TRAIN FOR WAR ADAPT FOR PEACE: A CASE STUDY OF THE IMPLICATIONS OF RISK MANAGEMENT ON STATIC LINE PARACHUTE TRAINING IN THE ADF

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DEDICATION

This thesis is dedicated to my husband, Mark. Despite the scars he lives with as a result of his military service, he has supported me through extremely trying circumstances and personal events over the past six years. I will be forever grateful for your love and motivation and your belief in my ability to succeed. You are my rock.

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STATEMENT OF AUTHENTICATION

This thesis is submitted in fulfilment of the requirements of a Doctor of Philosophy degree at Western Sydney University, School of Education. The work presented in this thesis is, to the best of my knowledge, original except as acknowledged in the text. I hereby declare that I have not previously submitted this material, either in whole or part, for a degree at this or any other institution.

Signature 

Date

09 January 2019

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ABBREVIATIONS AND GLOSSARY OF TERMS

Basic Parachute Course

This is the entry-level parachute course. It is designed to train personnel in basic static line parachute knowledge and skills.

CBT

Competency-based training

CE

Combat Equipment

Commissioned Officers

Australian Army officers receive a commission that is personally signed by the Minister for Defence and the Governor-General of Australia, acting for the Monarch, Queen Elizabeth II, of Australia.

Company

A company is a military unit, typically consisting of 80 to 150 soldiers and usually commanded by a major or a captain. Most companies are formed of three to six platoons.

Insertion

The term used within the armed forces to describe the delivery of personnel to a particular place.

Parachute Jump Instructor (PJI)

An individual who has completed the Parachute Jump Instructor Course and whose primary responsibility is to train individuals in static line parachute techniques.

Parachute Training School

The training organisation which trains members of the Australian Defence Force in parachuting techniques.

Paratrooper

A general term used to refer to any Australian Defence Force member who has completed the Basic Parachute Course.

Platoon

A platoon is made up of approximately 30 soldiers and is commanded by a lieutenant. Several platoons make up a company.

IPC

Initial Planning Conference

RTO

Registered Training Organisation

Sergeant (SGT)

Sergeant is a senior role of responsibility, promotion to which takes place after 12 years, depending on ability. Sergeants typically are second in command of a troop or platoon of up to 40 soldiers, with the important responsibility for advising and assisting junior officers. Often, in the absence of the junior officer, the sergeant will command the platoon or troop, and sergeants normally have the role of administration, discipline, training and the maintenance of standards. Sergeants are employed in senior logistics and technical positions across most corps of the Army. Sergeants can also be employed as instructors in Army schools.

Simulation

A situation within the learning environment that replicates the workplace context.

Static line

A length of webbing, the end of which is connected to the packed parachute assembly and the other end of which is anchored to the aircraft.

Static line parachute descent

A descent in which the parachute is opened by means of an attachment to the aircraft (the static line).

Trainee

An individual undertaking a training pathway to achieve a qualification. A term used within the Australian Army to describe any person attending a face-to-face training program within the Army Registered Training Organisation.

Warrant Officer Class Two (WO2)

This is a senior management role focusing on the training, welfare and discipline of a company, squadron or battery of up to 200 soldiers. WO2s act as senior advisers to the commander of a sub-unit. WO2s are also employed as supervising instructors in Army schools.

VET

Vocational Education and Training

ABSTRACT

Static line parachuting is an insertion method used by the Australian Defence Force to deploy combat troops. The Australian Army simulates the workplace environment during the delivery of Static Line Parachute training to meet safety requirements. Whilst training within the Army Registered Training Organisation (RTO) is delivered within the Army's safety management framework, static line parachuting is still an inherently dangerous activity that can result in serious injuries to trainees. During 2009, the simulated environment used within the Army RTO to train basic static line paratroopers was analysed with a view to implement risk management strategies that would reduce if not eliminate injuries sustained by learners. These strategies were introduced during the 2009 training year, whereby 360 paratroopers completed the Basic Parachute Course in a modified environment. Training within the modified environment has continued, and the reduction in injury rates among learners has significantly decreased over 2009 and 2010 in comparison to 2008. Whilst injury rates have significantly decreased, there is a perception that the training outcomes detailed in the units of competency have not been achieved and that learners have not reached 'job ready' standard. The aim of this research was to analyse the workplace requirement of a static line paratrooper and the knowledge and skills obtained by trainees during the Basic Parachute Course. This analysis will help determine if a gap exists between the workplace requirements of a static line paratrooper and learning outcome of the parachute course. Literature related to the relationship between the learning environment and the workplace in the Vocational Education and Training (VET) context is limited, and whilst literature implies this relationship is a cornerstone of effective VET, literature also illustrates anomalies between the two. Furthermore, research focusing on the role of risk management within the VET learning environment for safety dependent vocations is also very limited. This study will provide valuable knowledge, leading to a better

understanding of the relationship between a learning environment and the workplace, from a VET perspective, incorporating links to risk management strategies in a safety dependent learning environment.

CHAPTER 1:
AN INTRODUCTION

The Author's Narrative

I hope my thesis will provide the reader with an insight into the research journey I have undertaken whilst completing my doctoral degree. It has been an interesting and rewarding journey, where I have fulfilled the roles of writer, observer, travel agent, diplomatic envoy, champion for a cause, wife and mother, and most importantly as a woman researcher inside the predominantly male world of paratrooper training in the Australian Army.

This research was very personal, as it directly related to my work as a Safety and Risk Manager within the Australian Army's Parachute Training School. My research was a lived experience, whereby I lived through the implementation of risk management strategies within a safety dependent learning environment to ensure learners were able to complete their training without incident or injury. However, there is a flip side to risk management within any learning environment, and that is the impact such strategies may have on the outcomes. It is a delicate balancing act. I am passionate about the safety and wellbeing of all personnel undergoing training; however, I am equally passionate, in my capacity as an adult educator, about the need to train personnel to the standard required within the workplace. My conflicting passions provided a catalyst for me to embark on this research journey, for I sought to understand the complex relationship between the learning environment and the workplace and how risk management might impact the equilibrium of the two.

I have titled this thesis Train for War; Adapt for Peace. I see this as a metaphor where War is the workplace and Peace is the vocational learning

environment. We must train learners for their vocation and in doing so adapt the learning environment to provide an authentic but safe experience.

1.1: Background to the study

A shift in focus within my professional life to adult and vocational education was confirmed when I commenced undergraduate studies in the field. The opportunity to study a bachelor degree, which recognised my trade qualifications as credit, presented itself in 1996. Coupled with the flexibility to study via a number of weeklong sessions at the university, it was an offer which appealed to me. Tertiary study combined with many years' experience in a variety of vocational education contexts cemented my passion for adult and vocational learning. My service in the Australian Army has been influential in this paradigm shift. The Army as a learning organisation traverses learning analysis, development, implementation and training review, and those fortunate enough to work in the learning and development stream have the opportunity to contribute to these processes in a variety of ways.

Looking for a new challenge, I made the shift from an instructional designer, my usual centre of gravity, and accepted the challenge of melding safety and risk management within a safety dependent vocational education setting. I assumed the position of Safety and Risk Manager within a Registered Training Organisation (RTO) responsible for the delivery of parachute training to members of the Australian Army. It should be stated here and now that being a woman in a male-dominated environment is at times challenging; in my case, this was exacerbated by the workplace demographic consisting predominantly of white males under 35 years of age. Whilst my position did not involve delivery of training, it shaped training delivery. The links between vocational education and safety risk management became increasingly dominant in my work, leading me to explore their relationship beyond the classroom. Safety risk management began to evolve within the organisation and become a driving force within the training continuum.

The role of safety risk management within this learning environment dominated the landscape further as a result of injuries to trainees and the subsequent increased scrutiny from external regulators. Stringent controls were placed upon the learning environment with a view to reducing the risk of injury to participants. It was perceived by the organisation that risk management strategies were now guiding

learning outcomes, and the knowledge and skills required in the workplace had become by-products. Corridor whispers within the school indicated a popular perception that risk management was becoming a key component within the learning environment rather than an enabling partner. I felt compelled to look into this phenomenon in more detail, and this led me to ask the following questions:

What role was safety risk management playing within this safety dependent learning environment?

How did the *participants* within this organisation perceive risk management?

It was important for me to hear the voices of the *participants* within the organisation, to privilege their stories and then seek answers to these issues. Thus began my journey. It became apparent that in order to fully understand the complexity of this issue, I would need to deepen my own understanding of curriculum development within the vocational education context and then overlay a risk management framework to contextualise the relationship between the two.

1.2: Aim and significance

This research sought to define the role of safety risk management within the learning environment of the Australian Army Basic Parachute Course, and the impact risk management strategies had on the knowledge, skills and attitudes acquired by static line paratroopers during the Basic Parachute Course. Analysis of the workplace requirements of a static line paratrooper, and the knowledge and skills developed by learners during the Basic Parachute Course, assisted in determining if a gap existed between the workplace and the learning outcomes. The study gathered data from the workplace to define what constitutes a job-ready static line paratrooper and what the perceived role of risk management was within Static Line Parachute training. This research provides a framework for safety dependent employment areas to manage risk, whilst achieving learning outcomes which ensure learners have the knowledge, skills and attitudes required for employment within their chosen field.

The timing for this study was opportune in that the Australian Defence Force was in the process of procuring a replacement Static Line Parachute system. Safety risk management is an integral process within the Army's learning environment driven primarily by compliance and hierarchical policy. Research analysing risk

management in this safety dependent learning environment would be beneficial and inform the development of parachute training through the validation of training outcomes against the competency units and the workplace requirement. This study provides an understanding of the relationship between the training environment and risk management strategies within the field of Static Line Parachute training; however, the study also provides observation and insight that may lend itself to other high-risk employment within the Australian Army, the Australian Defence Force and the wider community.

The unplanned experiences and outcomes from my research contribute to the research narrative and are significant; as such, they are articulated within the thesis. The expression 'You don't know what you don't know' rings bells, and I now understand why every facet of your proposed work cannot be included within the research proposal. It was only as I tackled the writing process and I reflected on my experiences that these unexpected insights came to light.

Firstly, my role changed from insider to outsider as the research situation changed; I was doing insider research, which I suspected would require exploration from an ethical perspective as I was investigating the place where I worked. Merton (1972) explains the conception of the insider and their access to a particular type of knowledge within a specified group. My role as an insider provided access to information not available to those without lived familiarity and is best described as a continuum.

Secondly, being a female researcher in a male-dominated environment was something that did not become apparent until I left the organisation. It was then that I realised the gender disparity within which I had existed and the significant impacts this had on my research journey, both academically and personally. Coupled with realising and working through my own imposter syndrome which manifested during the research journey, my reflections unearthed the all-consuming nature of my work to a point where I had to reconsider my position. I have subsequently left the organisation.

These considerations are discussed in detail within the thesis and contribute to the body of knowledge surrounding the theory of insider research in educational contexts (Mercer, 2007).

1.3: Research questions

The overarching research question that guided the study was:

What is the relationship between the outcomes of Static Line Parachute training delivered by the Australian Army's Registered Training Organisation and the job requirements of a static line paratrooper in the Australian Army?

The following sub-questions supplemented the main question:

1. *How is this relationship influenced by risk management within the training environment?*

2. *What role does risk management play in static line parachuting?*

3. *Is there a perceived gap between the training outcomes and the workplace requirements of a static line paratrooper from the perspective of instructors, supervisors and commanders?*

4. *If so, is this gap influenced by risk management strategies adopted within the training environment?*

1.4: Theoretical framework

Focusing on the overarching research question, my intention was to analyse the relationship between safety risk management approaches and the training environment. To answer this question I firstly needed to visit theories linked to adult learning and safety risk management. Initially, ideas surrounding the theoretical framework centred on adult learning theory and safety risk management models; however, whilst these informed the study, a more substantial theory was required to link these theories to provide an overarching theoretical framework. I found it challenging to focus past substantive theory: I could not discriminate between the constructionist worldview, I felt the two were similar and in my mind I found them difficult to separate.

Qualitative researchers study the behaviour exhibited by actors in any social situation, behaviour that is dependent upon the way they have defined the situation (Foddy, 1994). Within my research, I studied the behaviour of actors within social situations linked to learning and to work to provide insight into the relationship

between these two social situations; hence, I moved towards social constructionism as the theoretical framework. Constructionism, being the view that knowledge and reality are dependent upon human practices being constructed between their worlds (Crotty, 1998), is a view that aligned to my research questions. The overall theoretical framework for the thesis thus draws on constructionism, in particular social constructionism.

Through the addition of 'social' to constructionism, the perspective is to seek the social and historical root of a problem and focus on the idea that social worlds are interpretive nets woven by individuals (Marshall, 1998), and knowledge is constructed between people (Burr, 2015). The social and historical perspective of this study is important, as it was my intent that describing the setting and defining the case would provide the reader with a view or picture of the case they might see if they were themselves a participant.

Crotty (1998) states social constructionism is about the mode of meaning generation; it does not involve only persons but includes interaction in the natural world. Social constructionism enables the researcher to study the reality constructed by people and how this reality is constructed relative to time and space (Patton, 2002). This worldview aligns to my body of work because it seeks to describe how the knowledge and skills developed during a training program relate to the workplace requirements within a specific job. The way the requirements of the workplace are interpreted by the training environment and vice versa includes elements of sub-culture of the organisation, which is then used by participants to generate meaning, providing the link to social constructionism.

1.5: Methodology

The research questions were investigated through case study research (Stake, 2005) and reported in a narrative style (Creswell, 2007). The overarching reason for selecting this approach was the notion of a case requiring clear boundaries, particularly when comparison is to be made between several cases. This research was bounded overall by a training program, with additional facets including the training environment and the workplace. The methods used to gather data included interviews (Hatch, 1995), observation and the collection of supporting documents, all of which

are common to case study research in this paradigm (Creswell, 2007; Denzin & Lincoln, 2005; Mertens, 2005; Yin, 1994, 2009).

The cases are reported in narrative style within the interpretive paradigm (Creswell, 2007) to maintain the collective voices of participants and their stories (Phoenix & Sparkes, 2002); this also allows for the individual case and context to remain central. Consent was gained from each site and each participant. Pseudonyms were used for participants to maintain confidentiality, which contributed to the ethical deliberations throughout the research process. I will discuss the ethical considerations for this study in more detail within Chapter 3; however, it is important to note the hidden ethical and methodological dilemmas of the insider researcher within a military environment. Within this study, those dilemmas were combined with a hierarchical political landscape within the workplace and the different boundaries traversed whilst maintaining management-worker relationships.

1.6: Research sites (scope of the research)

Military parachute training is delivered at the Australian Army's Parachute Training School located near Nowra on the south coast of New South Wales. The school delivers all parachute training for the Australian Defence Force and is the only learning environment of this type within Australia. Whilst some parachute training is delivered in private parachute clubs and drop zones, the facet on which this study focused, Static Line Parachute training, is only delivered at the Parachute Training School. My role as the Safety and Risk Manager within the school enabled me to conduct the research at this site. This arrangement also facilitated my role as an insider researcher and the complex web surrounding such a relationship.

Although focused on the Australian training environment, the study draws on international data. Not long into this study, an opportunity arose to include data from other military parachute schools, namely, the United States Army Airborne School and the No 1 Parachute Training School RAF located in United Kingdom. As with the Australian school, these overseas sites are sole providers of military Static Line Parachute training. Data was gathered from both sites. In this regard, the international data builds on the emerging themes identified within the Australian site; however, there were limitations linked to access to documentation and the time available to gather such data.

This thesis draws from a particular time and reports the experiences of specific individuals working in the research sites. It is therefore important to acknowledge that while the data may resonate with the current landscape, it cannot be presumed representative of future sites. Time is but one influence on vocational education, along with government policy, budget, further research and, in this case, the nature of combat operations.

1.7: Thesis roadmap

This thesis is presented across nine chapters. Chapter 1 has provided an introduction to the study, beginning with my story. Chapter 2 presents a review of literature relevant to this study.

Chapter 3 describes the methodology. This chapter provides details relating to the theoretical framework used for the study and discusses the research journey, including ethical considerations. The researcher's journey is imbedded in the ethics pathway, and as the researcher crossed the wire from outsider to insider researcher and back again, both are discussed in detail from a theoretical perspective.

Chapter 4 unpacks the case study framework, providing context for the research. It looks at the workplace via insight into military parachute training models and safety risk management procedures described within the Australian context, and the blueprint for implementation within a military environment. It begins by presenting a historical perspective on the development of military parachuting and the training environment for this capability. This is followed by discussion of safety risk management and a detailed description of the framework utilised within the Australian Army to mitigate and manage risk in training and in the workplace. The risk management model is then discussed in terms of application to parachute training. Finally, the chapter explores what it is to be 'job ready' from a workplace perspective and based on literature provides a definition from the Vocational Education and Training (VET) field, which is used in the presentation of data and the analysis.

Chapters 5 and 6 present the three individual case reports, delineating each case separately and without analysis to enable rich description. Each case report presents a description of the training and safety risk management model specific to that case, followed by a narrative of the participants' viewpoints. In these chapters,

the sites are described, using overview then detail, and drilling down to how risk management is incorporated within the learning environment, and the stories of parachute instructors across three allied armies are presented. My access to the Australian site resulted in more data; thus, Chapter 5 presents the Australian story, which begins with a detailed description of the safety risk management framework, applied to Static Line Parachute training, followed by the stories gathered from participants. Chapter 6 looks further afield, including the curriculum and risk management framework based on data gathered during a research tour of the United States Army Airborne School and the No 1 Parachute Training School RAF located in The United Kingdom.

Chapter 7 is my story, based on my experiences in Normandy as part of the military contingent commemorating the D-Day landings 68th anniversary. The story of the American Airborne and their role in the liberation of France is well documented; the researcher's journey to Normandy as a member of a military exercise in June 2012 provides a reflective insight into what it was, and is, to be a paratrooper based on lived experiences.

Chapter 8 presents the analysis of the data, and the findings are summarised in the form of a model for vocational education risk management, which could be applied to a variety of contexts to assist in bridging the divide between vocational education and the workplace. This final chapter also concludes the story as it revisits the research questions and summarises the fundamental findings. It also reiterates the significance of the study and suggests areas for future research. This work was titled 'Train for War; Adapt for Peace' from the moment it was conceptualised; it will become clear to you as you read my thesis that the role of safety risk management within safety dependent training settings is to provide learners with an authentic experience, which is measured to ensure balance.

1.8: Crafting the thesis

An online dictionary defines a thesis as a long essay or dissertation involving personal research, written by a candidate for a university degree. The personal journey undertaken to explore and gather data, then to craft thoughts and facts into a dissertation, in this case lends itself to a style which is both academically acceptable and conveys those reflective tenets to give the researcher her voice. As a result,

sections of this thesis are *presented utilising italics* to represent the researcher's voice; and first person is included to illustrate the researcher's journey.

CHAPTER 2:
LITERATURE REVIEW

2.1: Introduction

This chapter presents a critical review of the relevant literature, progressing from Vocational Education and Training (VET) in the Australian context, how the 'workplace' is represented within this context, the role of safety risk management within the VET environment when the workplace is safety dependent and finally, parachute training. As part of the literature review, it was necessary to 'unpack' the research questions and determine topic areas relevant to the study broadly, followed by analysing how this body of work fills a gap in existing research. Based on such a premise, the research questions can be grouped into four main themes: vocational education and training, the workplace, safety risk management in training and military parachuting.

The review revealed literature examining the Australian VET context, competency-based training and links with industry; however, there is limited research focusing on the individual workplace's relationship to the VET provider and how approaches to training match or differ from the workplace. Literature traversing parachute training in the military context is predominantly from a medical perspective (Bricknell et al., 1999) and focuses on injury prevention through a biomechanical lens without analysing a holistic approach, including the learning environment, outcomes and workplace requirements. To address these inconsistencies, this chapter presents an overview of the literature in four main sections based on the themes identified above.

As the study progressed, additional ideas emerged as relevant to the research, including the practice of training evaluation or review, the role of the researcher as

an insider researcher collecting data in a work environment and, linked to safety risk management, the concept of embodied learning in the safety dependent workplace.

My initial reaction to the literature review was negative, using the frequently cited excuse of 'There is nothing out there remotely linked to my research'. However, once I came to the point in my procrastination where I realised the purpose of the literature review was to situate the study, appreciate the situation and buffer the body of work nicely within the correct context, it became a much easier task. My approach to the literature was that of the hunter (Thomson, 2015), starting off with broader reading followed by exploring various pathways seeking literature to nurture my thesis.

2.2: Vocational education and training in Australia

Adult learning theory as described by seminal theorist, Knowles (1973), and Knowles et al (2015), delineates between children and adults as learners via the theory of andragogy. Further, his work explores the role of behaviour and attitude in learning outcomes and human resource development. Learning within an organisation is typically focused on the development of workers and can be summarised as learning for work or learning to work.

Dewey (1916/2004) proposes two key reasons for education linked to vocations, firstly, to identify the occupation/s for which an individual was suited and secondly, to develop capacity for effectiveness in the identified occupation. Billett (2011) proposes all education can be classified as vocational as it seeks to support individuals in their aspirations, and inspirations that comprise their eventual vocation, although many vocational educators would argue VET is the poor cousin to other education sectors within Australia, a position supported by Billett (2004). Vocational education in the Australian context has been modelled on the functional competency approach used in the United Kingdom (UK) (Guthrie, 2009), both being workplace focused and performance orientated. Reform linked to vocational education began in Australia in the early 1990s, the core being a move to agreed competency standards and the opportunity for industry to have more say in an outcomes-based approach. This also enabled the implementation of a formalised qualification system for occupational sectors where there was none, the inception of 'enterprise' units of competency.

Research highlights that the decision-makers within this reform agenda were politicians, industry and unions, not experts within the VET sector (Cornford, 2009), and the policy decisions and outcomes of such reform have been based on crisis management, not effective workforce planning. Whilst industry has been included as a voice in reform agenda, research indicates that VET policies are not addressing the needs of employers. Two evaluations of VET policy in Australia (*Bridging the Skills Divide,* 2003; *The Vocational Education and Training System: Key Issues for Large Employers,* 2004) concluded that Australian VET policies were not satisfying the needs of employers. In highlighting the lack of satisfaction of employers, the reports did not outline the specific issues within Australian VET policies or what could be done to improve Australian VET policy so it might meet the needs of employers. Furthermore, a review of the outcomes and policy positions has not been completed. The Mayer Committee report (1992) contributed significantly to the establishment of generic skills in Australian VET, which were defined as being essential to preparation for employment, amongst other things, which continue to impact educational policy today. Industry studies by the Australian Industry Group (1999) and the Australian Chamber of Commerce (2002) reported that skills such as numeracy, literacy and interpersonal skills including communication, teamwork and the capacity to embrace change were required by Australian industry. These generic or employability skills have been embedded within competency standards, leading to issues for assessment due to competence being inferred rather than demonstrated. More recent research into employer satisfaction reveals that a major concern is lack of generic or employability skills.

A 2003 study commissioned by the National Centre for Vocational Education Research (NCVER) concluded that the development of generic skills should be a partnership between teaching staff, employers and individuals. Through the conduct of research focusing on the relationship between an RTO and a specific workplace, these issues can be explored and an important contribution can be made to defining what relationship needs to exist and how this can be developed.

2.3: Role/relationship between VET and the workplace

The role of the workplace in the Australian VET context is difficult to quantify. Whilst there are several studies articulating the issues and impacts of VET

reform in Australia, these are strategic, often including the role of government, unions and, to a lesser degree, VET practitioners. Limited research findings focusing on VET implementation in specific industries are available; therefore, targeted research that does not have a wide strategic focus will add significantly to the body of knowledge.

A simple definition of competency-based training (CBT) is difficult to articulate. CBT has been defined as an approach to vocational training that emphasises what a person can do as a result of training; it is therefore outcome focused, as opposed to emphasis on processes within the training, which is input focused. In addition, it is concerned with training that meets specific industry standards, not an individual learner's achievement in relation to the others in the group. The NCVER defines CBT as 'training which develops the skills, knowledge and attitudes required to achieve competency standards' (Guthrie, 2009). Most importantly for this study, CBT is described as being industry involved or led (Guthrie, 2009), whereas Cornford's (2006a) research states that many businesses have not adopted CBT and are unaware of the issues within CBT that affect them. These conflicting conclusions provide leverage for further research that focuses on the workplace, designed to provide qualitative analysis in the form of a case study that examines the relationship between the workplace, job requirements and the VET environment.

Billett (2004) describes the changing landscape of VET provision within Australia through the emergence of technical and further education (TAFE). The majority of traditional vocational education and training in the Australian context is delivered via the TAFE system. He argues the focus of 'learning to live', which was key to the TAFE sector until the mid 1980s transformed to 'learning to work' as a result of the influence of industry on VET. The tenet of good practice compared to variation of practice highlights the need to ensure a balance between the requirements of new workers in their vocation and how they should be adaptable to different circumstances and settings (Billett, 2004). It is clear a collaborative approach between industry (the workplace) and VET is the key to ensuring the multiple voices of stakeholders are heard.

Work by Hodge (2007) provided a chronicle of the history of CBT, citing origins from the United States (US) established by the late 1970s. Harris and Hodge

(2009) suggest that the changing nature of learning programs impede understanding of this competency-based approach to learning, and that CBT in the Australian VET context separates the development of curriculum from the training provider. This position is supported by Cornford (2006b), who concludes while CBT provides precise objectives that are easily assessed, it does this to the detriment of skills that enhance problem-solving and critical thinking. Furthermore, Wheelahan's (2008) view is that theoretical knowledge must be central to curriculum in all sectors of education, which is not the case in a competency-based model, whilst Blom and Clayton (2003) suggest that lack of guidance on how to assess generic skills within training packages impedes the assessment decision-making process in CBT.

There is clearly a need to balance the needs of industry with the development of competence in individuals and the way training systems operate. Simply stating the competency standard required does not constitute an effective learning and assessment strategy, and training providers and industry are both concerned in relation to the standards provided (Guthrie, 2009). This research will provide knowledge that can contribute to an understanding of what consultation is needed between these stakeholders, who are both directly involved in the implementation and use of training packages and CBT within the Australian VET environment.

The very nature of vocational education implies that relationships should exist between those who provide training and those who require qualified personnel to fulfil workplace requirements. Studies highlight the role of industry in Australian VET policy; however, the research does not provide insight into the needs of the workplace or the relationship workplaces have with training providers; it merely indicates that 'industry' is a stakeholder in Australian VET policy. Cornford (2004) along with Harris and Hodge (2009) agree that VET teachers deliver a curriculum based on learning outcomes and have limited influence on the actual design of learning outcomes themselves. However, the literature also highlights that industry has a limited understanding of VET, even though industry is cited as a major stakeholder (Cornford, 2004). Training practices that separate work and learning inhibit learning transfer, whereas Murphy and Calway (2007) argue that much of the current emphasis in VET is the attainment of competencies rather than the development of knowledge and skills that enable professionals to deal with complex problems in the real world.

Training packages have been designed to simplify and standardise training and work best where the industry is stable and not subject to changes in technology; as Guthrie (2009) suggests, training packages cannot support innovation in the workplace, yet they are developed by industry skills councils in consultation with industry. Again, there appears to be a discord between endorsed training packages and their use within the VET sector, where the components of each package are endorsed by the National Quality Council, but the actual learning and assessment materials are developed in isolation by trainers. This further amplifies the need for research that will critically analyse the relationship between industry and the RTO, where policy advocates that the Australian VET environment responds to changes in the workplace and industry as opposed to research findings, which argue that this relationship is fragmented at best.

Research by Harris and Hodge (2009) and Cornford (2004) concludes that VET teachers are gatekeepers as a result of their role in the assessment of standards and their understanding of what does and does not work within the VET environment and the wider community. Further research that examines the role of the RTO and critiques this approach in the context of the job requirements will provide clarification in relation to the VET context and the role of industry. The VET teacher's role as an affective gatekeeper without their continued liaison with industry to ensure current best practice and equipment for learners needs to be explored and questioned. The argument by Wheelahan (2008) that learning for the workplace must include, but not be limited to, learning in the workplace supports this argument, as does the recent work of Guthrie (2009) who comments that particular attention needs to be paid to the skills VET teachers require to work effectively.

2.4: Safety risk management in the VET context

The concept of a systems approach to safety risk management within the workplace began with seminal work by Reason (2016a) and the 'Swiss cheese model' of accident causation. Rasmussen (1997) extended the study of accident analysis, including the role of systems within risk management modelling, highlighting the importance of technological change in the workplace. Whilst this research is relevant to workplace safety risk management, it is not readily transferable to training in the VET construct for safety dependent work.

In Australian workplaces, the health and safety of workers is governed by the Work Health and Safety Act 2011, legislation which provides a national approach to ensuring the safety at work of Australian people; the introduction of this legislation in 2012 sought to achieve a harmonised approach to safety in workplaces across all states. Many vocations include an element of safety risk, which must be managed to ensure workers are not injured at work. To provide context and background to the thesis, I searched for literature articulating studies around VET with elements of safety risk. Literature was limited in this field until the search widened to include work-based learning, not completely aligned to the research questions as the focus was on learning within a VET institution. The place within which this research resides is a vocation, which is 'safety infused', meaning every facet is soaked and instilled with safety culture.

Emad and Roth (2008) examined the role of training and assessment within a Canadian Maritime Safety Training program and concluded what is taught for certification does not meet the workplace requirement and, as a consequence, there is an increased risk of maritime accidents. Similarly, an earlier study by Crowley, Garrick, and Hager (2000) reported on the impact of generic competencies in the Australian Construction Industry and suggested that competencies related to problem-solving and technology presented issues, as their relationship to workplace reform was ambiguous. These studies support Cornford's (2006) argument that some employers do not understand CBT; as a result, there is limited take-up of training packages in workplaces. It is hardly surprising that this mismatch between VET and industry exists. Competency is articulated in training packages, which are a collection of skills outcomes written to align with perceived industry needs; however, the relationship between the qualification and the Australian Qualifications Framework is the focus. The curriculum has been replaced by the training package in the Australian VET environment, forcing teachers to design their teaching and learning programs to deliver outcomes. The result is an outcome-centred approach that leads to the degrading of standards, an issue that is of particular concern to employers (Cornford, 2006).

Hayes and Maslen (2015) conducted studies into hazardous industries focusing on the informal nature of stories as a tool for learning about work practices, highlighting that learning through mistakes is not a sufficient learning strategy. In

this construct, the participants were operational supervisory staff with data supported by system documentation. The function of storytelling as a reminder of what has been learnt about the complexity of safety systems is powerful to maintain awareness. Relevant to this study, the concept of such parables forming part of a safety risk management framework for learners in safety dependent vocations is worth further exploration, and links to embodied learning can be drawn.

Research by Somerville and Lloyd (2006) explores the notion of embodied learning and the effect on workplace learning, where safety is infused within all tenets of practice. In particular, Somerville and Lloyd analysed the learning environment of a fire service, a complex organisation where new recruits must learn to maintain individual, group and community safety, similar to the Armed Forces. Findings include the concept of developing 'sense', whereby experienced fire fighters have developed 'fire sense' as part of embodied learning on the job, a learning outcome difficult to achieve in a formal training environment. This work informed my research and raised the question of what embodied 'sense' a paratrooper develops to ensure their safety and how embodied knowledge is transferred from experienced veterans to novices. Billett and Somerville (2004) discuss the engagement of individuals with the social world from the subjective experience within the workplace, citing data from the strong masculine culture of the mining industry. This work cites *production* as the enabler for masculine competitiveness, which in turn impacts safety within the workplace, hence shaping learnt behaviour in individuals. Earlier research by Somerville and Abrahamsson (2003) suggests the relationship between the masculine culture in the mining industry and the way in which this community of practice perpetuates masculinity is reinforced in the training environment. Whilst not a key theme within the research questions of this study, the Armed Forces are often clichéd as masculine and the home of the invincible warrior; the research landscape is one which could also be described as a 'closed community' (Billett & Somerville, 2004).

In more recent literature, Lawrence (2012) explored the multiple way adults learn through their bodies, including the conflict between mind and body to deliver powerful learning. However, this work is predominantly focused on growth of the individual via embodied experience, not how embodied learning can contribute to learning in a safety dependent environment. Stolz (2015) argues discourse from a

psychological perspective does not articulate how humans come to meaningfully understand what is learnt, citing the connection between the physical and mental as key to synthesised being in the real world. Again, this account conveys theory based on the work of Merleau-Ponty (1962, 1963, 1964, 2004), not practice in a specific learning environment.

2.5: Parachute training

The majority of literature related to military parachute training is described through the lens of medicine and injury prevention, with a strong focus on biomechanics. However, this study provides an analysis of parachute training using a qualitative case study framework, retelling the stories of participants to answer the research questions. Static line parachute techniques are not very dynamic in relation to change; most have been in place since the capability was first developed prior to the Second World War. Whilst most of the literature may appear dated, the literature provides a historic insight into military parachute training and operations and emphasises the safety and risk implications linked to such a vocation. Safety dependent work, and the associated vocational training continuums, are defined and discussed in more detail within Chapters 4 and 5 and remain a key theme throughout the thesis. The literature at this stage provides the link between parachute training and safety risk management.

Military parachute training began prior to the First World War in the form of static line parachuting. History portrays static line parachuting as an inherently dangerous activity. Early publications of the medical journal, *The Lancet*, include articles linked to military parachuting. *The Lancet* (1941) explains there are four phases of a descent, and each is associated with a type of injury. Firstly, leaving the aircraft presents a risk of entangling equipment or a failure of the parachute to open. Secondly, when the parachute does open, the shock can result in abdominal injuries. During the actual parachute descent, diver's lesions may occur. Finally, the landing impact may result in injuries to the lower extremities. It is suggested intensive ground training can minimise these risks, a position supported by *The Lancet* (1941) and a study by Lowdon and Wetherill (1989). A 1944 article published in *The Lancet* quotes the majority of accidents occur in static line parachuting when the paratrooper lands. This paper discusses changes made to the landing technique, feet together

instead of 18 inches apart, as a possible remediation. Whilst decreasing the number of ankle fractures, this change increased the occurrence of fibular fractures; interesting to note, as at the time, such injuries were considered easier to treat and quicker to heal. Landing with feet and knees locked tightly together became the mandated landing technique (and still is today). Given the date of this literature, it comes as no surprise the highest risk to a paratrooper is jumping at night into enemy territory.

A study by Bricknell, Amoroso, and Yore (1999) based on a cohort of infantry soldiers in receipt of parachute hazardous duty pay serving in the US Army, sought to determine safety risk levels associated with employment categories. They concluded whilst it was not possible to determine the risk to an individual soldier who is employed in airborne-related areas in comparison to other military service, there is a significantly increased incident of admission to hospital for acute injury sustained whilst parachuting and a higher rate of medical discharge amongst parachute infantry soldiers.

