many benefits to their educational experience, having participated in

	design, using an online, semi-structured electronic questionnaire and a semi-structured face-to-face interview as the tools for data collection. Interviews were recorded using a digital voice recorder device, which were later transcribed before the content was analysed.		participants within action learning sets (ALS), felt that that these were a useful educational tool to use within a Foundation Degree in Paramedic Science.	undertaking action learning.	work-based learning unit. The cohort of students included both males and females with age ranges from 20 years through to 49 years, who were all white, British nationality, a sample of 8 students (15%) was felt to be a pragmatic number chosen for interview.	action learning sets, including developments in personal, academic and professional areas. The research also showed how the action learning process could be improved in areas such as action learning induction, providing action learning members with team working skills as well as supporting students with communication and leadership challenges during action learning sets.

Appendix V: List of Study Findings with Illustrations

Study: Linda Ross, *Sophia Kabid.* Embedding volunteering activity into paramedic education. [68](2017).

Finding	Students identified skills or discovered aptitudes in areas they previously thought they were weak in. (U)
Illustration	"I didn't realise that I'd be able to interact with all those different people." p. 193.
Finding	Students reported generally coping well, but sometimes struggled with assertive communication. (U)
Illustration	"Having to go and talk to people who probably don't want to talk to some random [person]. . . . Before that experience it would have been much more difficult for me to . . . approach patients like that, in what could be considered intrusive [ways]." p.193.
Finding	A number of students felt their volunteering experience highlighted prejudices and stereotypes that they were previously unaware they held. (U)
Illustration	"It was confronting for me because I realised . . . that I had actually been forming stereotypes about certain groups of people, and I hadn't thought myself the person to do that." p.193. "It's pretty easy to take on the stereotypes . . . that you see so often, and [I didn't] realise it . . . until I came in and I met these kids that I [thought] 'this was not at all what I was expecting." p.194.
Finding	The distinction between personal beliefs and the way you treat those around you was also highlighted. (U)
Illustration	"I'm not immune to forming biases before I've met people. . . . It was fairly easy to correct once I'd identified the issue. . . . When you're talking to people, it's very easy to realise people are all individuals in their own right." p.194. "[Volunteering has] influenced the way I behave and the way I think generally . . . the ability to distance [your subconscious biases] from the way you treat the person is something I . . . learnt from my volunteering experience." p.194.
Finding	A surprising number of students were unaware of the prevalence of various community issues, such as mental health problems, drug and alcohol addiction, and homelessness. (U)
Illustration	"The amount of homeless people and mentally ill people that were going around [in the city] was far more than I'd ever imagined." p.194. "All races, all nationalities, all socioeconomic levels . . . everyone has the same wants, wishes, and desires when it comes to health." p.194. "There were a lot of homeless people which surprised me, I didn't know there were that many homeless people

	in Melbourne." p.194. "It cemented for me the issue of binge drinking, drug use; I didn't realise that it was such an issue and so widespread." p.194.
Finding	Students also commented on the value to individuals from these communities of "small acts"—the gift of time, an opportunity to chat, a shoulder to lean on, and someone to listen to them. (U)
Illustration	"We stood with one guy for about half an hour, and he was really happy just to have someone to tell his story to and someone who was happy to listen." p.194.
Finding	Students reported improved confidence with communication, particularly when interacting with people from a range of backgrounds and in a non clinical environment. They felt they improved in their ability to build rapport quickly. (U)
Illustration	"Much better to get that practice in a non-clinical setting where you can really focus on the communication skills and how to get along with [patients], what's good to say, what's not, in that supported environment . . . so that when it comes to when they're ill those 'soft' skills of communication come naturally." p.194. "Confidence in talking with patients frankly, on a person-to- person level, not always on that clinician-patient level . . . to make them feel more at ease, more comfortable, and I have no doubt [my volunteering experience] was a big help for that." p.194.
Finding	They felt increased confidence in leading paramedic cases on clinical placement involving mental health crises, drug and alcohol affected people, children (particularly those with special needs), and aggressive patients. (U)
Illustration	"[We attended] one lady with dementia who I had to communicate with differently, and some of those communication styles really came through." p.194. "[Volunteering] gives you the opportunity to deal with these different cohorts of people that we don't really experience until we're on-road." p.194.
Finding	Students reported gaining the personal reward of helping out in the community. (U)
Illustration	"[My volunteering experiences] were really rewarding." p.194. "It's good for the students but I think ultimately the broader community [also] benefits from it." p.194.
Finding	Students felt a sense of improved connectedness with the community. (U)
Illustration	"It created connections to the community that I didn't have before." p.194.
Finding	Students expressed a reinforced desire to help people through paramedicine. (U)

Illustration	"It made serving the community part of the reason I wanted to be a paramedic." p.194.
Finding	Students commented on the value of volunteering in regard to improved employability. (U)
Illustration	"It was really useful when I came to the interviews for employment and I could talk about something other than placement experiences." p194. "It's fantastic when you're applying for jobs." p.194

Study: Angela Williams et al A study of emotion work in student paramedic practice[24] (2013).

Finding	Respondents made reference to the need to control, hide and suppress their emotions. (U)
Illustration	R2: "I did get upset for like probably two seconds but I couldn't show it. I had to cut it off cos I knew if I let it get to me I would have started crying." p.514. R6: "That is the job you've just got to deal with it and you've got to sort of push your feelings to the back and then get on with it." p.514. R2: "I think I'd be able to shut it down for the time, I think I can do it for nearly all jobs, you have to shut off your emotions cos you can't do your job then, you can't think straight." p.515. R4: "deep down I was panicking even though my mentor he said oh you were really cool and level headed, inside I was absolutely crumbling and maybe it's good that I can't show those types of emotions in front of people especially in front of relatives, you don't want to come across that you're flapping and crumbling when really you are cos you're only human. " p.514.
Finding	Some respondents suggested that being involved practically in the resuscitation helped to suppress their emotions. (U)
Illustration	R1:" I was very much involved, I think that might have been the difference, because we were focused on, we need this, I knew what we needed,I was being very professional in my thoughts and I think that focus sort of suppressed my emotions." p.515.
Finding	Respondents emphasised their professional responsibility and the need to deal with the situation. (U)
Illustration	R6: "Going towards the car and you could see, hell of a mess, you think oh what am I going to see, sort of hold your breath and I thought right okay fine, sort of sigh of relief, cos it's the job I'm going in for, things like that shouldn't really affect me, I think if it starts affecting the way you work then maybe it's not the job for you." p.515.
Finding	Another respondent describes surface acting or hiding emotions and the importance of this as part of the job. (U)
Illustration	R4: "You don't want to crumble or anything and you think if they thought well that's it now I can't be a paramedic. You kind of put a

	front on, you wannabe strong faced and hard because you think if you are going to crumble at something like that then are you doing the job that you can handle really." p.515.
Finding	A number of the respondents emphasised the behaviours of mentors who were potent role models in the management of emotion. (U)
Illustration	R6: "Any situation they're exactly the same and I think even if they are bothered by it they don't show it, they'll tell me afterwards that was a hard one and I didn't even know, they manage it so well, it's afterwards, that's why they are professionals they're used to it and they're used to hiding what they're feeling so you can't see." p.515.
Finding	The respondents referred to the expectation to manage emotion and the negative attitudes towards the expression of emotion. (U)
Illustration	R4: "You've got this stature that you should not be that emotionally involved and you don't want to come across to them that you're not a wimp but that you're stressed or whatever, 'if you can't handle the job you shouldn't be doing it'. Um a classic line on the road 'you knew the job when you took it on'." p.515.
Finding	Respondents described the need to focus on the job or protocol appeared to detract attention away from the person and contributed to a lack of realization that this was a person or patient. (U)
Illustration	R4: "I know when I did my first cardiac arrest I was doing the chest compressions and I kind of had to snap myself out of it a little bit to think oh my God that's a real person,I was just concentrating so much on doing the task in hand I didn't actually look at the fact that it's a real human being." p.515.R3: "I was doing the protocol but when I had to lift the gentleman off the floor back on to the bed and put the blanket underneath his chin that was the realisation that the person we had just been carrying out CRP on was a real person and not just a protocol." p.515.
Finding	Respondents described situations which necessitated responding to patients' and relatives' feelings of fear, anxiety and uncertainty in highly stressful circumstances. (U)
Illustration	R1: "She said he's my child and she said to me is he going to live? and I was well I don't know, I don't know what they are doing, I don't know what the outcome is going to be and um I found that quite hard, uncertainty of not too sure of what to say because you hear of children dying." p.516.R2: "I think its cos its the first time anybody asked me am I going to die and we really couldn't say no you are not because you know he could have, so that was a really hard one." p.516.

Finding	Respondents reported when personal relevance was likened to family members or personal circumstances. (U)
Illustration	R1: "I have got a boy the same age, which I think I linked to really, I think that is what drew me in, cos I was trying to keep professional but I was feeling exactly the way she was, I was asking the same questions as well, I thought about my own boy, um he was about the same sort of age." p.516.R2: "he was quite young and I think it was that he was the same age as my Dad,he was only 56 you know and I was gosh he is a young man." p.516.
Finding	The personal relevance of these experiences to the respondents appeared to evoke strong emotions and feelings of empathy for those involved. Respondents struggled to control their emotions and to stop themselves from crying. (U)
Illustration	R1: "There was this balance of trying to keep myself emotionally, I was filling up it was really, really a difficult thing to deal with, I managed to control myself, didn't burst out crying, felt it, felt quite emotional, I was filling up." p.516. R2: "I did get emotional, I did actually think I was going to cry I did have to hold it back, he goes am I going to die and I turned round to the PCR (patient clinical record) and I did have to hold back, I got a bit choked up, I think all three of us did." p.516.

Study: Paul Simpson, Liz Thyer. Reflections and experiences of student paramedics undertaking international work intergrated learning placements.[22](2016).

Finding	South African students reported high volumes of acute case-mix, predominantly traumatic in nature. (U)
Illustration	"...Really frustrated...just trying to accept that I couldn't do any more because I didn't know what to do...I felt fairly helpless". p.190.
Finding	Personal growth in a non-academic, non-clinical sense was a strong theme that was valued by the participants as being just as important as an outcome as the clinical experience. (U)
Illustration	"It put you in situations you don't necessarily normally put yourself in at home when you're in your comfort zone and you know all these people around you and, so getting trained to this area where you don't know anyone ... you just have to adapt and you just learn just to talk to whoever and make friends with people and I think it's... great in a social aspect like that and it can be quite character building in a sense." p.191.
Finding	It was apparent that the combination of pre- or post-placement independent travel and the placement experience itself had a profound impact on most participants. (U)

Illustration	"It was the best experience I've had... a positive also was that we were given flexibility on when we could arrive and depart from our destination. It wasn't like a placement where it was organised, you're here for three weeks and that's it, you're with one of the teachers or something, which I know other international placements in other courses have had; okay, you've been there for two weeks and then that's it. But having that freedom of us being able to go and travel beforehand made up for the placement and then travel afterwards if we wanted to. It was definitely, I think – made a massive impact on my experience in going over there, yeah, definitely awesome." p.191.
Finding	The need to be self-sufficient and work as a team with fellow students in the same location was a strong theme. (U)
Illustration	"You're out of the country, you're by yourself, you have to learn to do it all yourself, like, you obviously have support through the people that are in the same area of you as well as you can contact family, but – but you can't always go back to that, you have to learn to deal with stuff yourself which is a big advantage especially in this, like, in this career." p.191.
Finding	Students reported they believed a greater knowledge of pathophysiology and pharmacology, and high level of pre-placement patient contact, would have enhanced their experience. (U)
Illustration	"Pharmacology especially and also pathophysiology so that you could actually, um, interpret what we would have learned at school in terms of drugs and disease and see it on-road...Um, I mean, I – I think it was the best thing ever that we were almost thrown out of our depths to some extent, um, but having that background at times where they (patients) were quite critical would have been definitely beneficial, yeah." p.192.
Finding	Students reported that the expectations of knowledge and scope of practice held by their respective mentors surpassed what they felt they were capable of, and led to students experiencing intermittent feelings of 'helplessness' and 'frustration within themselves'. (U)
Illustration	"I'd come home and that night would discuss things and have a beer and I'd just be like, I'm just so frustrated with myself" p.192. "there was (sic) too many times that I was left on-scene feeling useless and, um, ah, like I was basically taking up space". p.192.
Finding	Students reported that the international placement should not be undertaken as the first clinical experience. This feeling was

	strongest amongst the South African students, but was still prevalent in the New Zealand cohort. (U)
Illustration	"I think even, like, towards the end of a second year in para-medicine. I know we do a big one in our third year of para-medicine degree which will be, I think, superbly beneficial for all of us because we'll have backgrounds in those foundation...units." p.192.
Finding	Students reported leaning heavily on the other students they were placed with, especially when off shift via constant debriefing and sharing of experiences. (U)
Illustration	"single-most valuable thing was ... the group reflections that we participated in." p.193.
Finding	Students emphasized the importance of sending students overseas in small, compatible groups, indicating that without this structure the experiences would have been less positive. (U)
Illustration	"Similar personalities... if that didn't work out and there was conflict in the group, it could just fall apart, I think. Because there's so much more to do when you're overseas, away. It's not just coping with the job, you're coping living away from home, cooking, cleaning." p.193.

Study: Brett Williams, Bronwyn Beovich. Experiences of sessional educators within an Australian undergraduate paramedic programme. [70](2017).