Analysis of injuries sustained during training descents by Lowdon and Wetherill (1989) reviewed injury data from 51,828 military training parachute descents performed at a drop zone in Oxfordshire, UK. Landing was found to be the largest mechanism of injury, with the major injuries being fracture, dislocation and head injury at a frequency of 0.22 percent. Analysis of data illustrated the incidence of injury fell with increasing experience until the fourth jump, and rose thereafter. The injury rate for minor sprains could be underestimated at 0.18 percent due to the desire of trainees to complete the course and consequently their reluctance to report minor injuries. Craig, Zugner, Knapik, & Bricknell (1999) cite the expected military static line jump injury rate for planning purposes used by the US and UK as 2.5 percent. During a large parachute assault at Fort Bragg, North Carolina in May 1996, the actual injury rate and the planned rate (based on historical data) aligned. It was concluded that combat equipment tactical descents at night are the most hazardous due to the weight of the combat load (Craig, Zugner, Knapik, & Bricknell, 1999), higher weight is a risk factor for parachute jump-related injuries, along with ground visibility during descents completed under darkness.

Butvicius, Vozza, Braithwaite, and Galanis (2012), on behalf of the Defence Science and Technology Organisation, evaluated the effectiveness of virtual reality

parachute training simulation, stating the use of virtual reality devices within training for dangerous activities is cheaper and safer than experience on real-world tasks. A British military literature review (Bricknell & Craig, 1998) examined all aspects of military parachuting but focused on static line parachuting using a 'round' parachute. Both cite a correlation between the increase in mass and the risk exposure to injury, meaning as the total weight of the paratrooper increases, so too does the likelihood of injury.

Bricknell and Craig (1999) considered quantitative data from the US and The United Kingdom, predominantly medical literature dating from the 1940s. Their literature review provided the following conclusions:

1. Weight of the paratrooper influences the likelihood of injury. Several studies (include names) have shown the average weight of casualties amongst military paratroopers is greater than the average weight of the military paratrooper population overall.

2. The majority of injuries occur to the ankle, with a lower portion to the legs, back, arms and shoulders. However, closed head injuries represent a significant proportion of injuries.

3. Impact with the ground causes the majority of military parachuting injuries.

4. Heavy equipment and night descents increase the risk of injury.

Similarly, an Australian study by Hay (2006) cites the risk of injury for tactical exercise descents is triple the risk of injury during descents where no equipment is carried. From these conclusions, coupled with exposure to enemy fire, one can conclude the 'work' of a paratrooper is safety infused.

Taking these conclusions into consideration, risk management within the learning environment needs to address those factors linked to an increased risk to trainees. The learning model also needs to pay particular attention to developing knowledge and skills to assist in the reduction of primary risk factors. History has illustrated how paratroopers are utilised in a combat situation, more recently in the Iraq War, where large numbers of troops have been deployed to the battlefield by air, including their weapon systems and ammunitions. Whilst simulation of enemy

engagement might prove problematic in the learning environment, learning should include realistic practical exposure to the risks associated with the paratrooper's workplace. Through simulated learning in a controlled environment, maximum supervision can be provided by experienced instructors, including immediate feedback to reduce the likelihood of injury.

2.6: The insider who belongs outside

It is an important part of this thesis to explore the literature surrounding insider research and how the feminist perspective can be overlayed to provide the reader with a lived understanding of the landscape within which the research was undertaken. In relation to my story, it must be told from the feminist perspective because upon reflection, that is exactly where it fits. Sex is the characteristic which prompted the move from insider to outsider within the research paradigm.

Workman (2007) describes the dual position held by the insider researcher, including the inevitable influence this has on the inquiry process. She explains the role of the insider researcher including an element of self-interpretation linked to the change in role relationships with other members of the organisation, coupled with the understanding of organisational history and culture which assists understanding of context (Workman, 2007). The aim and significance described within the introduction draw on the history and culture of the research site with which the researcher is familiar.

Mercer (2007) suggests the insider/outsider role is a continuum, between which the researcher moves based on the time, location, participants and topic. Her reflective account of the research process she experienced whilst conducting insider research explores the literature surrounding insider research in educational contexts. Compared with the literature linked to educational and action research, there is little growth in the literature on this methodology (Mercer, 2007).

Both Mercer (2007) and Levy (2013) suggest researchers can be both insiders and outsiders, a position supported by Wegener (2014) who describes the concept of 'boundary crossing' during her own educational research. Levy (2013) also discusses her role as a straight and cisgender researcher being an outsider to the LGBTQ population; whilst in many ways an outsider, her motivation to research makes her an ally and introduces slices of insider.

2.7: Conclusion

The literature review outlined research that has been conducted into VET in Australia, the relationship between VET and the workplace, safety risk management in the VET context and parachute training. However, a limitation in research focusing on the role of the workplace within vocational education, and specifically within the construct of a safety dependent environment, highlights the need for this investigation. Emerging themes surrounding the concept of embodied learning, as a consideration when the workplace for which VET is designed, requires an underpinning safety risk management framework to ensure the safety of workers is explored within the data.

CHAPTER 3:
RESEARCH DESIGN

I refer to the process of my research as a journey, as it was much more than a clinical endeavour or exchange and had a profound effect on me personally. It began in a coffee shop, when I met with my soon-to-be supervisor, who turned out to be my high school physical education teacher. I was recovering from brain surgery and had parked any ideas I had about pursuing research studies. In fact, I had parked ideas about pursuing a lot of things. I was diagnosed with a brain tumour in late 2010 and underwent major surgery within two weeks. Consequently, I did not really have time to work through the mental and emotional issues associated with the diagnosis. My surgeon warned me I may suffer depression post surgery, and he was correct. I moved into a space where I felt so terribly sorry for myself and somewhat useless. A light bulb moment occurred three months post surgery, when I decided that the tumour was 'gone'. I had survived, and this near-death experience highlighted the need to pursue my goals now and not put off until tomorrow what I could do today. So I contacted the lecturer whose university website biography stated she was interested in risk taking, and we met for a coffee to discuss my proposed research.

This chapter, across four sections, presents the methodology used to explore the relationship between risk management and learning outcomes within a safety dependent learning environment. Section 3.1 explores and explains the theoretical framework and provides the rationale for its choice to underpin the study. Section 3.2 explains the research methodology and associated processes, and Section 3.3 explains the implementation of the research design. Section 3.4 explores ethical considerations and my role as a female researching professional practice in a male-dominated environment.

The study utilises a qualitative, layered case study approach (Patton, 2002) in combination with a narrative style; as such, it draws on the theory of social constructionism (Berger & Luckmann, 1966; Gergen, 2015). Interviews, observations and the collection of supporting documentation contribute to the case study (Cohen, L., Manion, L., Morrison, K., 2007; Creswell, 2013; Punch, 2006). Insider and outsider research (Sikes & Potts, 2008) methodology is an integral part of the research and my voice is woven into the research journey from the start, including periods where the researcher was insider and outsider simultaneously.

3.1: Theoretical framework

My research sought to answer the question 'What is the relationship between the outcomes of Static Line Parachute training delivered by the Australian Army's Registered Training Organisation and the job requirements of a static line paratrooper in the Australian Army?' I expanded the question to 'What is the relationship between risk management approaches and the learning environment, and how does a risk management framework influence the authenticity of vocational education and training within safety dependent professions?' and then visualised how to start answering it. I determined I needed to explore theories linked to adult learning, vocational education and risk management to conceptualise my theoretical framework.

Most research has one overarching aim, which O'Leary (2005) states must be supported by objectives providing specific goals. Using this approach, the aims of this research were defined to/as:

- determine the workplace requirement of a static line paratrooper and define what it is to be 'job ready';
- compare the workplace requirements of a static line paratrooper with the knowledge and skills learners acquire during the parachute course;
- evaluate the approach of the training provider against the job or workplace requirement;
- explore the relationship between risk management and the learning environment; and

- verify the role of risk management in the training of static line paratroopers.

To explore these questions, I first had to determine the type of study I was going to undertake from a grass roots level; was it qualitative or quantitative, and why? The study focused on a real-world problem, impacting the professional practice of a small group of instructional staff in a unique safety dependent learning environment and the safety of graduates who would be employed in an often dangerous field. Within the learning environment, the safety of the course and the learners was a major concern and the subject of whispered conversations. A detailed investigation was required to provide valuable data that could be used to find answers to questions and to empower individuals to have their stories heard. A qualitative research approach was an appropriate fit to explore the questions listed above because first, it would enable the voices of the unique participants to be heard, in detail, which statistical means do not, and second, their experiences are important to helping shape and improve the workplace safety and policy.

Creswell (2013) outlines several key characteristics of qualitative research. These characteristics map against this study as follows:

1. Natural setting – Data is collected in the field where participants experience the problem. In this case, data would be gathered via interview and observation at the research site.

2. Researcher as key instrument – Data collected by the researcher via a variety of methods. I would undertake data collection on site via interview, observation of training and examination of documentation.

3. Multiple sources of data – Researchers gather data in multiple forms. Again, data would be gathered via interview, observation of training, examination of documentation and the reflective account of the researcher's own experience in the field.

4. Inductive data analysis – Patterns, categories and themes within the data develop into abstract concepts. The researcher adopted a naturalistic approach, which will be discussed in more detail, whereby a set framework was not applied to collect and analyse data.

5. Participants' meanings – The entire process requires focus on the participants' relationship to the problem. A catalyst for beginning this research journey was the untold stories of those in the workplace impacted by the problem and the researcher's desire to explore the problem from their perspective.

6. Emergent design – The research process emerges as the process evolves. The initial plan changes and shifts with the researcher beginning the hands-on tasks and data collection. Having conceptualised the research journey, various factors emerged which provided new pathways, including international sites.

7. Theoretical lens – The researcher is described as using a 'lens' to view their study. This abstract metaphor provided a concrete way to identify the social context of the research problem.

8. Interpretive inquiry – The researcher interprets what they see, hear and understand. This study includes insider researcher, providing a lived experience of the journey.

9. Holistic account – The researcher provides a complex account of the problem studied. Within this study, the reporting of participants' stories across three distinct sites and the lived experience of the researcher, coupled with the complex facets of the organisation, provides a rich description of the problem and the intricacies of the actors.

During the coursework associated with my PhD, my lecturers spoke of the lens a candidate uses to focus when looking at their research problem. Initially, I found this concept difficult to grasp – there was a problem and I had a question, which I believed needed answering, and the constant focusing of a lens did not seem like part of the solution. Determining substantive theory was relatively straightforward as I was able to map the overarching research question to adult learning theories and theories linked to risk management, as explained above. I grappled with the idea that answering the question using a theoretical framework would not come to me from a textbook alone; it required me to understand the underpinning structure to support my work and thinking. Following much reflection, I realised the theoretical framework was key to linking theory and practice or, in theoretical terms, to ensure my epistemology and ontology aligned with the methodology I was using. In this

instance, practice was about meaning, and theory was about how that meaning was viewed by a group. I found initial definitions of the constructionist theory inadequate as they aligned to phenomenological studies and grounded theory (Creswell, 2013) – research designs not akin to my work or thinking. After more exploration, it became evident that my work had stronger links to social constructionism, which I employed as my theoretical framework and the lens to focus my research approach.

A metaphor is the most appropriate way to convey my approach to my theoretical framework. I developed a parachute model to represent the way in which several key theoretical areas support each other and in combination make up the theoretical framework that underpins this research. The overarching paradigm is social constructionism as the study centres on understanding and making meaning of a safety dependent work environment from the perspective of a group of individuals. Three other theoretical concepts, represented as the risers of the parachute, work together to support this paradigm, including adult learning, risk management and insider/outsider research. In combination, these theories carry the case study, supporting and buffering it through methodology and ethical considerations to safely land (ethics approval), open and present the outcomes and findings.

Figure 3.1 – A diagram of the metaphorical parachute that depicts the research design – adapted from a journal entry

3.1.1: Social constructionism

Constructionism is the view that knowledge and reality are dependent upon human practise being constructed as a result of the actions and reactions between human beings and their world (Crotty, 1998). The addition of 'social' to constructionism shifts the perspective to enable an examination of the social and historical root of a problem and focus on the idea that social worlds are interpretive nets woven by individuals (Marshall, 1998). Both the social and historical perspectives of this research were critical to position the study, describe the setting and define the case, and crucially, to provide the reader with a participant's view and understanding of the case. The relationship between the learning environment and the workplace settings, for example, is strongly influenced by the particular culture of the organisation. Berger and Luckmann (1991) argue that social order is an ongoing human production. It is a product of human activity and interactions with the social world, past and present. Crotty (1998) states that social constructionism is

about the mode in which meaning is generated. It involves people and includes all their interactions with the natural world. The meaning we assign to objects is therefore based on what our culture teaches and is socially constructed. It is these notions of social constructionism that influenced and informed the theoretical framework for this study.

This research drew on several settings that had small variations in cultural perspectives. Participants had experiences and perceptions, which were unique and valuable in their own right and therefore varied between case units. All were equally valuable to the study in providing meaning to the context and insights into the situation to which they were applicable. Qualitative researchers study the behaviour exhibited by 'actors' in any social situation, and this behaviour is dependent upon the way the actors have defined the situation (Foddy, 1994). In this research, the behaviour of 'actors' within the research context was studied within two social situations – the workplace and the training environment – to provide insight into the complex relationship between the two.

3.1.2: Adult learning in the workplace and training environment

Adult learning was central to the research landscape for this study, as the participants were all actors in an adult learning paradigm. Two seminal theorists, Knowles and Gagne, describe adult learning as socially situated and influenced by an individual's participation in social contexts and interaction (Tusting & Barton, 2006). Theories linked to adult learning, including the foundational work of Knowles (1973), represent one of the supporting theoretical risers illustrated in Figure 3.1. Andragogy, the seminal theory linked to adult learning, is Greek for 'man-leading' in comparison to pedagogy being Greek for 'child-leading'. There is a clear link between the overarching theory of social constructionism and the theory of Andragogy. Knowles' (1973) andragogy model of adult learning centres on a series of assumptions about the adult learner and is based on three tenets: (i) adults must know they need to learn something before they undertake to learn it, (ii) adults have a self-directed concept, and learning is linked to their social role or stage of life and (iii) adult learners are driven by internal rather than external motivation. These assumptions, which are present in the individual adult learner, as described by Knowles (1973) and more recently discussed by Merriam (2014), are the result of the

meanings the adult learner has assigned to what is learnt in relation to their own life, their experiences and internal motivations. Drawing on this concept, comparisons can be made with social constructionism where meaning is dependent upon an individual's approach to the world (Gergen, 2015), and not on what is seen, but the interpretation the individual attaches to the vision.

The cognitivist theorist, Gagne, bases his theory of adult instruction on a taxonomy whereby learning outcomes are achieved as a result of internal and external conditions. As such, Gagne's (1985) theory of instruction also aligns with a social constructionist viewpoint, whereby the achievement of learning outcomes is dependent upon certain conditions, including those internal to the learner. From a social constructionist viewpoint, these internal conditions result from the meaning an individual assigns as they interact with the world. Finally, Gagne (1985) advocates that learning is progressive, and that learners draw on previously learnt material when learning new material. This is a similar view to Knowles' (1973), who similarly describes adult learners as self-directed. Therefore, both Gagne's and Knowles' theories suggest the creation of meaning and knowledge occur as a result of the learner's interactions with the world and clearly resonate with a social constructionist paradigm.

Unpacking adult learning theories from a social constructivist viewpoint illustrates the supporting nature of their role within the theoretical framework for this study. Adult learning theory centres on the key ideas of the adult learner being self-directed (Knowles, 1973; Merriam, 2014; Tusting & Barton, 2003), reflective on their own experience (Gagne 1985; Knowles, 1973; Merriam, 2014) and include elements of critical reflection that are socially transformative (Bandura, 1977; Brookfield, 1998, 2009).

3.1.3: Risk management

In my mind, risk management was the catalyst to this study. I had played an integral part in developing risk management strategies that were now seen by many actors within the social situation as inhibitors to authentic learning. Having realised the links between adult learning theory and social constructionism, my next dilemma was to link risk management to my theoretical framework.

The second set of supporting risers to the overarching theoretical framework was risk management theory. Risk management is a subjective process, relying on the individual's perception of situations and events to determine the risk management framework. Within the risk management paradigm, several theories informed my research, predominantly the Reason (2016a) model of organisational accidents, which is more commonly referred to as the 'Swiss cheese model', as discussed in Chapter 2, and Rasmussen's (1997) modelling approach to risk management.

The Reason or Swiss cheese model of organisational accidents (Reason, 2016a) can also be discussed in terms of social constructionism. Analysing the relationship between risk management, also referred to as defensive barriers (Reason, 2016b), and the training environment within the case study included gathering data to illustrate how meaning was actualised for the participants within each case. This process provided insights into the unique culture of each site or case unit.

3.1.4: Insider research

The final supporting theory is that of insider research (Sikes & Potts, 2008). Insider research is an increasingly popular paradigm; however, literature linking it or using it within the researcher's own environments is limited (Mercer, 2007), as highlighted within Chapter 2. In terms of its theoretical influence for this study, it is a supporting riser as it is used to present a number of perspectives within this work. Taking an insider approach to complete the PhD was not because of the need to complete a body of research to satisfy course requirements, nor was it to complete an evaluation or peer review of the institution in which the researcher worked.

3.2: Methodology

Having traversed the theoretical framework landscape, it was time to confirm the methodology to be employed in my study. I recall sitting in a coursework lecture, listening to the detailed explanations and justifications of my fellow PhD students' methodology, and wondering when I would have that enlightened moment. I didn't need to worry; my methodology was already decided – I just didn't know it. Case study was the only way this research could be completed.

Case study is described by Creswell (2013) as the study of an issue through one or more cases, which are bounded by either their setting or context. From a first principles perspective, a case can be an individual or a group, an institution or a community, and it can be singular or multiple. Therefore, a case study is the act of investigating a case, to answer research questions, utilising a range of evidence existing in the case environment (Gillham, 2010). Through investigation, and deep probing into the case, researchers can establish generalisations about the wider population to which the case belongs (Cohen, Manion, & Morrison, 2007), thereby providing insights into a unique sample of real people in real situations, by discovering data in ways that numerical analysis cannot. Gillham (2010) explains case study researchers do not start out with formed or conceived explanations, as until data is gathered and the context is understood, theories cannot make sense.

Cohen et al. (2007) provide a set of descriptors for the characteristics of case study research, of which four are most relevant to this body of work. Firstly, case studies have boundaries allowing for definition; secondly, they may be shaped by the organisational arrangements; thirdly, they are concerned with a rich and vivid description of the events relevant to the case; and finally, the researcher is a participant observer who is integral to the case (Cohen et al., 2007). How each of these characteristics aligns to the study is outlined in the following paragraphs.

The concept of a case study requiring boundaries resonated with this study in that the research/er would examine a training continuum within a set institution. Working within this boundary established the focus area from which to gather deep and rich description. This case study was thus *bounded* on several levels, firstly by the investigation of the training program – the Basic Parachute Course – and secondly by the learning environment, the workplace and a further three sites as discussed in more detail later in this chapter. The data from these sites would capture the human narrative underpinning and informing the research and enable the researcher to tell the stories of those actors working and learning in the case environment.

As identified in Chapter 1, organisational arrangements shaped the reasons for undertaking the study and were influential in determining the boundaries of the case. Specifically, actors within the learning environment were not satisfied with the risk management framework imposed on them by a third party; this was the catalyst to

the research journey commencing. It was important therefore to investigate the problem and to enable the voices of these individuals to be heard. A key component of case study is its ability to provide rich descriptive data. Within this research, such data privileges the participants' voices and enables deeper insights into the research site.

Gillham (2010) and Cohen et al. (2007) in their works linked to research methodology cite the researcher as an active participant in the research process, one who is aware of their role and embodies the distinct and clear connection between the research and case study methodology. The concept of the insider researcher, as discussed in Chapter 2 and in Section 3.1.4, is therefore an integral component of the research methodology.

Given the research occurred in the field, it could be argued the theory and methodology of applied research be included within this dissertation. It is acknowledged the study resonates with the underpinning tenets of applied research; however, given the generic nature of such an approach and its inability to establish specific and tightly focused research questions (Bickmand & Rog, 2008), it was decided the lens associated with applied research was not the most appropriate frame for this work.

In summary, these grounding tenets aligned the research problem to case study methodology and confirmed its 'fit' with the project. Firstly, the concept of 'case' mapped easily to the environment I sought to interrogate; it was an institution and also a community. Secondly, case study enabled the exploration of underlying issues by giving voice to the feelings, perceptions and experiences of people in the case site. And thirdly, case study recognised, as the researcher did, there was no 'a priori' explanation for the problem. Further, by using case study, the outcomes of the research could be applied, although not equally, to similar cases where learning outcomes are linked to people/graduates working in safety dependent workplaces.

3.2.1: Evolution of case study research

There are several approaches to case study research (Yin, 2012). The use of case study in the field of educational research, particularly in the evaluation space, gained momentum in the 1960s and 1970s, primarily supported by the work of Stake and Macdonald, who advocated the need to 'tell the story' and take into account the

influence of human variance (Simons, 2009). Yin (1994) advocated understanding the 'case' via a predetermined theoretical framework, collecting and analysing data using a prior framework, whilst Stake (1995) called for a naturalistic approach, illustrating how things work for a particular case in a particular setting. Simons (2009) later coined the phrase *science of the singular*, whereby a case study is defined by the singularity of the phenomenon being studied.

Case study as the methodology for my research became obvious. I related to the concept of boundaries that case study brought to the research journey. One site, one case – simple. This all changed when I was awarded the Prince of Wales Award by the Australian Defence Force Reserve Council, where I was provided the means to travel overseas to gather data for my research. I had applied on a whim, fantasising about the prospect of travelling overseas to visit other armies to see how they delivered Static Line Parachute training to army personnel. I don't think I understood the impact this would have on my research. What was going to be the exploration process of a problem within one school that then became three? I was no longer looking at the science of the singular, or was I?

Initially, the research was conceived as an exploration of the problem within the Australian context, a single site; the research design focused on the Australian parachute school, with peripheral data to be collected from the workplace where graduates were employed post training. The scope of the research changed when support was provided via the Prince of Wales Award Scheme, which enabled the inclusion of two international schools and the endorsement of the study by the Australian Defence Force Reserve Council. The Prince of Wales Award Scheme provides a development opportunity for Australian Defence Force Reservists to enhance their individual experience and knowledge in their chosen civilian occupation or profession, including activities linked to study. Through the award, the research expanded to three training schools, the Australian Parachute Training School, the United States Army Airborne School, and the Royal Air Force's No 1 Parachute Training School, England. In addition to three schools, the researcher was also afforded the opportunity to participate in a live airborne exercise in Normandy, France in their capacity as an Army Reserve Officer. The impact of broadening the research to include three sites is discussed in detail later in the chapter.

To navigate this expanded study, the cases required organisation and a hierarchical approach. Firstly, the Australian site as the site where the problem had been born and to which the researcher had most access was seen as the primary site. Including the US and UK parachute schools meant additional data could be included in the study, data used for comparison. Two case study approaches thereby align with this study: collective and naturalistic case study.

3.2.2: Collective case study

Including a further three research sites, all 'cases' in their own right, posed interesting complexities and shifted the study to a collective case study. A collective case study is described by Simons (2009) as several cases studied to provide a collective understanding of the problem. The decision to include a training site and a workplace site from each location was considered unviable due to the coordination and travel requirements proving too complex; hence, only the schools were selected as sites. Data collection tools were developed for use within the three learning environments, as detailed later in the chapter, whilst the experience in Normandy was documented via a journal to provide a 'workplace' perspective, both past and present.

3.2.3: Naturalistic case study

A naturalistic approach to case study research seeks to investigate how things work for a particular case in a particular setting (Abma & Stake, 2014). Case studies of this nature occur in the natural setting and habitat of the case; they are not a scenario created by the researcher and have been described by several authors as 'non-interventionist' (Guba & Lincoln, 1982; Stake, 2004). For several reasons, the naturalistic approach resonated with the study under discussion. From a practical perspective, intervention by the researcher was not possible, nor would permission be granted to apply such methods in a training environment where curriculum and program are timetabled down to the minute. A previous study linked to the use of a landing drift apparatus conducted by the University of Wollongong (Whitting, Steele, Jaffery, & Munro, 2009) involved researcher intervention in the research site via the installation of a simulated landing platform and the video recording of instructional staff performing landings. Staff did not embrace this intrusion, and as

such it was determined in this study there would be no intervention in the learning environment except to interview participants.

Abma and Stake (2014) discuss five characteristics of the naturalistic case study, including emic issues, the influence of context, meaning and interpretation, holistic understanding and learning from the case. Each of these characteristics maps into this study, adding weight to the reasoning behind using naturalistic case study as a research approach. Emic issues are those issues belonging to the actors within the case; they are issues from the inside (Stake 1995), and in a naturalistic case study, the researcher seeks to unearth issues as they emerge within the case. Within this study, the predetermined research questions were informed by the position of the researcher as an insider. As such, they acknowledged the concerns and values of the people being studied and actively sought their perspectives. It is via such emic issues that case study research results in thick description and multiple realities.

Context within a naturalistic approach to case study refers to the complexity of the singular case within the situation, history and the program or phenomenon in which it operates. The case, whilst singular, may interact with other cases, as it did within this study, to assist in defining the case within a bounded system. Via the investigation of context, this case study unpacks features of the case, and all its parts inform, and again enable, the thick description.

A researcher undertaking a naturalistic case study aims to provide understanding – why, rather than explanation – how (Abma & Stake, 2014), and tries to interpret the case from different perspectives. Meaning is a result of active interpretation of the world (Schwandt, 2007), where actors make sense through interaction with others; from a naturalistic perspective, it is the constructed meanings which are of interest rather than facts. Through interaction, the everyday understandings of actors are illuminated to provide insights into 'normal' routines and identify potential areas of tension, contradiction and possibility for change.

Case studies examined from a naturalistic approach are complex, occur in a set situation and may involve problematic relationships (Abma & Stake, 2014). Whilst the naturalistic case study may not provide a generic representation, learning which is transferable to other situations, activities and relationships will occur. Use of narrative and thick description to reveal meaning and context provides the reader with opportunities to compare the case to his or her own experience.

3.3: Implementing the research design – The back story

Unpacking the theoretical framework and determining the research design proved to be quite challenging. Having waded through theory, it was now time to put what I had learnt into practise. I had decisions to make surrounding how I would focus data collection and weight each data source. Would observation be the primary source? Interview? Documentation? Or a combination of these methods?

The key outcome sought by the researcher was to implement a data collection design capable of yielding a complete story. Challenges would most likely arise, and a calculated response would be required to ensure the overarching intent of the research was not lost; given these considerations, the potential methods of data collection were identified and assessed, as detailed in Figure 3.2, which provides an overview of the data collection design.

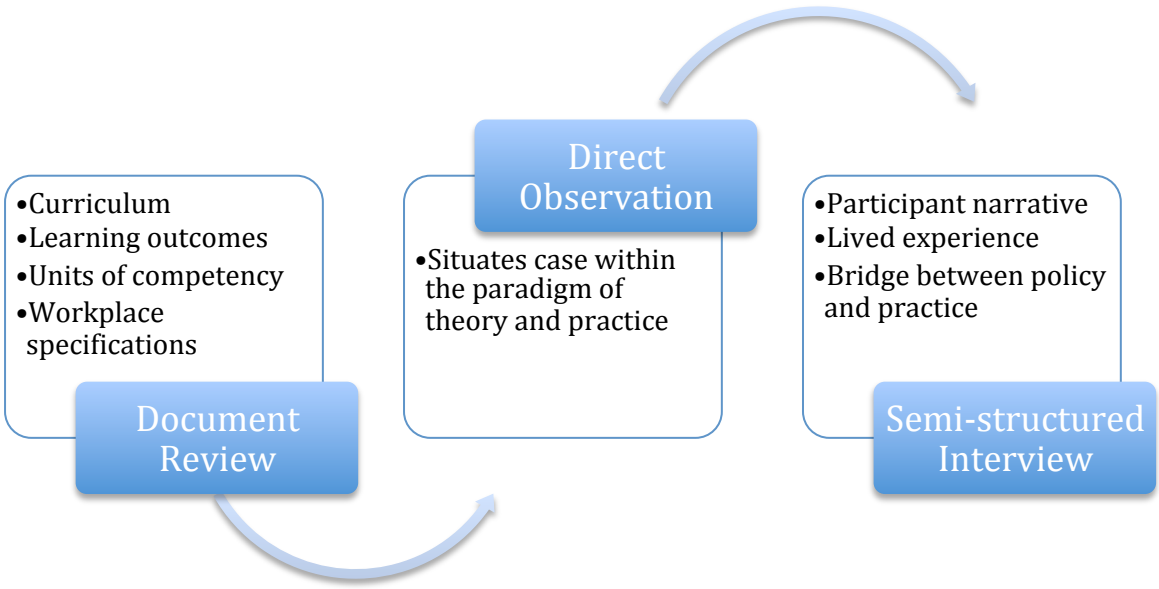


Figure 3.2 – Data collection design

3.3.1: Data collection

The researcher cannot see everything, and what they do see is not through the same lens as others. Qualitative research investigates the spoken and written representation of human experience, often through a variety of methods and sources of data (Punch, 2006). Creswell (2013) states that data collection should be conducted as a series of interrelated activities, commencing when the site or

participant is located, through the collection itself, culminating in recording and storing the information. Yin (2003) advocates that no single source of evidence has an advantage over others, and that using several sources is complementary. Returning to the naturalistic approach to case study, Abma and Stake (2014) cite a preference for participant observation and natural conversation above staged testing or clinical interview. Stake (1995) cites the two principal uses of case study as obtaining the descriptions and interpretations of others. In case study research, Yin (2003) suggests the use of the following methods: document review, archival records, interviews, direct observation, participant observation and physical artefacts. Guided by Yin, data for this study was collected via document review, observation and interview as detailed below.

3.2.2: Document review

Given the nature of safety risk management, document review was a logical start point for data collection, as documents are a part of the research setting as well as sources of data (Merriam & Tisdell, 2015). The nature of documentation described by seminal case study researchers, Yin (2012) and Stake (2006), include archival records (such as student records) and documents including newspaper articles, letters and emails and reports. Whilst documents are supported within literature as a source of corroboration of evidence from other sources (Yin, 2014), documentation within this study provided an explicit record of the training being provided and the policies underpinning it. In this study, the importance of documents was threefold: firstly, documents mediate and structure interaction within the social setting (the learning environment), secondly, documents dictate how the organisation (or the parachute school) performs through written policy and guidance and thirdly, documents contextualise the setting of the site (Prior, 2003).

Whilst undertaking the review of documentation, it was imperative to consider each artefact in the context of their links to each other and how they were used within the research setting.

As part of the document review, a content analysis was undertaken. Content analysis is described by Weber (1990) as a research method enabling inference to be made about texts grounded in the communication model of sender, message and receiver. Within this study, content analysis provided a tool to examine patterns and

trends within documentation, which were then compared to other data sources. Content document analysis provided a method of auditing written communication against objectives, in this case the learning outcomes described by participants during interviews. As such, the analysis of the key policies and training documentation established a benchmark against which the actual learning outcomes, and the workplace requirement, could be measured to ascertain what gap, if any, existed. Curriculum and assessment documentation, Australian units of competency and risk management records provided reference points from which further data, usually from other sources within the wider research context, was gathered to enable comparison and analysis and inform the research findings. For example, training documentation from each site was reviewed to provide the data underpinning the parachute course content and how risk management is articulated within these source curriculum documents. In Australia, parachute training was linked to nationally recognised units of competency. These were also included within the collection of documents used to inform this study. In addition, safety risk management is linked to the Australian Standard AS/NZS ISO 31000:2009. The standard provided the principles and guidance on the way in which risk should be managed within an organisation to imbed a safety risk management framework into everyday operations.

3.3.3: Interview techniques

Embarking on this project, I had a clear vision of whom I wanted to interview, and why. I sought to gather data from a cross-section of instructors, supervisors and commanders in the training environment and in the workplace. However, this proved difficult, particularly as large sections of the Australian Army were deployed on operations in the Middle East whilst I was completing this study. I recalibrated my lens and sought participants working in the training environment who had experience in the workplace within the past two years.

Stake (1995) attributes interview as a key to exploring multiple realities. This position is supported by Yin (2014), who describes interview as ‘one of the most important courses of case study evidence’ (p. 110). Interviews within this study followed a semi-structured approach to enable participants to reflect upon situations and provide a deeper description of their constructed reality. Interviews in which the researcher prepares a set of guiding questions have been described by Hatch (2002)

as semi-structured, enabling the researcher to explore and expand on areas arising but not pre-determined by a strict set of closed questions. Data was confirmed with participants at the Australian site, and the study employed member-checking strategies where participants were able to review their interview responses to ensure they were comfortable with the data collected. The research was only concerned with static line parachuting and the knowledge and skills required to be employed as a paratrooper, not how the Australian or allied armies use this capability.

The role of the researcher as insider required consideration of the methodological threat, which could be created by conversational interviews. Such a threat, referred to as reflexivity (Yin, 2014), can lead to the perspective of the researcher influencing the participant and vice versa. It should be noted rapport and a conversational approach were key to gathering rich data; however, the international sites proved more difficult due to time constraints. Holloway and Biley (2011) suggest a storytelling approach based on evidence but with a focus on meaning, a method adopted within this study to manage interviews and ensure reflexivity.

Focus groups are described by Galletta (2013), Weiss (1994) and Krueger (1994) and can be summarised as group discussions enabling the researcher to develop knowledge about a participants' perceptions on a set topic area. Such data collection relies on group dynamics to reveal similarities and differences of opinion within the focus group (Kaplowitz & Hoehn, 2001). In contrast, interviews are conversations where a guide is developed and used for each session enabling comparison of data to determine similarities and differences, and themes. Within this study, focus groups were not utilised to collect data due to the perceived issues associated with group dynamics (such as dominant group members or peer pressure) within a hierarchical organisation and the impact these could have on the data collected. A further consideration was the time available to coordinate and implement focus group sessions; in an organisation where training courses are delivered one after the other, the logistics of getting a group of participants in one location for a set period of time would not only be difficult, but could also cause disruption to training. As a result, semi-structured interview was the chosen method to elicit data from actors within the research sites.