Finding	Although many interviewees mentioned that they felt valued and were often thanked informally by academic staff for their efforts, there was a distinct lack of constructive feedback on their teaching performance. (U)
Illustration	"They certainly appreciate you going in and teaching their unit and that sort of thing, but I haven't received any formal or even any loosely informal feedback on my performance, or what I can do to improve, or what I need to stop doing." (Tony) p.3.
Finding	This lack of feedback often led to feelings of uncertainty regarding their teaching capabilities or performance, and to feelings that there was a necessity to learn on the job through trial and error. (U)
Illustration	"I wasn't sure that I was doing it right at that time, I just needed someone to say, Yes, that's right. That's what we want." (Clair) p.3.
Finding	It was also mentioned that the majority of feedback received was in an informal manner from the students, not staff. (U)

Illustration	"Will give it in, you know, body language, and they give it in a look here, they give it in how much you can see them enthused about what you're doing." (Bob) p.3.
Finding	Recruitment processes were reported as universally informal. However, participants expressed no disgruntlement, just a sense of acceptance of the process. (U)
Illustration	"It was kind of through word of mouth more than anything." (Tony) p.3. "I hadn't seen a position advertised, I just approached it just to see." (Anna) p.3.
Finding	There was much discussion regarding the need for more consistency in information about where the students are in their studies with regard to the curriculum, as well as departmental expectations. That is, what have the students previously been taught and to what level they should be expected to operate educationally? There seemed to be little such information. (U)
Illustration	"Understanding where the students are at with their studies, and sometimes it's really hard to have a quantitative list of expectations. Sometimes you have to go and do a few sessions to get a feel for what to expect from them."(Frank) p.3. "All of the sessionals needed to be on the same level with our expectations of where the students should be and what our I guess what level they need to be at week to week and where we're trying to get them at the end." (Harry) p.3.
Finding	Lack of continuity of educators. (U)
Illustration	"Walking in and out of tute groups or classes, you rarely get the same group of kids. You don't really know which ones are the strengths and which ones are the weaknesses. It does become quite difficult sometimes." (Tony) p.4.
Finding	Pre-existing qualifications/experience. (U)
Illustration	"It was mainly the background I already had [in] dealing with students, and providing an educational role. Perhaps if I didn't have that experience I probably wouldn't have felt as prepared. (William) p.4. Probably wasn't really qualified to teach even in a practical sense very well." (Tony) p.4.
Finding	Preparation provided by the workplace. (U)
Illustration	"There should be some sort of training day, especially for the new sessionals...on how to teach... how to get the concepts across...and even to get some guidance on how [University name] permanent staff teach and how they try to get their message across." (Tony) p.4. "Not every sessional [is] necessarily aware of how to teach." (Bob) p.4.

Finding	Observation of other educators was suggested as a method that could be employed to assist in learning how to teach. (U)
Illustration	"I think having them shadow other sessionals would probably be a good way to introduce them into the role and then over a few sessions they gradually take more responsibility and eventually they're running their own." (Anna) p.4.
Finding	Some educators reported receiving sufficient information in a timely manner to assist their teaching. (U)
Illustration	"We got the scripts for what we had to fulfil, like the scenarios that they wanted to do and the outcome they wanted to achieve with the students. So that communication was really, really good." (Trevor) p.5.
Finding	Sessionals often reported difficulty in obtaining the information required for the smooth running of their class. (U)
Illustration	"I guess one of the common complains that sessional staff would have, is turning up to sessions without content knowledge of what's going to be delivered that day." (Frank) p.5.
Finding	Most reported having a good working relationship with the academic staff and were not aware of sessionals being treated in an unfair manner. (U)
Illustration	"I don't hear much negativity in the background. I rarely hear anyone putting anyone else down, especially from staff members, I feel like there's a lot of respect each way." (Tony) p.5.
Finding	A few interviewees mentioned that this positive relationship may stem from the fact that many of those involved had previously worked with each other clinically. (U)
Illustration	"I mean, most of the sessionals there have worked on road and ambulance and still do casually. So they're quite well known. I've never had any issues with anybody there." (William) p.5.
Finding	Some individuals felt a strong association with the university. (U)
Illustration	"sort of accepted as part of the crew, like part of the team, I guess" (Harry) p.5.
Finding	Others felt quite detached from the university workplace. (U)
Illustration	"You definitely did not feel like part of the core group, and that seems reasonable being [due to] the fact that we were casual potentially in the way we turned up yes, I felt just blind to what the department was doing." (Frank) p.5.
Finding	Some viewed this disconnect from the university as an inevitable part of the sessional experience. (U)
Illustration	"You come in to do what you need to do and move on, sometimes you're not privy to all the information, so therefore, don't be upset when you're not told." (Trevor) p.5.

Finding	None of the individuals had taken part in any professional development, apart from the induction day, while working as a sessional educator. Some had seen opportunities, but had chosen not to participate. (U)
Illustration	"I have not taken part, and I'd say I initially might have been a little bit lacking in the fact that I do see [university] wide things that just come through my email and I have not actively pursued any of them." (Frank) p.6.
Finding	Most expressed an interest in taking part in any future professional-development opportunities offered. However, most commented that their topic preferences were education and communication strategies. (U)
Illustration	"Like lecturing and tutoring and ways to improve or engage, I think that would be beneficial. Like, how to actually deliver sessions." (Anna) p.6. "Just a refresher on different ways to approach a debrief, giving that feedback, and that feedback verbally and in writing." (Clair) p.6.
Finding	A benefit for many of the educators was the enjoyment they received from teaching the students, even though the financial rewards were not as great as working clinically. (U)
Illustration	"We wouldn't be doing it if we didn't enjoy it, and I think that's the important thing. I think I find most of the sessionals, they enjoy it, although it's not for the money." (Andrew) p.6.
Finding	Another much cited benefit of sessional teaching was that it was a way of staying current with information and continuing to develop professionally. (U)
Illustration	"Selfishly, the positives were my own personal development as both being a teacher and covering the content, so there was the intrinsic motivation and benefits." (Frank) p.6.
Finding	The casual nature of the work was generally seen to be positive in the paramedic setting. (U)
Illustration	"So I would never be able to commit to permanent days or anything like that because it's simply impossible with the rotating shift roster." (Wendy) p.6.
Study: Charlotte E Rees, Paul Crampton, Fiona Kent, Ted Brown, Kerry Hood, Michelle Leech,Jennifer Newton, Michael Storr, Brett Williams. Understanding students and clinitions experiences of informal workplace learning. [66](2018).	
Finding	Participants talked about how students from different professions and clinicians work together to deliver patient care. (U)

Illustration	"It could be to do with teamwork and communication, and discharge planning, and joint assessments and paperwork." (Paramedicine clinician, F4PT2C2) p.4.
Finding	Positive interprofessional student clinician(IPSC) interactions were thought to lead to better patient care (e.g., patient safety, patient dignity and positive patient experience). (U)
Illustration	"A good outcome for everyone., they [parents] had a happy, healthy, little kid and I got some really good experience." (Paramedicine student, M10PS2) p.9.

Study: Hamish Carver, Ann Lazarsfeld-Jensen. Operationalising the multidimensional role of the paramedic preceptor. [49](2018).

Finding	Participants in this study consistently described their role in the learning and development of a novice paramedic as being focussed on the novice's practice-in-context. (U)
Illustration	"The clinical stuff is what they should be teaching you in school, and putting into practice and doing your job as a whole is what the training officer [preceptor] does." (Taylor) p.3.
Finding	Preceptors are using strategies of support, guidance and advice, coaching would seem to be the most accurate description of the pedagogy being enacted between preceptor and preceptee. (U)
Illustration	"The main role I guess would be just to support them and make sure they're keeping on track with their education and their skill development, I mean they should already have the sort of knowledge in the back of their head from school, but really we're not here to be their primary knowledge giver in a way, they should have already had background information from college or from university . I should just be sort of mentoring and watching their skills on how they're actually doing it in a way." (Jordan) p.3.
Finding	Participants in this study expressed the importance of establishing an understanding of their preceptees as individual learners who have come to paramedicine with different backgrounds, skills and experience. (U)
Illustration	"You need to listen to them [the novice], in the first short period, like the first day or two, hear where they're coming from, try and find out what their background is. They may not have just been a shop assistant all their life. I've had a few that are actually from a nursing background that had decided not to fast track, to come through the system the old way, through the VET system; and clinically they're switched on." (Kim) p.4.
Finding	This skill of urgent duty driving requires experience and practice, with real-time coaching from the preceptor. (U)

Illustration	"I think definitely initially in the driving aspect because I think that's a whole new world for everyone coming into the job, lights and siren et cetera, and the build-up, where there is – I think there's very little training, let's be honest, in how to do that. And we don't go through any defensive driving courses or anything. So that is largely probably up to the training officer when they feel that person's ready." (Chris) p.4. "But as far as service life, I think, driving is another, something I'd forgotten then, driving is 50% of the job and I don't think there's enough emphasis on driving skills." (Robin) p.4.
Finding	Some participants felt that the simulation environment does not provide the opportunity for students to learn to engage with real patients in a sensitive and empathic manner. (U)
Illustration	"I actually for the last two shifts got a chance to work with a graduate that was doing their ride-along. So had a chance to work with them, which I haven't for a while, and I more or less let her go about how she would talk to patients or build a rapport and that sort of thing. She was good, she'd been out for a little while, but we were reflecting about how that's not really taught to them at university. They have this million dollar SIM room where they walk in and there's a mannequin lying on the ground and it coughs and vomits and talks to them, but they don't really have that chance to build a rapport, to communicate with the patients, understand body language or verbal cues, non-verbal cues." (Alex) p.4.
Finding	One participant, Alex, articulates the preceptor's facilitation of this knowing as imparting street sense. (U)
Illustration	"You're just teaching them like the street sense I suppose, what to do when you're walking into somewhere. When to judge, like your instincts, or when to go by the book and do things the way your protocols say." (Alex) p.4.
Finding	It has been reported that novice paramedics frequently struggle with their interpersonal communication skills, especially early in their transition to practice. (U)
Illustration	"A lot of the time it's just as simple as communicating with a patient, different culture, different people within the health service and other emergency service personnel. (Drew) p.4. I had a [graduate intern] not that long ago that came out and it was, we've got to do three sets of obs on every patient. The first thing he would do when he walked in was kneel down and take the blood pressure. I was like 'Aren't you going to introduce yourself? Who are you?' [The intern's response was] 'Oh, well, we've got to get a base set of

	obs... we were always taught that you have to'. 'No, well, you do need a base set of obs, but talk to the patient first." (Kim) p.4.
Finding	Participants reported a lack of inter-professional collaboration skills. (U)
Illustration	"So interacting with triage nurses, bedside nurses and doctors when you have to give a handover. And just being confident in yourself and talking in a good, loud, strong voice, trying not to stop, um, ah and those sorts of things. And she (graduate intern) agreed, that it's not really anything that they teach them or they don't usually teach them a lot of those things at the university. It's a lot of clinical stuff, it's a lot of anat/phys, skills-based, not really interpersonal communications. And it's something that takes a long time to develop. I don't think you can really teach it in a classroom." (Alex) p.5.
Finding	Paramedic preceptors in this study recognised providing clinical care in a person's home often provides paramedics with a wealth of information on psychosocial impacts of their patient's health and wellbeing which can be passed onto medical staff. It is an important dimension of assessment to emphasise to their neophyte practitioner, much different from the clinical simulations students experience at university. (U)
Illustration	"We have to do scenarios on dummies, they don't look like people. You can walk into a room and work out so much about a patient without even talking to them but if you walk into a room with a manikin, it doesn't give you anything. You might look at someone's living situation, the clothes they're wearing to see how they care for themselves, if they have family to take care of them ... their perfusion, a manikin doesn't have colour, it doesn't sweat, it doesn't make noise, it doesn't live anywhere and you can get so much from that when you're in actual person's house ... so yes you can learn how to do a skill but when the patient you're treating is a human being I think that's very different." (Sam) p.5.
Finding	An additional coaching strategy reported was for preceptors to create opportunities for learning in the practice environment. (U)
Illustration	"[I]f I hear a [cardiac arrest] go down ... we'll clear for that straight away. Because they need that experience. So you are jumping jobs that you would normally not jump. Because let's face it, there's some jobs that you just would prefer not to go to ... [but] all of a sudden you think 'Well, they have never done something like that, I'll jump the job'." (Kim) p.6. "If there's something like a code 9 [trapped patient] or a cardiac arrest or a stabbing or shooting, by

	all means I'll say we're clear and can assist with that. You try and get them into it that way." (Drew) p.6.
Finding	Role modelling was reported being used in all aspects of the position of paramedic preceptor, whether interpersonal interactions with patients, colleagues or managers, driving and adherence to organisational policies and procedures. (U)
Illustration	"From me they would get the right way to do things. I try to be as professional as I can with patients, with hospital staff, colleagues, as what I can be. ... they've got to learn that there is a time and place to joke around and a time and place to be serious and game face sort of thing, so to speak." (Drew) p.6. "And the trainee will feel how the training officer performs, too, whether it be driving or whether it be talking to patients, or whether it be talking to management, I think that's really like a sponge, I'm sure, in the first few months. So I think setting that example is important and staying within the guidelines." (Chris) p.6. "At the start it's totally beyond them, but towards the end of their training they should really be taking in what you're doing as well as what they're supposed to be doing. So it is a role model when you're doing your job and you're doing it properly, then they should notice that as well." (Taylor) p.6.
Finding	Paramedics in this study reported that preceptors must 'walk the walk', emphasising that the novice is more likely to emulate how the preceptor behaves, rather than what they say should happen. (U)
Illustration	"If I say, 'Oh, you need to build a rapport with that patient,' then I go to the next patient and go, 'Come with me,' be abrupt and stern and not be patient, it's not going to – it's going to fall on deaf ears. So I guess it's like any leader. People learn from the leader's actions rather than their words." (Chris) p.6.
Finding	Participants in this study reported socialising their novices through a range of strategies. Facilitating a sense of belonging was achieved through introduction to colleagues and managers, but also the practical aspects of lockers and station familiarisation. (U)
Illustration	"It's up to me to introduce them to people to show them the station ... Once we've gone through the car I will introduce them to [the station manager], allocate them a locker and show them around."(Sam) p.7.
Finding	Preceptors in this study reported they were in a position to impart the intangible knowledge to the preceptee, guiding the novice in their early introduction in the unwritten components of practice. (U)

Illustration	"There is definitely a culture and there's a lot of unwritten rules that it's just expected that you know and follow, and you definitely have to teach your trainees those rules. You don't want them to make a mistake because they're not aware of a particular rule." (Alex) p.7.
Finding	Preceptors in this study strongly recognised their role in patient safety. (U)
Illustration	"Because patient safety is the most important thing we do." (Drew) p.7.
Finding	Each participant reported feeling that they were responsible for the actions of the novice. (U)
Illustration	"Essentially the buck stops with us, being the only qualified operator in the car. And if something happens that compromises their safety it's pretty much our fault. We should be there to watch them like a hawk, so to speak." (Drew) p.8.
Finding	Participants reported using several strategies in operationalising the patient safety aspect of the preceptor role. Listening and open communication between preceptor and preceptee appear to be key. (U)
Illustration	"I wouldn't take a back seat and just drive and not be aware of what's going on in the back of the ambulance. I'm listening to what's being said in the back." (Sam) p.8.
Finding	Despite the internship being an experiential learning period, preceptors sometimes felt that patient safety requires the novice take a more observational learning approach while the preceptor assumes care for the patient. (U)
Illustration	"[W]hen you've got a sick patient in the back and they are treating for the shift, often I've swapped and got them to drive and I'll treat, because I'm not yet comfortable with them being competent enough to deal with that situation ... But I think it's about the patient, it's not about – like, it's not always about training the probationer. Sometimes it's actually more about the patient, because their welfare needs to be considered, because that's why you're there." (Chris) p.8.
Finding	Preceptors in this study were cognisant of their role in ensuring that novice paramedics unfamiliar with the dangers of paramedic practice remained safe. (U)
Illustration	"Depending on where they come from, they may never have come into any situation where their wellbeing might be threatened. So really naïve as to what could happen; the fact that we're in uniform, we can be targeted and if they've not worn a uniform before they probably don't know that either. So you have to educate them as to what could happen, how to prevent it, and if it does happen, what

	to do after that as well; so all aspects of safety is really what you need to teach them, depending on what their background is." (Taylor) p.8.
Finding	Preceptor reported that guidance and support can assist novices with their self- confidence and maintaining realistic expectations of their learning curve. (U)
Illustration	"You need to be able to guide them, so if they're going down the respiratory pathway but you think it's cardiac, you need to be able to bring them back without making them look like they don't know what they're doing in front of the patient, and that's a trick on its own to try and steer someone without decreasing the people's confidence in them, and their own confidence in themselves." (Kim) p.8.
Finding	All the participants in this study recognised the need for providing psychological support to their novice, which also includes knowing when to escalate support to professional services. (U)
Illustration	"You'd still help them out with everything, so most definitely an emotional assistance is there as well because if they've got kids of the same age that you go to a job, if they've got a parent that's gone through a similar thing, if they've got a history of being in a car accident, and they don't divulge that sort of stuff but at the end of a job you notice that there's something wrong, if you can help them get over that then you're going to help them deal with the job in general." (Taylor) p.9.

Study: Peter O'Meara, Brett Williams, Helen Hickson. Paramedic instructor perspectives on the quality of clinical and field placements for university educated paramedicine students [63](2015).

Finding	Vocationally trained paramedics thought that placements should be restricted to field placements in paramedic services. (U)
Illustration	"It might be okay for first years to spend time in another setting for their placement, but second and third year should be on the road in an ambulance environment. The hospital environment gives them some benefits but not the experience that we need pre-hospital. I can't think of any other setting that would be suitable." p.1082.
Finding	Paramedic instructors argued that short placements were lost opportunities to engage with students in their clinical education. (U)
Illustration	"One day they in are my station, then they travel overnight and sleep in the car on their way to another town 400 kilometres away." p.1082.

Finding	Paramedic instructors described wanting time at the end of their shift to talk with students and debrief any critical incidents that may have occurred. (U)
Illustration	"We need time to provide feedback and do the paperwork. At the moment, the shift finishes and we have 10 minutes to sign the forms, shake hands and we never see them again." p.1082.
Finding	University degree qualified participants reported that students needed exposure to the work environment. (U)
Illustration	"They need to see how things work in reality." p.1082.
Finding	Vocational trained reported that they thought it worked better when paramedics were vocationally trained. (U)
Illustration	"What we have to do now is teach them everything, I mean everything. Whilst they might have some ideas about what to do they don't know how to do it." p.1082.
Study: Liam Langford, James pearce. Experiences and perceptions of a paramedic clinical facilitator model during ambulance clinical placements. [57](2019).	
Finding	Both student and preceptor participants reported that due to the preparatory work of the paramedic facilitator prior to the students attending their clinical placements, preceptors better understood the student's curriculum and learning outcomes for their clinical placements. (U)
Illustration	"You had a point of reference as opposed to having to trudge through the same questions all the time with every student you get, and then not knowing exactly what they do or don't know, and whether or not you're pitching things too advanced or too low for them." – PPI1, P10."It's really good, he sent through an email to let them [paramedic preceptors] know that we [students] were coming." - PSFG2, P11.
Finding	Participants reported that the facilitator modelled a positive learning environment, providing an example for preceptors. This lead to a culture of teaching and learning, where preceptors were more willing to engage with students educationally. (U)
Illustration	"The facilitator provides the paramedic [preceptor] with an example to follow." – PSFG1, P11."I think mine literally said to me "Oh Liam sent me an email, I guess we better do this," so ordinarily they probably wouldn't have volunteered but, "Oh yeah, okay, let's go do it!"." – PSFG2, P11."He actually jumped on with one of our call-outs and on the way there he was like, "Okay so this is the scenario. What would you do?"." – PSI1, P11.
Finding	Participants reported feeling an increase in overall confidence due to the role of the facilitator. This confidence boost led to students participating more actively in supervised patient management, and

	in preceptors' confidence in allowing the students to demonstrate their skills and knowledge. (U)
Illustration	"Because our facilitator knew the [paramedic preceptor] staff and he knew us, it got us in with them, so they felt more confident. Because he was confident with us, then they were confident with us, so it actually allowed us to do more on the road." – PSFG1, P11. "It was nice to have someone who already has a little bit of confidence in you and says, "This person can do this.". It's a bit reassuring." – PSFG2, P12.
Finding	Where possible, the paramedic facilitator introduced the student to the crew at the ambulance station at the commencement of their first placement. The facilitator re-enforced the capabilities of the students. Students felt increased confidence with this positive start. (U)
Illustration	"I was at a station and he [facilitator] was there. He explained "She's just done this unit and this unit so she'll be good to do this, this and this", and listed off skills we knew. They [paramedic preceptors] were like "Oh, OK!" – PSFG2, P11. "[The facilitator had] a very good idea of all of us and where we were at so that was an exceptional help." –PSFG1, P11.
Finding	Students and preceptors reported that the ambulance clinical placement was undertaken in a live emergency ambulance environment, where, understandably, operational issues were the priority, rather than student education. It was perceived by students that the preceptors were often reluctant to provide educational opportunities to students due to this competing priority. The paramedic facilitator helped to address this imbalance by being a dedicated educational resource. This increased the students' learning opportunities and maximised productive time while on placement. (U)
Illustration	"It's good to have a facilitator that understands not only what you're going through but also what the crew needs and what you both need to work together." – PSFG1, P13. "Your time often on station without jobs you would be doing something helpful like scenario practice or learning something rather than just sitting around." – PSFG1, P13.
Finding	Students especially appreciated the opportunity to debrief and reflect critically after cases. This allows an opportunity to strengthen the learning from each case. (U)
Illustration	"You are still in a work environment, and there is no time to stop and talk about it, but with the facilitator you can do that." – PSFG1, P13. "You're trying to put everything into context having someone

	who knew what you'd covered in class and then was able to apply that with a patient and bring it all together, that was really good." – PSFG2, P13. "We actually got feedback throughout the shift." – PSFG1, P13 "It gives you an opportunity to debrief rather than having to go to the next job." – PSFG1, P13.
Finding	Paramedic preceptors appreciated the enhanced, more personal clinical placement experience. They valued their contribution to the students' learning. (U)
Illustration	"It's really isolating just having a student turn up, look after them for a few shifts, and then they disappear. It doesn't let you feel like you're involved in any way other than almost like in a caretaker…It's almost like an observer, it's not really like having a student placement. Facilitators make that become more like a student placement and less like a disjointed experience for us." – PPI2, P1.
Finding	Overall, students felt supported in an enhanced educational relationship with the paramedic facilitator. This reduced workplace stress, allowing students to perform at their best. (U)
Illustration	"You don't feel bad about saying, "Can you help me?" or, "This happened". The facilitator's job is for students. They come in and you're like okay cool, I've got this, and you don't feel bad. It's such a breath of fresh air when he walks in." – PSFG2, P14.
Finding	Students and preceptors found it advantageous having a designated point of contact between the university and ambulance service to manage the issues which inevitably occurred with the day to day management of student clinical placements. (U)
Illustration	"My second shift got cancelled and then someone else couldn't make it (to their shift) so I jumped on her shift instead." – PSFG1, P15 "He…drove one of them across town to get into another car and did all that management stuff." – PPI1, P15.
Finding	The facilitator, having prior knowledge of both the students' and preceptors' backgrounds and personalities, instigated pre-emptive strategies to improve team coherence prior to any issues becoming apparent, such as re-allocating students to more willing preceptors. (U)
Illustration	"The facilitator would move, or recommend you move, into a different station just because he knew the crew that were going to be working would be better suited to a student." – PSFG1, P15.
Finding	A number of issues occurred whereby the student had negative experiences with allocated preceptors. The facilitator was able to

	manage these conflict situations and implement an appropriate strategy, such as counselling the student or preceptor, or re-allocating the student to more receptive preceptors at an alternative station. This, in turn, increased the learning opportunities and quality of placement. (U)
Illustration	"I think sometimes you're not always comfortable with the crew so it's nice to know that you can talk to somebody or ask questions that you might have a better relationship with." – SPFG2, P16. "It gives them a bit of confidence having someone to go to if they're not gelling with the team." – PPI1, P16.
Finding	Students reported that having access to the facilitator to support them after critical events resulted in potentially adverse events turned into learning experiences. (U)
Illustration	"My crew actually contacted the facilitator about an experience that I did have that was overall a very difficult one. So the fact that he actually – he called me the next day to make sure I was okay and walked through what happened." –PSFG1, P17. That was very good to be able to do the student welfare thing within a timely manner. Particularly with somebody that the student already knows and trusts. So that's extremely important." – PPI7, P1 "That definitely wasn't a negative learning experience anymore, where it possibly could have been had I not had that support from the clinical facilitator." – PSFG1, P17.
Finding	Students felt they were better supported at all times by the paramedic facilitator, due to the increase in socio-emotional and physical safety. This level of continuity and support resulted in increased student confidence. (U)
Illustration	"Having a dedicated clinical facilitator meant that support was there all the time." – PSFG1, P17. "Someone that we are able to contact that we know will answer the phone for us" – PSFG1, P17
Finding	Students and preceptors reported that while on clinical placement there were a number of incidents with the potential to significantly impact student welfare. These included confronting and traumatic cases, preceptor hostility towards students, and stress and anxiety about workplace issues. The facilitator had a previously established trusting relationship with both students and preceptors, and was seen as trustworthy and approachable with sensitive matters. Preceptors utilised the facilitator as a referral and intervention point for student welfare post incidents, including debriefing, and access to further services. (U)

Illustration	"My crew actually contacted the facilitator about an experience that I did have that was overall a very difficult one. So the fact that he actually – he called me the next day to make sure I was okay and walked through what happened." –PSFG1, P16. "That was very good to be able to do student welfare thing within a timely manner. Particularly with somebody that the student already knows and trusts. So that's extremely important." – PPI2, P16.
Study: Dr Rosemary Ford, Dr Helen Webb. A simulated wilderness exercise: the development of relational competence in paramedic students [52](2014)	
Finding	Participants realised the importance of appropriate communication within the team. (U)
Illustration	'... So you go out quite far, you use your navigational skills to get to a patient, based on a real scenario, a real occurrence of a patient out in the forest. And then you need to go back to base with the patient, while monitoring and treating [them] on route .... That really puts pressure on people to utilise their correct skills and to communicate... one of our biggest problems was you had half the team up the front [navigating back to base] and the other half carrying the patient out... and they just didn't pass it [information] on... We've got no idea where we're going...' (Focus Group). p.577.
Finding	Participants recognised the existence of competitive personalities in teams, the behaviour of whom unsettled interpersonal relationships and stymied accurate, reliable decision-making. (U)
Illustration	'I have a huge competitive personality and I am loud and everyone knows that but I decided to take a step back. I thought, for this to work I can't be all the way up high... I decided to step back. ...then I decided to start picking the points where I was going to have an opinion' (Field Diary). p.577.
Finding	Participants recognised the importance of appropriate interpersonal communication, in this case, restraint and silence. (U)
Illustration	'Silence... um... letting the person... do what they're doing, and stop giving instructions or talking over them... 4 people standing around you saying 30 different things... And so, yeah, standing still and silence was always a good option' (Focus Group). P.577.
Finding	Participants quite quickly realised that the unfamiliar environment challenged them all equally and they needed to manage their own unease and be sensible and reliable within the team; that is, to demonstrate maturity, respect and tolerance. (U)
Illustration	'... We all had really good communication and really good team work, but we didn't have any strong personalities [in the team] that

	really stepped up to the lead. We were like, "oh what do you want to do?" and taking a consensus. So I said 'I'm not sure what everyone else is doing, but I know I can get us out of the bush ...I know where we've been and I know how to get home' (Focus Group). p.577.
Finding	Teams were occasionally under physical duress during simulations, in such situations some members stepped up to show a level of strength and resilience not previously seen by their teammates. (U)
Illustration	'We had to find a trauma patient. ... our team leader at that point knew her navigation really well, but she was challenged by all our opinions about the route back to base. She really held her nerve and that was ...pretty good. She just had a clear logical argument, I was just really impressed with that anyway, because you know, it's thinking outside the square, which is what you really need in those situations' (Field Diary). p.577.
Finding	Participants felt that being in the middle of the bush having to improvise and think outside the square gave them greater confidence. (U)
Illustration	'And I found that, you know, being in the middle of the bush, where you haven't got the luxury of your truck that is filled with all the equipment you could ask for... Um, you really did have to improvise and think outside the square. And for me, it [the experience] gives me greater confidence' (Focus Group). p.577.
Finding	Participants found the experience of being in a completely different environment and putting everyone out of their comfort zone is a great equaliser. (U)
Illustration	'I think it was a completely different environment. Even for people who are comfortable at uni [university], it takes everyone out of their comfort zone in a way. So it puts everyone maybe at the same level.' (Focus Group). P.578.
Finding	Participants developed tolerance for, and acceptance of, others in the team. (U)
Illustration	'She is like "why are you doing that?". Her ... questioning was actually, at times, frustrating as hell because you are just trying to get this patient out in some kind of timely manner. But ...what she was doing was actually quite valuable in terms of making me stop and question myself ...why am I doing this... am I doing this blind? But yeah at the time it was incredibly frustrating.' (Focus Group). p.578.
Finding	Participants expressed a new respect for team members with whom they had little familiarity. (U)