Semi-structured interviews are conversations, which create a space for a narrative grounded in participant experience (Galletta, 2013). The advantage of semi-

structured interview as a data collection method within this study centred on the researcher's ability to explore participant narrative in relation to policy and practice. The template developed for use during semi-structured interview must be structured to address specific topic areas, whilst providing opportunity for participants to offer new meaning (Galletta, 2013). In essence, semi-structured interview provides a bridge between the theoretically informed decisions of the researcher and the real worldview of actors within the research setting. There are four stages of a semi-structured interview, which can be aligned to that of a lesson of instruction: preliminaries, introduction, body and conclusion (*Instructor's Handbook – Australian Army Publication 7-1-2*). The preliminaries include recognising 'gatekeepers' and gaining access, identifying potential participants and completing the formal requirements (confidentiality and consent). When traversing access in a research context, the researcher must be mindful of gatekeepers as championing their support is imperative to gaining data. Within this research setting, the support of gatekeepers was attained through conversations, the researcher's own insider position within the organisation and the research problem itself. The case study context is detailed within Chapter 4; however, it should be noted management changes within the research sites every two years due to the military posting cycle. Data was collected during a set time period, and this thesis is a result of that data. The thesis is therefore a snapshot in time and place, specifically November 2011 to December 2012, and access to participants was granted in writing by the Australian and overseas sites and confirmed via ethics approval 13/00326|H10054 from Western Sydney University.

During the preliminaries, the researcher should determine the qualities of ideal participants. Within the three nations, the basic parachute course is delivered over a set time frame, with very little room to deviate from the program. Bearing this in mind, it was impractical to recruit learners as research participants. To understand what is required in the workplace of a static line paratrooper, participants with an understanding of the workplace requirements were necessary as they were familiar with (i) the knowledge and skills a paratrooper must have for initial employment and (ii) the knowledge and skills a paratrooper must develop to work in a supervisory role. Considering these prerequisites, qualified paratroopers including supervisors

were approached to participate on the basis of their ability to provide insights into the work environment.

In a semi-structured interview, the purpose of the introduction is to create an opening by inviting the participant to narrate their story, including background and experience. Such information is key to navigating towards theoretically driven questions and can be used as a map during the interview to draw on the narrative to explore questions. Through the body of the interview, the researcher further explores the research questions. Within this study, the body focused on the workplace requirement, course outcomes and safety risk management. From here, the concept of a 'gap' was explored, drawing on both the participants' understanding of this term and how, if at all, it was manifested.

During the semi-structured interview, it is important to situate the participants' lived experience within the facts presented (Galletta, 2013). It is via situating the lived experience that links between data sources can be made. Where necessary, the researcher looped back to the narrative provided within the introduction; this practice provided the participant with ownership and the researcher the opportunity to situate their story to the documentation reviewed during the data collection phase. The conclusion of the interview requires the researcher to reflect, in real time, and confirm doubtful points. This was achieved through revisiting the narrative and exploring where required. The interview was completed by acknowledging the participant's contribution and asking if they had anything further to add.

3.3.4: Direct observation

Direct observation was the third data collection method utilised within the study. Case study research is characterised by the real-world setting in which the case transpires; as such, the researcher's ability to directly observe the research site is a key piece of evidence. Observation is concerned with watching what people do, listening to what they say and asking clarifying questions (Gillham, 2000) to understand the phenomena being studied in natural settings (Denscombe, 2014; Simons, 2009). Observation within a qualitative study requires the researcher to listen, learn, ask, ponder and record; it can be undertaken in a semi-structured or unstructured manner (Efron & Ravid, 2013). The semi-structured approach was more appropriate within this study; such an approach enables the researcher to structure

the observation around issues or patterns. Through observation, it was possible to establish links between theory and practice, and complement interview data whilst substantiating documentation used for content analysis. In addition, observation enabled any non-verbal behaviour occurring within the natural setting to be captured.

The focus of observation should emerge from the research questions and include planning to determine where the observation will be undertaken, for how long and how often. To support data collection via observation, an observation template was developed which provided a structure to the observation in practise. Figure 3.3 illustrates the template utilised within this study. Two types of notes were taken during observation: *descriptive*, focusing on who, when, where, what and how, and *reflective*, focusing on personal insights into what occurred in the setting and what it meant from the researcher's own frame of mind.

Observation Template Ref:	
Research Question Focus:	
Date:	Time in Loc:
Loc:	
Actors:	
Activity:	
Key takeaways:	
Descriptive Notes:	Reflective Notes:
Summary:	

Figure 3.3 – Observation template

The act of observation provided powerful insights into the authentic life of each research site, which could not be achieved through interview alone. Through observing parachute training, the researcher was able to craft a rich description of the research setting. At the overseas sites, observation created an opportunity to gain insights into the organisational culture and 'see' the data collected during interviews

to cross-check the theory with practice. It was not possible to take on the role of active participation or blend in entirely during site visits. However, keeping a discrete distance meant training could continue without the researcher being a distraction.

At the Australian and US sites, the researcher was present throughout the majority of the parachute courses. Allowing time away from observing the research site was intentional to avoid excessive data collection and to identify what data was still required (Sparkes, 1994). During the trip to Normandy, the researcher was immersed completely within the experience to enable description of the lived experience.

3.3.5: Data collection mapping

The main methods used for data collection within this study, as outlined in Section 3.3.1, were direct observation and semi-structured interviews, supported by document review. In preparation for the collection of data, the research questions were mapped to the data collection methods. Table 3.1 identifies the method used for the data collection against each question. The data collection process began with reviewing relevant documentation followed by semi-structured interviews that sought to define what it meant to be ‘job ready’ as a static line paratrooper.

Question	Data collection method
What is the relationship between the outcomes of static line parachute training delivered by the Australian Army's Registered Training Organisation and the job requirements of a static line paratrooper in the Australian Army?	Review of training program documentation Review of static line paratrooper duty/job statements Review of parachute training needs analysis
How is this relationship influenced by risk management within the training environment?	Interviews with instructors at training sites Observation of parachute course training Observation of parachute descents
What role does risk management play in static line parachuting?	Review of risk management policy documentation Review of risk management records
Is there a perceived gap between the training outcomes and the workplace requirements of a static line paratrooper from the perspective of instructors and supervisors?	Semi-structured interviews with section supervisors in the workplace Semi-structured interviews with instructors in the training site

Table 3.1 – Data collection methods

3.3.6: Analysis

Delamont (2016) succinctly articulates the importance of analysis through the use of the evocative metaphor, 'the endurance of beauty even if the specific flowers die' (p. 131); this conveys that good data may be remembered but conceptual ideas will be part of the researcher's enduring contribution to knowledge. Qualitative analysis transforms data into findings, a process that Patton (2002) attests cannot be completed through the use of a formula, as a recipe for such transformation does not exist. Data analysis is summarised by Creswell (2013) as using the following processes: data management, reading and making notes, describing the case, developing themes and patterns, interpreting and finally, representing. Stake (1995) explains there is no one point when data analysis begins in case study research because it includes the researcher's first impressions and the meanings afforded to final compilations.

Fortunately, data can be analysed to some degree as it is collected (Wisniewski & Hatch, 2002), a practice utilised within the study as it progressed. Initially, data for each site was collated, and reviewed, the intent being for the researcher to become familiar with each site as a standalone unit first. Through analysis of data during collection, it is possible for the researcher to identify emerging ideas requiring

follow-up and employ triangulation. The combined methods of data collection within this study enabled the researcher to triangulate data between methods. Triangulation, understood as using more than one data collection method to assure validity (Poisel, 2012), was employed to weave the data strands of document analysis, interview and observation together to strengthen the rigour of the final analysis. Through becoming familiar with each case (or in this study, 'site') in its own right, the process of comparison between cases was possible, including cross-case synthesis, a method advanced by Yin (1994, 2003) where similarities and differences are identified between the cases within a study.

Due to the busy training program within each school, observation did not necessarily follow interview, or vice versa, particularly during overseas visits. The training was of the utmost importance, and the researcher was cognisant their role would not impact the training; essentially their role was of the quintessential grey woman (a colloquial expression meaning an individual who possesses the skills, ability and intent to blend into any situation or surrounding without standing out to others). Many factors impact parachute training including weather, aircraft availability and operational commitments; the addition of 'researcher' to this list was not an outcome actively sought.

Data analysis was undertaken through four phases. Whilst some form of analysis took place during the collection of data, once collection was completed for this study, analysis drew on the examples described in Coffey and Atkinson (1996) and Creswell (2013): coding, describing, classifying and finally, interpretation leading to responses to the initial research questions. The process of data analysis from a practical perspective is described in the following paragraphs.

Coding is defined by Coffey and Atkinson (1996) as the link between raw data and the researcher's theoretical concepts and requires the researcher to translate data collected to categories for the purpose of analysis. The act of coding can be completed manually or via use of bespoke computer software. Manual coding was undertaken of data collected due to the data being extensive, but from only three sites. Coding began using three key themes derived from the research purpose and questions:

1. **Idea** – Why is training delivered? What is the key outcome sought?

2. **Implementation** – How is training delivered at the site? What are the similarities and differences between the sites?

3. **Impact** – What is the end product?

Documentation, observation and interview data from the Australian site was used to describe the case, then coded across the broad themes listed above. One of the key areas of coding was to determine what like themes existed between the three allied armies and what differences emerged. During coding of the overseas data, a filter was applied to compare practice within these training environments to the Australian site, essentially using the Australian site as a benchmark.

Key to describing the case was the drafting and redrafting of narratives provided within the semi-structured interviews. This process continued until it was felt the individual stories gathered were a true representation of the participants' voices. Whilst research must answer questions, it is important to retain the individual context of each site. Describing the case (and each individual site) led to the next phase of analysis, where the researcher identified and classified themes and patterns, and provided the rich context required to understand the complexity of the case. Categorical aggregation (Creswell, 2013) seeks to identify issues across a data set and is achieved when the researcher is able to identify patterns and themes existing in two or more categories.

Interpretation and the process of developing generalised themes from the data is recognised as 'daunting' (Coffey & Atkinson, 1996) and proved challenging within this body of work. Developing ideas using research data, whilst moving beyond the data to formulate generalised interpretation, required more than revisiting data repeatedly. Generalisation requires the researcher to show how their findings inform the particular to apply to the similar more generally. Within the military, a strong focus is placed on 'lessons learnt' from training, operations and all activities; this term is also used by Lincoln and Guba (1985) to describe the interpretive phase in case study research. Applying an analytic approach, the aim of the interpretation stage is not to generalise to a larger population but to establish a framework applicable to other similar situations. In this case, the findings would inform the management of risk of safety dependent professions in the learning environment to ensure graduates are 'job ready'.

3.4: Researcher's journey - Insider/outsider and ethical considerations

Insider research can be defined as direct involvement or connection with the research setting by the researcher. A body of knowledge focusing on the ethical considerations of the insider researcher provides a road map for this model of research journey. My story as an insider researcher is more of a mud map, where unchartered territory across a number of landscapes was traversed to reach the destination. The diverse nature of the research sites and the diverse roles I played within them created a fine line between the potential for bias and the depth of understanding and cultural knowledge my personal experience provided to the project.

Insider *n. Someone who belongs to a limited circle of people.*

Insider research is research in an organisation or culture to which the researcher belongs. Griffith (1998) describes an insider as 'someone whose biography (gender, class, sexual orientation and so on) gives her a lived familiarity with the group being researched' (p. 58). This position poses problems for the design and management of a study, and literature explores the challenges often associated with this type of enquiry. Hewitt-Taylor (2002), Hamdan (2009) and Drake (2010) describe the depth of objectivity compared to depth of information and the authenticity of the voice heard as more prevalent issues. Where the participants make assumptions relating to the researcher's understanding of the research site, data may lack more detailed explanation critical to the study being undertaken.

Outsider *n. Someone not belonging to a particular group.*

Griffith (1998) describes the outsider researcher as someone who does not have an intimate knowledge of the group being researched prior to their entry into the group.

The concept of insider and outsider is often discussed in terms of research within marginalised or overstudied groups and the issues of access and developing relationships or the power basis within these relationships.

For this section, I have drawn on literature and used my reflective journal as a cornerstone to describe the role of an insider researcher within a qualitative case study. The process of gaining, building and maintaining trust with participants is a

challenge in any study. However, the research environment where the researcher was considered both an insider and outsider presented a more complex landscape. Focusing on the strengths and challenges, this section considers the notion of the spaces in between, whereby the researcher occupied the position of both insider and outsider.

Insider and outsider *– A foot in both camps.*

I worked in the organisation as the safety and risk manager, so essentially, I thought of myself as an insider. However, as I was interviewing participants who were members of the armed forces, my role changed subtly to an outsider. I found the cultural make-up of the organisation, including small pockets of sub-culture based on background, work history, operational deployment and gender, a complex landscape. At times, my map was wrong and my compass would not provide me with a solid bearing; I often felt lost but always found a way forward again to progress my research journey. Traversing the line between insider and outsider was therefore challenging, but it also allowed me to draw on my knowledge to provide insight and inner meaning whilst minimising the risk of bias as required within a qualitative research framework.

The research sites where data was collected for this study were military workplaces across three allied armies. The researcher was both an insider and outsider, and sometimes fulfilled both roles simultaneously, evolving as the research journey unfolded. Within a military organisation, there is a hierarchical structure based on rank and the position the individual occupies. For example, two soldiers hold the same rank. However, one may be a manager of front line troops, whilst the other works in an administrative role. The manager will hold a higher status when compared to the administrative worker. Within a specialised area such as military parachuting, it became apparent there were individuals who had experience beyond what would be commonly associated with their rank and/or position. Such individuals are revered by their colleagues, and their relationship with senior management is not based solely on rank and position. These individuals had usually served on several operational deployments and had a long career association with the parachute battalion. Gaining approval and acceptance from within this group was essential to the success of the research. Literature provides blueprints for successful research interviews and questionnaires; the necessity to contextualise these tools

became apparent early in the data gathering stage. Establishing rapport was essential to gathering rich descriptive data from the participants. This was a 'two-way street' – a member of the Army can be 'ordered' to participate in a research interview, but a researcher wants a willing participant who will share their story because they see value in doing so.

From a personal perspective, the research provided an opportunity to dispel or confirm the corridor of myths surrounding the influence risk management might be having on course outcomes. The phrase 'What's in it for me?' was foremost in my mind during data collection, with 'me' being the participants. For me as the researcher, it was highlighting the benefits of the study to the workplace, focusing on how a study of this nature provided an opportunity to peel back the layers and expose parachute training as a capability development not without risk, but one which could be effectively delivered through a risk management framework whilst ensuring authenticity of training. Sharing my story with participants, my reason for being and for being there, affirmed I was part of the workplace, and the perceived issues associated with job readiness of static line paratroopers affected me. As a researcher, I saw this as a three-tiered model – my position as a member of the group, my position as an outsider and the impact of my work on the group being studied.

In undertaking this study, I wanted to tell the stories of participants and provide perspective into how training was delivered and what issues were affecting this group.

My perceptions of my role and my role within the workplace changed through the course of this study. This was due to the bonds with the research participants and to maturing as a researcher. Initially, my perception of self was that I was viewed as an inhibitor of the authenticity of training by fulfilling my role in trying to maintain training as risk adverse. The research journey empowered me however to shift my perception and see myself as a committed, ethical enabler to authentic training as elaborated in Chapter 7.

3.5: Ethics

Ethics approval was just one part of the approval process for this study. Granting approval for the study was a management decision within the Australian Army workplace, negotiated by three managers across four years. Within this

particular workplace – the research site – senior management changes biennially, and with each change of management, the support required to continue the research project was renegotiated. Support from management required consultation and negotiation to highlight the benefits the study would provide, not only within the field of military parachute training, but also across the Defence Organisation. The ethical considerations for the overseas sites were largely negotiated via management with the Australian Army's international engagement section and were surprisingly much easier to navigate.

Gathering data from overseas military sites introduced another facet to ethical considerations, as I was required to negotiate approval through the Australian Army across to the allied army I sought to investigate. The Prince of Wales Award provided a sound starting point and opened doors overseas with relative ease. Whilst overseas, I was an outsider. However, my knowledge from acting as an insider assisted me in traversing the cultural landscape of the allied armies. The final outing in my research journey took me to Normandy, France to commemorate the D-Day landings. I became an insider, an Australian Army officer attached to the 4th Parachute Regiment of the British Army, working alongside members of the United States Army. I will not disclose too much at this point, only to say I walked more than a mile in their shoes.

3.6: Conclusion

This chapter presented the research design by which the study was undertaken, including theoretical foundations, the research methodology and the way in which the design was implemented. In Chapter 4, the case study context is unpacked before the data is presented across Chapters 5, 6 and 7.

CHAPTER 4:
UNPACKING THE CASE STUDY

Arguably, paratroopers have long captured the public's imagination; in Hollywood movies, they pass their time during flight in their bulky kit, lights come on, the door opens and they leap into space. In capturing the imagination, the more relevant facets of their task are often obscured; however, the conditions they cope with on landing, isolation and uneven odds make the training and selection of the paratrooper different from other soldiers. The case presented here serves to provide insights into the selection and training of airborne soldiers.

Locating the study and providing context is a key characteristic of case study research; such information is imperative to enable the reader to understand the conceptual framework (Yin, 2012). This chapter details the research context across five sections and provides a brief history of static line parachuting and the training associated with this capability. Second, an overview of the risk management framework utilised within the Australian context provides a baseline understanding of industry requirements that are applicable to all actors – instructors, students and other key stakeholders – embedded within the learning environment. The third section explores the notion of what it means to be 'job ready', and the fourth section defines the complementary concept of 'authentic training'. The chapter concludes with an overview of the case and associated sites to set the scene for the data analysis and discussion across the following three chapters.

4.1.1: Static line parachuting – A brief history

> Suddenly a giant snapped a whip with me on the end, my chute opened, and I found myself swinging wildly in the wind. (David Kenyon Webster, 2008)

As discussed within Chapter 1, static line parachuting has been utilised by the military as a troop insertion method since the Second World War. Sir Winston Churchill's famous words contained within his letter to General Ismay dated 22 June 1940, 'We ought to have a Corps of at least 5000 parachute troops', are often cited as the beginning of this capability. However, Russia and Germany were experimenting with this type of warfare as early as 1936 (Norton, 1984). The British Special Air Service in southern Italy carried out the first allied airborne operation on 10 February 1941; an aqueduct in Tragino, Italy was the target. Tragino supplied water to Italy's northern ports and was the resupply point for the Italian Army's campaigning in Northern Africa. It was thought cutting the water supply would cause significant disruption to these ports. Whilst the damage inflicted during the operation was quickly repaired, and the raid's military effect was minimal, the experience informed useful outcomes for the development of parachute equipment and aircraft and overall airborne capability. More widely known as Airborne Operations, these incursions rely on the element of surprise. Essentially, lightly armed airborne soldiers are able to seize an objective before the defenders can mobilise superior forces and firepower. The following Airborne Operations provide a brief historical overview of the beginning of paratrooper use by allied nations.

Operation Overlord, more often referred to as D-Day, began on the evening of 5 June 1944 around Normandy, France. It involved 7,000 ships with more than 300,000 men on board, and it remains the largest amphibious operation ever conducted for the allied armies of the US and The United Kingdom. D-Day is also synonymous with British and US airborne operations. British Airborne tasks were to take the two bridges of the Orne River and the channel of Caen in Benouville and Ranville, with the US Airborne's mission being to liberate the town of Sainte-Mere-Eglise. The arrival of American and British paratroopers on French soil was the first sign of airborne operations on D-Day, with 15,000 paratroopers from the US Army's 82nd and 101st Airborne Divisions landing around the town of Sainte-Mere-Eglise. Airborne elements of Operation Overlord were a success and at 0430h, Sainte-Mere-Eglise was in control of the allies.

In September 1944, Operation Market Garden, which included the battle of Arnhem, was executed. The plan was to lay an airborne carpet along the Eindhoven-Arnhem road to reduce German industrial potential (Norton, 1984). Three significant

factors combined to remove this advantage from the British 1st Airborne Division during the battle of Arnhem. Firstly, the entire division could not be lifted on the first day due to aircraft availability, thus removing the element of surprise from half the division. The second issue pertained to the open areas most suitable for use as a drop zone; they were waterlogged and crossed by wide irrigation ditches, and intelligence indicated anti-aircraft defences were strong. These factors combined made the areas unsuitable as drop zones. Finally, allied intelligence was misleading; instead of a brigade group, a Panzer Corps met the allies. Norton (1984) describes the battle of Arnhem as a failed bid to end the war.

4.1.2: Australian airborne operations

Australian airborne operations began during the Second World War, with the establishment of the Parachute Training Unit. The first parachute course – Paratroops No 1 Course – began on 17 December 1942 and the formation of one Australian Parachute Battalion in April 1943 marks the beginning of the airborne capability in Australia. The first fatality within the unit occurred during training on 18 March 1943, when a soldier's parachute caught on the tail plane of the aircraft and became jammed; he was released over water at low altitude but drowned. To determine the cause of the incident, a camera was fixed to the aircraft near the exit door, pointing toward the tailplane. After photographing a series of jumps, it was ascertained the parachute apex was whipping along the tailplane in some cases, with others just clearing it, depending on the weight of the jumper. The problem was resolved by lowering the static line cable to the floor near the point of exit, thus providing five to six feet clearance. Dunn (1999) describes this fatality as a sacrifice that benefitted many, as the lessons learnt from this one incident saved the lives of many paratroopers.

4.1.3: Static line parachute training

Static line parachute training is concerned with training an individual to perform a static line parachute descent. Physically dropping by parachute is a means to an end for paratroopers; however, it is only one small, but vital, part of an airborne soldier's training (Norton, 1984). The US Army describes the purpose of airborne training as 'qualifying personnel in the use of the parachute as a means of combat

deployment, whilst also developing leadership, self-confidence, and aggressive spirit through tough mental and physical conditioning' (United States Army, 2003, p. 1.1). The training employs techniques in use since the Second World War and is designed to develop a high level of proficiency through repetition. There is an emphasis on the immediate execution of commands, in many ways employing the foundations of rote learning which is essential due to the lack of supervision once the paratrooper exits the aircraft and the speed at which drills must be executed.

4.1.4: Australian parachute training

The Basic Parachute Course is the Australian Army's initial training for paratroopers. Delivery of the BPC is divided into two modules: the ground-training phase and the descents or jump phase. Training methods used during ground training are an adaptation of those used during the Second World War, and they aim to simulate the elements of a parachute descent: exit from the aircraft, flight under canopy and the landing. Exit training is included in the training of aircraft drills, which incorporates all actions in the aircraft from boarding or 'emplaning' to exiting the aircraft. Training begins in an aircraft mock-up and progresses to flight drills using an exit tower. Flight drills include everything required of a paratrooper once they have exited the aircraft up to the commencement of landing. Initial training is conducted using a parachute harness, which is suspended just above the ground, and includes emergency drills to address parachute malfunction and emergency landing drills to prepare for landing in trees, wire or water. Landing drills are initially taught from the standing position on padded mats, progressing to suspended training enabling practice in all directions whilst swinging to simulate movement through the air prior to landing. Training is progressive and culminates in performing these skills and the landing procedure on training towers.

There are three main training apparatus used during the BPC: aircraft mock-ups, the Exit Tower and the Parachute Tower. Aircraft mock-ups are shed-like structures designed to provide students with a simulated experience of the drills required within the aircraft. The Exit Tower is a caravan-like structure built 10 metres above the ground with cables to which the students are attached to practice their aircraft drills, exit drills and flight drills. This tower is used to simulate the aircraft. The Parachute Tower is a four-armed tower that uses electric winches to

raise the student to a height of 30 metres; each student is able to practice the exit position and flight drills, after which they are lowered to the ground at descent speed.

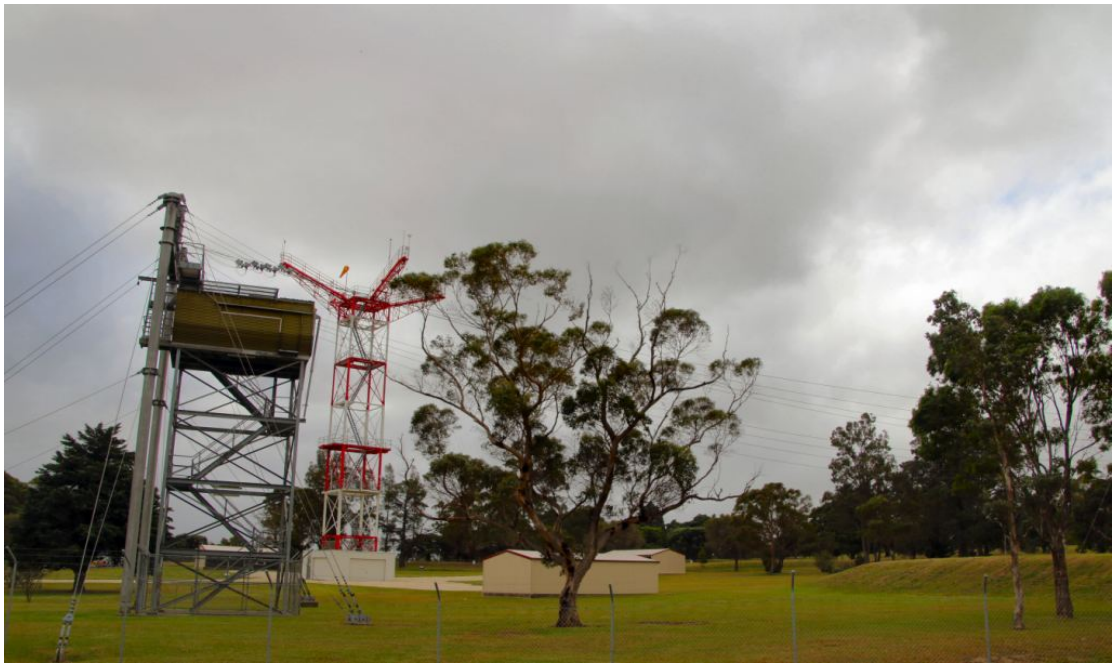


Figure 4.1 – Australian Parachute Training School – Exit Tower in the foreground, the Parachute Tower in the background

A static line parachute descent is complete within 10 seconds and is influenced by the rate of descent of the parachute, air density and the weight of the paratrooper and their equipment. Paratroopers carry airborne delivery equipment and personal equipment. The airborne delivery equipment consists of the main and reserve parachute, harness and release system. To provide protection from head injuries, paratroopers are required to wear a helmet. The in-service parachute used in the Australian Army and the US Army during the period data was gathered was the T-10B that has a rate of descent of 19-23 feet per second and a nominal diameter of 35 feet.[1] The descents phase is only completed by students who demonstrate competence during the ground-training phase and requires students to complete the qualifying descents from an aircraft flying at 1,000 feet.

1 Measurements linked to the technical specifications of the T-10 parachute series are imperial, due to the origin of manufacture. Measurements associated with descent height are conveyed in imperial due to global aviation requirements. However, metric is used during instruction in Australia (students are taught to prepare for landing at 30 metres). (http://www.millsmanufacturing.com/products?id=50)

4.2: Risk management framework

Within the Australian Army context, risk management is achieved through the Military Risk Management (MRM) model. This model is informed by the Standards Australia – Risk management – Principles and guidelines, an international standard providing guidance on the management of risk (Australian/New Zealand Standard ISO 31000:2009). Using the Standard as a starting point, a risk management framework is the foundation to enabling an organisation to design, implement, monitor and review management of risk within their operations. The key concept within the MRM model is to reduce risk to *As Low As Reasonably Practicable* (ALARP). It is important to note that risk management does not focus on avoiding risk; it provides the tools required to manage risk whilst taking opportunities to achieve results and objectives. In a military context - completing the mission.

ALARP is a term used to describe the relationship between risk and the resource requirements, usually in terms of financial costs, to reduce the level of risk further. It is founded in the concept where infinite time, resources, and money could be applied to a safety risk to negate it to zero (no risk at all); however, such an approach is impractical. The level of remaining risk is assessed against the sacrifice required to further reduce risks. In a legal sense, the risk owner must be able to demonstrate the sacrifice required to reduce the risk further would be totally disproportionate to the benefit (Health and Safety Executive, UK, 2017 - https://www.hse.gov.uk). In managing safety risks, the application of ALARP does not enable a one size fits all approach, but requires consideration of the specific context.

In keeping with the hierarchical management system within a military environment, the ability to accept risk is mapped to an individual's rank or level of responsibility. This process aligns to the Standards, as illustrated in figure 4.1, and is based on a systematic approach, which includes consultation, communication, and review as ongoing elements within the system.

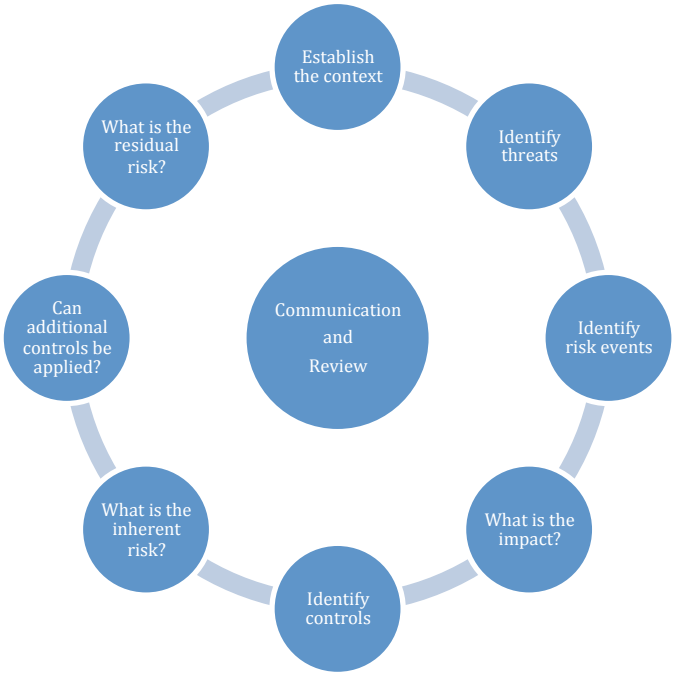


Figure 4.2 – Risk Management Model – Adapted from AS/NZ ISO 3100:2009 – Risk Management Principles and guidelines.

The MRM process begins with establishing the context, which includes an analysis of the operating environment, from internal and external perspectives. The internal context refers to the environment controlled by the organisation, including processes, structure, culture, resources and knowledge. The external context refers to the relationships an organisation has with external stakeholders, trends impacting upon the organisation, and external governance systems or regulatory frameworks. Identifying threats and risk events, whilst separate steps in the process are linked; during these phases of the model, threats are identified and described in terms of how they might be realised. A simple example is as follows:

Threat - Sharks - Capable of causing serious injury or death.

Sitting on the beach with no intention of entering the water will not expose an individual to the threat of shark attack.

Risk Event - Swimming at the beach, where sharks have been sighted exposes an individual to the threat of shark attack.

When a threat is combined with defined circumstances, a risk event occurs.

Once the threat and risk event have been defined the risk management process requires consideration of what impact the realised threat may have on resources,

personnel, reputation, the environment or a combination of areas. This study is concerned predominantly with the impact of risk on all personnel involved in paratrooper training, including incidents leading to injury.

Identifying control measures to reduce the level of risk within the MRM process begins with a consideration of existing controls. Existing controls are processes, procedures or standards within the organisation's standard operating procedures. Within any organisation layers of existing control exist. In the Army environment, these include standing instructions, medical support infrastructure, and training progression models across the organisation. Such controls are 'norms' within the operating environment. The MRM model provides an opportunity to review these measures and determine if any practical drift is occurring. Practical drift is a concept first introduced by Snook (2002) in his work relating to the root cause analysis of a 1994 friendly fire accident in Northern Iraq. Where there is a deviation in practice from written procedures, a 'drift' occurs, indicating that even though an organisation may have documented plans and procedures for dealing with routine and emergency situations, in real time, such plans and procedures are modified due to the local conditions.

In reviewing risk management in the MRM model, existing controls are mapped against the risks identified; the risk remaining after such controls are applied is referred to as the inherent risk. This point in the process represents a challenging intersection where there are two choices, the controls are implemented, and the process of monitoring and reviewing the risk appreciation commences *or* the risk is further evaluated with a view to identifying additional risk controls. If additional controls are required, the inherent risk is analysed with a view to determining what can be implemented to reduce the risk to ALARP. Additional controls typically reflect the contextualised operating environment, or the way things are done, practically, within the organisation within that particular context/location.

4.2.1: Risk management in the vocational learning environment

Overlaying a risk management framework onto vocational education and training (VET) is a multidimensional concept. First, the participants, as adult learners, bring life experience to the learning environment and these can be exploited to achieve learning outcomes. Second, learners do not have the specific knowledge

and skills required for the vocation in many instances; as such, they are novices and still developing. Whilst learners can utilise their life experience and prior knowledge to contextualise the new learning, they lack explicit links to the vocation, similar to the conclusions by Abrahamsson and Somerville (2003) in their discussion of embodied learning as detailed in Chapter 2. Third, when the VET focus is a safety dependent vocation, these risks must be identified and described in terms of first principles to learners. Through a first principles approach, learners are presented with real world problems, promoting learning via exploitation of existing knowledge as a cornerstone, and new knowledge is woven into the world with which the learner interacts (Merrill, 2002). Finally, the management of risk must be contextualised to consider these factors whilst recognising the learners are actively developing knowledge and skills commensurate with the workplace requirements.

The VET space requires a two-way approach to the management of risk; first, the supervision of learners and second, their development of vocational knowledge and skills aligned to the work environment, particularly during the practical phases of training. In supervising learners in a VET learning environment, tensions can arise between managing safety risks effectively and maximising the learning experience for participants. This is influenced by risks associated with the subject matter, the learner demographic and the learning environment. In this context, learning progression aligns with the metaphor *crawl, walk, run*, where knowledge and skills are developed firstly at foundation or entry level through to the workplace requirement and reduced supervision. A compounding risk presents when learners are not exposed to the conditions present in the workplace during their training, resulting in the risk being transferred to the workplace. Essentially, the risk is then transferred to the workplace.

In the VET learning environment there is a line where the management of safety risk effectively intersects with maximum learning experience of participants. This ‘line’ is influenced by a number of factors, as articulated below. External influences are also present and include resource availability and ultimately the safety regulator. The following figure illustrates the relationship between VET and safety risk management from the learner’s perspective.