Illustration	'It was interesting for me to see how the other people in my team got along with each other in a different environment other than sitting in the classroom... even people that sort of sometimes were left out or aren't so much into like being social... got to become part of the group. It was probably necessary too, like it took all, um, all the team members to get the job done' (Focus Group). p.578.
Finding	Participants developed a growing awareness and respect for teamwork. (U)
Illustration	'And yeah, in some shape or form we all, within our own groups, we all got to a point where we delegated roles to each other. We had our strengths and we played to them. Like for example, navigation, I know I found it extremely difficult to begin with but there were other things I knew I was capable of doing in patient treatment. And then accordingly we were matched in our own groups to what our strengths were, which I thought was really good for the team' (Focus Group). p.578.
Finding	Participants expressed that they learnt from each other when working in a team environment. (U)
Illustration	'Just to see the different strategies that members of the team used to obtain information [from patients] especially if patients were in multi-conscious states. We all had different approaches and I especially learnt from that. Yeah, I liked that' (Focus Group). p.578.
Finding	Participants showed a self- awareness of their contribution to the team. (U)
Illustration	'Then the next thing was to get out of the bush. Once I've been somewhere I know where I am. So I said to the group "I'm not sure what everyone else is doing, but I know I can get us out of the bush and that, regardless of whether we have [signals to follow] or not, I know where we've been and I know how to get home". That was something I was adamant about' (Field Diary). P.578.
Finding	Participants developed new skills and leadership. (U)
Illustration	'The night navigation [exercise] showed us that we had learnt something... we remembered most of the track... we counted steps out and recognised different land marks... [in future] we can guide people or we can now be leaders in doing that sort of thing' (Focus Group.) P.579.
Finding	Participants recognised themselves as belonging to a community of health professionals, and their first steps towards understanding the strength gained from professional identity. (U)
Illustration	'For me it kind of felt like we were part of it ... we are part of this developing professional community. Especially having ex-paramedics [retired], current paramedics and people from the

	wider health care setting and military and all that. ...even just with the students, it kind of made this little community, which creates a bit more sense of belonging in the profession. I felt like I was contributing to something.' (Focus Group). p.579.
Finding	Participants showed an awakening to the professionalism in other team members. (U)
Illustration	'Some people are just calm. He was just so clear on what everyone had to do, there were no issues at all... And he went, "Well have you thought about this?" And you were like, oh, okay maybe I will just wait...' (Focus Group). P.579.
Finding	Participants felt a greater accountability for their own practice, and responsibility for the welfare of members of their team. (U)
Illustration	'I think it was a shared feeling, but I definitely felt I had a greater accountability and responsibility, not just for myself and for the patient but for all members of my team. Because you're looking out, and you are walking [and] you are carrying that patient who is heavy, and you have maybe 3 km to go. And you know, everyone is feeling it, and you kind of all just band together.' (Focus Group). P.579.
Finding	Participants learnt the importance of the interrelationship between communication, team work and leadership. (U)
Illustration	'I think I learnt more about communication, team work and leadership than I did about my clinical skills. It became obvious... that leadership is very important and communication/team work is vital to good care. I felt that... you don't understand how important it is until you are in that situation' (Field Diary). p.579.
Study: Dr Peter V Lucas, Michael J McCall. Prioritising the development of paramedic students' interpersonal skills.[58] (2015).	
Finding	Participants related the relevance of the placement to their future work as paramedics, where they would increasingly have contact with people with dementia in a range of settings. (U)
Illustration	'I think especially if you are [working as a paramedic] in a rural setting you are doing a lot of driving, there's a lot of distance and you do have to talk with patients [with dementia] to make them comfortable. (FPm2003).' p.247.
Finding	Participants reported they were able to observe commonly occurring changes in dementia patients such as sundowning due to working varying shift cycles. (U)
Illustration	'[The placement was helpful for] picking up different behaviours throughout the day especially with dementia patients—their mood is often changing. I did my [assessment] on my resident and I decided to assess her just after morning tea around 10 am and at 4 pm just before sundown. I picked up a great change in her mood;

	she became quite agitated and [there was] a big change in her behaviour (FPm2004).' p.247.
Finding	Participants reported concerns that the paramedic uniforms with reflective strips they wore on placement might exacerbate behaviour problems among residents with dementia. (U)
Illustration	'Maybe we shouldn't be wearing these uniforms because there was this gentleman who was running away from me. According to the nurses, he saw me coming and he tried to escape into the nurses' station because he thought I was coming to get him.' (EPm2002). p.247.
Finding	Paramedic students working with first-year nursing students on the IPL activity found it was a good opportunity to provide guidance and advice to the novice nurses. (U)
Illustration	'they [nursing students] didn't really have any assessment tools...I said to them, you're probably going to be looking for skin tears, bedsores, falls risks (EPm2009).' P.247.
Finding	Participants considered the placement to be valuable and commented specifically about opportunities to spend time with residents. (U)
Illustration	'the exposure to and time spent with residents was the most valuable [part of the placement] (BPm2026).' p.246.
Finding	Participants reported the placement to be valuable in learning how to deal with different patient behaviours. (U)
Illustration	'learning how to talk to residents with a cognitive impairment was really useful for understanding how to deal with different behaviours [like] wandering (BPm2021).' p.246.
Finding	Participants reported a better understanding of the differences between the nursing and paramedic professions. (U)
Illustration	'IPL made me realise the differences in nursing and paramedic professions (BPm2024).' p.247.
Finding	Paramedic students reported they enjoyed teaching nursing students about paramedic practice. (U)
Illustration	'the opportunity to teach nursing students about paramedic practice (FPm2003).' p.247.
Finding	Paramedic students recounted how the nurses taught them useful strategies to engage with people with dementia during the performance of technical activities. (U)
Illustration	'[The second-year nursing student] taught me a lot of the practical stuff, like talking to some of the patients [with dementia]. Because...I'm quite used to just doing the blood pressure and stuff and just going in, strapping the thing [sphygmomanometer] on, and she [the nursing student] was like, Oh just slow down a bit,

	because you've got some time. Just talk to them, talk them through what you're doing, hold their hand while you're taking their blood pressure, really ease them down a bit (BPm2022).' p.247.
Finding	Participants reported that participation in the placement was helpful for developing their clinical practice by learning from other medical professions. (U)
Illustration	'working with [the medical student] was good because I definitely did learn from her. Her questioning was good and I will take that on board for my own clinical knowledge (EPm2004).' p.248.
Finding	Participants reported being surprised by the positive interaction they had with medical students. (U)
Illustration	'being surprised by the positive interactions and discussions with the medical students (FPm2003).' p.248.
Finding	Participants reported that the placement helped them better understand the day- to-day workings of a facility. (U)
Illustration	'One of the most interesting things I found out about this week is just how the elderly live in places like this, because I haven't had much previous experience with aged care. It was interesting to see how they're looked after and how the enrolled nurses and the registered nurses all seem to know everyone very well and that also helps with the management as well (BPm2027).' p.248.
Finding	Participants reported the placement also served to help break down preconceived ideas some had about such facilities. (U)
Illustration	'It's relevant to know what people do because there's a lot of assumption I find in the paramedic community that they [staff] do nothing in retirement homes. They just shower them or they're [residents] treated badly or whatever. It's good to see what actually happens and how much effort people [staff] go to [in order to] keep these people [residents] happy and how hard it is (BPm2030).' p.248.
Study: Dr Peter Lucas; Michael McCall; Dr Emma Lea; Dr Claire Eccleston; Dr Elaine Crisp; Dr Sharon Andrews, Prof Andrew Robinson. Clinical placements in residential care facilities part 1: positive experiences.[60](2013).	
Finding	Participants expressed that the concept of dementia palliation challenged them to consider this issue from different perspectives. (U)
Illustration	'We had one [lecture] on palliative care and that was really good...and we had our paramedic lecturer with us and we got to talk about that in a paramedic sense as well, and I got a lot out of it. Because we're paramedics, we're there to treat people and fix problems straight away, but with...palliative care... especially if they have advanced care directives, [it is alright to] give them a few

	drugs to help them ease and let them die peacefully instead of doing major interventions (AP2014).' p.402.
Finding	Participants reported that the manual handling component of the placement was helpful. (U)
Illustration	'The manual handling was good too, because it wasn't just ambulance specific, it was actually dealing with moving an older person (AP2019).' p.403.
Finding	Participants found the placement helpful for developing their communication skills and understanding the skills needed for working with older people more generally. (U)
Illustration	'A huge proportion of a paramedic's job is working with the elderly, not necessarily in nursing homes, so that opportunity to interact with the elderly is good (BP2012).' p.403.
Finding	Participants reported they were involved in a range of activities while on placement that provided them with the opportunity to develop new skills. (U)
Illustration	'By helping them out with their activities...you can see how they transfer, how they interact with other people, how they may not be able to use a utensil properly. You can see all that going on, it's all just about assessing them and their ability to interact with their environment (AP2012).' p.403.
Finding	Participants reported that the placement also enabled students to develop an understanding of the unique environment of RACFs and the contrast between other healthcare settings with which they were more familiar. (U)
Illustration	'You can see that everyone's care is so individualistic, no two people are the same, they've got forms as to how they like to be showered, how they like to be moved, what they like to eat and all that kind of stuff. And I think it's just all very individualistic, not something that you see in any acute setting so much because you're in, you're out and you're gone, but this is they're here long-term and it's their home and their life (AP2012).' p.403.
Finding	Participants felt the placement was beneficial for helping them recognise the emerging status of paramedic practice as a profession. (U)
Illustration	'That's the problem with paramedic practice, it's still a developing field in all forms of treatment...That's why it's a good experience, because we're learning where holes are in the profession and that's for us to try and fix (AP2018).' p.404.
Finding	Participants felt they gained an understanding of the operations of a nursing home and the roles of various staff within the facility.

	They thought this would be helpful in their profession once qualified. (U)
Illustration	'If we're going to find out about the cognitive abilities, I've learned from this placement that you would ask the nurses, because they've got more time to deal with them and more time to assess them so they will have a better knowledge than what we will (AP2013).' p.404.
Finding	Participants felt that the nursing staff were able to identify the skills of student paramedics and were keen to involve them in various aspects of resident care. (U)
Illustration	'The nursing staff here, as in the 'qualifieds', are very good at recognising what skills and attributes we have and they don't hesitate to come and find me [and assign tasks] (BP2017).' p.404.

Study: Louise McCall, Natalie Wray, Bill Lord. Factors affecting the education of pre-employment paramedic students during the clinical practicum.[62](2009).

Finding	Students reported feeling frustrated by a perceived lack of communication between the university and the ambulance service staff who would be supervising and teaching them. (U)
Illustration	"Sometimes they weren't even expecting that you were coming. ... Half of them don't expect you. ... You turn up at 7 am and they say who are you? ...The branch gets the form [student placement notification] but the actual workers, who are on that day, I'm not sure if they look at the form." [BEHP(Bachelor emergency health paramedic) student, final placement] p.4.
Finding	Students perceived that paramedics unknowingly cast students as "observers" rather than "participant observers". (U)
Illustration	"I think a lot of them [paramedics] are not used to having observers who actually do stuff. They say you're an observer, you're going to watch for the day. I know some people say you are strictly an observer today; you're not going to help out, you are just going to watch us." [BEHP student, first placement] p.4.
Finding	Students indicated that they were placed in an awkward position whereby they needed to state their learning objectives and outcomes at the outset of their placement. (U)
Illustration	"You introduce yourself at the start of the day and tell them what you want to do. ... You have to get out there and say, I really want to do it. I really want to be hands on today and I can do it." [BEHP student, final placement] P.4.
Finding	Students cited the placement location as a significant influence on their placement experience. (U)

Illustration	"It depends on where you are as well. Metropolitan areas you're doing more work but when you're doing a rural placement you might not get a job for two or three days just because there are just no jobs out there, nothing's happening." [BEHP student, final placement] P.4.
Finding	Some students explained despairingly that over the course of their placements they had not acquired practical experience of major emergencies while others had a diverse range of experiences. (U)
Illustration	"I've gone through the whole clinical placements in the ambulance and I haven't seen one cardiac arrest. I have only seen one sick patient who had asthma. It's been really limited about what I've seen. "[BEHP student, final placement] P.4. "To give you an idea of the dichotomy between the learning outcomes from different people, in the last prac[tice] I had four cardiac arrests and three hangings. That was potentially seven things that other people have missed out on but that's the nature of the work." [BEHP student, final placement] P.5.
Finding	Students based in metropolitan sites who constantly changed sites and supervisors did not cite added learning advantages. (U)
Illustration	"I went on a rural placement for three weeks and the same crews work in the area, the same branch. When I went to MAS [Metropolitan Ambulance Service] I did thirteen different branches, I was everywhere! I did one shift everywhere and it was like I had a job interview every single day." [BEHP student, final placement] P.5.
Finding	Building rapport with clinical staff was viewed as an important part of the placement experience and influenced student learning. (U)
Illustration	"You have to build up a rapport with that person. ... They need to trust you enough to hand patient care over to you. You can build that up if you're with the same person for one month. You'll know what they expect from you and you'll know what you'll be doing." [BEHP student, final placement] P.5.
Finding	Students identified the need for appropriately trained clinical educators. (U)
Illustration	"They don't know how to deal with a student so there lays one of the problems. You'd like to think that everyone can take the role as an educator particularly when professional experience is such a necessity but not everyone has those skills to be able to do that." [BEHP student, final placement] P.5.
Finding	Students perceived that clinical educators who were responsible and trained in teaching – much like clinical educators in nursing –

	would improve the quality of teaching and learning available to paramedic students. (U)
Illustration	"They would find an interesting patient or they would hear something interesting in someone's chest and they'd say "come and have a listen to this, it is good experience for you". People who were willing to listen to you and see what the university course is all about, someone who is interested in you and was willing to let you have a go but still be there to help you, most crews were pretty good like that." [BEHP student, first placement] P.5.
Finding	Students indicated they preferred a staff member who was genuinely interested in teaching and had the time to work with students. (U)
Illustration	"We had a really good clinical educator who pulled us aside every single day to debrief us and go through things with us. That made a world of difference." [BEHP student, final placement] P.5.
Finding	Students also highlighted that appropriate preparation for placements was an important influence on learning. (U)
Illustration	"The culture is the thing that I found confronting, especially when I was exposed to ambulance culture. I'm not from a health background or hospital background so having to deal with those social interactions as well. ... How to work in these certain team environments knowing what's required of you, and how to go about things basically." [BEHP student, final placement] P.6.
Finding	Students also noted that they required information about peer support during placements. (U)
Illustration	"Really horrific jobs "[BEHP student, final placement] P.6.
Study: Brenda Delisle; Phillip Ebbs Work integrated learning in Vanuatu: student perspectives.[50](2019).	
Finding	Participants reported enjoying the clinical challenges provided when effort was made to be actively involved. (U)
Illustration	'The doctors and nurses were more than happy to let me treat and assess, and actively called for me to help. This may not have been as true if I didn't put the effort in early on my shift to be actively involved and ask to do things, however because I did I reaped the rewards. I was able to do many of the skills within my scope, and interacting with patients who spoke another language was a challenge I greatly enjoyed.' (Respondent 2) p.23.
Finding	Participants reported an increase in their ability to work in stressful situations. (U)
Illustration	'Although my ultimate goal is to work in the paramedic profession, throughout the Vanuatu trip I feel the emergency department (ED) shift at the hospital was where I gained the most experience. ... I was pushed to think clinically, make appropriate decisions, and

	overall step out of my comfort zone. ... [In] the ED we attended many more local patients [which] challenged my communication skills, an area I felt I needed to most improve on ... I also was exposed at times to a more busy environment, challenging my ability to work under stress, a skill I will be able to directly correlate into my future work as a paramedic.' (Respondent 1) p.23.
Finding	Participants felt that the more exposure they got, the better. (U)
Illustration	'... exposure exposure exposure—can never have enough.' (Respondent 5) p.23.
Finding	Participants reported learning skills in dealing with their emotional and personal feelings when supporting patients relatives. (U)
Illustration	'[This particular case] tested me clinically as well as my emotional and personal skills in dealing with patients' families... It was a challenge being confronted with a life or death situation... trying to do CPR ... and being confronted with the family's grief [and] especially the different cultural approaches to death and grieving than what it would be in Australia. [This] was the experience that challenged me the most, and the one I learnt the most from.' (Respondent 3) p.23.
Finding	Participants reported an increased cultural awareness, cultural respect, and global citizenship. (U)
Illustration	'To be indulged in a different culture, language and land, and still be able to practise [para]medicine.' (Respondent 5) p.24. 'A better knowledge of the world and paramedics in general.' (Respondent 2) p.24.
Finding	Participants reported learning to communicate with family members who did not speak English in stressful situations. (U)
Illustration	'Obtaining a history was very challenging as the patient and all ten of his family members did not speak English. It was quite a hectic scene with many frantic family members [and] a very unwell patient ...' (Respondent 1) p.24.
Finding	Participants reporting finding the challenging nature of the environment to be both rewarding and humbling. (U)
Illustration	'working in an environment that is challenging though beneficial, rewarding and humbling.' (Respondent 1) p.24.
Study: Dr Peter Lucas; Michael McCall; Dr Emma Lea and Dr Claire Eccleston; Dr Elaine Crisp and Prof Andrew Robinson Clinical placements in residential care facilities part 2: negative experiences.[59](2013).	
Finding	Student participants reported being unaware who their mentors were. (U)
Illustration	'I think the hardest thing for us has been that... we haven't been introduced to or allocated a mentor; no one knows what we're

	supposed to be doing or where we're supposed to be ... we don't know where to go to find those people either (BP2013).' P. 463.
Finding	Mentor participants reported that they haven't been introduced to the students as a mentor. (U)
Illustration	"They've been introduced to the staff when they come on, but they're not being introduced as a mentor. I haven't been." (AMtr018).' P. 464.
Finding	Many students felt the education sessions on placement covered topics they had addressed previously in their course. (U)
Illustration	'The content of all of this week has been pretty much just that regurgitated again, which I found quite boring...It's all stuff we've done before' (BP2013). p. 464.
Finding	A number of students reported they had limited engagement with residents during their placement and noted this was a weakness. (U)
Illustration	'It's day four and our first actual interaction with the patient was this morning, so that's three days where we haven't seen a resident.' (AP2018) P.464.
Finding	Students reported problems with the placement structure, in particular with their timetable. (U)
Illustration	'The link between the nursing timetable and ours is very much different. So we've been allocated times to spend with the [student] nurses and go through what they've got to do in their [IPL] assessments just to learn a bit off them. But at the same time they're [rostered] to be doing something else (BP2014).' P. 464.
Finding	Mentor participants felt students needed to show initiative and let staff know if they were unsure of what they could do to facilitate their learning. (U)
Illustration	'Obviously we want to make it a good experience for them, so anything we can do to facilitate that we will; but they also need to be proactive [in seeking guidance from staff].' (BMtr009) p. 464.
Finding	Students considered another weakness of the placement was what they perceived as limited interaction with nursing staff. (U)
Illustration	'I haven't even spoken to the RNs [Registered Nurses]...I've seen them through the corridors, said "hi" and that's it.' (BP 2019) P. 464.
Finding	Students also expressed the view that staff struggled to recognise the skills they brought to the clinical area. (U)
Illustration	'I feel really sorry for them [staff] because they don't really know what we're doing here and we don't really know what we're doing here.' (BP2013) P. 465.

Finding	Some students reported that RACF(Residential aged care facility) staff perceived the students' presence in the facility to be an inconvenience. (U)
Illustration	'I don't know whether we've been a bit of a burden to have here because...I sort of feel like they haven't really wanted to get us involved and teach us a lot of things. I'm sure that there's a lot we could learn from being here but I just feel like...a bit of a burden (BP2020).' p.465.
Finding	Students reported that they had very limited contact with their tutors while on placement due to the school having a limited capacity to provide paramedic tutors across the two facilities. (U)
Illustration	'We haven't really had much interaction with any of our tutors or anything, it's a bit hard, like half the time we're wandering around not knowing what we're doing' (AP2017) p. 465.
Finding	Students reported the lack of appropriate geriatric assessment tools for paramedicine students they could use while on placement. (U)
Illustration	'Another problem we have is that paramedics in general don't really have a lot of geriatric assessment tools.' (AP2018) p. 465.
Finding	Mentors reported the lack of appropriate geriatric assessment tools for paramedicine students. (U)
Illustration	'The medical students had their CMAs [comprehensive medical assessments] to do, the nursing students have their functional assessment to do, but the parameds haven't really got a focus...and they do feel a bit lost.' (AMtrL004) p.465.
Finding	Students considered much of the placement was geared towards medical and nursing students and this represented a missed opportunity to provide insights into what paramedics do. (U)
Illustration	'[The placement] needs to be not so focused just on nursing and medicine. There could have been a couple of lectures throughout this week on our [paramedic] perspective, so the medical students could benefit from that, whereas it's kind of just been us sitting back not doing a lot, just listening. We should be a multi-disciplinary team and bringing our perspective into this programme as well would benefit [everyone] so much more (AP2016).' p. 465.
Finding	Some students said they struggled to see the relevance of many of the activities they were involved in during the placement to their work as paramedics. (U)
Illustration	'We can't do anything here because...it's not within our scope of practice to hand out any of the medications or anything like that so we can walk around with a nurse doing that but there's not a lot of scope [for us to be directly involved]. We don't do any dressing of

	wounds and we haven't done a lot of the stuff that the nursing students are able to do (BP2013).' p. 465.
Study: Kylie O'Brien PhD, Amber Moore BChinMed(Hons). Lessons about work readiness from final year paramedic students in an Australian university.[64](2013).	
Finding	Students indicated an appreciation of the fact that learning is a continuum and that it will consolidate and continue on the job. (U)
Illustration	" I think I will be prepared but I think once I get into the workforce there will be a lot to learn on the job." (ID 6) p.5.
Finding	Students indicated not feeling prepared, and articulated the value of learning on the job once they began work. (U)
Illustration	"I feel as though I was not prepared. The answers I have given previously state how I was feeling in my first month on the road. I now feel as though I have learnt a lot and got motivation for self learning whilst at work. I now feel very confident with everything because I had help from others (clinical instructors) going over things with me and teaching me things I had either forgotten or did not learn enough of." (ID 14, employed) p.5.
Finding	Students commented that clinical practice sessions were the best aspects of the course in preparing them for work as a paramedic. (U)
Illustration	"Clinical practice sessions, however there needs to be more hours per week and a greater focus on pharmacological and pathophysiological reasoning for treatment." (ID 5) p.6.
Finding	Students found ambulance service placements were useful during the course in preparing the student for entering the ambulance workforce. (U)
Illustration	'It gave me a feel of the types of jobs paramedics mostly go to. It also gave use an opportunity to listen to how paramedics communicate with patients." (ID 14, employed) p.6.
Finding	Students wanted more and/or longer clinical placements. (U)
Illustration	"Good and bad. They were excellent because as a student, I was able to see what really went on. When placed with a good crew, I was also able to practice some of the skills I had learnt........ Longer groups of placements would have been more beneficial as a better rapport would be gained with the paramedics. Also, paramedics and students alike seem quite unclear as to what an observer is actually able to do....." (ID 2) P.6.
Finding	Students reported about nature of rural paramedic work, where the number of call outs is typically significantly fewer than in metropolitan areas. (U)
Illustration	"Rural placements were ok but not many jobs and no experience achieved." (ID 15) p.6.

Finding	Students reported wanting more clinical training, and suggested placements in different areas of hospital and healthcare. (U)
Illustration	"More placements, maybe including work in certain areas of a hospital, such as emergency department, maternity ward, etc. .....Need more information on what patient goes to what hospital. What equipment certain hospitals have...." (ID 16) p.7.
Finding	Students reported a need for practical training and placements in mental health. (U)
Illustration	"More placements, more time on anatomy and physiology, more practical pharmacology and mental health- more relevant and specific to paramedicine." (ID 9) p.7.
Finding	Students reported the need for greater tailoring of units to paramedics. (U)
Illustration	"I think making subjects more tailored to paramedics. For example law and ethics could just go over the law and ethics surrounding paramedics and our profession." (ID 10) p.7.
Study: David Reid; Kenneth; Shelley; Stefan Vencatachellum, Brennen Mills. Preparedness of graduate paramedics for practice: a comparison of Australian and United Kingdom education pathways.[67](2019).	
Finding	Areas identified by Australian participants as being well taught included anatomy and physiology, treatment modalities and rationale for treatment. But students were found lacking in the application of skills learned. (U)
Illustration	'[graduates]... have the academic skills nailed. Skills are technically OK, but what graduates don't have is the application of the skills learned.' (Australian paramedic interviewee) p.5.
Finding	UK participants perceived a gap in the implementation of skills as part of the clinical reasoning and decision-making process. (U)
Illustration	'It's the move from supernumerary to having responsibility to practise. The issue the UK has is to get students to contextualise their training into actual practice.' (UK paramedic interviewee) p.5.
Finding	Participants reported disparity across Australian university paramedic degrees with respect to the suite of skills taught to students. (U)
Illustration	'Each university teaches differently and there is no consistent minimum skill set – so have to teach additional content based on the university the graduate goes to.' (Australian paramedic interviewee) p.5.
Finding	Both Australian and UK participants suggested that the length of time spent on ambulance placement with a paramedic crew did not necessarily result in optimal case-mix exposure for learning purposes. (U)

Illustration	'Undergrads need to see a range of actual ambulance jobs and that may be unrelated to the time they spend on road.' (Australian paramedic interviewee) p.6 'What you do as a student on-road is minimal – basic obs is pretty much the extent; although this can be highly crew dependent.' (Australian paramedic interviewee) p.6.
Finding	Australian participants noted that graduates often did not get placed with mentors. (U)
Illustration	'There are organisational challenges – inflexible rostering, for instance, can mean grads aren't placed with mentors.' (Australian paramedic interviewee) p.6.
Finding	Participants made clear that with paramedics able to be employed across a range of roles that are not only emergency ambulance based, there is a need for both ambulance and non-ambulance placements. (U)
Illustration	'Not all students go into an ambulance service – so moving to a 50%-50% split with other placements.' (UK paramedic interviewee) p.6.
Finding	Participants suggested that some graduates undertook practicums in primary care, alcohol and other drugs, mental health, aged care, emergency departments or overseas practicums. (U)
Illustration	'Used to be a job for life – now diversify into GP, hospitals, acute practices. Need to go into primary care, minor injury centres, nurse-led units and consider a range of specific clinics such as respiratory and home-based teams.' (UK paramedic interviewee) p.6.
Finding	Participants considered an 'everyone is a mentor' approach resulted in a lack of depth in student education and placed an onus on individual paramedics, who may not want to be mentors. (U)
Illustration	'If every paramedic is a mentor, then the assurance of quality becomes almost impossible. The current approach lacks depth – we get the same product, but it looks very different depending on who they (the student) are working with.' (UK paramedic Interviewees) p.6.
Finding	Participants identified that the level of responsibility given to students on placement varied widely. (U)
Illustration	'Level of responsibility given to students will depend on the crew they are out with – can mean extra time spent on individual jobs, and the level of responsibility given to a student is highly dependent upon the mentor.' (UK paramedic interviewee) p.6.
Finding	Participants suggested there remained a need for newly employed graduate paramedics to be oriented into the ambulance service organisation. (U)

Illustration	'Orientation needs to make them an effective partner – useful second crew member.' (Australian paramedic interviewee) p.6.
Finding	Participants identified that a newly-graduated paramedic would be very unlikely to operate effectively as an independent practitioner. (U)
Illustration	'We get the finished product, which isn't finished. We then finish them to be independent practitioners.' (UK paramedic interviewee) p.7.
Finding	Participants reported that no matter how long students spent on clinical practicum, paramedic graduates required a period of supervised practice before being allowed to practise independently. (U)
Illustration	'Even if placements (practicums) were to be increased we'd probably still want them to do the 12 months supervised practice – meet organisational needs and ensure organisational competency – so wouldn't decrease the time to do their supervised practice.' (Australian paramedic interviewee) p.7 'Even after the amount of on-road as a student they aren't ready as a full paramedic – they need a consolidation time period; having to make decisions – it's the transition from learning to work.' (UK paramedic interviewee) p.7.
Finding	Participants' views on the length of the supervised practice period after graduation varied. (U)
Illustration	'Product is a graduate with a degree suitable for registration but to be safe and competent will require a period of supervised practice, 6-12 months.' (Australian ambulance service medical director interviewee) p.7.
Finding	Participants suggested the principal reason students failed to develop their decision-making skills was because during practicum placements there was always a fully qualified paramedic taking responsibility for the patient. (U)
Illustration	'Three years as a student and as supernumerary leaves students in that mentality – becoming the person in charge and making the decisions takes time.' (UK paramedic interviewee) 'The big transition is having to take responsibility – for everything that they are doing in relation to work, patient care and their workmate who may be at a lower clinical level.' (UK paramedic interviewee) p.7.
Finding	Participants from both jurisdictions identified that it was part of a paramedic's role to assist, educate and train the future workforce. (U)
Illustration	'There will always be a responsibility on the employer to provide some education.' (Australian paramedic interviewee) p.7.