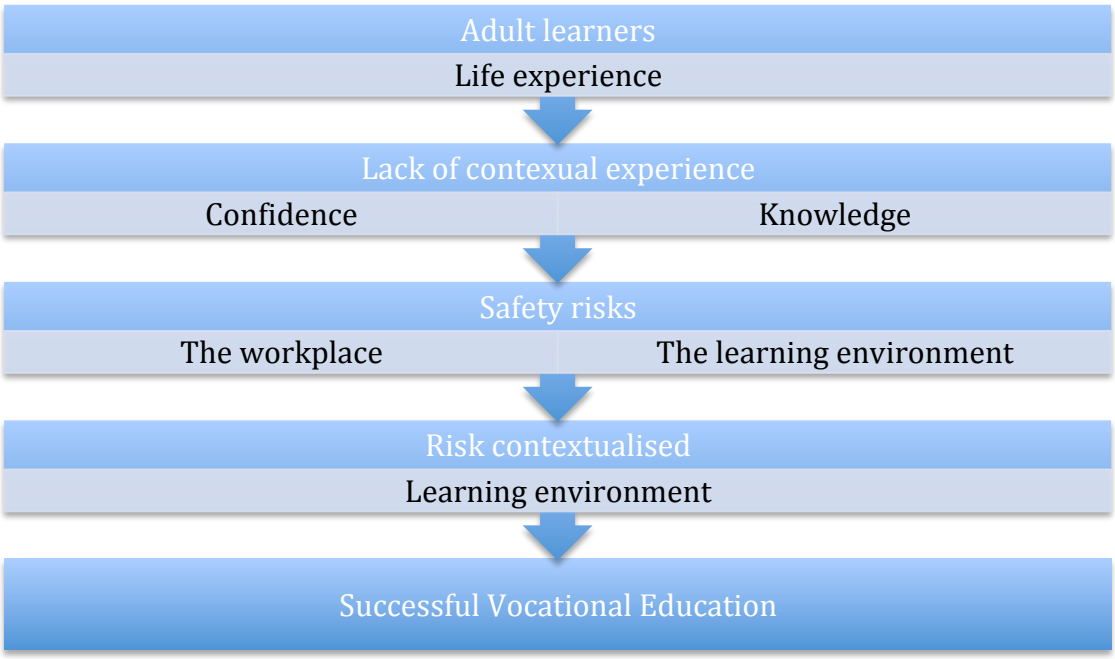


Figure 4.3 – Safety Risk Management in Vocational Education from the learner's perspective (Author's Interpretation)

4.2.2: Safety dependent work

The Australian model Work Health and Safety Regulations explicitly list and describe *High Risk Work* to include scaffolding, rigging, dogging, work using cranes, forklifts, boilers and elevated work platforms. This type of work requires a high-risk work licence due to the associated safety risks, including death and serious injury. There are other areas where safety risk is an inherent factor that are not explicitly identified in the Regulations, for example, work examined within this study has safety risk embedded, but is not 'high risk' in accordance with the definition provided within the Work Health and Safety Regulations. Therefore, the term *safety dependent* is used to describe the work and workplace on which the study focuses. Safety dependent workplaces are those were workers are routinely exposed to safety hazards and risk. These workplaces require effective control measures to be implemented to reduce the likelihood and impact of safety related incidents occurring. Such industries within the Australian context include elements of mining, construction, emergency services (police, fire and ambulance service) and the Australian Defence Force. Despite the most robust risk management framework, safety related incidents still occur due to a number of factors.

Within some safety dependent work places, the work itself has an increased element of safety risk, for example, workers in underground coalmines. However,

other workplaces undertake work where elements of safety risk are only incurred in unique contexts where the work is performed in an environment introducing safety risk. The Australian Defence Force, for example, is a workplace employing workers in a variety of trades and professions, ranging from medical support, to administration, warehouse and distribution and transport operations. From time to time, workers are required to perform their work in a context where safety risk is introduced, such as a war zone. Cowen (2015) cites the example of 'Running an IT Shop in a combat zone', where there are stark similarities between any IT support service operating within Australia. However, undertaking such work in a combat zone introduces a variety of safety risks and a higher than normal work tempo as lives are dependent upon outcomes. Vocations in this paradigm have dual facets to the knowledge required for graduates to be job ready, the knowledge to perform the work, and the knowledge to adapt their performance to the context within which they are working.

The nature of the work undertaken in the case studies within this research is more complex as elements of safety risk manifest during each parachute descent. In addition, undertaking parachute operations in a context where the enemy may engage the paratrooper during their descent, compounds the safety risk. Learning and assessment linked to vocations of this nature must provide graduates with underpinning knowledge and skills inculcating an awareness of the safety dependent nature of their role.

Safety in training can be influenced by knowledge of the workplace, regulatory requirements, and in some cases, the jurisdiction's regulatory body. Safety incidents resulting in injured workers can lead to investigation and findings by the regulator which require implementation of corrective actions in the workplace and in the training environment. Herein lies another facet to learning and assessment linked to safety dependent work; an external stakeholder has the legal remit to influence the learning environment.

Several cases of accidents in military training, both in Australia and overseas have been published in the media. The most recent is the death of a soldier as a result of a vehicle accident at Holsworthy in NSW, where the court finding inferred military driver training as a contributing factor (ABC News 2 March 2017). In 2010, at the Australian Defence Force Academy, a cadet was seriously injured whilst

taking part in a training exercise involving inflatable zodiac boats; the Australian Defence Force Academy was criticised for failing to act following six similar incidents (Australian Government COMCARE, 2012). Overseas, a US Army Officer died as a result of a parachute incident in September 2013, which was reportedly linked to training (Ashton, 2014) and in May 2014 a US Army Airborne Soldier died in a training exercise. In each case, the safety regulator within the jurisdiction has undertaken an investigation, with the findings and recommendations being publically available. Safety within workplaces is thus subject to review and investigation by external bodies, with the legal remit including recommendations to work practices, and associated vocational training. Workplaces are required to provide evidence to demonstrate their compliance and action in relation to these recommendations.

These examples illustrate the risks associated with training within the armed forces, and how incidents can draw the attention of external stakeholders in the VET context. Safety risk management within the learning environment is key to ensuring the safety of both learners and their teachers. However, when safety and risk management strategies are remediated as a result of investigations into incidents, there is potential for a mismatch between what is required in the workplace and the outcomes of learning in the VET environment.

When regulator intervention, as described above, impacts on the learning environment through mandating specific training requirements, workplaces can be harnessed with the responsibility of ensuring learners are job ready. In essence the workplace is playing catch up through finalising learning outcomes in a work environment rather than the learning environment. In a VET learning environment, this scenario is less than ideal due to the control and supervision within the learning environment enabling development of knowledge and skills via simulation that are not usually replicated in the workplace.

4.3: What does it mean to be job ready?

Vocational education and training by the very nature of its title conjures up ideas of training intrinsically linked to one's vocation, profession, work or job; in Australia it is often thought of in terms of apprenticeships and the Tertiary and Further Education (TAFE) sector delivering trade skills to trades persons. Research examined within the literature review highlighted the relationship between VET and

transition to employment in a related field is not always smooth, except in vocational areas where there are strict licensing and/or regulatory requirements. An exploration of what it is to be job ready must necessarily focus on the requirement for vocational education to link closely to the workplace it supports, and the relationships required to ensure these links are maintained.

Within the paradigm of vocational education there are two networks, the learning network and the work network, which intersect to inform practice within and across both networks. A key relationship is required between these networks to facilitate learning outcomes within the VET sector to provide learners with the knowledge, skills and attitudes required to be job ready. This relationship draws on the learning network and the work network, a common theme resonates, clear links need to be established between the workplace and the VET environment to ensure learners are job ready. The outcome of VET is to prepare learners for work.

Within this study, the VET provider is part of the workplace organisation; an arrangement mirrored in a number government organisations, including police and emergency services. Learners who undertake training within the learning environment have more than one facet to their vocation. They are trade qualified (medic, driver, infantry, artillery etc) whilst also undertaking parachute training to enable them to work in an airborne unit. Coupled with these requirements is the possibility of working within in a complex hostile environment. Given the complex nature of the work and workplace of a paratrooper, the concept of job ready is defined as operating at the required skill level in the workplace for the vocation.

4.4: Authentic training

Authenticity in vocational education must begin with a fusing of theory and practice, whereby the boundaries of both are intertwined to form a transparent bond (Dymock & Gerber, 2002). For the purpose of this study, authentic vocational education is defined as ‘learning of the knowledge required for performance at work’. The nuance is slightly varied from the concept of ‘job ready’ as authentic training brings with it aspects of contextualisation.

To ensure learners are provided with authentic learning experience preparing them for the vocation they are to pursue, in particular safety dependent work, a nested or layered approach should be implemented. In this context, base level

knowledge and skills are introduced followed by contextualisation in the learning environment to ensure graduates are job ready, reinforcing the metaphor of *crawl, walk, run* described earlier.

The concepts of 'job ready' and 'authentic training' can be illustrated as an equation. The graduate is job ready and when contextualisation is added, the graduate has experienced an authentic paradigm of vocational education and training (figure 4.3). Authenticity in the VET experience requires element of how to use knowledge and skills acquired in the context of the workplace, which in this dimension involves a myriad of facets.

Figure 4.4 – Author's representation of Authentic Vocational Education and Training

4.5: Implementation of the Australian Vocational Education and Training system

The cornerstone of Australia's Vocation Education and Training System is Training Packages. These packages comprise units of competency, with the issues and contentions surrounding this system being explored within the literature review. The mechanics of the system focus on training specification enabling a flexible approach to vocational education and training, described as a 'building block' approach (Smith, 2010), whereby units of competency make up qualifications which are contained within the package. Through including core and elective units of competency, flexibility is achieved. Each Training Package includes instructions

pertaining to how units of competency may be 'packaged' to make an approved national qualification. These packages and the qualifications they deliver have enabled industry areas and occupations to offer nationally accredited training in Australia, which was not previously possible. Arguably then, the packages are a key enabler for recruitment, retention and fiscal policy, particularly in some larger organisations, including government departments, who prior to the 1990s could not deliver accredited industry specific training.

The Australian Army is a Registered Training Organisation, accredited to deliver training and award qualifications (or individual units of competency) derived from these Training Packages. The Australian Army develops and manages its training via a Training Management Package. Whilst the nomenclature aligns with the term used within the Australian Vocational Education and Training Sector, the Army's Training Management Package prescribes the practical requirements for delivery of training within the Australian Army context. This includes resources (both human and organic), training support materials (lesson plans, handouts, presentations), and assessment tools. Details of the Training Management Package used to delivery static line parachute training will be discussed within the data chapters.

4.6: Case overviews

In this final section the case study sites are detailed. A narrative style is utilised to explicate and acknowledge the lens through which these sites were viewed, to emphasise the uniqueness of the participants, and to provide a segue to the data itself. As discussed within the Introduction and the Methodology chapters, narrative lends itself to providing understandings of the choices made by the researcher, the situated nuances of each site, and the interactive performance between the researcher and the research sites, including participants. The spaces in which the data was gathered are presented as a snapshot in time; this is essential for the reader to understand as changes within the organisation occurred shortly after. Recognition of self is another integral part of the researcher's story. This serves as a prelude to the stories the sites tell, presented across the following chapters, my stories of other's stories.

Beginning to discuss the data and identify meaning in terms of the case study site and the overarching theme of safety risk management, the process of training

evaluation was determined to be a sound approach. As outlined within the literature review, evaluation of training in the vocational context seeks to determine if the outcomes align with the requirement of the workplace.

4.6.1: Parachute Training School – Naval Air Station Nowra NSW Australia

My insider position within the Parachute Training School – Naval Air Station Nowra, NSW Australia provided spontaneous opportunities to observe the training environment. To ensure the boundary between my work and my collection of data was not blurred, I limited my observation of training within the environment to three courses.

The Australian Army's Parachute Training School (PTS) is the primary site from which data was gathered, mainly as a result of my employment at the school lending itself to easy access. Furthermore, as the research questions centred on the Australian Army and the static line paratrooper within the Australian context, data from the PTS was key to the study, and would provide a baseline for comparison with other sites.

Initially, the Royal Australian Air Force delivered Australian military parachute training; the responsibility for training transferred to the Australian Army in 1974. The PTS moved to the current site in 1986, relocating from Williamtown NSW, to a purpose built facility. The school consists of three sections. The Headquarters responsible for the day to day administration of the school, the Parachute Maintenance Wing, responsible for the packing, storage and repair of parachutes, and Training Wing, responsible for the delivery of all parachute training. Instructors are typically members of the Royal Australian Infantry Corps, and hold the rank of Sergeant or above. During my time at the school the instructors were all male, whilst there were some women working at the school, their role was not instructional.

The 3rd Battalion of the Royal Australian Regiment became the Australian Army's Airborne Regiment in 1983, a role it would continue to fulfil until 2011. Whilst gathering data linked to this study, the primary customers of the school included conventional infantry, and those elements supporting the Parachute Battalion Group.

At the time of data gathering, the school delivered six Basic Parachute Courses per calendar year, with sixty to seventy students on each course, providing the Army with over 360 trained paratroopers per year. The Basic Parachute course is delivered to approximately 72 students over a two-week period. Delivery of the basic course is scaffolded with advanced training running concurrently. This forms a layered approach whereby basic courses are utilised by more advanced training to provide learning opportunities. For example, students undertaking instructor training, will deliver lessons to the Basic Parachute Course students under supervision of a qualified Parachute Jump Instructor (PJI). My observation of the training was that it was akin to rote learning, where students are required to memorise information, such an approach aims to enable quick recall of the drills required to complete a static line parachute descent.

4.6.2: Further afield

The overarching research question focuses on the Australian context, and the relationship between training and the concept of 'job ready'. Given the practical nature of this body of work, and the opportunity it presented to inform vocational education practice, to compare why, how and what from the US and The United Kingdom's parachute training aims to first enhance understanding and the rich description inherent to case study research, and second illuminate nuanced similarities and differences between different yet similar contexts.

I was required to adapt quickly to the overseas conditions, to enable comparisons to be made and whilst I felt 'starry eyed' I needed to focus to exploit the opportunity. As I reflect I can see if I was to undertake the data gathering process now, my development as a researcher would see me as a more confident woman. Actors at the overseas sites, instructors and learners alike, were interested in me as much as I was interested in them. I quickly developed my narrative, which shared my story, and built rapport. Mindfulness was important to navigate the pathway to valid data drawn from several comparative sites thus supporting a robust, comprehensive and well-developed picture. In turn the experience provided opportunity for deeper understanding of the cases as a whole.

United States Army – Airborne School

I visited the United States Army Airborne School during 2012. The preparation required to ensure I made the most of this opportunity was daunting, and my engagement with the school prior to my visit was limited. Making informed decisions on my preferred participant demographic was problematic, so I decided to immerse myself in the environment, engage with those I could, draft a rough concept of operations, and keep my eyes open to capture the place where the ritual of airborne training took place. Key to my visit to this site was linking the opportunity to the research questions, and how the data could be used to enhance and ground answers to the overarching purpose of the study.

The US Army Airborne School is located at Fort Benning, Columbus, Georgia, and has been in operation since June 1940. Much of the equipment at the Airborne School is the same style as that first used to train airborne soldiers in preparation for World War Two, and descents still occur on Lawson Field. The equipment used at the Airborne School is the same as Australia, and the techniques are markedly similar. However, Basic Airborne Courses train up to 360 students at once, almost the entire Australian Army annual training output. Delivery is completed over a three week period, and each week aligns to a specific course outcome. The school is structured as an operational infantry regiment, including a headquarters supporting three companies delivering the training. See 6.1 for more background on the training context.

During data collection, I observed a complete Basic Airborne Course. Within the school, instructors are predominantly drawn from the US Army; however, personnel from the US Marine Corps, and US Air Force also fill instructional positions. At the time of my visit to the school there were two female instructors, and I was able to interview one.

No 1 Parachute Training School – The United Kingdom

Similar to my time at the US site, the personnel at No1 Parachute Training School (No1 PTS) were very interested in my story and the way in which Australia delivered military parachute training. However, the interest was slightly more nuanced than the Americans, being comparative, verging on competitive in the most friendly of manners.

Unlike Australia and US, military parachute training in The United Kingdom is delivered by Physical Training Instructors drawn from the Royal Air Force. The basic parachute course is delivered to a student panel of 32. As a basic parachute course was not underway during my visit the school, staff provided demonstrations of the training techniques using the equipment set up in the training hangar. Given the training is delivered by RAF personnel, and the students on the course are members of the British Army, it was unfortunate to not have the opportunity to observe training and interview students. However, as instructors were not involved in training, I was afforded more time with individuals. This varied approach to training provides an additional element to the analysis, given the implementation differs from the other sites, whilst the end product is essentially the same. I spent two weeks at the school, and was able to gather in-depth data from instructors and management, including attending equipment safety review meetings. The visit included an element of quid pro quo, whereby I delivered a presentation on my work to the school before I departed.

During my visit to the No1 PTS I stayed in the RAF Brize Norton Officer's Mess; this provided an element of lived experience. The mess is steeped in history and is decorated with numerous paintings, including paintings of paratroopers from World War Two. My role as a researcher in this context added further to the complexity of insider and outsider and the subtle nuances such an arrangement emits.

Exercise Black Normandy – walking a mile in their shoes

My experience at No1 PTS proved an excellent bookend to my next adventure in Normandy. This was the final stop 'further afield' as a military attachment to Exercise Black Normandy with the 4th Battalion, Parachute Regiment (4 PARA), where I put on my uniform and went native for a week. My time spent with 4 PARA provided an opportunity to immerse myself in the world of the British and American paratrooper, and experience from a historical perspective the use of static line parachuting as a capability.

4.7: Conclusion

This chapter provides a back-story to the data, which will be presented across the next three chapters. Additionally, it locates the reader to the case study sites whilst also supplying a bookend to the discussion chapters. As each case or research

site is different, the researcher's role and the actors interviewed vary, as does the amount of relevant data collected. In keeping with the naturalistic approach to case study, and ensuring the human aspects of feelings, perceptions and experience are explored; the following chapters privilege the stories of the participants and are presented in the researcher's voice.

CHAPTER 5:
THE AUSTRALIAN STORY

This chapter discusses the data from the Parachute Training School, Australia. It explores the role of safety risk management within the vocational education and training environment and begins to address the research question:

What is the relationship between the outcomes of static line parachute training delivered by the Australian Army's Registered Training Organisation and the job requirements of a static line paratrooper in the Australian Army?

The discussion first reviews current documentation and policy that guides and informs the requirements and expectations; from the vocation's perspective they represent the 'known foundations'. These known foundations then provide a baseline for examining training delivery and the implied elements and graduate outcomes within the training environment. The researcher's observations build on these foundations to broaden the research lens. Interview data from trainers further informs the site analysis. The chapter concludes by highlighting areas where the theory of training paratroopers in the Australian Army differs from the training practices observed at the site.

Weaving data to answer the research questions was at first quite daunting. How does one do justice to information freely given by participants whilst ensuring research questions are answered responsibly and with rigour? I decided to take a familiar approach to a new concept and draw on my experience in evaluation to focus on the associated framework and use that as my start point. The focus then is on what each data source tells us about the training environment, and what it means. To answer the research questions I divided the data into three areas: What should the trainees learn based on what is known? What did I observe? What is the

relationship between what doctrine says and what occurs in practice? Is there a gap between theory and practice? In combination, the answers to these lines of inquiry inform the collective meaning that can be drawn upon to determine how the current practices and thinking of trainers, as experienced by them and observed by me, impact on the trainee paratrooper and the research site.

5.1: Document review – What should be learnt

Several key documents are foundational for vocational education and training within Australia, with the cornerstone being Training Packages, which are made up of units of competency. These competency units, developed in consultation with industry, detail the knowledge and skills a learner is expected to demonstrate upon successful completion of a course, taking into account the work environment. Units of competency for parachute training are 'enterprise' units, meaning they are awarded by the relevant industry, and are part of the Public Safety Training Package. These units detail the tasks to be performed, the standard required, and the required knowledge and skills. The Basic Parachute Course aligns with two competency units; PUADEFA008B – Perform an individual static line parachute descent, and PUADEFA009B – Perform an individual static line parachute descent carrying combat equipment. These units of competency, the first included within the document review, were developed via a consultative process between the Industry Skills Council, and the Parachute School during 2005.

Anecdotally, the Australian Army Registered Training Organisation was accredited by the Australian Skills Quality Authority (ASQA) to deliver and award 57 qualifications and over 1500 units of competency at the time of the research. This large scope was primarily made up of units developed to articulate the unique vocations of Army personnel such as rifleman, armoured vehicle crews, artillery personnel, and parachuting. Therefore while much of the training delivered within the Defence context is industry based, and whilst units of competency are awarded to graduates as a result of successful training completion, these particular units represent unique skills required within the Defence workplace. The earlier discussion, presented within the literature review (see Chapter 2), articulates the expected relationship between vocational education and the workplace.

Within the Army context, training is documented via Training Management Packages. These are artefacts unique to the Defence training environment, and are not to be confused with the Australian VET systems 'Training Packages', as discussed earlier (see Chapter 4). Training Management Packages, or TMPs, detail the curriculum, assessment, training review and evaluation requirements, resource requirements and training support materials (lesson plans, assessment tools). The Basic Parachute Course TMP was the second document included in the review, as it provides the framework for delivering the training and the assessment to award the units of competency PUADEFA008B – Perform an individual static line parachute descent, and PUADEFA009B – Perform an individual static line parachute descent carrying combat equipment.

Document review requires the analysis of documents, followed by exploration of how documents link to each other, as articulated by Prior (2003). Given the Basic Parachute Course has been developed to culminate in the award of two competency units designed to meet the job requirements of a static line paratrooper in the Australian Army, reviewing their content underpins the theory component of this training. The analysis of the TMP revealed requirements surrounding the practical delivery of the training. The following section presents the 'known foundations' provided via these baseline documents.

5.1.1: Units of competency – Basic Parachute Course

The Australian Skills Quality Authority (www.asqa.gov.au) defines the aim of a unit of competency is to '*define the skills and knowledge to operate effectively and how they need to be applied to perform effectively in a workplace context*.' Hodge (2016) describes competency units as task based, meaning essential knowledge required for work may not be included unless a connection is perceived with task behaviour. The two units of competency detailed above are differentiated within the unit descriptor via the addition of equipment, and the requirement for the learner to complete one parachute descent at night within PUADEFCA009B (parachute descent carrying combat equipment). The units of competency thereby map the training process to the tasks undertaken by a paratrooper performing descents with and without combat equipment. It can be argued, and anecdotal evidence supports, the competency units were written to accredit static line parachute training.

Instructional staff describe the competency unit content as aligning to expected progression, this is as expected as parachute training has been delivered since the inception of parachute capability in Australia in 1942, whilst the Australian VET System in its current format was founded in 1997.

A review of the two units of competency reveals several points, both positive and negative, as summarised below:

1. In combination, the units provide a clear approach to training delivery, essentially separating skillsets into two building blocks; in the first unit the trainee paratrooper completes three parachute descents. In the second unit, which follows the first, the trainee paratrooper completes a further three parachute descents carrying combat equipment. It is reasonable to expect a scaffold, where the knowledge and skills from one unit provide foundations to be built upon during the second. Significantly, these two units of competency are not noted as prerequisite units to each other. These workplace tasks and roles covered in the two units are thus defined without reference to each other (Wheelahan, 2016).

2. Once they have exited the aircraft, the paratrooper is not under supervision. This suggests an overreliance on trained behaviour, and what can be observed, rather than promoting the development of cognitive skills required for complex decision-making. To cope with the safety dependent nature of parachuting without supervision, a paratrooper requires the cognitive skills to make independent complex decisions quickly. Cognitive skills including thinking and acting and the complexity of making safety decisions is discussed within the interview data.

3. The units of competency lack a framework that incorporates safety risk management. Although the Unit Descriptor, within PUADEFA008B – Perform an individual static line parachute descent, notes parachuting is ‘an inherently dangerous activity’, neither it, nor the other unit, clearly articulates safety risk management requirements. Within the Unit Descriptor of PUADEFA008B - Perform an individual static line parachute descent carrying combat equipment, the only difference cited is the considerable weight and bulk added via carriage of equipment, and the effect on exit position, flight drills and emergency

landing. The absence of a risk management framework means required tasks are described in relation to the mechanics of a parachute descent. Such an approach limits the inclusion of any embodied knowledge linked to the safety dependent nature of parachuting.

4. Both competency units require specific numbers and types of parachute descents to be assessed (during the day and at night) before competence is awarded. Assessment requirements for safety dependent vocational education should ensure trainees develop the required knowledge and skills to prepare them for the workplace. However, an issue arising from prescriptive assessment tasks is the ability of the training environment to provide all trainees with an opportunity to attempt the assessment prior to entering the workplace. If assessment is not completed in the training environment, a paratrooper may be required to undertake a combat equipment descent for the first time at night in the actual workplace, not in the controlled training environment. Such a scenario transfers the safety risk to the workplace.

In a safety dependent environment where competency units are a driving input to learning outcomes, a framework articulating the safety risk management requirements must be included. Whilst parachute instructors are well aware of the safety risk management requirements, they are applying measures within a training environment where control and supervision are paramount. The learning environment is not the work environment; safety risks are not the same. Learners must graduate therefore with the ability to manage their own personal safety risk, and to a degree, the safety risk within their team, which requires knowledge and skills beyond those contained within the competency units.

Awarding of the competency units is linked to increased allowances for paratroopers and in some cases the ability to work in specific Army roles. Such a scenario leads to training driven by the award of units of competency being the priority rather than the development of cognitive skills to work in a safety dependent environment that requires complex decision-making. This means, as discussed later (see Chapter 8), the impact of the natural environment, aircraft availability on training and the specific assessment requirements within a competency unit can become a double-edged sword.

5.1.2: Training management packages – Making explicit the known foundations

In practical terms, the Basic Parachute Course Training Management Package (BPC TMP) provides instructors with the required tools to deliver training that meets the fundamental requirements of the workforce and capability. The requirement within Army for a TMP to be developed and maintained originates from the Army Training System established post Vietnam War, and is not dictated by the Australian VET System. Implementing a systems approach to training in Army enables it to link to the ADDIE model; this model ensures training need is analysed (A), training requirement meets design (D), development (D) culminates in a Training Management Package, implementation (I) is in accordance with that package, and the training evaluation (E) further informs the system.

All Army TMPs are divided into five sections as follows:

1. Training Management Information – outlines the trainee profile, details units of competency, duration of the training (including instruction and assessment), lists learning outcomes, provides pathways (including recognition), and awards and/or qualifications linked to the training.

2. Curriculum – details the relationship between learning outcomes, competency units and the assessment strategy, provides a detailed breakdown of the course content including teaching points, references, equipment and assessment requirements for each learning outcome.

3. Training Review and Evaluation – explains the review and evaluation strategies, including when review and evaluation should take place (pre-training, during training, post training, and in the workplace at dictated intervals), the data required, how data will be collected and the resources required.

4. Major Resource Requirements – lists human and physical (parachutes, fuel etc) resource requirements and supporting elements (aircraft, medical facility, vehicles).

5. Training Materials – the largest section of the training management package containing lesson plans, assessment tools and all other training materials.

These sections within the BPC TMP provide critical details that inform the delivery of the course; unpacking the purpose of each is crucial to assist in interpreting the observational and interview data.

Section One - Training Management Information.

First, the Training Management Information provides a break down of the course sequence by time, including time required for instruction, administration and assessment. In total the course is delivered over a 15 day period, including 5.67 days of instruction, and 4.34 days of assessment. The course consists of two modules aligning with the units of competency, and culminates with graduates gaining the military proficiency 'Basic Parachute'. Proficiencies are used to record training associated with specific skills sets, normally linked to pay and allowances. This first section of the TMP outlines the qualifications required by instructors and assessors, and how Trade Testing Officers are appointed. Whilst the units of competency are 'enterprise' units, with training and assessment only undertaken by the Australian Army, personnel from foreign military who transfer to the Australian Defence Force can gain the Basic Parachute proficiency and competency units via articulation for credit, a process outlined within Section One of the BPC TMP. Section One concludes with a 'Course Data Sheet', this is essentially a summary of key details such as the minimum and maximum number of trainees, the military rank range for potential trainees, and pre-requisite requirements including the Parachute Medical and Pre-fitness assessment.

Section Two - Curriculum.

Within the second section of the TMP the curriculum is expanded to map course modules to learning outcomes and the Units of Competency. This is achieved via a 'Relationship Diagram', illustrating how the training 'fits together' to meet the requirements of the Unit of Competency – as shown in Figure 5.1 below. The three summative assessments are described in detail; first an assessment of skills simulated via the use of the parachute towers; second an assessment of live parachute descents; and third, an assessment of live parachute descents carrying combat equipment. The way in which assessment is undertaken aligns to the concept of 'crawl, walk, run' discussed within the previous chapter, where knowledge and skills are built upon to meet the final training outcome: this represents a scaffold not articulated within the parachute competency units.

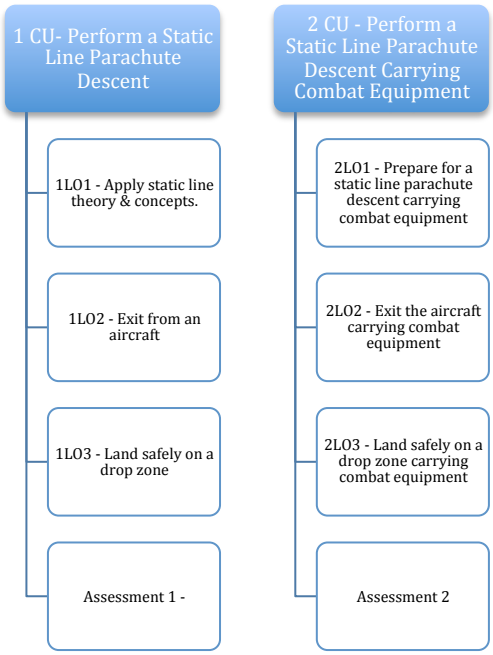


Figure 5.1 – Extract Basic Parachute Course Training Management Package - Basic Parachute Course Relationship Diagram

Section two of the TMP then goes on to 'unpack' the learning outcomes. These consist of the assessment criteria, training method (predominantly practical and individual coaching), references (parachute specific publications and Work Health and Safety), training environment (use of aircraft mock-ups, ground training facilities, parachute and exit towers, and classrooms), and specific equipment required (parachute and reserve, combat equipment, helmets, and visual aids). Teaching points break down the learning outcomes, including specific timings, thus informing lesson plans developed for inclusion within Section Five. Summative Assessment requirements are included within this section, including exactly what must be demonstrated, under what conditions, and to what standard. The extract below illustrates the requirements for Summative Assessment One:

Description: The assessment of these LOs is to be undertaken through the completion of a written and/or verbal questionnaire on safety and static line theory subjects, and the practical demonstration of the ability of the individual to conduct a clean fatigue static line descent. The descent requires the application of the correct exit position, canopy inspection, situational awareness, canopy control, parachute position, 30m pull down, correct landing and HR&D. Assessment should be undertaken with one instructor over a minimum of three day descents using an assessment checklist that requires the individual,
to demonstrate the SKA's required under the following conditions:
• as an individual
• wearing clean fatigue clothing
• by day

Figure 5.2 – Extract: Basic Parachute Course, Summative Assessment One

Section Three – Training Review and Evaluation.

Training Review and Evaluation is a key input to the Defence Training Model as it provides data linked to the effectiveness of training solutions; this data has been gathered during training and post training in the workplace. The data is utilised to improve workforce capability within the Army using the short learning loop and the long learning loop[2]. Training review aligns to the short learning loop, where data is gathered within the training paradigm and continually informs training practice. However, training evaluation aligns to the long learning loop, where data is gathered from the workplace over time to inform training practice, policy and doctrine, and to a lesser degree the workplace. The BPC TMP includes guidance on training review and evaluation in Section Three.

BPC training review is undertaken whilst trainees are completing the course and focuses on three areas, pre-course, during training, and course completion. The pre-course training review is incorporated as part of the opening briefs delivered to trainees; key data sought includes trainees' ability to adequately prepare for the course (parachute medical and fitness assessment) and any administrative issues trainees may have encountered (travel to the course, accommodation upon arrival).

[2] Short Learning Loops are where review data is gathered immediately post training and lessons/improvements are implemented as soon as possible.
Long Learning Loops occur where data is gathered over a period of time, sometimes both immediately post training and at a later date in the workplace. Lessons/improvements are considered, reviewed and discussed before implementation. Long Learning Loops have wider stakeholder engagement.

Data is gathered during training via review tools provided to trainees, enabling them to record their feedback on the training methods as they experience the course. Finally, at the end of the course, the review tools are collected and summarised, and training review staff facilitate an 'open forum' session whereby feedback from the training review tools is explored further. The data gathered seeks to determine if course outcomes have been met, from the trainees' perspective, and confirm staff and trainees complied with the Army Training Code of Conduct.

Training Evaluation for the course focuses on how the knowledge and skills attained during training align with the workplace requirement. The approach to evaluation includes three phases. First, a Regular Review is completed annually via an electronic survey to major stakeholders. Such evaluation seeks to determine if the course is meeting intended outcomes and includes a comprehensive analysis of common themes/issues identified within the accumulated training reviews where a solution has not been implemented.

Second, a Comprehensive Review is completed, as part of the Training Evaluation strategy, every three years, with the aim to determine course effectiveness and assimilation in the workplace. Engagement with all stakeholders, including the workplace, is an essential element of the process. In terms of evaluation models, namely the Kirkpatrick Model (Kirkpatrick, 1975), comprehensive review aligns with Level 3 – Behaviour, thus the key outcome is to determine to what degree trainees apply what they learnt during training on the job.

Finally, a Targeted Review may be used where a specific trigger is identified; this could include changes to equipment, changes to the trainee demographic or result from a safety incident during training or in the workplace.

Section 4 – Major Resource Requirements.

Delivering of the course required complex resource requirements. Section Four of the BPC TMP outlines the various resources required to deliver training, including human resources, physical resources and major support elements. The instructor to trainee ratio is limited to 1:12, whilst the assessor ratio is 1:1; a course of 72 trainees thus requires six instructors and the ability to manage assessment events to achieve a 1:1 ratio. In addition to instructors and assessors, the course requires Drop Zone Safety Officers to manage the drop zone during descents, despatchers to despatch

trainees from the aircraft, medical support staff, parachute riggers to pack parachutes, drivers for trainee transport to and from the drop zone, and administrative staff to ensure correct recording of course outcomes is achieved. The BPC thus requires substantial physical and human resources, from vehicles to aircraft, parachutes to combat equipment, dummy weapons and safety helmets, medical facilities and staff, to a drop zone and accommodation.

Section 5 – Training Materials.

The fifth and final section of the BPC TMP consists of training materials. Given the practical nature of the course, the training materials are predominantly lesson plans; an example is provided at Appendix A. Visual aids are included in early lessons during the course, covering technical content and specifications of the parachute system. Assessment instructions for use by assessment staff are included within Section 5 of the TMP, and a checklist for trainees and instructors for the descents phase.