Finding	Participants reported the speed of graduate integration was suggested by interviewees to be multi-factorial and related to the individual's maturity, past work, and their ability to work in a high-pressure ambulance environment. (U)
Illustration	'The issue the UK has is to get students to contextualise their training into actual practice. The costs come in terms of the time it takes them (graduate paramedics) to make a clinical decision. It can take them up to 20 minutes to decide what to do with a patient.' (UK paramedic interviewee) p.7.
Finding	Participants reported that students could be placed on ambulances as a second during their third year to increase their exposure to clinical decision-making, while still under supervision. (U)
Illustration	'It could be useful that some students could work as a second, rather than as a third. For example as an emergency care assistant, although the employer would need to assess them first.' (UK paramedic interviewee) p.7.
Study: Sam Willis et al. Student paramedics' perceptions of action learning: a mixed-method study. 2014.	
Finding	Participants identified how being involved in action learning allowed opportunities to clarify uncertainty within the practice setting. (U)
Illustration	'It [AL] provided a formal method of overcoming problems in practice....it was reassuring to know that I was not the only student with similar problems' (student 2). p.628.
Finding	Participants reported that action learning made you feel at ease because other students were having similar problems. (U)
Illustration	'[AL]...made you feel more at ease to know someone else is experiencing similar problems.' (Student 4). p.628.
Finding	Participants reported that action learning allowed them to discuss cases they were not sure about. (U)
Illustration	'...[AL] allowed me to discuss jobs I wasn't sure about' (student 3). p.628.
Finding	Participants reported that action learning was like a form of group therapy. (U)
Illustration	'...you could talk to your peers about your problems and they would then come up with suggestions of how they would tackle them and then you would meet up in a few weeks and reflect on it and say what you have done about it' (student 4). p.628.
Finding	Participants reported that action learning resolved serious issues. (U)
Illustration	'I remember most of my problems had been resolved but others had some quite serious issues that were fixed [as a result of action learning]' (student 2). p.630.

Finding	Participants reported that action learning allowed for the discussion of cases students had struggled with, issues on ambulance stations and at university. (U)
Illustration	'That we all had issues that we brought to the table, whether they were jobs that we had been to that we struggled with or issues on our stations or university and we all discussed them [as part of the AL process]..' (student 3). p.630.
Finding	Participants reported that sometimes cliques within action learning groups affected the overall benefits to all students involved. (U)
Illustration	'...It depends on the group you're in quite a lot and whether you're proactive and friendly, because obviously some people clique with others and with our group there was a big clique with some but others weren't in that clique. For that reason I don't think it benefitted us as much as it could have.' (Student 4). p.630.
Study: Anthony Scott Devenish; Glenn McKay; David Nicholas Long; Peter David Horrocks; Michael Smith. Paramedic students working in snow resort medical clinics: a non-traditional interprofessional clinical placement model.[51](2019).	
Finding	Participants reported that medical rescue placement was seen as an opportunity to improve their job prospects with an alternative employer other than a state-based ambulance service. (U)
Illustration	"You don't know where you're going to get hired and if you're going to get a job. I thought it's good to look at all the different options that are available, that we could branch off into ... what other things could I potentially do and would I be able to get involved in that in the future?" p.4.
Finding	Participants reported being unprepared for a team of health professionals who had not necessarily worked together before and did not know each other's capabilities (U)
Illustration	"Before the clinic opened people weren't familiar with where things were, there was a new computer system, and the crew hadn't worked with each other before. So we didn't know who had what skills, who had done what ... whereas coming from an ambulance placement, everybody in that ambulance knows where equipment is and what they have and what they don't have ... after the first couple of days it actually picked up and turned around ... there was a good support network ..." p.4.
Finding	Participants found working in the clinic and roaming the mountain with ski patrol to be surreal. (U)
Illustration	"The first couple of days after (the resort) opening, I couldn't believe I was working on a ski field ... I'd strap on the snowboard and go for a run ... be seen on the runs and interact with the ski patrollers. It's like this isn't a job. This is amazing." p.4.

Finding	Participants were surprised to be afforded acceptance into the team compared with their experiences on traditional ambulance placements. (U)
Illustration	"I mean there was an obvious clinical hierarchy, but we were all inclusive in that clinical interprofessional team for sure. I felt it was in some way better (than a traditional placement) because you haven't got those paramedic mentors that think they're God's gift to earth and don't want to look at you because you're a measly student." p.4.
Finding	Participants found their university studies prepared them to manage major trauma, and were afforded greater respect by the clinical staff after proving their ability under stress. (U)
Illustration	"The (major trauma) cases certainly drove home how significant traumatic injuries can be up there ... Just seeing the team working together on a really critical patient demonstrates everyone's skills, where everyone was supporting each other and they were very confident in their decisions ... Up until that point, we were all quite unsure about each other's capabilities. The (doctor) was really impressed with our abilities, and our confidence and how calm and collected we were through it." p.5.
Finding	Participants reported that it provided them with an understanding of how multi-disciplinary teams operate. (U)
Illustration	"It's been very valuable working in an interprofessional team ... a lot of students don't get to experience an interprofessional team in action ... it has opened my eyes to the opportunities of working in a medical facility and not being on-road, for sure." p.6.
Finding	Participants reported that during down time they were able to shadow ski patrol and got to experience the challenges of providing trauma management to patients in the alpine setting. (U)
Illustration	"We went out and did a little bit of work with them. I did an instruction period with them ... attended cases on the mountain and sweeps at the end of the day when we were clearing the mountain. I got to understand a bit about hypothermia and the targets that we're looking for with patients who are caught in an avalanche. That's something I never would have learnt about otherwise. So that was really awesome." p.6.
Finding	Participants reported developing their professional networks with clinic staff. (U)
Illustration	"I still keep in contact with the team. We're still messaging each other ... Importantly it gave me some networks ... people that I can talk to who are doctors, physios and nurses ... So that's really good

	for me and adds exposure to what I think my paramedic career is going to be." p.7.
Finding	Participants felt that undertaking an international placement enabled them to build maturity, which would assist them to transition to the workplace. (U)
Illustration	"I think it made us grow up a little bit. You're suddenly in a different country, you're living overseas, (and) you've got different priorities." p.7.
Finding	Participants identified that medical cases were too limited, with the caseload being mainly traumatic injuries. (U)
Illustration	"I didn't do a single medical job while I was there ... and keeping my knowledge up for when you're applying for jobs and clinical exams and stuff is important. But I definitely think that overall it was a useful placement. We don't always get lots of trauma, so it's good to be able to see that." p.7.
Finding	Participants highly recommended the placement to future student cohorts. (U)
Illustration	"I think it's a good opportunity ... it exposed you to how doctors work, because on ambulance placements you transport the patient and handover at hospital, and then see you later kind of thing. I would recommend to future students to do the placement. It helps if they're a good skier, I think there's a lot of scope for them to get out there and do that point of injury stuff, but I think it was a huge benefit to go because I did learn lots more about musculoskeletal injuries. I actually got to reduce dislocations, which we talk about in class but we don't actually do on-road." p.8.
Study: Matthew Lane; James Rouse; Rachael E Docking. Mentorship within the paramedic profession: a practice educator's perspective. [56](2016).	
Finding	Paramedic educators felt that it was important for mentors to have been through and understand the university model of paramedic education, in order to be a successful mentor. (U)
Illustration	"To go out on the road with someone who is an experienced mentor to see them working ... for people like myself who come from the non-university background but have a lot of experience on the road it would be quite nice to see that, because it would give you a few more goals and hints and tips on what's expected ... she comes from that background (university background) so she knows what's expected, whereas I don't, presumably many other mentors within the ambulance service also don't. Although that demographic will slowly change over time, now that we've got all the paramedics coming in and more of us leaving." p.5.

Finding	Paramedic educators felt that expecting a paramedic to become a mentor immediately after leaving university was asking too much. (U)
Illustration	"A few years' experience on the road ... before having students, I think you need to find yourself before you then take on a student." p.5.
Finding	Paramedic educators identified that it may never be appropriate for an individual to take on a mentoring role. (U)
Illustration	'It's used to make people become a mentor where some people don't have the knowledge, desire or will to be a mentor, or capability to do it ... they're pushing people through, so actually your quality of mentorship is watered down." p.5.
Finding	Paramedic educators reported not being able to give proper feedback to students after cases due to a lack of time, and the pressure to get to the next job. This was identified as one of the biggest challenges in regards to undertaking effective education with students in the clinical environment. (U)
Illustration	"... They want to understand why things were as they were, and if you don't talk to them about why things were as they were, and the implications for the different kind of health problems that that individual was suffering from, and how all those systems are connected together, that student's not getting value for money ... maybe they were too about their turnaround times to really take him through the intricacies of various jobs that he was seeing." p.6.
Finding	Paramedic educators reported that the complex clinical environment paramedics operate within was also identified as a significant challenge while teaching students new skills. (U)
Illustration	"You've got a screaming mother, you've got ... something going on around the corner, you've got to talk to the patient at the same time ... they're (the student) not managing the scene how you would ... I would attempt to manage everything else which allows them to cocoon themselves ... then I'll explain afterwards." p.6.
Finding	Paramedic educators reported that a key quality that impacted upon a student's capacity to learn was being approachable. (U)
Illustration	"Inspiring through confidence in them so that they feel able to talk to you, question you, ask you what you're doing and why, and come to you if they've got any problems at all." p.6.
Finding	Paramedic educators reported the importance of the qualities of honesty, trustworthiness, supportiveness, patience, kindness, enthusiasm, respectfulness and maintaining high standards. (U)
Illustration	"If your standard isn't completely up to scratch, then you're teaching them a lower standard." p.6.

Finding	Paramedic educators reported that the paramedic educator should have an understanding of the student's level of education and their personal level of development. (U)
Illustration	"Understanding where they are in regards to their learning, and aligning your mentorship to there, and that's not in regards to only their knowledge and skills but where they are as a professional and as a person." p.6.
Finding	Paramedic educators felt that their organisations currently do not do enough to recognise the role of the mentor. (U)
Illustration	"For mentorship to work it has to be valued and have value within an organisation." p.7.
Finding	Paramedic educators reported being particularly interested in receiving feedback from students about their effectiveness as a mentor. (U)
Illustration	"I think the recognition of the role the mentor played in developing up the student and then the registering, so for example if, when we've had a couple of times "where students have been given letters of thanks, they've been mentioned in letters of thanks, there may be an acknowledgement of who that student's mentor was ... feeding back that you're doing a good job ... you want to know that you're getting it right and you want to know that you're doing a good job." p.7.
Finding	Paramedic educators identified that they themselves may require a mentor, to ensure they have someone to go to when they are challenged by the role or require support. (U)
Illustration	"It would be very nice to have a situation where the mentors have a mentor to mentor the mentoring." p.7.
Finding	Paramedic educators identified the desire to learn about mentoring from allied health professions who have established systems of education and mentorship. (U)
Illustration	"I think we could learn a lot from GPs from a mentorship perspective, because their educational system is all around the apprenticeship model." p.8.
Finding	Paramedic educators reported that the long-term benefit of supporting mentors would enable students to have positive placement experiences and, therefore, when looking for a primary employer, they would be more likely to return. (U)
Illustration	"If they come out and they have a good time on placement ... if they like what they have to offer and they feel supported, then they are more likely to look at them as a primary employer and they're more likely to come to you and feed to you and your workforce in the future." p.8.

Finding	Paramedic educators reported being concerned that the current infrastructure did not adequately support students to cope with situations they are faced with. (U)
Illustration	"The difficulty with our profession is we're getting busier and busier, and the pressures get more and more, and things like welfare get put to the back of the pile." p.8.

Study: E. Willis, B. Williams. Road-ready paramedics and the supporting sciences curriculum.[71](2010).