In its entirety the TMP is a key document in the training system as it provides the detailed mechanisms behind the successful delivery of training to culminate in the award of the units of competency (in this case PUADEFA008B – Perform an individual static line parachute descent, and PUADEFA009B – Perform an individual static line parachute descent carrying combat equipment). The review of the TMP identifies particular deficiencies; the document lacks an underpinning risk management framework. The assessment strategy builds on skills, representing a scaffold not articulated within the competency units; and it falls short of providing the link between the safety dependent nature of the role and the cognitive skills required to operate within the work environment. Given Military Risk Management is a guiding principle of operations and training within the Australian Army, as discussed in the previous chapter, the key concepts should be woven into the TMP, and not as a 'bolted on' concept. Safety risk management is a fluid concept, meaning it does not adhere to one shape, but moves and adapts as the environment around it changes. As discussed in the previous chapter, static line parachute training has remained almost unchanged since its inception; however, safety risk management within the training environment is expected to change from time to time as a result of weather, the trainee demographic, or availability of resources. Without a solid underpinning risk management framework on which to base review and keep pace

with such a safety dependent environment, historical meaning may be lost, resulting in learning loops not informing practice, policy and doctrine, and the workplace.

5.2: Observation – What learning looks like from the inside

Observation, as a data collection method was discussed from a theoretical perspective within the methodology chapter (see Chapter 3). In this research an insider position was important because it provides access to the phenomena requiring investigation; a difficulty was establishing clear lines between periods of observation, and periods of work within the setting.

The BPC commences on Wednesday with the Pre-Course Fitness Assessment. It consists of Army's Basic Fitness Assessment, with the addition of six arm pull-ups or heaves, and is designed to test strength and cardio fitness. It comprises a 2.4km run, a sit up and push up test, with pass standards based on gender and age. Due to the physical demands of the BPC, a chin-up assessment is included to determine upper body strength. On the first day administration such as checking trainees have a current parachute medical is also completed, followed by briefings from key staff within the school. Trainees are then divided into 'sticks' of six, and introduced to the Parachute Jump Instructor who will be their Stick Commander for the duration of the course. Trainees are issued with equipment for the course (safety helmet and dummy parachute and reserve), which is stored in the Fitting Bays. This scenario depicts how safety is both implicitly and explicitly incorporated in the training environment. Implicit evidence includes the early introduction of 'sticks', here trainees are reminded of the Army's core value of 'Teamwork', a value aligned to the conceptualisation of embodied learning (as explored earlier in Chapters 2 and 4) as core component of the workplace. Explicitly safety is evidenced by the regimented and precise way in which administration is undertaken, with trainees only being able to commence their journey towards becoming a paratrooper once they have met all the prerequisite requirements.

To see what learning looks like I followed a course from start to finish from the closest vantage point I could take without actually being a trainee. The best way to summarise 'what was seen' is to work through each stage of training for a parachute descent, starting with the first lessons entitled 'Mil Para'.

Mil Para provides an overview of the history of military parachuting in Australia and the technical specifications of parachute equipment used during the course. The session concludes with a demonstration of how equipment is fitted, how the parachute system deploys and parachute packing. There is also a hidden curriculum within these initial lessons, whereby trainees begin to engage with each other, building relationships and trust to form a team and journey toward becoming paratroopers together.

The training day begins at 07:30h and is divided into 8 x 40 minute lessons, with an hour break for lunch, and fifteen minutes for morning and afternoon tea. Course content is delivered via each stick cycling through the training apparatus under the instruction of their Stick Commander. Observation confirms the progressive nature of the training that utilises a demonstration performance approach to develop the required skills, focusing on a practical application of parachute 'drills', as illustrated within Figure 5.3. The demonstrations within lessons are performed by soldiers posted to the school in support of training; in their role of demonstrating to BPC trainees they are referred to as 'stooges' by instructors.

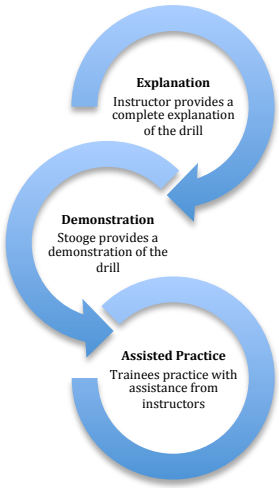


Figure 5.3 – Demonstration Performance Method as utilised within the BPC

5.2.1: Ground training – Aircraft drill to exit

The trainees are then taught the procedures for boarding and exiting the aircraft with a parachute fitted. They are taught how to fit the parachute (main and reserve) utilising the dummy equipment issued on day one. Next, they are taught the process for boarding an aircraft, known as Parachute Parade. Each paratrooper is checked by a despatcher to ensure the parachute equipment is fitted correctly, with the details

correctly recorded on the manifest. The parachute and equipment is also checked to ensure it is serviceable, the pack expiry date is valid, and the serial number of the parachute log card matches the serial number of the parachute. Whilst it may appear the role of the paratrooper is minimal, these procedures are critical to the safety of the overall parachute descent.

Drills required to exit the aircraft are initially taught on the Hard Standing area, an asphalt quadrangle, and practiced without equipment. Progression to aircraft mock-ups, without equipment confirms trainees can perform the correct drills prior to utilising the Exit Tower during the second week of training.

5.2.2: Flight

Flight is the second phase of a parachute descent and trainees are taught flight drills via a lecture followed by demonstration and simulated practice on flight trainers. These trainers consist of parachute risers attached to a frame suspended from the roof of the training hangar; the risers are attached to the trainee's parachute harness. Trainees are suspended from the flight trainer and are required to demonstrate the 'drills' associated with flight including emergencies. The key drills practiced are the exit position, awareness count, all round observation, steering, flight emergencies (including collision drills, twists, and trees), the parachute position, assessment of drift, and preparation for landing. Using the flight trainers is physically demanding as trainees are required to use the riser to pull up their body weight prior to landing, a drill not as physically demanding under canopy.

5.2.3: Landing

The final part of a parachute descent is landing; this is taught initially on landing mats, before progressing to simulated landings utilising wheel trainers and the parachute tower. Most of the landing lessons are taught in the Landing Bays that are equipped with two 'wheel' trainers suspended above landing mats designed to provide trainees with a simulated landing experience. The illustration below, Figure 5.4, depicts the wheel trainer. Each stick of trainees is divided into two groups and lined up at each wheel trainer; here they are briefed on the conduct of the simulation by their Stick Commander followed by a demonstration of the wheel trainer. Both wheel trainers are in use during the lesson. The trainee grasps the wheel trainer, and

is then pushed by the next trainee in line, to begin swinging. At the point where there is no further momentum, the Stick Commander gives the command ‘side right GO’, to indicate the trainee is to release and complete a parachute landing on their right side. Following debriefing, that highlights areas requiring improvement, the next trainee begins swinging; this cycle continues for 40 minutes. It was observed that several trainees did not release when instructed, it is posited this way most likely as a result of fear.

Figure 5.4 – The Wheel Trainer

Once trainees have mastered the skills required for each phase of a parachute descent, they move to simulated exit (via the exit tower) and flight from 30 metres to the landing (via the parachute tower). The trainees progress from ground training and progression to the descents phase is based on an assessment of the parachute and exit tower drill. On the final day of ground training, each trainee is required to perform the following drills correctly: aircraft drill, equipment check, exit position, basic flight drills, flight emergencies, emergency landing drills, and landing.

My observation of ground training was undertaken during a BPC delivered in June. The course is physically and mentally demanding, trainees are learning to

undertake physical tasks not familiar to them. Training days are long, and this would be compounded during the summer months when fatigue would be exacerbated by environmental conditions. The instructional staff make a very tough impression on trainees, they know their subject and are able to deliver lessons by rote. However, the instructors clearly identify the learning issues individual trainees encounter and provide advice and support to assist their learning. What the instructors can't do is provide an alternative way to do the drills, as the parachute descent must be completed in the documented way using specific and approved drills. The pace of the course is fast, it felt like a lot to take in, but the course is delivered like a well-oiled machine, the momentum keeping trainees motivated and interested and focussed on the pathway to descents. The prize is the title of 'Paratrooper'. Given paratroopers must react to situations immediately, the fast pace of the training supports the embodied learning required in their future workplace. There are no women on the course, the atmosphere is very masculine, and I cannot comment if this would be different if the course had female trainees. I tried to keep my observation at a distance to ensure my presence didn't distract the actors.

From a safety risk management perspective, links between the content and the safety dependent nature of the future workplace are clear. Instructors share their professional experience with learners to highlight key safety priorities.

5.2.4: Descents phase

Live parachute descents are the culminating stage of the BPC. As they provide an opportunity to implement the knowledge and skills gained during ground training, these descents are the course assessments. At the start of each day, instructors seek feedback on the health and wellbeing of each trainee in an effort to ensure any injuries are reported and treated. Each day of descents commences with refresher training conducted at the school; trainees are then transported to the drop zone. The Descents phase starts on Friday, where trainees complete two Clean Fatigue (CF) descents, meaning the paratrooper jumps wearing their camouflage fatigues and parachute; they do not carry any military combat equipment.

Live parachute parade is the first requirement of the descents phase. The practical experience of parachute parade enhances the trainees' initial exposure to workplace requirements and their journey to embodied learning. Whilst the

paratroopers role in the parachute parade is expected and established, the safety checks and parachute inspections give them confidence, knowing the equipment they are wearing is serviceable and fit for use. Further, their knowledge of how parachute parade should be conducted provides an example whereby they know from a safety and risk management perspective what should occur in the workplace.

Observing the trainee paratroopers' first exit from the vantage point inside the aircraft provided insight into the way in which trainees react to the concept of a parachute descent. Some trainees sat silent and still, the look on their face one of worry, whilst others talked continuously. Twenty minutes prior to exit, the trainees began aircraft drill, they stood up and hooked their static line on and checked each others' back, with the last man shouting 'check my back' as he rotates for the trainee in front of him to conduct the check. Once the aircraft reached descent height, and began run in, the doors opened and the trainees anticipated the green light turning on and their parachute descent beginning.

On the drop zone below, the drop zone safety officer is in constant contact with the aircraft. They are prepared so that once descents commence, each trainee is assessed by an instructor on the ground, utilising an assessment checklist from the TMP.

In the descents phase the 'real world' of the paratrooper becomes apparent to the individual. They are no longer suspended from the roof in a 'training' harness, closely watched with feedback received on every move they make. Once they exit the aircraft, they are on their own. Yes the assessor is watching them via binoculars from the ground, but he cannot remediate their actions in real time by shouting out corrections. I wonder if they hear the voice of the instructor in their head as they exit the aircraft, perform the all around awareness check, and prepare for their landing?

5.3 Interviews – The practical paradigm

One can work with someone for a number of years yet not know their story and how they came to be where they are. I see instructors from time to time when I venture out of my office to seek a signature, or to clarify a comment. My exchanges with them are brief, limited to polite enquiries about weekend activities, and the weather. Interviewing these men provided me with lived experience perspective to layer onto the document review and observations. The instructors became interview

subjects, reminding me in some ways, of those robust figures you see on a war documentary, eager to share their story, not because they expect accolades but because they are passionate, loyal, and dedicated.

The interview data focuses on three participants, as summarised in table 5.1 below, with data from four areas; their concept of what it was to be 'job ready' as a static line paratrooper, how they understood the outcomes of basic course, what they saw as the role of safety risk management, and if there was a gap between the outcomes of the course and the concept of 'job ready', and if so what it is. Eliciting such data provides a narrative to accompany the training framework explored via document review, and the training practice observed at the site.

Name	Rank	Experience	Role at the School
Sunray Minor	Sergeant	• First posting to the school • Experience in the parachute battalion.	Parachute Instructor
Pace Stick	Warrant Officer	• Second posting to the school • Between first and second posting, has experience in the parachute battalion.	Warrant Officer Static Line
Sunray Delta Zulu	Commissioned Officer	• Second posting to the school • Between first and second posting, has experience in the parachute battalion	Management

Table 5.1 – Summary of interview participants

5.3.1: Sunray Minor

Sunray Minor has served in the Australian Regular Army for 11 years and is an infantryman from the Royal Australian Infantry Corps. He completed his parachute jump instructor training prior to commencing work as an instructor at the school, a position he has held for eighteen months. Sunray Minor volunteered to work at the school, and stated he was excited to be offered the opportunity, especially as it involved promotion.

Prior to working as an instructor at the school, Sunray Minor was a section commander within the parachute battalion, where he managed a platoon. During this tour he participated in several battalion parachute descents associated with exercises within Australia. His definition of what it meant to be job ready as a static line paratrooper was particularly relevant given his recent experience in the workplace. Sunray Minor defined job ready as a paratrooper performing a static line parachute descent at night with all his combat equipment, including ammunition and rations. He explained most of the descents associated with whole of battalion exercises, were performed in the early hours of the morning, typically under darkness; therefore, continuation training on a smaller scale (company and platoon level) involved both day and night descents to ensure soldiers were exposed to operational conditions. Sunray minor was scathing of the recent change to training which meant graduates did not complete a descent at night carrying combat equipment, and stated it would mean more work at the workplace for personnel already time poor;

> *You know, when we are getting ready for a big exercise, we want to know everyone is good to go. If I had diggers in my section who hadn't done a night CE, I would have to get them up to speed. That takes time, and if you aren't qualified you can't do it.* (Sunray Minor, February 2012)

Sunray Minor works '*on the floor*', meaning he as instructor his time was spent instructing on the BPC or preparing for delivery. He cited the outcomes of the BPC as completing the descents phase. Sunray Minor further explained learners where closely supervised, and tested during training: '*They don't get to the descents phase unless they can perform all the drills on the towers. Every morning before descents we run training to make sure they are ready. If they pass the course, they know what to do.*'

Within Chapter 4, the conceptual framework for Military Risk Management was explored in detail, commencing with the Australian Standard, followed by the methodology by which risk is managed within the Australian Army. Sunray Minor saw risk management as how safety was managed within his lessons, and during stages of the parachute descent. Sunray Minor was cognisant of the emphasis on safety during lesson delivery, and recounted his experience when he was completing his parachute instructor training that '*if you breached safety you failed the lesson*'.

When asked about a perceived gap between the outcomes of the BPC and the workplace requirement, Sunray Minor reiterated his earlier comment; If graduates have not completed a parachute descent at night, carrying combat equipment, they are not ready.

5.3.2: Pace Stick

Pace Stick has served in the Australian Regular Army for 15 years, and is also an infantryman. This was his second posting to the school, and he has held his current position for six months. Between working at the school, Pace Stick held a position within the Parachute Battalion as a Platoon Sergeant, and performed safety and instructional duties during battalion parachute activities.

In a similar tenet to Sunray Minor, Pace Stick saw the workplace requirement of a paratrooper as '*jumping with combat equipment, sim doors at night on operations*'.

> *Once they (paratroopers) finish their BPC, every decent is operational. They need to perform a decent like they would on operations, because that's what we train for, carrying CE at night, because parachutes in the sky during the day removes that element of surprise.* (Pace Stick, February 2012)

Given Pace Stick was serving his second tour of the school, his experience traversed the period prior to the units of competency being introduced and changes to the learning outcomes. He cited time as a factor also impacting on the outcomes, '*the training was three weeks, and they didn't train on weekends, so they had time to rest between stages*' (Pace Stick). The introduction of competencies in his opinion, has impacted on the outcomes, and is at odds with military parachute training. He explained the requirement to meet the specific outcomes of the competency units often results in trainees graduating from the school without experiencing the job ready descent profile.

> *Last time I was here, we trained to what the battalion needed, paratroopers who could do a night sim doors, CE descent, now we've got these competency units driving training. Who else does this training? Civvies don't. Why do we need competency units to do our job?* (Pace Stick, February 2012)

Pace Stick explained Military Risk Management was part of leadership training, involving a three day course which he completed a couple of years ago. Whilst the risk management process is a defined system, the policy for static line parachuting is contained in a separate training instruction, providing clear guidance and direction on how descents should be conducted, and what safety measures are required. Pace Stick saw the process of Military Risk Management as a time consuming add on, when tried and tested safety risk management measures are already clearly articulated elsewhere.

> *We review Safety in the IPC before every course, and throughout training delivery. During the descents phase, we are in constant contact with the boss so that decisions are made quickly with all the facts. Sometimes things change and you've got to be able to work with those changes. The Army Training Instruction gives us the parameters for each type of descent so that's our safety baseline, but we have to react to weather, wind speed, the condition of the drop zone, and how much time and space we have.* (Pace Stick, February 2012)

Finally, when asked if there was a gap between the workplace requirement and the outcomes of the BPC, Pace Stick was adamant there is and he feels it was a result of introducing units of competency in the training.

> *When the regulator comes in and tells us we can't do night CE descents because it's not safe, we are doing the trainees and their unit a disservice. They go back to their unit, and that's when they do their CE. They don't have all the instructors we have, they don't have the time we have, and the trainee might forget his drills, you know, skills degrade when they aren't used.* (Pace Stick, February 2012)

5.3.3: Sunray Delta Zulu

Sunray Delta Zulu has served in the Australian Regular Army for 18 years, and is a commissioned officer in the Royal Australian Infantry Corps. This was his second posting to the school, and he had held his current position for twelve months. Prior to returning to the school, he was posted to the parachute battalion working in a headquarters role, yet he was still required to undertake parachute descents. Sunray Delta Zulu completed his parachute instructor training during his previous posting to the school, in the hope he would be able to return once promoted.

Once again, his description of what it means to be a job ready paratrooper focused on the night descent, carrying combat equipment:

> *To be operationally ready, a paratrooper must be able to successfully complete a descent profile carrying combat equipment, at night. If they haven't completed a descent with that profile in training, we are asking their unit to train them.* (Sunray Delta Zulu, February 2012)

Sunray Delta Zulu went on to explain, *'It's hard when they need to finish this course before they can get their parachute pay, and for some of them they can't proceed on posting until they have done their BPC. We know they hide injuries from us to get through.'* (Sunray), thus highlighting one of the external pressures linked to the course which will be discussed in Chapter 8.

In terms of the use of units of competency, Sunray Delta Zulu felt they had a role in jobs with a civilian equivalent… *'our motor mechanics, our health professionals, and other technical trades benefit from attaining qualifications and units of competency'* (Sunray Delta Zulu); however, he did not see their relevance for paratroopers and explained his concern surrounding competency based training.

> *When a paratrooper exits the aircraft, they are on their own, there's no-one sitting beside them telling them to steer, check their canopy, get those twists sorted, or to prepare for landing…it's just them and their parachute and their instinctive knowledge. We need to be able to pass or fail, for their safety and the safety of others.* (Sunray Delta Zulu, February 2012)

In his role as a middle manager, Sunray Delta Zulu was exposed to the resource requirements of this complex course and knew the impacts when resources were not available, *'we can't do the jump phase without an aircraft and all the supporting elements. Aircraft are often an issue, they break down, they arrive late, they get tasked elsewhere.'* (Sunray Delta Zulu). As a result of this, often the trainees were not able to complete the descents phase, particularly the night descent, and leave the school to have final assessments completed in the workplace.

Sunray Delta Zulu was responsible for endorsing the safety risk management profile for each course, including all ground training and the descents phase. He explained the requirement to draft a large spread sheet document to meet the Military Risk Management requirements which was then attached to the Administrative

Instruction for the course. Whilst he understood the organisational approach, Sunray Delta Zulu noted *'all the lessons, all the training apparatus and all the descent profiles have documented safety risk management instructions as part of SOPs (Standard Operating Procedures), Training Instructions, and lesson plans, sometimes the Military Risk Manaagement is a time consuming exercise in wasting paper'* (Sunray Delta Zulu).

Like previous participants comments, Sunray Delta Zulu was concerned about the pressure completing the competency units' placed on his team, where the exact requirements must be met during the course or trainees were not qualified yet still moved into the workplace without having experienced what is considered to be the cumulative progression for the static line paratrooper.

5.3.4: Summary

Sunray Minor, Pace Stick and Sunray Delta Zulu represent three position levels within the school. As such, they provide three different narratives, and three different lenses through which they see their work. Their narratives thus construct a deeper understanding of meaning through their varied interactions with others and their natural world (in this case the Parachute Training School), whilst illustrating common emic issues. Sunray Minor an instructor, focussed on lesson delivery and assessment; Pace Stick an instructor, also managed the delivery of static line parachute training; and Sunray Delta Zulu, as an instructor and middle manager, was responsible to the Commanding Officer for the management and delivery of all parachute training.

Through their interview three common themes emerge surrounding the workplace requirements for the qualified paratrooper, the role of Military Risk Management, and the use of units of competency in the training environment. These themes can be summarised as follows;

1. The job ready paratrooper will be able to complete a parachute descent at night carrying combat equipment, in defined conditions (simultaneously from both doors of the aircraft).

2. The safety risk management approach directed by the organisation is described as a separate entity or system. Participants' highlighted existing policy and

directives they believe should be the key drivers to deliver and manage the safety of parachute training.

3. Implementation of competency units as the key outcomes for static line parachute training outcomes is at odds with the requirement for a job ready paratrooper.

5.4: Making meaning – Theory becomes practice

The parachute competency units are key to the learning outcomes of the Basic Parachute Course. The review of these units, followed by the TMP, highlights 1. the abundance of paperwork associated with the course and the lack of a risk management framework, and 2. the absence of clear links between discreet skills required for undertaking a parachute descent with and without combat equipment. From observations it is clear the instructors largely fill these gaps through their own professional expertise, and their ability to draw on workplace experience. The application of safety risk management in the construct of Military Risk Management is approached as a separate entity, which would arguably be better placed and more effective as an unpinning foundation throughout the training package.

Aligning the training to the award of units of competency with prescriptive evidence requirements for assessment leaves little flexibility when planning and conducting assessment events. Whilst the reason behind this approach may have merit, and work to provide graduates with a tangible outcome, it introduces safety risk to the workplace that is beyond the school's control. To elaborate, the school delivers static line parachute training and assessment in a controlled environment, employing experienced Parachute Jump Instructors. If conditions exceed those prescribed for 'trainees', the training stops. If a trainee is unable to perform their drills in the controlled environment of ground training, they do not move to the descents phase of training. Refresher training, utilising the training apparatus located at the school, occurs prior to descents each day during the Basic Parachute School.

Where a trainee is unable to complete all the assessment requirements (often trainees can not complete the culminating night descent carrying combat equipment), the individual can be assessed in their workplace with a Qualified Assessor appointed to conduct a workplace assessment (often one who has spent time at the

school in an instructional role). The resources and equipment required to support parachute training become a factor in the environmental conditions under which the workplace assessment is delivered. It is probable the safety risk increases in a workplace assessment scenario; ultimately, the paratrooper could be undertaking assessment in an operational environment.

The Basic Parachute Course TMP provides guidance on Training Review and Evaluation, but lacks guidance to link back to the workplace behaviour requirements. Implementing a review that focuses on 'Behaviour' requires supporting data that explores how graduates utilise what they have learnt on the job. At present, information currently articulated within the training package would not easily lend itself to gathering quality, objective evidence focusing on behaviour and more importantly the safety dependent nature of the workplace. Given the safety dependent nature of static line parachuting, the transfer of skills to the workplace to ensure safe graduates experience embodied learning should be paramount.

At present the simplistic approach to static line parachuting such as that described in the units of competency, and the BPC TMP does not facilitate the identification and exploitation of embodied learning. The current approach rather focuses on manual skills, not how these skills build on each other via a more holistic approach. This is despite the link between embodied knowledge and safety dependent work, where experience leads to behaviour which becomes intuitive and unconsciously safe, being acknowledged (Somerville & Abrahamsson, 2003). Presently, the effective delivery of the BPC relies on the embodied knowledge of the instructors and their capacity to impart their knowledge on the art of a parachute descent to trainees, thus revealing a hidden curriculum.

The observation of training reveals several areas where the emphasis on safety highlights the safety dependent nature of the workplace. Parachute parade emphasises a culture of looking out for your team, reinforced during aircraft drill. It can be argued these simple yet vital checks provide an embodied learning experience. Ground training prior to descents, also a workplace practice, is a similar example whereby practice and safety are inculcated.

In addition, theory and practice and the implementation of the demonstration performance method of instruction can be mapped to three forms of knowledge the trainee develops as they progress through the course; *Explicit Knowledge* – the

learning and development resulting from doctrine and policy (explanation), *Local Knowledge* – developed as a result of the trainee's engagement with the learning community (demonstration), and *Tacit Knowledge* - unwritten knowledge of the individual based on their experience, intuition and observation (practice).

5.5: Conclusion

At first I searched for a term to explain the idea of being so close to something we don't see the risks, I then realised I needed a term to describe the same closeness where the risks are unconsciously managed so that no one else sees them. Similar to when you are watching Olympic level show jumping and they just make it look so easy, but with knowledge of the sport you understand the risks and how they are managed. The term is embodied knowledge.

The data gathered from the Australian Parachute Training School reveals a complex relationship between the outcomes of the static line parachute course and the job requirements of a static line paratrooper in the Australian Army. Known foundations explored in the document review reveal a robust framework, based on units of competency, which are implemented in the training environment via an organisational training package. However, close observation revealed a hidden curriculum exuding teamwork, resilience, mental toughness and physical endurance. Engaging with staff at the school and their interview responses informs another layer of understanding to the practices of the vocational educators in delivering the BPC.

Three key themes emerge from the data; a common definition of the job-ready paratrooper in the Australian Army, underlying tenets which are at odds with the wider approach to vocational education and training (competency units) and the mismatch between safety risk management policy and how safety is managed from a practical perspective in the training environment. These themes are explored in more detail in Chapter 8 and are used as a framework to present and discuss data gathered from further afield.

Appendix A

LESSON PLAN - AIRCRAFT DRILL 1

PERIOD: SHUFFLE STEP & EQUIPMENT CHECK

TOPIC: RIGHT & LEFT SHUFFLE STEP & PERSONAL CHECKS IN THE AIRCRAFT

Module Learning Outcome 1.1.2

References:

A. LWP-G 7-2-3 Parachute Training – User Unit Handbook AL1 dated 17 Febuary 2009
B. Draft Amendments LWP-G 7-2-3 Parachute Training – User Unit Handbook AL1 dated 1 July 2011
C. Basic Parachute Course Training Management Package (TMP) dated 6 Oct 2009

Time: 40 MINUTES

GENERAL

Lesson Objective

1. To teach trainees how to carry out both the left and right shuffle step, incorporating the Action Stations and Stand By position. To be capable of carrying out checks on your equipment and that of other paratroops whilst in an aircraft clean fatigue.

Instructional Objectives

2. At the completion of the period the trainees are to be able to:

   a. carry out the shuffle step on the command Action Stations;

   b. adopt the Stand By position;

   c. know the signals for Action Stations and Stand By;

   d. hook onto the static line cable;

   e. carry out personal checks;

   f. check other paratroops; and

   g. know the signals for Hook On and Check Equipment.

PRELIMINARIES

Stores Required / Location

3. The following stores, location and dress is required for the period:

   a. Trainee dress – DPCU, boots, dummy main and reserve parachutes;

   b. Location - C130 Mock up and Parachute Parade area; and

   c. Stores required - demonstration paratrooper wearing dummy main and reserve parachute correctly fitted.

Layout

4. The instructor is to ensure:

   a. for the commencement of the lesson the trainees are to be in two ranks on parachute parade; and

   b. the seats in the mock up are to be in the raised position.

Safety (Pre-period)

5. The following safety checks are to be carried out prior to the commencement of the period:

   a. seats up and serviceable;

   b. static line cable serviceable;

   c. pit raked and cleared of landings hazards; and

   d. ramp / doors to be free from grease, oil or any other matter likely to cause any slipping or tripping.

LESSON SEQUENCE

Introduction

6. **Safety.** Check trainees for:

   a. watches, jewellery and belts removed;

   b. no sharp objects in pockets;

   c. glasses (if worn) secured with retaining strap; and

d. correct fitting of dummy main and reserve parachute.

7. **Revision.** N/A.

8. **Approach.** During the period prior to the exit you must be capable of carrying out checks on both your own equipment and that of other paratroops. You must be able to move from the front of an aircraft to the exit aperture in a controlled manner.

9. **Aim.** During this period you will be taught:

a. right and left shuffle step position,

b. signals for Action Stations and Stand By,

c. actions carried out on the signals for Action Stations and Stand By, and

d. conduct checks of personal equipment and that of other paratroops.

10. **Reason for Learning.** You are taught this to enable you to carry out **your own equipment checks and checks of other paratroopers** and be capable of adopting the Action Stations and Stand By position in a controlled manner, using the shuffle step.

11. **Objectives.** At the completion of this period you will be able to:

a. adopt the Action Station and Stand By position using the left and right shuffle step;

b. act on the Action Station and Stand By signals; and

c. conduct equipment checks on yourself and other paratroopers.

Body

12. The lesson is presented in the following sequence:

a. **Left Shuffle Step.** Instructor demonstrates and explains left shuffle step position. Instructor places trainees into ranks/files and gets trainees to adopt left shuffle step position, taking particular note of feet position, position of right hand on reserve, and correct grip of static line.

b. **Stand By Position**. Instructor shows the signal for Stand By and explains by demonstration and explanation on how to adopt the Stand By position by the use of the shuffle step, calling out Right / One. Practice trainees in ranks/files. **EXPLAIN THAT THIS SIGNAL IS GIVEN 5 SECONDS BEFORE EXITING THE AIRCRAFT.**

c. **Action Stations.** Instructor shows the signal for Action Stations and explains by demonstration and explanation on how to adopt the Action Stations position by the use of the shuffle step, calling out Right, Left, etc. Practice trainees in ranks/files. **EXPLAIN THAT THIS SIGNAL IS GIVEN 30 SECONDS BEFORE EXITING THE AIRCRAFT**.

d. **Right Shuffle Step**. Instructor explains and demonstrates the difference between left and right shuffle step position and practices trainees in right shuffle step using Action Stations and Stand By signals.

e. **Practice**. Once practice in ranks has been conducted continue practice in files, using Action Stations and Stand By, for both the Left and Right shuffle step. Practice as time permits.

f. **Hook On.** Instructor moves trainees to the rear of the mock up and explains and demonstrates the Hook On signal, how to hook the static line onto the cable correctly, and how to hold the static line.

g. **Un Hook.** Instructor explains and demonstrates the Un Hook signal, the reasons why it may be given and how to un hook the static line from the cable correctly.

h. **Equipment Checks**. Instructor moves the sticks into the mock up and explains the need for equipment checks and that the **checks commence 6 minutes prior to exiting the aircraft.**

i. **Check Equipment.** Instructor explains and demonstrates the signal for Check Equipment and the checks to be carried out. After sufficient trainee practice the instructor explains that one person has not had his back checked, and explains the procedure for checking the last man. All trainees conduct second last man checks. (Take particular note that the trainees turn away from the static line.) Explain and demonstrates Unhook.

Conclusion

13. **Confirmation.** Restate aim and ask for final questions.

14. **Test of Lesson Objectives.** Test trainees on signals and actions for:

    a. Hook On;

    b. Check Equipment; and

    c. move trainees outside onto hard standing and conduct both left and right shuffle step, by use of Action Stations and Stand By commands.

15. **Standard Achieved / Main Points.** State trainees standard and stress main points:

a. position of feet during shuffle step;

b. body position during shuffle step;

c. shuffle step speed; and

d. personal checks and your mates.

Restate reason for Learning.

16. **Next Period on Subject.** Aircraft Drill 2.

17. **Next Period.** As per course program, ensure all trainees are told:

a. location of period,

b. start time, and

c. dress and equipment requirements.

CHAPTER 6:
COMPARISION – LOOKING FURTHER AFIELD

This chapter presents data from further afield. The researcher's experience as an observer of static line parachute training at the United States Army Airborne School, and the Royal Air Force Parachute Training School provides a broader context to compare the Australian approach discussed in the previous chapter. Such a comparison highlights the similarities and differences in paratrooper training across nations and shows different approaches to the same outcome, graduating qualified static line paratroopers. Whilst a welcome visitor at each school, due to time and training constraints I was unable to access all areas, and all training documentation. Data is drawn from researcher observations and field notes and interviews with staff at the sites.

6.1: Made in America

The US Army's Airborne School is located at Fort Benning, adjacent to Columbus, Georgia and is commonly referred to as 'Jump School'. Opened on 15 May 1942, much of the equipment at the Airborne School is the same style as that first used to train airborne soldiers in preparation for World War Two, and descents still occur on Lawson Field across the river in Alabama (now known as Fryar Field Drop Zone). Initial static line parachute training at the US Airborne School consists of the Basic Airborne Course (BAC), which is delivered over a three-week period. The course is divided into two phases: weeks one and two form Ground and Tower Phase, and week three is the Jump Phase. Ground and Tower Phase consist of drills on the 10m tower, exits, the lateral drift apparatus, mass exit procedures, and use of the 75 metre tower to confirm flight and landing; and finally Jump Phase, where trainees complete five parachute descents, culminating in a night descent carrying

combat equipment. Similar to Australian training, each phase must be successfully completed before trainees can progress to the next.

To provide trainees with an overview of the BAC, the first day of each course commences with 'Airborne 5000', a practical display encompassing all elements of training. Visiting groups to the school also start their 'tour' with the display; my visit began with the display as I arrived on a Monday, the first day of a new BAC. The display is choreographed and sequenced to follow the learning outcomes of the course. In comparison, the Australian Basic Parachute Course delivers an overview of the school, including its history, via a slide and video presentation.

At the time of my visit, the US Army had recently purchased a new parachute system, the T-11 non-steerable Army Parachute, and training on the BAC encompassed both the new system and the old system (the T-10, used in Australia at the time of data collection), because not all US Army units had been issued the T-11 system. With both parachutes manufactured by the same company, and designed for similar application, the sequence for deploying the parachutes proved very similar. The new system, the T-11 Non-steerable Army Parachute, has a larger carrying weight (400 lb or 180kg) compared to the T-10B (360lb or 163kg) and the slower descent rate of the T-11 at 18 feet per second, compared to the T-10B descent rate of 19-23 feet per second, is considered by some to be the main advantage of the new system. The main difference however is the size of the T-11, it is twenty eight per cent larger once deployed, a factor introducing risk, as discussed later in the chapter.

6.1.1: Document review

Training and education within the US Army falls under the remit of the US Army Training and Doctrine Command (TRADOC), and is delivered via a systems learning approach. As stated above, my ability to access training documentation at the international schools was limited; however, the interviews with staff made it clear a similar delivery system to Australia was implemented albeit using a different overarching framework. Firstly, in comparison to the Australian approach, the US Army does not follow a competency unit approach; competency within the US Army refers to internalised and synthesised knowledge and behaviours manifesting as competencies. In addition, the US Army cites two types of competency, technical and non-technical; technical competency refers to a specific function to successfully

perform the job task required. Non-technical competency refers to soft skills (leadership, ability to relate to others) or personal attributes associated with successful performance of current and future job tasks or mission requirements (TRADOC PAM 525-8-2 - The US Army Learning Concept for Training and Education). The key difference of US Army training is that it is not mapped to a nationally recognised qualification or competency, it is outcomes based and focuses on the final result (outcomes) rather than the individual tasks that make up the outcome.