Finding	Participants suggested that students work as ambulance transport officers in order to gain the necessary pre-employment skills. (U)
Illustration	"...We're trying to educate those people that have got no idea what the back of an ambulance looks like, give them just some tiny little bit of insight as to what they're going to face next year, in induction, school and out on the road... we think an important breakthrough would be to have people operate as transport officers, physically operate part of the practicum in the first year as transport officers" (Paramedic). p.5.
Finding	Participants reported that graduates were not work ready. (U)
Illustration	"...Look, the bottom line is, is that, you get the piece of paper, they're not work-ready. It takes them 18 months to 2 years to get anywhere near being paramedics, so that's a 5 year program to create a paramedic, an advanced life support paramedic anyway" (Paramedic). p.5.
Finding	Participants reported a lack commitment, the right disposition or a willingness to take up the demands of the job such as shift work. (U)
Illustration	"....Well I was 21 once, but you know, they don't want to work nights, they don't want to work weekends, they don't want to work public holidays, you know..." (Paramedic). p.6.
Finding	Participants reported that non-clinical or soft skills were identified as a problematic area for graduates entering internship programs. (U)
Illustration	"A lot of people we would not progress in the recruitment process because of their lack of team work, lack of communication skills, because we think....they wouldn't fit into an environment where there is pressure...where you've got to be mature "(Paramedic). p.6.
Finding	Participants reported chauvinistic and non-inclusive attitudes and poor empathy with the elderly were identified as a problem among students. (U)
Illustration	"I had a gentleman [student] tell a 60 year old Italian lady with a broken arm that she should chill out!" (Paramedic). p.6.

Finding	Participants spoke of the value of psychometric testing for predicting a graduate's suitability for the work. (U)
Illustration	"...There are always issues in terms of getting the right people into the course ...and that's one of the reasons why the ambulance service here didn't go with an open degree as has occurred in the eastern states, because they've always been concerned about having an open degree, getting the right people in, so that they can employ them and not, not have a big group of people walking around with paramedical science degrees who are not going to be employed" (Academic). p.6.
Finding	Participant suggested teaching clinical skills in context. (U)
Illustration	"I think the challenge for universities...is in the rationalisation of the basic anatomy and physiology development. Most of our work occurs away from controlled environments, so the applied anatomy and physiology has got to be quite situational. The critical issue I am talking about is developing a judgment in the practitioner so that the judgment is relevant and effective. If they get the diagnostics wrong at the start they're flying blind"(Paramedic). p.8.
Finding	Participants felt the universities were failing in their role to supply graduates who were work-ready in non-clinical areas. (U)
Illustration	"Soft skills development it is something that is missing, and maturity will play a part in it, but if the universities can actually start to develop those soft skills and by that I mean things like being able to communicate, being able to talk and listen appropriately [for] the uniform you're wearing, not get judgmental, and things that they might not be expecting" (Paramedic). p.8.
Study: John Rae PhD; Alexander (Sandy) MacQuarrie BSc MBA PhD(c) Out of alignment? A critical reflection on the student- teacher relationship in project-based paramedicine education.[65](2017).	
Finding	Participants spoke of how the typical student-teacher relationship had been rearranged. (U)
Illustration	"All of a sudden I was watching people's body language around the room, and I ... thought wow, there's something really magical going on here ... So I was watching the back and forth, and I thought this is really something, there's a realignment going on here ... and here's the students showing us how they view it." (Academic) p.3.
Finding	Participant reported that the students influenced the academic in their own learning and teaching. (U)
Illustration	"The teacher, the influencer ... well they did influence me; it influenced me in terms of my own learning and teaching, my own practices."(Academic) p.3.

Finding	Participant reported that the positioning of the teacher as a facilitator rather than the controller is an important point. (U)
Illustration	"Absolutely, you stay back. There are times that you have to intervene if you think things are not where they should be. And as it unfolded ... you can say yeah, it's on track, no it's not on track, what am I learning? What are they learning? ... This is working, this is working, and the feedback keeps coming back − keeps coming back yes, it's working, or it's working the best way it can, then you just let it flow." (Academic) p.3.
Finding	Participant reported having to suspend conventional beliefs and allow more student ownership. (U)
Illustration	"I have no idea what they're going to come up with, I have no idea ... I was thinking, they'll learn really well how to do a poster, and it'll help them, I think, in their professional practice. But they saw it as far more than that ... So part of it is knowing your own limitations ... in terms of the knowledge that's developing, and being open." (Academic) p.3.
Finding	Participants reported the importance of open communication and respect between teacher and students. (U)
Illustration	"Underneath it all was the fact that we had a very good stream of communication between the group and myself ... and that goes back [to] rapport. And underneath the rapport is a mutual respect ... they could float an idea and not think that it was going to be shut down, and so could I. So, what makes it work is the ability to take risk, the ability to communicate at least in the beginning what you think might be some possible outcomes of whatever happens to be in front of them, and to hear what they think. [It's] a communication thing." (Academic) p.3.
Finding	Participants reported the importance guiding students in the understanding of team work and being part of a team. (U)
Illustration	There was an instance where one of the group members had kind of gone off on his own and was attempting to finish the project without the input from the other four. And at that point he needed very measured guidance and so we had him in for a conversation and I can remember him saying 'I want to do this and I want to do this, and then I'm going to do this', and I said 'I note you're speaking in the singular, where is the rest of your team'? And there was this pause, and then from that point on, there was a change. (Academic) p.4.
Finding	Participant reported the importance of reflective practice and its influence on creating change. (U)

Illustration	"For me to understand what they were trying to do, I had to reflect on it a lot, you know. They're going way past [where] I thought they were going to go, so I had to reflect and reflect and reflect ... And if [I] want to say one of the things that's changed ... is my ability to reflect on practice, and the ability to change practice because of that." (Academic) p.4.
Finding	Participant reported the value of teaching an outside of the box approach for increasing students' self direction and independence. (U)
Illustration	"Yeah, I like to explore the edges ... it's not a matter of being able to run a cardiac arrest competently, necessarily, that's one of it, but it's the ability for them to take on something that's completely outside of [their] comfort zone, figure out where to get the resources, and to execute it, and to reflect ... to watch the students over a 12-month period mature as a group and how they present themselves and their palpable outputs that they've had has been amazing. So their professional practice has deepened even before they've joined their profession." (Academic) p.4.

Study: Sonja Maria; Amanda Hlushak; Adam Diamond; Development of a tool to monitor paramedic clinical placements: a case study of innovation overcoming tradition. [61](2019).

Finding	Participant reported the need to change the language around how a student perceived their role on a case. 'Lead with job' was replaced with 'lead with assistance'. (U)
Illustration	"The options for participation include 'observed', 'assisted' and 'lead the job'. Maybe it is only me, but I felt quite arrogant to select 'lead the job'. Although I led a large number of jobs towards the end of my placement, I was regularly and constantly assisted by my preceptors throughout, when I got stuck they took over. I felt embarrassed for my preceptor to sign-off these jobs with the impression that I had done most of the work. 'Lead with assistance' I felt would be more appropriate." (student 46) p. 5.
Finding	Participant reported how preceptors provided feedback during placement and how they may prefer to do this during 'downtime' rather than on the road. (U)
Illustration	'Depending on whether the student chooses phone or computer. I had more time to think through my responses when I had access on the computer, other students that choose a phone just handed me their device and I felt I had to immediately sign off without considering responses.' (preceptor 79) p.6.
Finding	Participants reported a need to provide a overall open comment for feedback to the student. (U)

Illustration	'I think the ability to provide perhaps a 'final' statement to them (students) would be of benefit – that way we could outline what we thought were good traits and what we think they could work on for next placement. Some paramedics are not good at giving critical feedback or having confrontations with student paramedics.' (preceptor 141) p.5.
Study: Brett Williams et al. Analysis of undergraduate paramedic students' perceptions of using case-based learning in an online learning environment. [69](2006).	
Finding	Participants reported that case based learning gives them the ability to relate theory into practice. (U)
Illustration	"CBL (Case based learning) gave us the opportunity to see where the theory in lectures fitted in with real world cases." (BEH Bachelor emergency health) 3rd year student 16) p. 4.
Finding	Participants reported that cased based learning helped them remember pertinent points as it related to real situations. (U)
Illustration	"I think if you can associate a particular clinical situation/presentation with 'real' stories, you are more likely to remember the pertinent points." (BEH 3rd year student 9) p. 4.
Finding	Participants reported that case based learning allowed them to look at the case from all angles and bring different ideas into play. (U)
Illustration	"It's good to be given a realistic case scenario because it puts you in a position where you look at the case from all angles and bring ideas into play" (BEH 2nd year student 26) p. 4.
Finding	Participants reported that case based learning helped them make sense of lecture material due to relating it to on road clinical practice. (U)
Illustration	"I was able to make sense of lecture material because it linked to clinical practice on road" (BEH 3rd year student 17) p. 5.
Finding	Participants reported that with online case based learning there was no face to face interaction, causing less motivation to engage during the session. (U)
Illustration	"There was no face-to-face interaction with online learning, therefore less motivation to be forced to do or say something." (BEH 3rd year student 21) p. 5.
Finding	Participants reported that with online case based learning there was no opportunity to receive instant feedback about questions. (U)
Illustration	"I dislike Internet CBL because you cannot receive instant feedback about questions." (BEH 3rd year student 23) p. 5.
Finding	Participants reported that online case based learning allowed you to search the web during the session to get more information. (U)

Illustration	"Can access web info at the same time to research topic." (BEH 3rd year student 3) p. 6.
Finding	Participants reported that online case based learning allowed you to post responses at any time of the day or night. (U)
Illustration	"Advantage was that since it was online could post responses at any time of day/night." (BEH 3rd year student 18) p. 6.
Finding	Participants reported that online case based learning allowed you to fit it in with other work commitments. (U)
Illustration	"Doing the work online meant I could fit in the tute work with other work commitments." (BEH 2nd year student 31) p. 6.
Finding	Participants reported that online case based learning enabled self direction and gave the chance to share information. (U)
Illustration	"Convenient, interactive allows for self-directed learning gives people a chance to share information" (BEH 3rd year student21) p.6.
Finding	Participants reported that online case based learning made it difficult to access information without access to the Internet at home. (U)
Illustration	"I don't have Internet at home, found it slightly difficult to access information" (BEH 3rd year student 14) p. 6. "All on computer – without Internet access at home, often others had answered all questions overnight before I had a chance to look at the case at all." (BEH 2nd year student 26) p. 6.
Finding	Participants reported that in person case based learning was more effective as it allowed for an immediate exchange of information. (U)
Illustration	"In person tutes are more effective as they allow for the immediate exchange of information" (BEH 3rd year student 9) p. 6.
Finding	Participants reported they often found it difficult to be online. (U)
Illustration	"Often found it difficult to be online" (BEH 2nd year student 20) p. 6.
Study: Tristan Henderson et al. Influence of life experience on undergraduate paramedic students' placement.[54](2012).	
Finding	Students from the mature sample and the direct entry sample felt uncomfortable with some paramedic staff on stations who had not become a paramedic through the university stream. (U)
Illustration	"I felt uncomfortable with some of the staff on station who went for their paramedic tests and then the system changed and they kind of hold a grudge towards you. It's not my fault I have to go through this way (via an HEI) and it's not their fault that it's changed, but they have been friendlier now." (Participant B1). p. 587.
Finding	Students from the mature sample discussed the importance of working with mentors. (U)

Illustration	"If I am working with my mentor, I am more confident because I know he knows my ability. If I was to go out with somebody else they wouldn't know what I could and couldn't do." (Participant A2). p. 587.
Finding	Students in the direct entry sample felt the HEI (Higher education institution) route to paramedic registration was not fully understood by mentors who had not come through the university pathway. They reported there was a significant lack of understanding about what it aimed to achieve. (U)
Illustration	" I don't think they understand some of the more academic aspects...He (mentor) is happy with me clinically but doesn't understand why I have to do two weeks on clinical governance...Why do I need to know about auditing." (Participant B4). p. 587.
Finding	Students in the direct entry sample specifically placed considerable emphasis on their ability to get on with people. (U)
Illustration	"I have always thought I am a nice bloke, nice enough so I can always get on with people if they want to get on with me. Even with a complete clash of personalities I can still have that bare thread of communication with them." (Participant B4). p. 587.
Finding	Students in the direct entry group felt it was important to get involved. (U)
Illustration	"I engaged pretty well with getting to know everyone on station...Building a relationship with people and just getting stuck in, if they asked me to do something I wouldn't mind doing it, mopping the vehicle and stuff like that." (Participant B1). p. 587.
Finding	The mature student sample group made links with attributes to age and previous experiences in relation to practice engagement. (U)
Illustration	"With my old job I needed to be able to go into a whole new group of people, just take it easy and work out who was who. So I never felt awkward, you just take your time to see where you fit in." (Participant A3). p. 587.
Finding	The mature student sample group reported that when making mistakes they felt like they had let themselves down. (U)
Illustration	"I think I am scared of making a mistake and looking silly, particularly if there are other clinicians around." (Participant A3). p. 588.
Finding	The mature student sample reported that this programme was the last chance to achieve goals due to financial constraints and age. (U)
Illustration	"For us (mature students), coming back, this is what we actually want to do. There is a lot more riding on it. You are paying your

	own fees and everything else because it is something you really want to do. If you didn't you wouldn't be here." (Participant A3). p. 588
Finding	Participants reported that direct entry students can have a great deal of experience and maturity, which can unsettle ambulance staff. (U)
Illustration	'We can get direct entry students who have a great deal of experience and maturity in their lives and that also unsettles the ambulance service staff.' (Participant FG). p. 588.
Finding	Mature age sample students commented about the importance of life experience. (U)
Illustration	"I think my background [army] really helped, working in big groups with different people." (Participant A1). p. 588
Finding	Direct entry students discussed learning during placement if they came across something that they had not previously seen, or did not understand. (U)
Illustration	"If we go to an incident and I struggle a bit, when we are back on station they will go through things with me using books and help to teach me." (Participant B3). p. 588.
Finding	Mature entry students felt the constant pressure of having to achieve academic study outcomes. (U)
Illustration	"While on placement you are enjoying it but in the back of your head you are thinking I need to be doing this research, once I have finished that I need to be doing this essay on reflection." (Participant A2). p.588.
Finding	Direct entry students were keen to express their need to learn, in contrast with mature entry students who are more focussed on doing the job. (U)
Illustration	"The direct students are more keen, eager and willing to express their need to learn rather than to do, whereas the mature students in the clinical environment are more focused on doing the job." (Participant FG). p. 588.
Finding	The mature student sample indicated they had settled into placement far sooner than the direct entry students. (U)
Illustration	"Mature students are likely to have been in the working world and will have got used to the idea of working." (Participant FG). p. 589.
Finding	Direct entry students reported that they had all, at some stage, experienced some negative interaction from colleagues or patients commenting on their age. (U)
Illustration	"They (patients) always say: "Oh, you are young; you look too young to be doing this." (Participant B3). p. 589.