US Army training documentation repeatedly refers to realistic training that is designed to develop agile and adaptive soldiers who are ready for the operational environment. Such an approach focuses on three key tenets that combined create the Army Learning Environment; these are the training environment and the learning environments, both structured and guided, and an unstructured element, experience. The BAC 'training' is thus progressive, curriculum based, holistic and validated.

In common with the Australian Army, the US Army follows a systems approach to training via the ADDIE model. Whilst unable to review the training documentation for the BAC, instructional staff informed me training is documented via modules with lesson plans aligning with the learning outcomes for Ground Training and Jump Phases. Each lesson plan contains set content to be delivered in a set sequence, and due to safety requirements the instructors are not authorised to deviate from the plan.

6.1.2: Composite risk management

The approach used by the US Army to manage safety risk is a process called composite risk management (CRM). This system is very similar to Military Risk Management as used by the Australian Army, and includes the following steps: 1. Identify hazards, 2. Assess hazards, 3. Develop controls and make decisions, 4. Implement controls and 5. Supervise and evaluate.

The Airborne School develops safety risk assessments for each lesson which are reviewed prior to the start of the training day in a sort of 'tool box' meeting, ensuring all instructional staff are aware of the safety requirements, and any additional or active risks, such as hot weather, are addressed. Columbus has a humid sub-tropical climate with temperatures reaching highs in the mid 30 (degrees Celsius,

or the mid 90s in Fahrenheit), during the summer months. Training is delivered outdoors therefore heat is a hazard, presenting a risk of heat illness to trainees and staff if not managed. During my visit, it was humid and lightening storms were a frequent occurrence; as a result, the daily brief focused on this immediate safety risk. One afternoon, flight training ceased due to a lightening storm, as the training apparatus was outside the storm presented a risk to personnel.

A noticeable addition to the US Airborne School was the use of ice baths. Staff explained the baths provided a cooling effect, which assisted in reducing body temperature during hot days. The United States Army Research Laboratory conducts research into a myriad of subject areas, including equipment and human performance. The laboratory, aiming to determine if the rapid cooling effect of ice baths reduced the number of heat injuries, initiated a study centred on the use of ice baths during training in hot climates. The study required a US Army unit to volunteer for the trial, whereby the baths would be installed and used, and heat injury data would be recorded. However, uptake was slow, and the Airborne School volunteered to participate. As a result, the 'ice baths', large metal sinks filled with icy water, were located at the various outdoor training areas for trainees to immerse their arms. The enthusiasm shown by staff was impressive, given the baths had been rejected by other training establishments, and taken on initially as a trial at the Airborne School. From the mouth of an instructor, 'their loss is Airborne's gain'.

Unlike Australia, at the US Army Airborne School trainees are required to wear their helmet at all times and shuffle run between classes. This approach is aimed at identifying trainees who have sustained injuries to their lower body. An instructor explained the shuffle run from the school to the drop zone enabled the staff to observe the trainees and identify any who are limping. Given the distance to the drop zone, trainees cannot mask a lower limb injury and are removed from the jump phase for medical assessment prior to continuing training. The helmets are heavy, and I questioned the benefit of trainees wearing them throughout the course. However, instructors informed me the helmets could be adjusted, and wearing them daily prior to jumping encouraged trainees to make sure of fit and comfort.

6.1.3: Observation

My visit to the Airborne School coincided with a course commencing, coupled with several courses at different stages underway; I was able to observe all the phases of training from ground, to flight and landing, and the descents. In addition, my visit included a tour of parachute packing facilities. At the time of data collection, the Australian Army did not have any female Parachute Jump Instructors. In comparison, there were several female soldiers employed at the US Army Airborne School as Parachute Instructors. Further, the number of female trainees is significantly higher on the BAC, with anecdotal evidence estimating ten per cent of trainees being female.

As noted above, the BAC commences on a Monday with Airborne 5000. All trainees are required to achieve Army Physical Fitness Test (APFT) standards for the 17 to 21 year old level. This consists of push-ups, sit-ups and a two mile run to set standards detailed in table 6.1 below, prior to reporting to commencing the BAC. Physical training (PT) is included in each day of ground training, which is cited by instructors as replicating combat where physical and mental fatigue must be managed and overcome. Trainees who are unable to participate in PT are referred to a review board to determine their fitness to continue training. If unfit to continue, trainees are 'recycled' or returned to their unit. In contrast, trainees deemed unfit to continue training on the Australian BPC are returned to their unit, and must wait to be selected to attend a new course at some time in the future. This difference is due to the number of courses delivered concurrently at the US Army Airborne School, whereby trainees can, for example, be 'recycled' from week three back to week one to repeat their training. Further, the Australian BPC does not include PT in the program due to the high tempo of the course, and time available.

EVENT	**REPETITIONS**		**TIME LIMIT**
	MALE	**FEMALE**	
PUSH-UPS	42	19	2 MINUTES
SIT-UPS	53	53	2 MINUTES
TWO-MILE RUN	MALE		15.54 MINUTES
	FEMALE		18.54 MINUTES

Table 6.1 – APFT standards for the 17 to 21 year old level

The instructional style dominating delivery of the BAC is explanation, demonstration, followed by practice (similar to the Australian approach). Trainees are required to pass a practical assessment on all training apparatus used within the airborne school and, as the course is delivered in phases, each trainee is assessed prior to moving on to the next phase. To focus on a safety risk management approach, and provide an example of how training is delivered with an underpinning risk management framework, the Parachute Landing Fall (PLF) is be explored in detail as an exemplar.

Through examining injury data, the school identified incorrect landing technique as the single largest cause of injury to BAC students and qualified paratroopers. Irrespective of the type of static line canopy used for a descent, the PLF technique remains constant, as does the risk of injury if not executed correctly. Whilst other injuries occur in training, including lower limb strains and sprains during ground training, these were managed via the PT program (which included stretching, rotation and callisthenic exercises), staging the training across three weeks, which executive staff stated allowed trainees time to rest, and the 'recycle' policy applied to injured trainees. To reduce the risk of landing injury, a targeted approach to training has been implemented utilising a system of crawl, walk, run to reinforce the PLF. Three training simulators are used to teach and practice the PLF across fourteen hours of dedicated training, the Two-Foot High Platform, the Lateral Drift Apparatus, and the Swing Landing Trainer.

Described by one instructor as a 'controlled crash', the PLF is used to enable the paratrooper to absorb the impact of landing on the fleshy part of the body. To do so the landing must be executed in a specific sequence; balls of feet, calf, thigh, buttock, side. Depending on the direction of the wind drift, the paratrooper performs the PLF in one of three ways; side, front, or rear always with chin on chest to prevent neck injury. All trainees are first taught the PLF on the ground, via explanation and demonstration. This is following by practice from the standing position, without parachute or equipment, and an assessment before moving onto the next phase of training. My guide, Officer Commanding A Coy, explained this as the 'crawl' stage of training the PLF. Once trainees are familiar with the technique, they progress to the practicing the PLF from the Two-Foot High Platform (as illustrated in Figure 6.1

below) with a landing area of pea gravel. One instructor controls each platform, directing trainees to perform the PLF via three commands; Ready – the trainee rocks up onto the balls of their feet with knees bent and legs locked together, Slip – the trainee simulates assuming a landing attitude by grasping the risers opposite to the direction of drift, and pulls down into the chest, Land – the trainee jumps off the platform and completes the PLF. The instructor provides feedback, and the trainee returns to the line-up, ready to practice again.

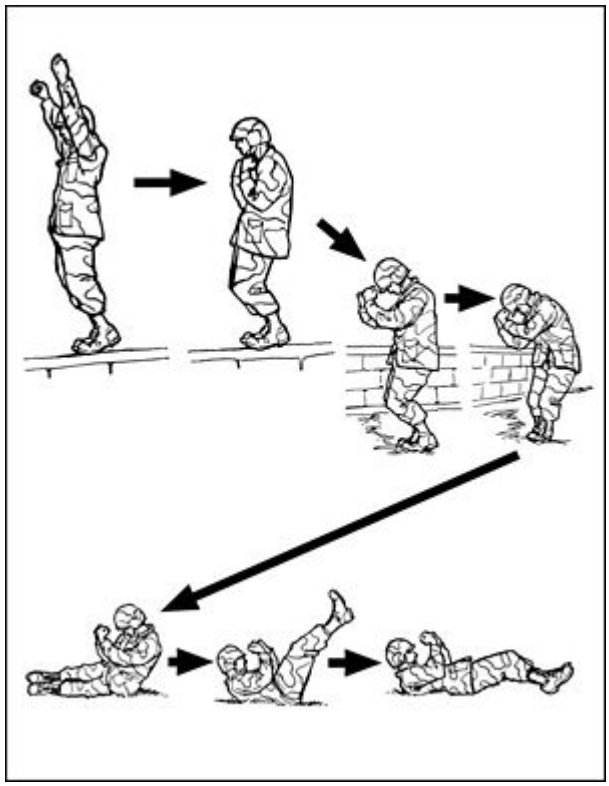


Figure 6.1 – The PLF sequence (taken from Field Manual 3-21.220) illustrating use of the Two-Foot High Platform

Following the Two-Foot High Platform, trainees' progress to the Lateral Drift Apparatus (LDA). The LDS, a flying fox device, is designed to simulate the motion of a parachute descent, enable further practice of the PLF and provide an experience of the shock of landing during parachute descents. Trainees climb a platform and grasp the handles of the LDA, upon the command 'Clear the platform' they are pulled along a cable by another trainee, providing forward momentum; when the instructor gives the comment 'Land' the trainee releases their grip, falls to the ground and completes a PLF. The picture below (Figure 6.2) illustrates the use of the LDA, and the personnel required to operate the simulator. Namely, a safety officer at the top of the platform, a trainee or 'rope man' to pull the cable, an instructor and the

trainee practicing the PLF. Trainees must perform four falls per variation (front, side left, side right, and rear PLFs), with the final two falls graded by the instructor as satisfactory prior to moving on to the next stage of PLF training, the Swing Landing Trainer.

Figure 6.2 – The Lateral Drift Apparatus

The final simulator used to confirm the PLF prior to tower training and jump week, is the Swing Landing Trainer (SLT). This apparatus is also used to practice the correct landing sequence, as it replicates the downward motion, drift, and oscillation similar to that experienced during a parachute descent. A third training objective addressed by the SLT is fitting the parachute harness and reserve parachute, and checking these are secured correctly using the 'buddy' system. The SLT is suspended above a 12 Ft or 3.6m high platform from which trainees descend, wearing a parachute harness, to practice the PLF. Suspension ensures trainees swing when they step off the platform, and the instructor controls the rate of descent via a control line. Figure 6.3 shows the SLT in use, with four staff fulfilling safety/operating duties, one of which gives the command 'Clear the Platform' upon which the trainee is released. Once released the trainee assumes the correct landing attitude, is lowered to the ground by the instructor, and performs the PLF. At completion of the PLF, the trainee activates one canopy release assembly, and is provided with feedback on their performance by the lead instructor.

Figure 6.3 – The Swing Landing Trainer

Through exploring the teaching and practice of the PLF, a clear link between safety and embodied learning emerges, that is underpinned by a risk management framework. The US Army Airborne School has identified injury as a result of incorrect PLF as a key risk to paratroopers and devised a proactive learning methodology; this includes enabling practice of the PLF in environments combining several aspects of the descent, including harness fitting and checking followed by PLF, assessment of drift followed by PLF, and falling from height followed by PLF. This replicates the workplace, where training leads to an action or reaction based on a combination of mind and body experiences and enables graduates to commence developing embodied knowledge. A layered approach to the PLF using several training simulations via repetition and exposure to an emerging real world environment, and akin to the aforementioned metaphor of 'crawl, walk, run', provides trainees with the opportunity to physically interact with the environment whilst drawing on cognitive processes.

6.1.4: Interviews – The practical paradigm

At the US Army Airborne School I was afforded the opportunity to interview three instructors, as summarised in Table 6.2 below. The interview data presented in the following paragraphs focuses on the role of the US Army Paratrooper in an

airborne unit. The data convey what it means to be job ready and, in a similar tenet to the Australian site, the role of safety risk management from participants' perspective; this includes identifying if a perceived gap exists between the outcomes of the BAC and the concept of 'job ready' and is so what it is. Given the importance placed on the inculcation of the PLF and how it is taught within the BAC, interview data provides a narrative to support the observation and interpretation detailed in the previous section of this chapter.

Name	Rank	Experience	Role at the School
SGT Airborne	Sergeant	• First posting to the school • Experience in an airborne unit	Instructor
Staff Airborne	Staff Sergeant	• Second posting to the school • Between first and second posting, has experience in and airborne unit.	Instructor
Master Airborne	Master Sergeant	• Second posting to the school • Between first and second posting, has experience in an airborne unit	Management

Table 6.2 – Summary of interview participants – US Army Airborne School

SGT Airborne is a generator mechanic by trade, and is six months into her first posting to the Airborne School, arriving from the 173rd Airborne Brigade Combat Team, Vicenza Italy. Having served in airborne units her whole career, SGT Airborne's goal is to move to Jump Master Branch upon the completion of her posting. She is also a member of the Fort Benning sky dive demonstration team, the Silver Wings. She explains that Jump Master Branch teach advanced parachute skills to selected paratroopers, culminating in the award of the Jump Master Rating, which qualifies them to manage airborne jump operations at their unit. SGT Airborne is the only female instructor in the company at the time of interview.

My interview with SGT Airborne takes place at the LDA, and I am able to watch her instruct BAC trainees prior to our interview. Our interview is shorter than I hoped, due to her busy teaching schedule. SGT Airborne feels the trainees are job

ready when they graduate from the BAC, but she states the role of the instructor is paramount in developing the required skills.

> *Yes, I do. All the information that we're putting out definitely gets them ready, but it really all comes down to the instructor. You know you have all different calibres of instructors so everyone has their different ways of teaching and some people, some people get it from different ways of being taught.* (SGT Airborne, May 2012)

SGT Airborne cites job ready for a US Army Paratrooper as: '*combat, you know at night with all our equipment*', which is the standard achieved by graduates of the BAC. In contrast to Australia, if trainees on a BAC are unable to complete the required number of descents, the course is extended by another week, and then if necessary, another until trainees meet the requirements. As explained by Staff Airborne in a later paragraph, this is due to the large size of the US Army, and the availability of aircraft to accommodate course extensions.

SGT Airborne speaks about the role of safety risk management within the BAC:

> *Oh, it is very effective and like for instance when the temperature gets too hot, you know we are immediately called. We have all the ice sheets, in case you know, we have a man down and we have the arm emersion kits located everywhere around the vicinity wherever we have students and of course if hit Heat Cat 5, we immediately get notified and we also have training to make sure that everyone knows what they're doing, we had a man down drill yesterday, just to make sure that everyone is on their game and everyone is doing the right thing, so we definitely do have training to make sure we're prepared for risks.* (SGT Airborne, May 2012)

Staff Airborne is an infantry soldier who has served in US Army Airborne units his whole career, with this being his second posting to the US Army Airborne School. He is completing his second year of the posting, and anticipates promotion in the near future.

As mentioned earlier, the metaphor of *crawl, walk, run* is often used by staff to describe progression of the BAC, from the first demonstration during Airborne 5000 to performing live parachute descents. My interview with Staff Airborne confirms this approach.

> *Everything here in our Airborne school is taught in progressive lecture so, pretty much crawl, walk, run. We show them the chute, we show them some of the major features of it, then how to shuffle on the ground like what we do inside the aircraft, we slowly progress through what they're gonna do till we get to the actual jump week. You know, PLFs, the Swing Landing trainer adds a little bit more force to it, get a more realistic feel for how its gonna feel when they hit the ground, going through the 34 foot tower how to simulate that weightlessness of you jumping, overcoming that fear of heights.* (Staff Airborne, May 2012)

Staff Airborne further reflects upon his time on the BAC and the success of the school's approach to teaching the PLF, particularly the use of the SLT.

> *I'll say this, when I came through here ten years ago that was the one apparatus that I remember to this day and I remember what it was like and how to do it. It reinforced everything that I did. It's a culmination of everything they've been taught, that's the best way to put, a culmination of techniques.* (Staff Airborne, May 2012)

Unlike the Australian paratrooper training site, if trainees are unable to complete the required number of parachute descents, the BAC is extended. This is made possible, as states Staff Airborne, by the large fleet of aircraft available to support training. When asked if trainees are able to complete their training when they return to their workplace, in a similar way to the Australian BPC, Staff Airborne explains; '*They have to have 5 jumps, that's something that's not waived here at the airborne school. We don't have the assets on our installations to accommodate jumps that they need for completion. They don't leave as a paratrooper through the airborne school unless they have done their five qualifying jumps.'*(Staff Airborne, May 2012)

An annual Composite Risk Management is completed for each apparatus at the school; for example, the LDA has a CRM matrix detailing the safety risks associated with the operation of the apparatus, and the control measures to be implemented. This task falls under the remit of the Branch Chief (each apparatus is managed by a Branch Chief responsible for the area of training to which it belongs). However, a risk management matrix is also developed to address environmental conditions, such as wind, heat or wildlife, that is required to be reviewed daily during training. Staff

Airborne explains the climatic changes in any given day can '*go from 60 degrees in the morning to 98 degrees here in the afternoon with 90 per cent humidity'*. These conditions, coupled with the variety of geographic locations BAC trainees hail from, including Alaska and New York, must be managed in real time to ensure trainees are not injured whilst they acclimatise.

During the jump phase of the course, a loudspeaker is used on the drop zone to provide a degree of supervision and feedback to trainees. Such an approach provides jumpers with basic points to trigger their memory and remind them of the sequence of a parachute descent, and the actions they are required to undertake to avoid injury and incident. Staff Airborne explains the loudspeaker provides general coaching, but also, if a trainee is demonstrating an '*epic failing, then we have bullhorns and we'll try and identify that soldier'* and provide one-on-one guidance. Trainees are allocated a trainee number on the first day of the BAC, and if a trainee is experiencing difficulty, for example their parachute has twists in the risers, during a descent the bullhorns will identify the trainee number and provide the trainee with specific instructions to rectify problems whilst they are under canopy completing their parachute descent. He concludes it is an excellent way to assist in overcoming the sensory overload associated with an initial parachute descent.

Staff Airborne states graduates from the BAC are technically proficient but not tactically proficient *'you have to train as you fight because when you get out there there is no risk negation, you have to train how you are going to fight'* (Staff Airborne, May 2012). Tactical proficiency comes from the paratroopers working in their unit and being taught the way the unit operates, including configuration of equipment and moving to fire; *'we give them tools to work with something to mould...there's nothing in this school can prepare you for coming into, you know, pitch black with a battalion'*. (Staff Airborne, May 2012)

My final interview was with Master Airborne, who I was able to spend an entire day with, and was fortunate to be provided a guided tour of the Airborne School's facilities. Master Airborne has spent sixteen years in the 82nd Airborne Division, with this his second posting as an instructor. Prior to re-joining the school in the role of Tower Chief, he deployed to Afghanistan. As Tower Chief he was the senior instructor for week two of the BAC; however, he transferred to his current position where he oversees all training at the school, and is the Safety Officer. In

addition, he is the school's historian. In summary, Master Airborne is the airborne operations expert for the US Army. His most recent work has been linked to the introduction of the T11 parachute system.

Master Airborne explains the outcomes of the BAC are to complete a static line parachute descent, not '*what to do once you've hit the ground, pull your weapon out, put your NVGs on, locate your platoon'* these skills are taught as part of integration into the unit, along with any particular way equipment is carried. With experience in combat, he describes the job ready paratrooper as completing a static line descent at night carrying their equipment.

> *So, for combat, we're not doing daytime with no equipment. Combat is at night, all your stuff, parachute jump. So that's what we want to culminate with and when we send that kid out he's ready, he's done two combat equipment jumps, one of them has been at night under tactical conditions, you know, no light out there and all that good stuff. So, when he gets to the unit he should be able to just integrate in with his unit.* (Master Airborne, May 2012)

With the introduction of the new parachute system, Master Airborne has managed several risks, including the impact small or light weight trainees have on the descent rate of the parachute, and the risk of landing off the drop zone. To manage this risk, the following control has been implemented:

> *So what do we do with them is, we weigh them, we have that marked on their helmet, we know what they weigh. We put the light people in the middle of the stick because there's no river in the middle of the stick. Our lead edge, there's power lines back there, really big power lines, huge, that supply like a half of Alabama, it's drama to shut them off.* (Master Airborne, May 2012)

During my observation of training I saw instructors randomly order trainees to 'Hit It', and they would simulate the drill to activate the reserve parachute. Master Airborne explains the reserve drill is second only to the PLF in terms of safety once the paratrooper is conducting a descent. The introduction of this practice is to develop an immediate action, whereby if the need arises during descents for a trainee to activate their reserve parachute, the command 'Hit It' from the '*bullhorns*' will induce such a reaction.

So where we build the muscle memory is just the drills. The 'Hit It' drill with no equipment, you should be getting those guys all day long. Jumpers 'Hit It' you know, do it. They're standing around you know, jumpers 'Hit It', do it. Because you've got to build-what it takes like 300 repetitions of something to-before it becomes muscle memory. All right, and activating a reserve to me is muscle memory reflex, it's automatic without thought, boom I know where everything is at. (Master Airborne, May 2012)

In summary, the interview data presented above strengthens the emerging theme of links between the safety risk management framework and an embodied approach to learning. Further, the data highlights the role of contextualisation in supporting transition of the trainee from the vocational education setting to the workplace. This builds on the notion of what it is to be a job-ready paratrooper, *complete a parachute descent at night carrying combat equipment*, to include the combat environment as a 'defined condition'.

Figure 6.4 – The Researcher observing descents during the BAC May 2012

6.2: The British perspective

Unlike Australia and the United States, the Royal Air Force (RAF) delivers military static line parachute training in The United Kingdom. The No1 Parachute Training School (No1 PTS) is located at Royal Air Force Base Brize Norton, in Oxfordshire. The Instructional staff at the school are RAF Physical Training Instructors, who complete a specialist Parachute Jump Instructor course prior to commencing their appointment at the Parachute School. The parachute type used is

the Low Level Parachute (LLP), a system designed to deploy from a much lower height than the T10-B used in Australian and the United States. My visit to No1 PTS was impacted by lack of static line training being delivered at the time therefore my limiting data collection.

The No 1 PTS deliver the Basic Parachute Course (BPC) to a panel of approximately 35-40 trainees. Prior to attending the BPC, all Army candidates who have not already undergone a strenuous form of training, such as UK Special Forces, must undertake pre-parachute selection training. Pegasus Company, or more commonly referred to as 'P' Coy, is the name of the organisation based at the Infantry Training Centre in North Yorkshire where this rigorous training takes place. Training in P Coy culminates in a series of eight tests undertaken over one week.

Even though lack of training limited observation data, I was able engage with the instructors, and seek to understand the BPC curriculum and the associated risk management strategies used within British Defence Force. The physical size of the training area at No1 PTS is very small compared to US Army Airborne School, and unlike its Australian and US counterparts, all training (less the actual parachute descents) is completed indoors. All training apparatus are located within one hangar, although my visit did not coincide with the delivery of a BPC there were personnel working within the hangar practicing their delivery and use of the equipment.

In this vocational environment those delivering the training program and those who use the skills in the workplace are from two different organisations, raising initial concerns as to how the outcomes would match workplace requirements. It did not take long to understand how No1 PTS bridge this gap, and bridge it very well.

No1 PTS has a number of systems in place which complement the training regime and ensure training delivered to the workplace standard and that equipment is procured based on parameters of what is actually required in the workplace. First, prior to training design, equipment is trialled and introduced into service based on the following parameters; airframe type, the height of paratrooper despatch, the number of paratroopers and whether the drop zone is on land or water. In short, a match is sought between characteristics of equipment and the capability need. The tenant of efficiency and effectiveness is key to operations; '*we train only those that need training'* was a comment repeated by management within the school.

Second, a detailed job specification is documented after in depth consultation with external stakeholders, including the British Army. This specification considers again, the despatch height, the airframe, number of paratroopers, the weapon systems used by personnel and the drop zone (land or water). There are three levels of training outcome also considered within the Defence System Approach to Training (DSAT) applied by No1 PTS as follows:

1. No more training is required – the solider is ready to fight,

2. More training is required; however, the solider is very close to job standard,

3. All skills have been taught within a safety environment.

Training delivered within No1 PTS aligns with category three, all skills are taught but within a safety or risk management framework, for example, flight emergencies whereby the trainee will have demonstrated adequate underpinning knowledge and skills but will not have applied it to develop the skills required to perform the task. There is a requirement to contexualise the knowledge and skills in the workplace, in a similar manner to the US Army, including how equipment is carried.

Physical conditioning is a key aspect within the training regime and curriculum, and all trainees have completed ‘P Coy’ or a British Special Forces Training. Staff at No1 PTS consider trainees are physically prepared and robust enough to complete the parachute course. The requirement to complete ‘P Coy’ is considered by some instructors to exclude females from attending the BPC due to the physical strength required to pass the final P Coy tests.

Basic parachute training commences at No1 PTS with combat load, unlike the Australian and US models, where the trainees progress from clean fatigue to combat equipment. The reasoning behind this approach is based on the workplace standard, where descents are completed with combat load or, as was explained by staff, the key user requirement is a paratrooper who is able to complete a static line parachute descent with combat load. There is a clear link between the workplace requirement and the training category, the skills are taught and practiced within a safety and risk management framework.

All non-commissioned staff at No1 PTS are Royal Air Force physical training instructors, the Officers at the school are degree qualified Physical Education teachers who volunteer to complete the Parachute Jump Instructor course. The Jump Instructor course is a six month residential course. Once within the Parachute Jump Instructor stream, personnel typically remain in parachute instruction or development roles within the Royal Air Force for the majority of their career. It was evident though discussions with the instructional staff, especially management, there is a thorough understanding of training systems generally within the organisation, more specifically the Defence System Approach to Training, and staff apply this body of knowledge within the learning environment.

The role of the Parachute Jump Instructor (PJI) at No 1 PTS is noticeably more involved than the Australian model. In the British system, all training, including continuation training at unit level is delivered and managed by the RAF; including RAF PJIs embedded into British Army Airborne units until recently. This approach provides a standardised ground training model across all airborne capability with the British Army; it also ensures safety and risk management procedures are adhered too. Conversations with non-commissioned officers hinted that at times this arrangement is problematic from a logistical perspective; however, this is often due to aircraft availability. Drop Zone safety is managed by a Drop Zone Safety Officer, who is a commissioned officer, again a variant to the models used within Australia and the United States.

6.2.1: The curriculum model

Design and delivery of parachute training at No1 PTS is based on a systems approach, commencing with the analysis of the training need and a detailed job specification which is used to develop training outcomes. Development Staff within No1 PTS work closely with key stakeholders, including the British Army, to ensure the training reflects realistic requirements of a soldier who will be employed as a paratrooper. Firstly, an Operational Performance Statement is derived from a training needs analysis; this stage defines the tasks and subtasks a static line paratrooper will undertake in the workplace, including performance, conditions, standard and the Training Category. Training Category refers to a defined outcome which will be achieved by completion of the course, for example, Category 1 indicates trainees will

perform the whole task several times to full job standard and under realistic conditions. Use of detailed performance statements provides a clear link to workplace requirements. A Formal Training Statement is derived from the Operational Performance Statement, including the training objectives defined by performance, condition and standard.

This reveals a delicate balancing act between the training model and the workplace requirement, maintained through liaison with the British Army. The oversight RAF Parachute Jump Instructors maintain throughout the delivery of ground and continuation training to airborne personnel provides a standardised approach to both training and governance through monitoring of performance. As a result, it can be concluded there is a high level of governance and oversight, with one central organisation being responsible for the ongoing capability and safety standards. Internal and external evaluation feeds into the training continuum, providing an additional avenue where the workplace is afforded an opportunity to provide input into the training and how the training outcomes align to the workplace requirement. Further supporting the link between the workplace requirement and learning outcomes, the instructors, via delivery of ground and continuation training within the workplace, are exposed to the workplace requirements thus providing another avenue of feedback. The stakeholders do not work in isolation, and have opportunities to engage and gain access to all levels within the workplace. Figure 6.5 below repesents the relationship between training delivery, continuuation training and training development at No1 PTS.

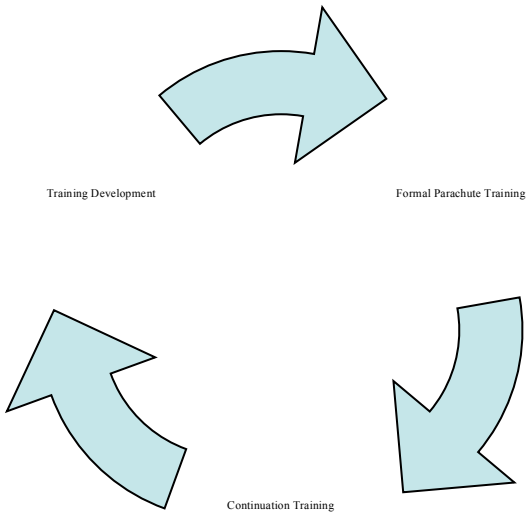


Figure 6.5 – Training relationships existing in British Military Parachuting

6.2.2: The approach to safety risk management

Safety risk management within the RAF is centered on 'Duty Holders', whereby a senior officer is appointed with a legally accountable requirement for the safe operation of personnel and equipment under their command. The Duty Holder for operations within No 1 PTS is the Station Commander of RAF Brize Norton; while this appointment is assisted by subject matter experts enabling judgments on a daily basis in terms of risk analysis to determine acceptable risks, in essence the Duty Holder ensures activities are completed in safe manner. In the parachute training domain a PJI works for the Duty Holder to provide subject matter expertise to develop safety risk analysis and to determine the safety for safe completion of parachute training.

There are several mandated requirements within the training curriculum which provide a safety risk management framework. During static line descents completed as part of the BPC, the instructor to student ratio is 1:1 for the first two descents. Descent progression is based on despatch height as follows; Descent One – 1000ft, Descent Two – 800ft, Descent Three – 800ft (Simultaneous Stick), Descent Four – 700ft (Simultaneous Stick) and Descent Five – 600ft (Simultaneous Stick at night). Upon completion of each live parachute descent, trainees return to the hangar to practice flight and landing drills prior to attempting further descents.

The risk management framework utilised within both parachute training and parachute operations at the No 1 PTS includes sound governance and operational oversight. Through the delivery of training and management of workplace descents managed by the RAF, a standardised approach is achieved. Whilst the relationship between workplace requirement and training outcome was discussed in terms of the curriculum, linking training delivery and the workplace within a risk management framework ratifing the training and the workplace requirement achieves synergy.

6.2.3: Job ready

In the case of static line parachute training within the British Army, the BPC produces a paratrooper who is job ready. They have met the workplace standard of night parachute descent with combat load, albeit under a safety risk management framework; however, the risk management framework applied within No1 PTS provides a safe learning environment without impacting on learning outcomes. Completion rates are affected by the availability of aircraft, primarily due to operational commitments, and a robust assessment system has been documented to ensure safe completion of training for those unable to complete live descents whilst on course.

As mentioned earlier, all descents within the British BPC are completed with combat load, in contrast to the Australian and United States models which introduce combat load or equipment after trainees have completed initial descents clean fatigue. From discussions with management and instructional staff at the No1 PTS the overarching reason is due to the job standard - parachute descents with combat load. The No1 PTS approach to vary the exit height for each training descent, commencing at 1000ft, reducing the height progressively to 600ft, ensures trainees are gradually exposed to the workplace requirement.

6.3: Conclusion

Data gathered from further afield illustrates many similarities between the three sites examed for this study, but also a number of contrasts. This data will be compared in Chapter 8 focussing on three themes; the ideas, the implementation and the impact; however, from a wide angle lens a clear definition of a ‘job ready’ static line paratrooper emerges across the sites. In contrast, the catalyst driving the learning

outcomes within the sites further afield is the work place requirement, and what is required during combat. The wider vocational education system adopted by the country does not dictate learner outcomes in the same manner Australian VET does. Application of safety risk management is revealed as a fluid element within the training delivery, inculcated to a point where staff feel they have ownership of processes and are thus empowered.

To provide a historical perspective, and a lived experience from the insider reseacher, the following chapter will walk a mile in their shoes as the researcher becomes a part of the research during Exercise Black Normandy in France during June 2012.

CHAPTER 7:
A MILE IN THEIR SHOES

As mentioned in the introductory chapter, I was fortunate to travel overseas to gather data linked to my research. The following is a reflective chapter, providing another lens into the world of the static line paratrooper, as I became a member of the 4 Battalion of the Parachute Regiment, a British Army reserve unit, on exercise in Normandy France. In contrast to my experience at the United States Airborne School and the No1 PTS, where I was an observer and interviewer, this experience was as an embedded Australian Army Officer participating in a military exercise. Thus this chapter represents my transitioning from professional scholar to scholarly professional, a notion proposed by Gregory (1997).

Experiences will be recounted utilising the Four Rs of Reflection (Bain, Ballantyne, Packer & Mills, 1999) as a framework; *Report* – describe or retell the key elements of the experience focusing on what I saw, *Relate* – explore relationships between the personal and the theoretical to understand and connect with the experience in a personal way, *Reason* – make connections between theory and practice and seek to understand why things happened the way they did, and *Reconstruct* – determine how the learning relates to other contexts and practice, culminating in my own personal theory. These heading are used to frame the following discussion.

I was pretty shocked when I was notified I was recipient of the 'Prince of Wales Award' for 2012. Once this had sunk in I began to come to grips with the fact that I would be travelling around the world, visiting two military schools delivering static line parachute training. Part of the award was the opportunity to work in my Army Reserve capacity with the Defence Force of one of the nations I would visit. Because The United Kingdom was my final port of call, my opportunity was to be

attached to a Reserve unit in the British Army. Now the excitement was bubbling over, I had never even thought about such an opportunity, never deployed on operations, the only overseas travel I had undertaken linked to the military was to visit my husband during his deployments. For a forty plus woman, getting a phone call late at night from the Adjutant of the 4 Battalion, The Parachute Regiment was initially taken as a joke. Those telemarketers had changed their accent. Then the Adjutant informed me, I would be part of Exercise Black Normandy during my attachment to the Regiment, and I would have to bring my 'bergen' with me. That feeling of excitement quickly turned to apprehension, how on earth would I be able to participate in an exercise with a British parachute regiment and what is a bergen?

7.1: Operation Airdrop Warrior

I drag my bags (heavy bags after six weeks away from home in places where the shopping is amazing) from the Officer's Mess RAF Brize Norton, to the Parachute Hangar. I am meeting the 4th Battalion of the British Parachute Regiment (4 Para) for breakfast prior to departing for Salisbury and the parachute drop zones, located in the area. I feel like an outsider, there is only one other woman in the group; I am the sole Australian, and a commissioned officer. A small Irish man who is the Quartermaster of the regiment greets me; he will be the Officer in Charge of the activity. The process of documenting the sortie for today's descents begins; I am added to the list. Wouldn't that be an amazing addition to my overseas adventure? A parachute descent from a RAF aircraft, as part of the 4th Battalion, The Parachute Regiment, would be a story I could retell for years to come, making many of my friends and family particularly jealous. It was a cross road, and in hindsight I made the only decision I could, I explained I am not parachute qualified and as such would not be jumping. Was I sure, they ask, we can add you to the manifest. Now I must explain the '60 minutes test', a process where you think about what it is you are about to do, and contemplate how that story might play out in the media (60 Minutes). In this particular case, I see myself in a hospital in Britain, broken legs, with cameras flashing all around my bedside. My firm answer to participating in any parachute descent is no.

The squad moves into the hangar to undertake ground training. I finally get to meet the Adjutant, a friendly young man, who is very keen to complete his

qualifying descents. He has completed P Company, and now needs to complete qualifying parachute descents to receive his wings, the basic parachute course he attended didn't qualify due to lack of airframe. Now I will digress to explain what P Company is; P Company (P is for Pegasus) is the organisation within the British Army responsible for the training and assessment of the pre-parachute selection course, culminating in eight tests. The eight tests, scheduled over a week, include a 32km march, an 8km stretcher race, a 16km hike, an assault course built 18 metres above ground, a log race (involving teams of 8 men carrying a 80kg log for 3.1km), a steeplechase across a 2.9km cross country course, a 3.2km march, and 'milling' or boxing test to 'demonstrate controlled physical aggression'. And that is why, or so I am told, British paratroopers call themselves 'Paratroopers' not parachutists. Within the British Army, those soldiers and officers who pass 'P Company' are considered part of the parachute regiment, even though they may not have completed the basic parachute course. More emphasis is placed on meeting the demands of P Company, than the parachute course, and from discussions with members of the regiment I was not surprised.

I watch the ground training for a couple of hours. It is really not that different from the training in Australia, paratroopers form lines and are taken through the drills required to complete a static line parachute descent.

It is here where the squad is split into two – the jumpers and the others. Those ready to participate in the descents move to the aircraft, whilst those of us who are not jumping remain at the Hangar. A young lieutenant (LT) is tasked with looking after me, my babysitter for want of a better word. He is a tall thin fellow, with an accent not dissimilar to Prince Charles; he lives in Scotland and has almost finished his engineering degree, his family live in Jersey. He is new to the regiment, and hasn't yet completed P Company or the parachute course.

One thing, which traverses Australian, American and British military parachute training, is waiting. Waiting for aircraft, waiting for the wind to be within limits, waiting for this and waiting for that, and this day was no different. We waited, and if truth be told, I actually became quite bored. It reminded me of the days I have spent on a rifle range, waiting for my turn to fire, waiting for lunch to arrive, waiting for the bus to take us home. The jumps were not going ahead that day due to winds

being higher than the allowable limits; finally we non-jumpers were collected by bus and headed to Salisbury.

The camp at Salisbury has been in existence since the Second World War. It is now used as a staging area for military exercises, usually overnight stays prior to heading home after an exercise. I don't think much has changed since it was first established all those years ago. It is one of those places that is a little eerie, the buildings are timber, and everything is well maintained, the camp is deserted as if the inhabitants have left in a hurry. You can easily image the triffids are here, and this camp is to be our colony, a safe haven from certain demise in a similar tenet to that described by Wyndham (1951) in his post-apocalyptic novel. In typical military fashion, no one really knows what is going on, we have been dumped here; the manifest will arrive soon, as will the American Airborne.

It's nearly dark when the busses arrive. Scores of US Soldiers make up Task Force 68. I am assigned a room to share with two other women, both American. The next morning, we rise before dawn. Breakfast is served in the mess, and those who are jumping are on the buses and out of there before the sun touches the horizon.

Something else I must mention is the difference between the way an officer interacts with the troops in Australia compared to the relationship in the British Army. In Australia, I carry my bags, I help clean up the area, I help out. In the British construct Officers don't do those things, soldiers do. So when I volunteer to assist in the mess after breakfast, I get some very dirty looks. It is then LT explains to me that I shouldn't be doing that, that I should go outside, sit down and well, be an officer. It's hard I can tell you. I will put a caveat on this comment, I am working with a British Parachute Regiment, where women can serve but they are few and far between; it may be a traditional view but I feel it is the fact I am an officer and a woman.

We non-jumpers are transported out to Everleigh Drop Zone to observe the day's descents. The management of the drop zone is an interesting partnership between the RAF Parachute Jump Instructors, RAF Drop Zone Safety Officer, and liaison staff from the 4th Parachute Regiment. I am assigned to 4 Para's Drop Zone Safety Officer. The drop zone is a long grassy area; it is not flat like other drop zones I have seen, but very gently undulating. I am told the drop zone has holes scattered within it, holes made by rabbits living in the area. With the winds within limits,

descents begin. These descents are called ‘friendship’ jumps, which means the US soldiers jump with the British parachute system, and the British soldiers jump with the US parachute system. Unfortunately, I was able to witness a medical evacuation. The Everleigh Drop Zone is isolated and not accessible via land ambulance, as a result an air ambulance evacuates the paratrooper.

Figure 7.1 – Friendship jumps onto Everleigh Drop Zone, Salisbury

7.2: Exercise Black Normandy

Come and stand in memory
Of men who fought and died
They gave their lives in Normandy
Remember them with pride
(Cyril Crain – D Day Veteran)

After a restful sleep, I rise early to pack up my stretcher and ready myself for the next phase of my journey. My non-military luggage is locked up in the Quartermaster’s Store, my Bergen packed with what I thought I would need in Normandy, I joined the small squad from 4 PARA, and we are bussed back to RAF Brize Norton. The base has its own immigration, my passport was stamped, and we boarded the C130 Hercules bound for Carentan, France.

We land at Advanced Landing Group A-10, Carentan Airfield. This airfield was operational from June to November 1944, initially used for fighter plane support missions, when the American forces moved east the airfield was used for re-supply

and casualty evacuation. The site has now returned to farmland, although it houses the Normandy Tank Museum, and one operational airstrip.

The soldiers unload our baggage, and I am reminded it was not my job to get involved in manual labour. Another bus trip, and we arrived at Sainte-Mere-Eglise, which is to be our base for the next week. Our accommodation is a basketball stadium, and a small house. Another interesting difference between Armies is the separation of living quarters. The basketball stadium was for males, whilst the quaint two-story house was for females. Never the twain shall meet, to the point where about an hour after setting up my cot LT is standing outside the white picket fence surrounding the dwelling calling out my name. As an officer, I was to share a bedroom with two American officers. Our bedroom consisted of some built in shelving, and once erected, our stretchers.

Figure 7.2 – Lodgings in Saint Mere Eglise

On the evening of the first day of Exercise Black Normandy it dawned on me I would be part of a Task Force deployed to commemorate the D Day Landings, whilst undertaking several battlefield tours. From a research perspective, this scenario was mind blowing. Not only had I gathered data from three current military parachute schools, now I was now going to be provided with an insight into the history of this capability.

Each ceremony I attended brought locals out in droves. We honoured those who made the ultimate sacrifice, both allied and German, at war cemeteries across Normandy. One tradition involved the Task Force being divided into small groups. Each group would share a meal with a member of Caen's Historical Group. I aligned myself with LT, a fluent French speaker, and we shared a meal with an elderly

French couple, Louis and his wife that evening. Louis was a child during World War Two, and he was an exceptional storyteller, albeit he could not speak English. LT was a competent interpreter, and I gained an insight into the daily life of Normandy under German occupation in the 1940s.

Louis hated the German soldiers. He told us how their boots made a particular sound on the cobbled streets, due to the nails used to attach the soles to the boots. He told us how good he was at listening when he was a child, and how he and his family would hide when they heard those footsteps. He also told us of the relief and joy his family felt when those paces on the cobbles changed, new boots, allied boots and he was saved. He showed us the memorial of the Filthy Thirteen, the 1St Demolition Section of the 506th Parachute Infantry Regiment. These American soldiers, on which the movie the 'Dirty Dozen' is loosely based on, took the Douve River on D-Day to prevent enemy re-enforcements from reaching the front line. They were mostly of American Indian heritage, as such they wore traditional war paint and sported Mohawks, and it is alleged they never bathed before battle. Louis remembers these soldiers and provided his recollection of the taking of Douve River, which was close to his family home.

Visiting a war cemetery and seeing row after row of headstones representing young men in their prime had a profound impact on me with the greatest being the German cemetery La Cambe. This cemetery contains a central mound, with a large tumulus flanked by two statues, topped by a large cross in dark basalt lava. This mound is the resting place of 207 unknown and 89 identified German soldiers, interred in a mass grave. La Cambe is a very peaceful place, but due to the dark basalt headstones and crosses it has a dark, morbid feel, perhaps more so than the rows of white crosses seen in allied cemeteries in the area.

On 02 June, the Carentan Liberty March took place in the small town of Carentan. Liberty is a synonym to freedom, it is about being free within society, unrestricted and unoppressed. Writing about my experience at the Carentan Liberty March in 2012, brings tears to my eyes, just as it brought tears to my eyes when I was part of it. The atmosphere in the town was similar, I imagine, to the atmosphere when the town was liberated during operation Overlord. People everywhere waving flags - French, British and American - crowds cheering, terrace houses with their windows open and decorated with residents leaning out cheering. I set off down the

cobbled street, marching as a member of the 4th Battalion, The Parachute Regiment. The Sergeant Major keeping us in step as he barked, left, left, left right left (although it was pronounced 'eft'). Our boots hitting the cobbles with a distinct clack, even with the crowd cheering the sound was crystal clear, I remembered Louis' story and imagined myself a liberator.

The tour of Normandy by Task Force 68 was not complete without parachute descents. On the morning of 3 June, those parachute qualified members of the Task Force set off to participate in a mass drop over Marais de La Fiere adjacent to Sainte-Mere-Eglise. I hoped no one would re-enact the parachute descent of John Steele, when his parachute caught on the church spire in the town, and he hung there, pretending to be dead for hours before the German forces captured him. The day was windy, and from what I was told, the descent had not taken place for two years. The parachute descent is an integral part of the D-Day commemorative activities and it involves paratroopers from the US, The United Kingdom, the Netherlands, France and members of the Liberty Jump Team (a group of active and ex-service personnel), and utilising aircraft from a number of countries. The pressure to complete the descent this year was intense; the people who had flocked to see the descent placed additional pressure on the organisers for the jump to go ahead.

The descents did proceed. I watched several circling aircraft, grey, green and white. I watched the paratroopers exit the aircraft and their parachutes deploy. Down they came, but most did not land in the designated drop zone. One paratrooper, the American Padre, landed in the water and required rescue by a small boat; another landed near a train line. I watched them walk back to the intended drop zone with their parachutes over their shoulder, their faces set, and I overheard their comments about the wind, stating they never should have exited the aircraft. A number of soldiers had marks on their faces and necks where the parachute rises had burned their skin on opening.

Figure 7.3 – Exercise Black Normandy participants at the Iron Mike Airborne Memorial, La Fiere Normandy. The Researcher is seventh from the left in the slouch hat.

7.3: Reasoning and constructing practice to inform theory

My role in Exercise Black Normandy lead me to search for connections between my experience as a member of a parachute regiment and the relationship between safety risk management and the safety dependent work environment in which I was immersed. In turn, these connections led to a deeper analysis of my research journey, solidifying my thoughts surrounding static line parachute training and safety risk management within the static line parachute paradigm. The result culminated in two theories, first the historical perspective and the way it manifests itself in today's military paratroopers. Second, the importance of the decision making process within a safety risk management framework operating within a simulated environment.

7.3.1: Historical perspective – Myth and legend

Paratroopers capture the imagination; they have been depicted in film and television as tough, hardened men, with a strong commitment to their country, their mission and each other. The Dirty Dozen is loosely based on the Filthy Thirteen as

described earlier, a demolition section within the US 506th Parachute Infantry Regiment. The Longest Day, tells the story of D-Day where John Wayne portrays the Commanding Officer of the US 2nd Battalion, 505 Parachute Infantry Regiment. More recently, the mini-series Band of Brothers is based on the non-fiction book by Stephen Ambrose that tells the story of 'Easy' Company, the US 506th Parachute Infantry Regiment.

Through reflecting, reconstructing, and critically analysing how my experience informed the context observed in the sites described in Chapters 5 and 6, I have concluded this historical lens still underpins the attitude of most soldiers currently working in the parachute regiment. It is because they follow in the footsteps of soldiers who gave the ultimate sacrifice to ensure people they did not know could be free. Perhaps this is an emotional response, however, the feeling of camaraderie goes beyond the uniform worn by those involved. My experience as a member of an airborne regiment lead me to better understand why those men and women working at the US Army Airborne School I had recently observed, demand training excellence from their students, and why students at the parachute schools - which are the case studies for this research - take their training so seriously.

Black Normandy, from a personal perspective, highlights the foundations I believe parachuting as a military capability is grounded in. One cannot walk away from an experience where you have marched down a cobbled street to the cheers of a town liberated by the Allies WW2, and by paratroopers in particular and be unmoved. The feeling is akin to the immense pride I feel when I stand in the Australian War Memorial in Canberra, and read about the sacrifices the ANZACS made at Gallipoli and during subsequent conflicts. That pride like the paratroopers and trainees I observed, leads me to do my job to the best of my ability whenever I wear a uniform. I believe had I undertaken this journey without my own military experience as my embodied learning, I would not have appreciated the magnitude of what I witnessed, and the impact it had on me, nor would I be able to draw conclusions. It was so much more than an overseas tour or battlefields, I was able to immerse myself in the place, and at times felt I had been taken back in time to a place where I was able to weave together the data from current operating military parachute schools and the myth and legend from which the capability has been forged. These experiences build on and continue the stories and memories giving

strength to those who continue traditions. Those stories from Normandy, told in that place, also provide the members of the airborne culture with a degree of embodied learning (as discussed in the Literature Review and Chapters 5 and 6).

7.3.2: Decision making process within safety risk management

My experience in Normandy, in particular the descents undertaken on 3 June, enabled me to reflect on the dimensions of safety risk management, leading me to consider alternatives and multiple perspectives. I had made assumptions based on my interpretation of the documentation and policy I had reviewed. The actual process of observing safety risk management across the sites I visited involved a step-by-step clinical approach, to ensure hazards were managed in a regimented way. Through the lens afforded me in Normandy, and seeking to reason between theory and practice, I now recognise the decision making processes and the contexts in which the hazards occur, are threads which must be woven into the safety risk management process thus empowering those responsible for the safety of their people in the workplace.

It is always easy to have hindsight; forks in the road are more visible looking back over your shoulder. I reflect on what I would have done had I been the decision maker on that day, what other factors would be considered to determine the outcome. In this scenario, the relationship between the decision and the outcome has several layers, not just the safety of personnel. If the decision was reversed, and the descents were cancelled that day, there would be a significant risk to reputation, resulting in three years without descents to commemorate D Day. A flow on impact would be increased pressure on the decision makers the following year.

In the military, the term ‘mission creep’ is used when goals or outcomes change and the decision makers need to remain fluid and adaptable as a result of the environment, resources, boundaries and other factors. Mission creep, coupled with external pressure to achieve goals, is sometimes overwhelming, particularly in the public arena where performance will be measured by the public and the media. These circumstances became reality on the 3 June 2012, where perceived pressure from the public and the media impacted upon the decision to proceed with the D Day re-enactment jump. Although there were no serious injuries or consequences, the context or environment could have resulted in both. The public wanted to see

parachuting, the media were highlighting the event and visiting American airborne soldiers had not performed a mass parachute descent on Marais de La Fiere for two years. Those in decision-making roles would no doubt have felt the pressure; in turn influencing the clarity of what was acceptable as far as safety risk was concerned.

Whilst I have spent time focussing on safety as a key input to the decision making process in safety dependent vocational education and training in this thesis, on 3 June I was exposed to a scenario involving the 'workplace' and I can now see practice can be quite different to the learning environment. Informed decision-making should be based on risk management analysing the collective impact on resources, reputation, the environment, and people overlayed on the context. Such an approach needs to determine the importance of each impact, and be aware impacts will change based on the context. In this scenario, the impact to reputation and resources would outweigh the impact on safety of personnel. The military commander had been given a directive; he was in a place for a specific outcome. Those personnel, whose safety lay in his hands, were trained paratroopers and most had undertaken a parachute descent within the past seven days. Medical support was readily accessible if injuries were sustained; a small field hospital had been erected manned by qualified medical staff. Recovery of any paratrooper who landed off the drop zone would be relatively easy due to vehicle support, and the number of personnel both military and civilian in the area. The likelihood of a soldier remaining lost and/or injured for an extended period was low.

I am not a military commander empowered to make such decisions; however, reasoning the decision and seeking alternative perspectives – as I have done above - extends my understanding of the management of safety risk within the safety dependent work environment. It reveals the importance of context within the risk decision process. My experience on 3 June highlights decisions are made after consideration of numerous influential factors within the safety risk management space. In a military context, whether at peace or in combat, risk to personnel is but one factor in the appreciation process. There are several others which impact on decisions, and without the necessary information providing context an informed, measured decision cannot be made.

Through my experiences and a process of mapping context to practice, I devised a theory that reconstructs decision making in a safety risk management

construct. Drawing on the MRM model described in Chapter 4, it became clear in practice context changes, and analysis undertaken to determine risk management strategies during the planning stage can change as decisions are made in real time.This theory consists of four stages:

1. **scoping** – identifying key outcomes and milestones,

2. **analysis** – determine impacts (both positive and negative),

3. **development** - courses of actions are explored,

4. **decision** – the way forward is selected based on the outputs of the first three stages, and across all stages the overarching consideration of context.

The following paragraphs provide an example of the theory in practice in Normandy.

Scoping of the activity requires decision makers to unpack the desired outcome, and the key milestones. Focusing on Exercise Black Normandy, the goal was to execute a mass parachute descent to commemorate D-Day. The key steps in achieving this outcome include paratroopers undertaking ground training, safety briefs to all stakeholders, equipment checks and boarding procedures. These steps culminated in the workplace application of the learning outcomes attained via basic parachute training witnessed at the parachute schools – the mass parachute descent to commemorate D-Day. Milestones on the macro level would also be identified and considered, including engagement with aircrew and ground staff (including medical support and drop zone safety appointments).

Analysing the goal requires the decision maker to ascertain what the desired outcome is and identify the impacts of the outcome, including consideration of the positive and negative impacts if the outcome is not achieved. Completing the descents onto marais de La Fiere was the desired outcome in this scenario. Through consideration of the impacts of the descents not proceeding, no doubt the decision maker identified the reputation (in the public domain) of those military forces involved, particularly the US Army. Context implies if the outcome was achieved but incidents occurred, it could be argued the positive impact of the descents would likely overshadow any negativity generated by the media. Key to the decision is not

only the current immediate space but also long term impacts. If, in this instance, the descents did not proceed, public and media pressure on decision makers the following year would increase. What impact would it have on the decision maker next year, would their decision making process be more complex as a result of the context?

Development of courses of action enables the decision maker to determine options available, and empowers informed decision making. In addition to the simplistic approach go or no-go, it is in the development stage where combinations or variants are explored as alternative perspectives. This might include considering and implementing additional risk controls, or a modified version of the activity to further reduce safety risk. The course of action may include additional parameters to guide the decision making process, and provide decision makers with strategies to manage risk throughout the activity. For example, the wind limit may be 12 knots, however, given the knowledge of the drop zone, or experience of the paratroopers the limit may be increased for the activity, whereby the impact of higher wind speed is determined to be minimal. In our Normandy example, the area was damp from recent rain, and the drop zone covered with lush grass, in combination, these factors reduced the physical impact on the paratrooper at a slightly higher wind speed.

Decision is the final step. It is during this step the decision maker can utilise outputs from scoping, analysis, and development to ensure the way forward is determined from a results orientated appreciation of the key inputs. From the safety risk management perspective, risk is understood and articulated within a framework considering several contexts and creating a strong sense of group identification due to the consultation required at each step.

7.4: Adjusting the lens – The learning environment and the workplace

The final section of this reflection seeks to draw comparison between what I observed in the learning environment and what I observed in this workplace. As explained within the methodology section, the opportunity to spend time and gather data from the different ‘workplaces’ was not feasible. The opportunity to become part of the workplace in Normandy, where two of the nations from which I had gathered data would be working, was my window to gather data from the workplace. I did not step into this work environment a novice, I had already spent time in each

nation's parachute training school, and worked in the Australian context. Yet I was somewhat overwhelmed at the start of my lived experience; however, this was more attuned to the overwhelming sense of gratitude I felt, the surreal feeling of being in this place and sensory overload. To illicit meaningful data I needed to fit in with the group, as such I decided to be myself, and be an Australian Army Officer, and detach from the role of researcher. Given I was adopting a pure insider role, I could not interview personnel, as it would be unethical. I would record my story via journal entries, photos, and tokens collected to then recount my experiences.

Figure 7.4 – The Researcher's journal and tokens from Exercise Black Normandy, including the Parachute Regiment badge, British Army Airborne Regiment Patch, a stone from Omaha Beach and a D-Day Cricket replica.

I still feel somewhat overwhelmed when I recall my time in Normandy. It is very difficult to take a clinical stance on this experience, and I don't think I should. The key tenent is the lived experience, and lived experience is not clinical. The cultural insight resulting from my immersion into Task Force 68 provided me with a workplace context - although simulated - suitable for comparison against the learning environment.

My observation of and engagement with the paratroopers at work in Normandy confirmed the variety of tasks they undertake, from training descents on their home soil, tactical exercises in a variety of locations abroad, and commemorative or display descents such as those during Exercise Black Normandy. As a result of this varied workplace, passage of information is sometimes slow or conflicting and constant waiting is part of the job. The paratrooper is part of a larger scheme of things, and he or she runs on information linked to about a 24-hour period, a window enabling preparation to be focussed on immediate tasks. As discussed earlier, context changes and the environment is fluid resulting in the 'bigger picture' changing constantly.

Within the workplace, management are able to make assumptions related to competence and currency of those personnel they command. All paratroopers have been trained and assessed as competent in their ability to perform their role to the workplace standard. Not only are there assumptions linked to training, but also the physical fitness of the paratrooper, as a result of periodic fitness tests and medical standards required for service. Unlike the learning environment where pressure to complete leads to trainees masking injury, and instructional staff constantly reviewing the welfare of those in their charge.

Paratroopers enjoy their work, they exude pride in their role and they volunteer to undertake parachute training as part of their military service. Such an employment construct enables a strong sense of team spirit and group identification. As illustrated a number of times in Normandy, changing plans without prior warning impacts on the personal time management of the paratroopers. The group would grumble about the changes, but group cohesion meant everyone experienced the same inconvenience, it was expected and part of life in the military. I relate the cohesion of this team in Normandy to the learning environment, where I witnessed instructors seeking to build a sense of camaraderie within individual sticks of trainees, particularly during the Mil Para lesson described within Chapter 5.

The workplace is physically demanding and requires paratroopers to recover and adapt quickly to adversity and threat. An element of resilience is needed to function in this environment. There are peaks and troughs, the excitement during the preparation for a descent, the adrenalin associated with actually performing the descent, followed by unknown factors post descent. Whilst not an operational

environment, one can begin to relate to the chaos associated with the descents performed into Iraq by US Army paratroopers as part of the War on Terror.

Those external factors impacting the learning environment also impact the workplace. The Adjutant of the 4th Parachute Regiment had been unable to complete his basic parachute training due to lack of aircraft support to the course, a factor continuing to impact his attempts to complete the required descents in the workplace. Within the learning environment, weather, particularly wind, has an adverse impact on training. When winds exceed the speeds stated in training documentation, descents in the learning environment are unable to proceed. My experience in Normandy, as discussed above, illustrated the workplace is not as stringent and context or environment influence decision makers. Experienced paratroopers, extensive ground and medical support enable the impact of weather to be risk managed fluidly, supported, but not dictated to, by doctrine.

My expectation when embarking on research linked to safety risk management was that data would be procedural, steeped in policy, and aligned to a single system dictated by safety regulators. In my role as a Safety Risk Manager, I had touched on the concept of Human Factors, which examines the interaction between humans and the systems within which they work (Kohn, Corrigan & Donaldson, 1999) and how such interactions can be honed to reduce error and influence behaviour from a safety risk management perspective. However, the phenomena I witnessed and experienced did not align with the clinical application of human factors, hence my exploration of embodied learning.

Trainees observed at the US Army Airborne School and at the Australian PTS, emplaned and waiting to undertake their first descents show visible signs of fear, a scenario where the mental state impacts on the physical. Use of bullhorns in the US school enabled instructors to tap into the mental dimension of the trainee and connect with the physical, prompting actions such as preparing for landing, or steering to avoid a collision. In the workplace context, paratroopers exude a connection between the mental and the physical, whereby they understand intuitively the phases of a parachute descent and are able to apply their body to each phase because they have developed a perception of themselves, other paratroopers surrounding them, and the world in which they perform their role. I asked several of my colleagues on exercise if they felt fear before a descent, and the common response was yes, but not of the

unknown, they described it as adrenaline. It is the connection of the physical (the learning outcomes taught during basic parachute training) and the mental (ability to know self and the world around us), which sets aside the experienced paratrooper from his or her trainee counterpart.

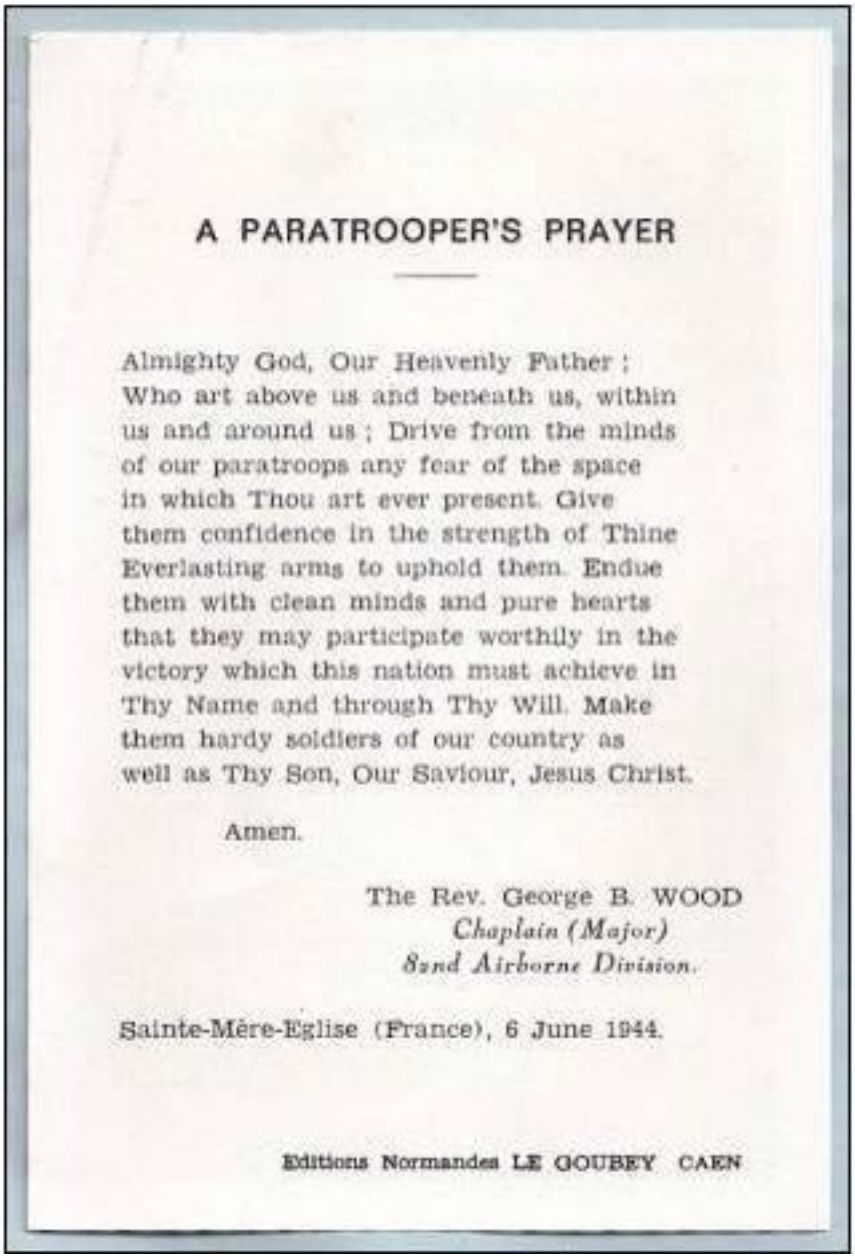
Figure 7.5 – The Researcher exploring Gun Pits at La Pointe du Hoc

7.5: Conclusion

As a member of the 4th Parachute Regiment I was able to authentically examine the context and culture of the workplace of the static line paratrooper, and make comparisons with the learning environment. My ability to enter the field and obtain access to such a rich data source was possible due to my understanding of the nature of the environment, my position and professional background, and my cultural literacy. The data presented within this chapter supports the message that sound case study research includes multiple sources of data, and serves as a bookend to data gathered across the three training schools, whereby, learning outcomes graduate paratroopers attain are observed in the workplace. My personal experience and reflection revealed two personal theories relevant to the study; the deep vein of historical connection between the fathers of the parachute capability and the modern day paratrooper, and the role of context and decision making within the safety risk management framework.

The following chapter weaves common threads from the data together to focus on three themes; the *Idea*, the *Implementation* and the *Impact*. In this triad it is the

lived experience, as outlined above that bridges the learning environment (Implementation) and the workplace (Impact).



A PARATROOPER'S PRAYER

Almighty God, Our Heavenly Father ; Who art above us and beneath us, within us and around us ; Drive from the minds of our paratroops any fear of the space in which Thou art ever present. Give them confidence in the strength of Thine Everlasting arms to uphold them. Endue them with clean minds and pure hearts that they may participate worthily in the victory which this nation must achieve in Thy Name and through Thy Will. Make them hardy soldiers of our country as well as Thy Son, Our Saviour, Jesus Christ.

Amen.

The Rev. George B. WOOD
Chaplain (Major)
82nd Airborne Division.

Sainte-Mère-Eglise (France), 6 June 1944.

Editions Normandes LE GOUBEY CAEN

Figure 7.6 – A paratrooper's prayer

CHAPTER 8:
BRINGING IT ALL TOGETHER: A CONCLUSION

The overarching goals of this research were to define the role of safety risk management within the learning environment of the Australian Army Basic Parachute Course, and assess the impact risk management strategies had on the knowledge skills and attitudes acquired by static line paratroopers during the Basic Parachute Course. To answer this question it was imperative to define what it was to be a paratrooper in an Australian airborne unit, as captured in the concept of 'job ready'. This final chapter reviews the research questions underpinning this project and outcomes in consideration of the data analysis. The chapter then presents observations and theories that aim to contribute to safety risk management practices within safety dependent vocational education, and identifies directions for future research. It does this across five sections.

The first section revisits the research questions, methodology and limitations from a reflective viewpoint and then highlights strengths and limitations in the research including the insider/outsider perspective. The second section, drawing on the literature presented in Chapter 2, discusses the study's key findings utilising the model developed from the research and based on the three I's identified as key aspects of safety and training in the VET sector; Idea, Implementation and Impact, as proposed and identified in Chapter 3. The third section presents the model safety risk management model/framework also developed in this research to enhance and extend safety dependent vocational education (as presented in Chapter 7). The model highlights implications for practice in vocational education contexts. Section four details recommendations for future research that build on and extend this work. Section five concluded the chapter, and the thesis. It reflects on the researcher's insights into the research process, the role of the female insider/outsider researcher in the predominantly male world of the paratrooper, and finally it presents the

accidental findings associated with my role of writer, observer, travel agent, diplomatic envoy, champion for a cause, wife and mother, and as a woman researcher inside the predominantly male world of paratrooper training in the Australian Army. In concluding, the title of the thesis is revisited to provide connection and closure.

8.1: Revisiting the foundations

My research sought to answer the question 'What is the relationship between the outcomes of static line parachute training delivered by the Australian Army's Registered Training Organisation and the job requirements of a static line paratrooper in the Australian Army?' I expanded the question to hone in on risk management focusing on its influence and role in the learning environment, the perceived gap between learning outcomes and the workplace requirement of the paratrooper, and how, and in what ways does safety risk management within the learning environment can influence any gap.

The overarching research question for this study was:

> *What is the relationship between the outcomes of static line parachute training delivered by the Australian Army's Registered Training Organisation and the job requirements of a static line paratrooper in the Australian Army?*

The literature review emphasises the role/relationship between the vocational education and training (VET) context and the workplace; this emphasis was explored and supported from the historical perspective (Dewey, 1916), seminal adult and vocational education theorists (Knowles, 1973; Gagne, 1985) and more recently theorists such as Billett (2011) and Merriam (2014), whereby VET is aligned to preparing individuals for work. To answer the question, and as a starting point, the researcher searched for a definition of what 'job ready' was understood to mean in the vocation of the paratrooper (see Chapter 5). This then enabled a comparison between the definition and the graduate outcomes of the parachute course (see Chapter 6). Supported by additional data from further afield, as discussed within chapter 6, the job requirement of a static line paratrooper in this research was defined as:

The job ready paratrooper will be able to complete a parachute descent at night carrying combat equipment, in defined conditions (simultaneously from both doors of the aircraft).

Across all the research sites, interview data highlighted the role of combat or operations as central to the static line paratrooper, and how his/her role was, and is, primarily undertaken at night. Based on the definition above it became evident that to more fully respond to the research questions I needed to explore them on two levels – the concrete and the abstract. At the concrete level I explored the context set by the organisation, impact of weather and resources, and those elements, which shape outcomes and are tangible. As detailed in Chapter 5, physical materials and resources such as the formal theoretical competency units each paratrooper needs to attain, combined with the training staff and facilities and each paratrooper's physical fitness have a tangible impact on the relationship between graduate outcomes and attaining the job requirements of the static line paratrooper.