Finding	Direct entry students reported that age was not necessarily a reflection of life experience. (U)
Illustration	"You could get someone who is thirty that's never had anything happen to them in their life and you could get someone my age (20) that's had loads of stuff that relates really well." (Participant B2). p.589.
Finding	The mature student group reported about the positive aspects of their age, in fact they were protective of the fact; it is evident they feel this, in conjunction with life experience, offers them credibility with staff. (U)
Illustration	"I think people tend to look at you and feel that they have a little bit more in common with you as someone who is a bit older." (Participant A1). p. 589.
Finding	A common aspect reported by both sample groups was being ignored by a patient when working with older clinicians. (U)
Illustration	"I have been asking the questions but they [the patient] will direct the answers back to the older person in the room. That is not even my paramedic because the ECA(Extended care ambulance) at the time was older than the paramedic." (Participant A2). p.589.
Study: Gemma Howlett et al. Nearly qualified student paramedics' perceptions of reflection and use in practice.[55](2019).	
Finding	Students reported that group reflection appeared to be more consistently encouraged in clinical practice. (U)
Illustration	"I think that [group reflection] is more important, if you are working as part of a team you would all reflect on something" (P3a). p. 260.
Finding	Students found reflection to be useful and felt that it helped to improve their practice. (U)
Illustration	"I think it has definitely made me a better clinician. By reflecting on what I didn't do well or [when] I was happy with what I was doing, I have been able to look at my practice and make improvements, and I have become a better clinician because of it" (P6b). p. 260.
Finding	Students discussed their reflective ability improving the more they utilised it. (U)
Illustration	"The way I reflect has changed loads since I started this course, like at the start you are focused on the little things that you did wrong and how you could change that, to like now when I reflect I am looking at like medically or clinically how could you improve upon that patient's care... I think it gets bigger and broader. At the start you know you might be thinking, oh no I didn't put the ECG(electrocardiogram) dots on right... now it's bigger, you reflect on bigger things, the whole thing really." (P3b) p. 260.

Finding	Students highlighted that reflection could be used to deal with feelings if they had experienced an upsetting case and felt they needed to talk it through. (U)
Illustration	"I think when something has really upset you, you need that other person. You need to talk to people" (P2a). p. 260.
Finding	Students reported that staff that were trained mentors or who had come though the university were more proactive with utilising reflective practice. (U)
Illustration	"The people who are newly qualified do a bit more I think, people who have done the mentor course definitely, people like CTMs [clinical team mentors] do, they talk about reflection more... Paramedics who have come through University, they do definitely" (P1a). p. 260.
Finding	Students reported that negative triggers seemed to be the most common prompt for reflection. (U)
Illustration	"Jobs that take you out of your comfort zone, or the ones that you really didn't have a clue, or felt that you didn't have a clue, what you were doing" (P3a). p. 260.
Finding	Students reported perceptions and viewpoints of reflection appeared to be affected by their educational experience. (U)
Illustration	"Our first real experience of structured reflection, I found it really hard to understand how to write it, how to understand it, how to follow the tool that we had, and I think because of that, I got it in my head that I couldn't do it and I didn't like doing it, and it gave me a negative image" (P3b). p. 260.
Finding	Students reported they were confident that they would use reflection in their future practice. (U)
Illustration	"I will 100% use it, not only because I have to for my registration, but to be the best I can be." (P5B) p. 261.
Study: Ann Gallagher; Emma Vyvyan; Joan Juniper; Claire Horsfield; Andy Collen: Stuart Rutland.Professionalism in paramedic practice: the views of paramedics and paramedic students.[53](2016).	
Finding	Student paramedic participants reported they thought that professionalism is about communication, attitude and commitment to learning. (U)
Illustration	"Quite difficult to define in a nutshell. I think it incorporates lots of different things such as communication, attitude and commitment to your learning in the paramedic context." (student paramedic). p. 3.
Finding	A student paramedic participant recalled an incident where she thought a paramedic demonstrated professionalism due to not judging low acuity patients who didn't require emergency care. (U)

Illustration	"A regular caller that we went to, a homeless chap who had a fall [...] I remember him going repeatedly back to hospital when there wasn't really a lot medically wrong with him [...] he was homeless, and I think that, the paramedic I was with was just so nice to him, and really caring and considerate, and I think you could class it as a waste of time call but actually it goes a bit more than that, he still needed us if you know what I mean [...] And I think he [the paramedic] was really professional in that capacity, it was just really kind when he listened to him, he didn't sort of write him off [...]." (student paramedic). p. 4.
Finding	Student paramedic participant reported that professional presentation to patients is important and can improve your personal pride. (U)
Illustration	"[She made it] really clear how important our presentation is to patients and what effect it can have on your personal pride as well." (students paramedic). p. 4.
Finding	Paramedic participants reported that the issue of practising in ways that do not discriminate against patients was important. (U)
Illustration	"They got the same level of compassion, the same level of treatment ... you know you put your personal feelings aside." (paramedic). p. 4.
Finding	Paramedic participants reported that professionalism was a combination of behaviours, attitudes and personal experience. (U)
Illustration	"A combination of behaviours, attitudes, values and personal appearance [...] It's the way you present yourself to the public, to patients, to your colleagues, and behaving in an appropriate way (as) befits your job role."(paramedic).p. 4.
Finding	A student paramedic participant highlighted the importance of a regulatory body as part of professionalism. (U)
Illustration	"Essentially it's following what the HCPC, that's the regulatory body, purports to be required of professional paramedics, so following their standards of conduct etc. And if you follow those then you can't go far wrong because they are the people that tell you what a paramedic essentially is, and if you don't follow their rules you can't call yourself a paramedic." (student paramedic). p. 4.
Finding	A paramedic participant reported that having a university basis of education is an important part of being a profession. (U)
Illustration	"I think the biggest intervention that's happened has been the academic-isation of paramedic practice, the paramedic education ... Not only for the profession as such that we now have degrees when we come out, but also just to say that we have the degree,

	and then to other professions 'Look at us, we've actually been to university." (paramedic). p. 4.
Finding	Paramedic participants reported that eduction in professionalism was important. (U)
Illustration	"I think education's really important right from the start. It's probably slightly different for me because I went through the university process as a direct entry student, so you come in and you're ... you come into this as a sort of professional from day one." (paramedic). p. 4.
Finding	Paramedic participants reported that some staff were distrustful of university educated paramedics. (U)
Illustration	"A lot of people were very distrustful of 'uni bods', as they called us, and I remember turning up second to this job, the patient was already in the ambulance, so I walked round just to say 'hi' and gather what bits of information I needed [...] and the paramedic who answered the door to the back of the ambulance made it quite clear he did not want me there and simply told me to go away." (paramedic). p. 4.
Finding	Paramedic participants reported professionalism is about acting in a manner that creates trust and confidence in how you are practising. (U)
Illustration	"I think it's quite a fluid process, and professionalism will probably mean different things to different people. For me it's about carrying yourself in a manner that people would have trust and confidence in what you're doing and how you're practising, and for me I would be practising in a sort of safe effective manner."(paramedic). p. 4.
Finding	Paramedic participants referred to the importance of integrity, adaptability and awareness of limitations. (U)
Illustration	"I think ultimately paramedics need to have integrity, they need to be able to communicate effectively with all manner of different people in different situations. To be able to deal with any situation as it happens really and know our limitations in certain situations, and provide reassurance." (paramedic). p. 5.
Finding	Paramedic participants reported the need to respect patient autonomy and rights. (U)
Illustration	"Respecting a patient's wishes, if the patient's wishes are not to be conveyed to hospital and they have capacity to make that decision and a full assessment has been established [...] they are obviously within their rights to refuse to go to hospital." (paramedic). p. 5.
Finding	Paramedic participants suggested that the commitment of individual paramedics to improving their practice is important. (U)

Illustration	"We want to better ourselves, so we're looking at ways of doing that. Whether it's through further education courses that we can go on, community type things." (paramedic). p. 5.
Finding	Paramedic participants reported the need to take personal responsibility for their professional standards. (U)
Illustration	"Individuals have to take on an active role in their own conduct, in their own standards and in their own governance." (paramedic). p. 5.
Finding	Paramedic participants reported that leadership and accountability were important professionalism enablers. (U)
Illustration	"Justify yourself, justify your actions and lead by example." (paramedic). p. 5.
Finding	Student paramedic participant reported that team work is an important part of professionalism. (U)
Illustration	"If you look at good standards of professionalism in say, nursing, the medical profession, we're looking at situations where there's good teamwork." (student paramedic). p. 5.
Finding	Paramedic participant reported that it is a joint responsibility to promote professionalism by both the organisation and the individual. (U)
Illustration	"I think it's a responsibility for them [organisations] to promote it, to say that's what they expect and to act accordingly if it's not forthcoming from staff. But I think it's the responsibility of those in the profession to sustain it and to try and improve." (paramedic). p. 5.
Finding	Paramedic participants reported the importance of a professional reglaratory body to enhance professionalism. (U)
Illustration	"That's coming now from universities to the professional group ... like the College of Paramedics – very important to push the profession, to voice an opinion and the background of the profession. Unfortunately the College of Paramedics hasn't got enough members at the moment. We are working on it." (paramedic). p. 5.
Finding	Paramedic participants reported the need to maintain skills as a personnel professional responsibility not just organisational. (U)
Illustration	"I'd say it's the skills, it's the lack of time we're given. Like I came in in my own time to practise intubation because I realised I hadn't done it for a while." (paramedic). p. 6.
Finding	Paramedic participants reported the importance of a professional code of values to adhere too, although not all paramedics embodied these values. (U)

Illustration	"We've got a code of values that [the ambulance trust] is supposed to adhere to ... and I find it quite sad when I see people who are supposed to be embodying this not actually giving examples themselves." (paramedic). p. 6.
Finding	Paramedic participants commented on the importance of culture and the challenge of creating change within paramedic culture. (U)
Illustration	"New staff they want to adapt to what the culture is like ... and the culture is unfortunately in many stations and in a lot of people's minds 'Why should we change? Let's take it easy, don't need to do anything more'. It's a slow process." (paramedic). p. 6.
Finding	Paramedic participants reported the importance of focusing on people rather than non- human resources. (U)
Illustration	"I think fundamentally the ambulance service needs to stop thinking of their resources as being the ambulance or the car. They've got to start thinking of the resources being the people on that ambulance or car." (paramedic). p. 6.
Finding	Paramedic participants reported that poor organisational management, communication and staff support affects the professionalism of paramedic staff. (U)
Illustration	"I think poor management and poor communication is a huge barrier to professionalism. Where you've got team leaders at the basic level whose clinical knowledge is poor, that doesn't help bolster up the professionalism of people around them, because they don't care. And I think if you don't get care and good management and good professional practice above you, then that is going to affect your professionalism." (paramedic). p. 6.
Finding	A paramedic participant reported being unsure whether having a registered body necessarily helped individuals become a professional. (U)
Illustration	"I'm not sure whether having the registered body helps me become a professional." (paramedic). p. 6.

Appendix VI: Results of meta-synthesis of qualitative research findings

No. of findings	Categories	Synthesized findings
4	More time and consistency with students	The role of mentoring/preceptorship Providing mentoring and preceptorship for undergraduate paramedicine students and paramedic interns was highly valued for reducing the transitional learning gap from the university environment to real life professional paramedic practice
7	Experiences of paramedicine sessional uni educators	
11	Learning to work safety in the paramedic environment	
20	Coaching strategies paramedic preceptors feel are important	
14	What makes a good paramedic preceptor	
16	The introduction of a paramedic facilitator model	
6	Communication and collaboration challenges	Opportunities to develop emotional intelligence and communication skills Aside from the technical/clinical skills required, paramedicine students will also need to develop skills/capacity in dealing with the emotional side of paramedic practice which includes communicating with patients, family members and other health professionals. Creating resilience requires training, education, exposure, and support, allowing for the building of capacity to deal with the emotional and interpersonal communication aspects of paramedic practice.
7	Emotional regulation and psychological support	
4	Suppressing, surface acting and hiding emotions	
5	Personal growth and student collaboration	
4	The effect of life experience on undergraduate paramedic students' placements	
4	Enhanced community awareness	The role of non-traditional placements/experiences Great value has been found in the development of the paramedicine student by utilizing non-traditional placements within the community and allied health environment
3	Value of inter-professional collaboration	
8	Feeling underprepared for international placements	
3	Increased confidence due to volunteering placements	
37	Clinical placements in nursing homes	
17	A wilderness experience for paramedicine students	
17	Paramedicine students working in medical clinics	
7	Paramedicine students undertaking action learning	The role of non-traditional teaching methods Utilizing non-traditional classroom teaching methods was found to have strong positive influences in students development of clinical reasoning, teamwork, reflection, self direction and problem solving.
8	Utilizing reflective practice for paramedicine students	
7	Project-based learning in paramedicine student education	
13	The role of case based online learning	
7	The importance of the real life setting	Preparedness for practice There were noted barriers and facilitators that affected the paramedicine undergraduate students' and graduate paramedics' preparedness for practice both during their undergraduate university programme and the graduate year
16	Barriers faced by paramedic preceptors while mentoring graduate paramedics	
22	Experiences of paramedicine students during ambulance placements	

22	Understanding paramedic professionalism	
6	Preparedness of graduate paramedics for practice	
9	Barriers found by paramedic preceptors/managers that affect paramedicine students' preparedness for practice	
Total findings: 295	Total categories: 28	Total synthesized findings: 5