My exploration of abstract concepts included embodied knowledge, and the divide – or conversely - the connection between the physical and mental state of the paratrooper. As highlighted in Chapters 5 and 6, these abstract concepts require formalisation or documentation. They impact the relationship between graduate outcomes and the job requirements and hinge on the concrete requirements of the trainee to perform manual skills, not how these skills build on each other via a more holistic approach. Data from the US Army Airborne School highlighted the value, for both trainees and instructors, of building on initial theory of the PLF to provide trainees with an simulated experience utilising equipment designed to replicate the physical and mental requirements of the workplace. Chapter 7 highlighted the deep vein of historical connection between the fathers of the parachute capability and the modern day paratrooper, and the roles of context and decision-making within the current safety risk management frameworks.

Four sub questions supported the overarching research question for this study. They were:

1. *How is this relationship influenced by risk management within the training environment?*

2. *What role does risk management play in static line parachuting?*

3. *Is there a perceived gap between the training outcomes and the workplace requirements of a static line paratrooper from the perspective of instructors, supervisors and commanders?*

4. *If so, is this gap influenced by risk management strategies adopted within the training environment?*

This thesis identified safety risk management in the learning context of static line parachute training as influential in the relationship in the Australian context due to regulatory intervention. It found:

- The application of safety risk management in the construct of Military Risk Management was approached as a separate entity, arguably, it would have been better placed and more effective as an unpinning foundation throughout the training package.

- Further competency units, with prescriptive assessment requirements were not aligned to the risk management framework implemented within the learning environment. The focus was on processes rather than the cognitive skills required to be a safe and effective paratrooper in an airborne unit.

Therefore, the results highlight the disparity between theory (the competency units) and practical implementation of safety risk management to produce graduates who are both job ready and possess the cognitive skills to work safely in the safety dependent environment of the paratrooper.

8.1.1: Strengths

The reflective approach, coupled with the ability of the research to link theory to practice, resulted in rich descriptive data. Adopting an insider/outsider position enabled the researcher to synthesize the professional (VET Educator) and personal experiences of paratrooper training in a workplace context. This was a key strength of the research as it illuminated different considerations and perspectives.

Professionally, as discussed in Chapter 5, document review coupled with observation and interview data resulted in a broader description of the site, leading to conclusions based on several data sources. The ability to synthesize the data and

draw conclusion via a process of mapping across the sources drew on the researcher's combined educational and military knowledge and experience.

Personally, as discussed in Chapter 7, the experience in Normandy was contexualised and immersive as a result of the researcher's insider position. Understanding the historical implications of the Second World War on the makeup of the current military paratrooper was possible due to the researcher's role as an Army Officer herself.

8.1.2: Limitations

In gathering data, and in hindsight, some limitations became evident.

Whilst still a beginning researcher, my experience tells me the research questions at the heart of the fledgling project are devised before the researcher becomes aware of their role and begins to develop their own style and skill as a researcher. If research questions were fluid perhaps outcomes would be clearer, and the developing researcher would be able to refine them based on experiences, culminating in a stronger contribution to knowledge.

Significantly these issues can be viewed and identified as limitations from a research perspective. However, rather than detracting from the expected outcomes these limitations enhanced the experience for the researcher. As the research evolved, the questions remained, of necessity concrete in the researcher's mind and the discoveries of the researcher also, at times, lead to unintentional themes (for example the role of context in the risk management process as discussed in Chapter 7). At times drawing these emerging themes together to draw conclusions threatened to overshadow the original questions at times, but taken together, these unplanned discoveries strengthened the contribution of the study and enhanced the outcomes, and the experience for the researcher, rather then detracted from the expected outcomes overall.

8.2: Discussion and key findings of the study

The data analysis suggested three overarching areas of focus in the relationship between the learning and safety outcomes of static line parachute training delivered

by the Australian Army's Registered Training Organisation and the job requirements of a static line paratrooper in the Australian Army. These were:

1. A common definition of job ready.

2. Risk Management.

3. Embodied learning to inculcate an approach to safety risk management at the individual level.

Data sources explored to answer the research questions, provide the scaffold to enable use of the Triple I framework (see Chapter 3). Training is based on a documented system, providing foundations for development of learning support materials, hence constitutes the Idea and draws on data from the document review. The way in which training is delivered, drawing on data from observation and interview, aligns with Implementation. Finally, Impact combines data sources enabling comparison between the desired outcome (Idea) and the end product (Impact). Mapping the themes common across these three areas indicated core concepts that were developed into the Triple I framework; Idea, Implementation, Impact.

1. **Idea** – why training is delivered? What is the key outcome sought?

2. **Implementation** – how is training delivered at the site? What are the similarities and differences between the sites?

3. **Impact** – what is the end product?

8.2.1: Idea

The concept of idea with respect to static line parachute training is simple, and was a shared and common desired outcome across the three research sites. Categorically the aim of ab initio parachute training is to graduate qualified military paratroopers, who are capable of completing static line parachute descents carrying equipment at night.

8.2.2: Implementation

Both the Australian and US parachute schools implement a staggered approach to descents within their basic parachute courses, commencing with trainees completing descents without equipment during daylight, and building the profile to culminate in the final assessment of a descent at night with combat equipment. Conversely, in the UK, the No1 PTS delivers training and assessment commencing with trainees undertaking descents with equipment.

The Australian and US schools utilise the T10D parachute, via similar training methodology and parachute drills. All three sites implement training via use of similar training equipment and training delivery is via a demonstration performance approach consisting of explanation, demonstration followed by assisted practice (as illustrated within Chapter 5). The US Army Airborne School includes three training simulators, the Two-foot High Platform, Lateral Drift Apparatus, and the Swing Landing Trainer designed in combination to improve the trainee's ability to perform the Parachute Landing Fall (PLF), as described in Chapter 6. Teaching and practice of the PLF at this site instills embodied learning as trainees build on their experience and gain a practical insight into the physical experience of a live static line parachute descent.

8.2.3: Impact

The primary impact of training is improved capability within the Australian Army, and the same in the UK and the US equivalent. However, as discovered at the Australian site, in a learning environment where competency units are the benchmark for graduate outcomes, trainees may leave the school without achieving assessment requirements. As discussed in Chapter 5, trainees must graduate with the ability to manage their own safety, and be equipped to work within a team where safety is a driving force. If trainees do not graduate with the prescribed outcomes, the safety risk is transferred to the workplace, via workplace assessment. In contrast, the US site is afforded a degree of flexibility in extending training to enable trainees who need additional training to be back classed or to counter the impact the environment (weather) or equipment (aircraft) may have on training outcomes.

8.2.4: Key findings

Data presented in Chapter 5 and 6, and confirmed via the lived experience presented in Chapter 7, support the applicability of the Triple I framework presented above and reveal three overarching findings within this study: i) a common definition of the 'job ready' paratrooper, ii) a safety risk management framework must be incorporated into safety dependent vocational education, and iii) there is a critical link between safety dependent vocational education and embodied learning. The first key finding of 'job ready', focuses on what it means in the workplace of the static line paratrooper, and more broadly within the construct of a safety dependent work environment. Across the three sites, a common definition of the job ready paratrooper was identified:

> *The job ready paratrooper will be able to complete a parachute descent at night carrying combat equipment, in defined conditions (simultaneously from both doors of the aircraft).*

Whilst the above definition specifically aligns to military paratroopers, it is relevant in context to a variety of workplaces. Moreover, the data highlights the simplicity of the notion 'job ready', and the relative ease by which this tenet can be investigated and defined. The review of the wider literature identified the need for clear links between vocational education and the workplace; this finding suggests that through engagement with industry such definitions can be crafted to support these links. From a vocational education perspective, building on the definition of 'job ready' provides a tangible foundation for the design and implementation of learning experiences that refine practices and include active participation, as evident in the experience of trainees and instructors detailed in Chapters 5 and 6. An implication of this is ensuring the relevance when the job or role is safety dependent.

The research found the implementation of competency units as the key drivers for static line parachute training outcomes to be at odds with the requirements for a job ready paratrooper. Further, the competency units lacked a framework that incorporated safety risk management. This lead to tasks being described in a mechanical sense, not in terms of the cognitive skills – including thinking and acting – which are required to make independent complex decisions quickly (see Chapter

5). Moreover, instances occur where trainees are required to undertake assessment within the workplace due to the requirements of the competency units, transferring the risk to the workplace.

External stakeholders and regulators, in the Australian context, impacted the ability of the school to implement a training system resulting in 'job ready' graduates with the capability to undertake parachute descents at night carrying combat equipment. However, in environments where the emphasis is on achieving real world graduate outcomes via an embodied approach to safety, risk management would need to meet the regulatory requirements.

The lived experience presented within chapter 7 highlights the importance of strong connections between RTOs and the workplace environment. Within the RTO activities are planned, rehearsed and staged in the same manner over time. Conversely, the workplace requires attention to a changing context, which is particularly relevant in a safety dependent environment.

Within the American context, graduate outcomes are mapped to combat capability, in a similar way to the UK where descents begin with combat equipment because that is the workplace standard. This brings to light the role of safety risk management within the safety dependent vocational education setting. Within the Australian site, the safety risk management approach directed by the organisation is a separate entity or system. Participants highlighted existing policy and directives they believed should be the key drivers to deliver and manage the safety of parachute training, as detailed in Section 5.3.

Third, and finally, the unforeseen finding of the link between safety dependent vocational education and embodied learning reinforces both the focus on 'job ready' as a contributing factor to authentic learning experiences, and the skills to think and act in a safety dependent vocation. Literature encompassing the discourse of embodied learning generally refers to the view of the body as a learning site usually in connection with spiritual, symbolic or cultural domains (Merriam, 2008), and self-confidence, collaboration, and personal growth are often cited as learning outcomes. The importance of this finding is the contribution to understanding the importance of safety in the vocational education context. Through an embodied approach, vocational education is able to develop skills learners can use to assess safety in practice, which are relevant to their vocation. The way in which the US site builds on

trainee experience using the PLF as an example, inculcates an approach to safety risk management at the individual level. Such an approach subconsciously includes embodied knowledge as a driving force towards graduate outcomes focusing on the cognitive skills required at the individual level to manage the safety dependent nature of parachuting.

The findings reported here shed new light on the potential effectiveness of an embodied approach to risk management in safety dependent vocational education and training, thereby extending the defined limits of what it is to be 'job ready'. From a practical perspective, findings can be melded into the learning environment to improve practice as follows:

1. Systematic review of training documentation to confirm direct links to the notion of 'job ready', achieved via engagement with subject matter experts who are not only experienced, but have current industry experience.

2. Ensuring training continuums identify safety critical aspects of work processes where trainee experience can be built upon to actualise the theory of embodied learning.

3. The professional development of instructors, trainers and teachers provides opportunity to develop awareness of embodied learning and how this approach can be harnessed to improve outcomes.

8.3: A model approach to safety risk management

The concept of how safety risk management can be managed in the vocational learning space as discussed within Chapter 4, highlighted the need for an approach incorporating the supervision of learners and the practical knowledge and skills applied in the work environment. Data gathered from the Australian site, supported by data from further afield, illustrated the burden of implementation of a training system aligned to the attainment of nationally recognised competency units. The data also highlighted the need for an underpinning framework supporting graduate

learning and development and outcomes, whilst managing safety risk in a safety dependent learning and work environment is required.

Observation, including the immersive experience in Normandy revealed the link between the physical and the mental aspects of training awareness and experience within this safety dependent job. Documentation, or theory, or experience, provides a step by step unpacking of the static line parachute descent; observation reveals the way practice is interrelated with the environment and the way in which signs (and sometimes warnings) must be attended to in order to illicit the appropriate reaction. As detailed within Chapter 5, three forms of knowledge are required to connect these; *Explicit Knowledge* – readily articulated, accessible and verbalised knowledge in the form of documentation and policy, *Local Knowledge* – developed over time by the community, and *Tacit Knowledge* - unwritten knowledge of the individual based on their experience intuition and observation. The gap for the novice, and the relationship for the master, or the trainee and instructor as discussed in Chapter 5, of the physical and the mental elements of the parachute descent can be represented drawing on these three forms of knowledge via the model in figure 8.1, that incorporates the concept of context (as discussed in chapter 7) as an element within the local knowledge and the wider background tacit knowledge of individuals prior to their training.

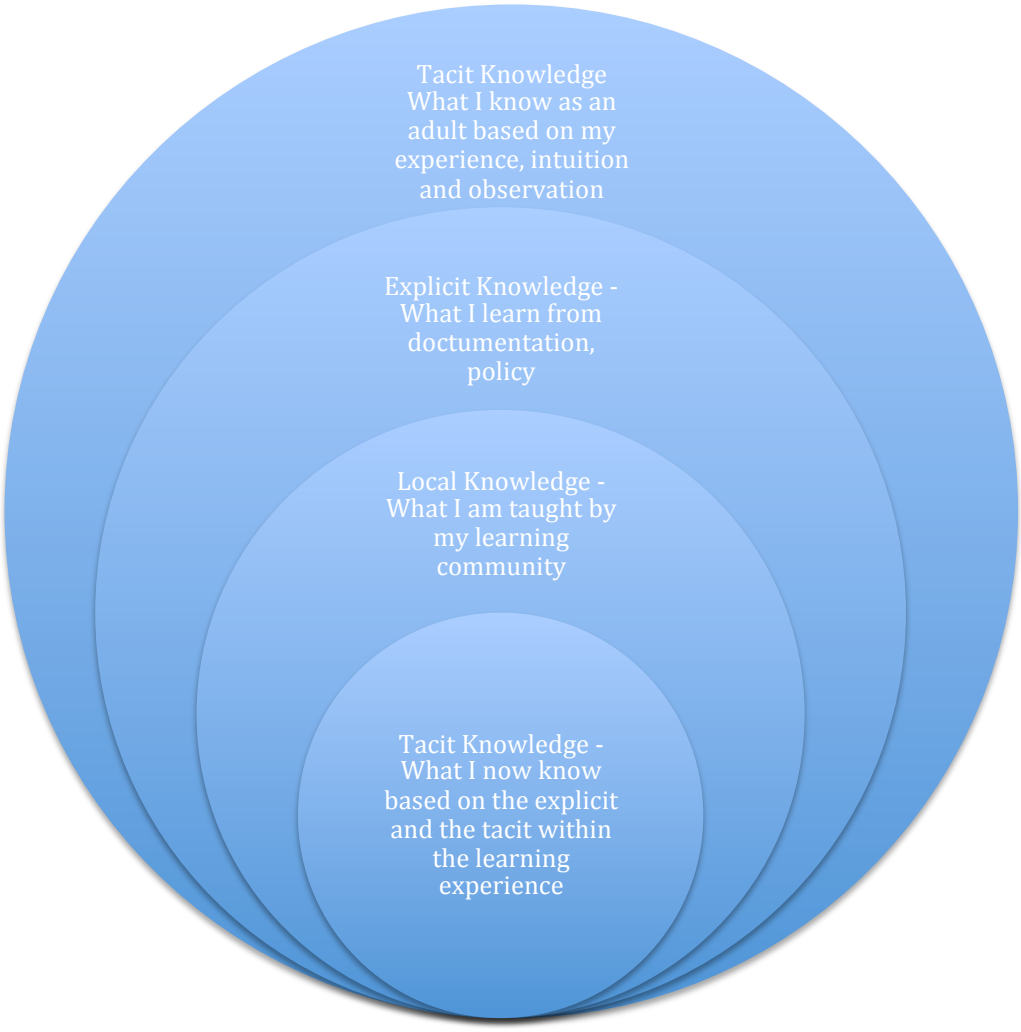


Figure 8.1 – Knowledge partnerships within safety dependent vocational education

Traits of the adult learner, as discussed in Chapter 3, in particular adults as self-directed, links learning to their social role or stage of life, to form part of the existing tacit knowledge that is built upon via explicit and local knowledge; this results in a graduate who is ready to fulfil the role they have been trained for.

8.4: Where to now?

I recently read a chapter in Evans, Gruba, and Zobel (2014), which highlighted the importance of an 'agenda for further research' (p.122) when students are pondering the likely impact of their study, or what research would flow from their work. Jotting down those directions brought theoretical concepts to the fore including the gap between theory and practice, and how in a safety dependent environment such a gap can be bridged. I would like to focus on the importance and future of this study from two intertwined perspectives, embodied learning and the

role of safety risk management, and the connections between the physical and the mental.

One of the unexpected findings in this research was the extent to which embodied learning formed part of the conduit between theory and practice. This finding has at least two implications applicable to future research. One is applicability of an embodied learning approach to simulate specific situations so that graduates develop a sense of noticing and knowing within their environment, to develop a broader understanding of the impact and potential of the model outlined above. A further study focusing on the management of critical incidents within the emergency services context could support learner's to make sense of the workplace situations they will be involved in via an embodied approach. The other fruitful area for further work is continued exploration of safety risk management in safety dependent vocational education, concentrating on sites where the learning and work environment are separate entities so as to ascertain the impact this may or may not have on the relationship.

In the field of vocational education, there will be increased emphasis on meeting the needs of a changing world. Situated at the junction between the training system and employment, VET has the responsibility to equip members of our society with the knowledge and skills required for the workplace (Pilz, 2012). The nature of work is changing, increasing use of technology, stronger focus on communication and information systems, and a changing national demographic increases the need for transferable and adaptable skills. Whilst this study has focused on a particular workplace and the role of safety risk management within the learning environment, the findings have implications for practice across a number of areas.

The notion of job ready will continue to have relevance, and through enabling learners to understand the meaning of this concept, their ability to adapt and thrive in multiple environments and communities will be enhanced.

8.5: Insights/researcher reflections

In the early days of this study, the problem was easy to describe, risk management was impacting the outcomes of the basic parachute course, and the expected solution was simply situated. However, as the journey progressed easy and simple were words I no longer used to describe this research. Here at the end I

reflect on what has been discovered, and how I would discuss the findings with the commander who first engaged with my notions of the study.

The decision to use a collective case study approach grounded in social constructionism as the research methodology proved sound. It melded well with the social settings across the sites, and the slight variances in cultural perspectives. Linking the theoretical framework to adult learning concepts, including self-direction and reflective practice, meld with the findings of the study, and the suggested directions for further research. Rich descriptive representation of the actors within the learning settings was paramount to ensure their stories were told, and the written thesis has been able to accomplish this.

Documenting the thesis has enabled the researcher's voice to be woven into all facets, and provided a sand pit to formulate ideas, thrash out problems and draw conclusions. Whilst perhaps not traditional, given the developing skills of the researcher, the complex nature of the work environment, and the adventure undertaken, this novel approach and my rationale for adopting it demonstrates my growth and pleases me. The researcher's growth is an important part of the candidature, which is not captured via evaluation in the sense of a more tradition adult learning experience.

Undertaking data collection further afield, confirmed the intricate role of the insider/outsider researcher and the change in axes with respect to the research and professional position. In this scenario, the continued work in the role after completion of the project did not occur, however, this did not mitigate the responsibility or care required to maintain boundaries whilst drafting the thesis. Unique perspectives where offered due to the researcher's knowledge of the history and culture of the people and the sites which made up the case studies. Conclusions drawn from the experience in Normandy were possible because of the insider qualities of the researcher, and the ability to engage with not only the people, but also the situation and experience.

Finally, the diverse tasks and roles a doctoral candidate must fulfil in order to come to the end of the campaign provide growth and knowledge beyond the words documented on paper. There is therefore, another recommendation for further research, an investigation of the hidden curriculum within the candidature of a higher research degree student.

8.6: Conclusion

This research evolved as a result of my desire as a safety practitioner working in a vocational education environment to determine the role of safety risk management. Evolution transpired when data began to illuminate the way in which learning and risk management could become enabling partners via adult learning principles and embodied learning.

In closing I return to the beginning. Train for war: Adapt for peace. This was a poster slogan in the mid 1990s, when the Australian Army had moved from an Army deployed to conflicts around the world, to an Army predominantly training and preparing for the strategic defence of Australia. As noted in Chapter 1, I selected this title as a metaphor for my research; war is the workplace and peace is the learning environment. These words are relevant to the vocational education environment, irrespective of the organisation. They speak to the foundation of vocational education, to train for a particular vocation, but in doing so adapt the learning environment so that it replicates the workplace whilst providing an experience for the learner whereby they can build on their knowledge. In closing, this study has sought to theorise training for war in a particular setting, the job-ready training of the paratrooper culminating in recommendations on how overarching findings can adapt for peace.

REFERENCES

Abma, T., & Stake, R. (2014). Science of the particular. *Qualitative Health Research, 24*(8), 1150–1161.

Allen Consulting Group. (1999). *Training to Compete: The Training Needs of Industry: Report to the Australian Industry Group*. Australian Industry Group.

Ashford-Rowe, K., Herrington, J., & Brown, C. (2014). Establishing the critical elements that determine authentic assessment. *Assessment & Evaluation in Higher Education, 39*(2), 205–222.

Ashton, A. (2014, July 31). Army 'VIP culture' led to parachute accident that killed former JBLM officer. *The News Tribute.* Retrieved from http://www.thenewstribune.com/news/local/military/article25874407.html

Australian Government – COMCARE. (2012). *Fine over boating incident at the Australian Defence Force Academy.* Retrieved from https://www.comcare.gov.au/__data/assets/pdf_file/0006/119229/Fine_over_boating_incident_at_Australian_Defence_Force_Academy.pdf

Author Unknown. (1941). Risks of parachute jumping. *The Lancet*, 739.

Author Unknown. (1944). Surgical aspects of paratrooping. *The Lancet*, 412.

Bain, J. D., Ballantyne, R., Packer, J., & Mills, C. (1999). Using journal writing to enhance student teachers' reflectivity during field experience placements. *Teachers and Teaching*, *5*(1), 51–73.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioural change. *Psychological review*, *84*(2), 191.

Berger, P. L., & Luckmann, T. (1966). T.(1966). *The social construction of reality*.

Berger, P. L., & Luckmann, T. (1991). *The social construction of reality: A treatise in the sociology of knowledge*. Penguin Uk.

Bickman, L., & Rog, D. J. (Eds.). (2008). *The SAGE handbook of applied social research methods*. Sage publications.

Billett, S. (1996). Situated learning: Bridging sociocultural and cognitive theorising. *Learning and Instruction, 6*(3), 263–280.

Billett, S. (2001). *Learning in the workplace: Strategies for effective practice*. Sydney, Australia: Allen and Unwin.

Billett, S. (2002). Workplace pedagogic practices: Co-participation and learning. *British Journal of Educational Studies*, *50*(4) 457–481.

Billett S. (2004). From your business to our business: Industry and vocational education in Australia. *Oxford Review of Education*, *30*(1), 13–32.

Billett, S. (2011). *Vocational education – Purposes, traditions and prospects.* New York, NY: Springer.

Billett, S. (2016). Beyond competence: An essay on a process approach to organizing and enacting vocational education. *International Journal of Training Research, 14*(3), 197–214.

Billett, S., & Somerville, M. (2004). Transformations at work: Identity and learning, *Studies in Continuing Education 26*(2*)* 309–326.

Blom, K., & Clayton, B. (2003). *We can't teach them that! Reinstating the place of generic skills in VET.* Canberra, Canberra Institute of Technology.

Bricknell, M. C. M., Amoroso, P. J., & Yore, M. M. (1999). What is the risk associated with being a qualified military parachutist. *Occupational Medicine, 49*(3), 139–145.

Bricknell, M. C. M., & Craig, S. C. (1999). Military parachuting injuries: A literature review. *Occupational Medicine, 49*(1), 17–26.

Brookfield, S. (2009). The concept of critical reflection: Promises and contradictions. *European Journal of Social Work, 12*(3), 293–304.

Brookfield, S. (1998). Critically reflective practice. *Journal of Continuing Education in the Health Professions, 18*(4), 197.

Burr, V.. (2015). *Social constructionism* (3rd ed.). Ebooks Corporation.

Business Council of Australia. (2004). *The vocational education and training system: Key issues for large employers.* Report prepared for the Business Council of Australia by The Allen Consulting Group.

Butavicius, M. A., Vozza, A., Braithwaite, H., & Galanis, G. (2012). Evaluation of a virtual reality parachute training simulator: Assessing learning in an off-course

augmented feedback training schedule. *The International Journal of Aviation Psychology, 22*(3), 282–298.

Carreiras, H. (2006). *Gender and the military: Women in the armed forces of western democracies*. Location: Routledge.

Cervai, S., Cian, L., Berlanga, A., Borelli, M., & Kekäle, T. (2013). Assessing the quality of the learning outcome in vocational education: The Expero model. *Journal of Workplace Learning, 25*(3), 198–210.

Coffey, A., & Atkinson, Paul. (1996). *Making sense of qualitative data: Complementary research strategies*. Thousand Oaks, CA; London, England: Sage Publications.

Cohen, L., Manion, L., Morrison, K.,. (2007). *Research methods in education* (6th ed.). London, England; New York, NY: Routledge.

Cornford, I. R. (2009). Mere platitudes or realistically achievable? An evaluation of current lifelong learning policy in Australia. *International Journal of Lifelong Education*, *28*(1), 19-40.

Cornford, I. (2004). Competency-based training policy: Doesn't Australia deserve better? *Fine Print, 27*(3), 33–36.

Cornford, I. (2005). Challenging current practices and policy maker's thinking on generic skills. *Journal of Vocational Education and Training, 57,* 25–46.

Cornford, I. (2006a, November 26–30). *Australian VET policy and the role of business and industry.* Paper presented at the annual Australian Association for Research in Education (AARE) Conference, Adelaide, Australia.

Cornford, I. (2006b, November 26–30). *Making generic skills more than a mantra in vocational education policy*. Paper presented at the annual Australian Association for Research in Education (AARE) Conference, Adelaide, Australia.

Cox, E. (2015). Coaching and adult learning: Theory and practice. *New Directions for Adult and Continuing Education, 2015*(148), 27–38.

Craig, S. C., Zugner, D., Knapik, J. J., & Bricknell, M. C. M. (1999). Parachuting injuries during Operation Royal Dragon, Big Drop III, Fort Bragg, North Carolina, May 15/16, 1996. *Military Medicine, 164*(1), 41–43.

Creswell, J. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: SAGE.

Cross, W. E. G. A. (2013). Mastering the semi-structured interview and beyond. New York, NY: NYU Press.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. St Leonards, Australia: Allen & Unwin.

Crowley, S., Garrick, J., & Hager, P. (2000). Constructing work: The hidden impact of generic competencies in the Australian construction industry. *Future research, research futures: Proceedings of the third national conference of the Australian Vocational Education and Training Research Association (AVETRA)*, Canberra Institute of Technology, 23–24 March 2000, 68–74.

Curtis, D., & McKenzie, P. (2002). Employability skills for Australian industry: literature review and framework development. Report to: Business Council of Australia; Australian Chamber of Commerce and Industry. *Science and Training, Canberra*.

Cowen, P. (2015, January 28). Running an IT shop in a combat zone. *IT News.* Retrieved from http://www.itnews.com.au

Dallat, C., Goode, N., & Salmon, P. (2017). 'She'll be right'. Or will she? Practitioner perspectives on risk assessment for led outdoor activities in Australia. *Journal of Adventure Education and Outdoor Learning,* 1–17.

Dallat, C., Salmon, P., & Goode, N. (2017). Risky systems versus risky people: To what extent do risk assessment methods consider the systems approach to accident causation? A review of the literature. Safety Science.

Delamont, S. (2016). *Fieldwork in educational settings: Methods, pitfalls and perspectives* (3rd ed.).

Denscombe, M. (2014). *The good research guide: for small-scale social research projects*. McGraw-Hill Education (UK).

Dewey, J. (2004). Democracy and education (reprint, 1916). *Reference and Research Book News, 19*(3).

Donovan, S. L., Salmon, P. M., & Lenné, M. G. (2015). The leading edge: A systems thinking methodology for assessing safety leadership. *Procedia Manufacturing*, *3*, 6644–6651.

Down, C. (2003). The impact of training packages: What might we learn about substantial system-wide change processes? *International Journal of Training Research, 1*(2), 1–20.

Drake, P. (2010). Grasping at methodological understanding: A cautionary tale from insider research. *International Journal of Research & Method in Education, 33*(1), 85–99.

Dunn, J. (1999). *Eagles alighting: A history of the 1 Australian parachute battalion*. East Malvern, Victoria: 1 Australian Parachute Battalion Association.

Dymock, D., & Gerber, R. (2002). Unintegrated training? Exploring links between off-and on-the-job learning. *Education+ Training*, *44*(1), 23-30.

Efron, S. E., & Ravid, R. (2013). *Action research in education: A practical guide* New York, NY: Guilford Press.

Emad, G., & Roth, W. (2008). Contradictions in the practices of training for and assessment of competency: A case study from the maritime domain. *Education + Training, 50*(3), 260–272.

Evans, D., Gruba, P., & Zobel, J. (2011). *How to write a better thesis*. Melbourne, Australia: Melbourne University Publishing.

Fenwick, T., Edwards, R., & Sawchuk, P. (2011). *Emerging approaches to educational research: Tracing the sociomaterial* (1st ed.). Abingdon, England; New York, NY: Routledge.

Ficaj, M., & Tanner, J. (2014). The Participation Decision Study. *SAGE Open, 4*(1).

Foddy, W., & Foddy, W. H. (1994). *Constructing questions for interviews and questionnaires: Theory and practice in social research*. Cambridge university press.

Franks, P., Hay, S., & Mavin, T. (2014). Can competency-based training fly?: An overview of key issues for ab initio pilot training. *International Journal of Training Research, 12*(2), 132–147.

Gagné, R. (1985). *The conditions of learning: And theory of instruction* (4th ed.). New York, NY: Holt, Rinehart and Winston.

Galletta. A. (2013). *Mastering the semi-structured interview and beyond: From research design to analysis and publication* (Qualitative studies in psychology). NYU Press.

Gergen, K. (2015). *An invitation to social construction* (3rd ed.).

Giangreco, A., Carugati, A., & Sebastiano, A. (2010). Are we doing the right thing? *Personnel Review, 39*(2), 162–177.

Gillham, B. (2000). *Case study research methods*. Bloomsbury Publishing.

Gillham, B. (2010). *Continuum research methods: Case study research methods (1).* London, England: Continuum.

Goode, N., Salmon, P. M., Lenné, M. G., & Finch, C. F. (2015). Looking beyond people, equipment and environment: Is a systems theory model of accident causation required to understand injuries and near misses during outdoor activities? *Procedia Manufacturing*, *3*, 1125–1131.

Gregory, M. (1997). Professional scholars and scholarly professionals: Practical advice to prospective candidates for the Doctorate of Education. *New Academic Birmingham, 6,* 19–21.

Griffith, A. (1998). Insider/outsider: Epistemological privilege and mothering work. *Human Studies, 21*(4), 361–376.

Griffin, R. (2010). Means and ends: Effective training evaluation. *Industrial and Commercial Training, 42*(4), 220–225.

Guba, E., & Lincoln, G. (1982). Epistemological and methodological bases of naturalistic inquiry. *ECTJ, 30*(4), 233–252.

Guthrie, H. (2009). *Competence and competency-based training: What the literature says.* Adelaide, Australia: National Centre for Vocational Education Research.

Hamdan, A. (2009). Reflexivity of discomfort in insider-outsider educational research. *McGill Journal of Education/Revue des sciences de l'éducation de McGill*, *44*(3), 377-404.

Hatch, J. A. (2002). *Doing qualitative research in education settings*. Suny Press.

Hay, S. T., (2006). Parachute injuries in the Australian Airborne Battle Group. *ADF Health, 7,* 73–77.

Hayes, J., & Maslen, S. (2015). Knowing stories that matter: Learning for effective safety decision-making. *Journal of Risk Research*, *18*(6), 714–726.

Harris, R., & Hodge, S. (2009). A quarter of a century of CBT: The vicissitudes of an idea. *International Journal of Training Research, 7*(2), 122–133.

Hewitt-Taylor, J. (2002). Inside knowledge: Issues in insider research. *Nursing Standard (through 2013), 16*(46), 33–5.

Holloway, I., & Biley, F. (2011). Being a qualitative researcher. *Qualitative Health Research, 21*(7), 968–975.

Humberstone, B. (2000). The 'outdoor industry' as social and educational phenomena: Gender and outdoor adventure/education. *Journal of Adventure Education & Outdoor Learning*, *1*(1), 21–35.

Hodge, S. (2007). The Origins of Competency-Based Training. *Australian journal of adult learning*, *47*(2), 179-209.

Hodge, S. (2015). Alienating curriculum work in Australian vocational education and training. *Critical Studies in Education,* 1–17.

Hodge, S. (2016). After competency-based training: Deepening critique, imagining alternatives. *International Journal of Training Research, 14*(3), 171–179.

Kallio, H., Pietilä, A., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing, 72*(12), 2954–2965.

Kaplowitz, M. D., & Hoehn, J. P. (2001). Do focus groups and individual interviews reveal the same information for natural resource valuation? *Ecological Economics*, *36*(2), 237–247.

Kindon, S., Pain, R., & Kesby, M. (2010). *Participatory action research approaches and methods: Connecting people, participation and place* (Routledge Studies in Human Geography, 22). London, England; New York, NY: Routledge.

Kirkpatrick, L. (1975) *Evaluating training programs*. Tata McGraw-Hill Education.

Knapik, J., Graham, B., Steelman, R., Colliver, K., & Jones, B. (2011). The Advanced Tactical Parachute System (T-11): Injuries during basic military parachute training. *Aviation, Space, and Environmental Medicine, 82*(10), 935–940.

Knapik, J., Steelman, R., Grier, T., Graham, B., Hoedebecke, K., Rankin, S., Jones, B. (2011). Military parachuting injuries, associated events, and injury risk factors. *Aviation, Space, and Environmental Medicine, 82*(8), 797–804.

Knowles, M. (1973). *The adult learner: A neglected species*. Houston [Tex.]: Gulf Pub.

Knowles, M., Holton, Elwood F., & Swanson, Richard A.. (2015). *The adult learner: The definitive classic in adult education and human resource development* (8th ed.).

Kohn, L.T., Corrigan, J. M., Donaldson, M. S. (Eds.). (1999). *To err is human – Building a safer health system.* Washington, DC: Committee on Quality of Health Care in America, Institute of Medicine, National Academy Press.

Krueger, R., & Casey, M.A. (2014). *Focus groups: A practical guide for applied research* (5th ed.).

Latour, B. (1996). On actor-network theory: A few clarifications. *Soziale welt*, 369–381.

Lawrence, R. (2012). Bodies of knowledge embodied learning in adult education, *New directions for adult and continuing education,134,*. San Francisco, CA: Jossey-Bass.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York, NY: Springer.

Levy, D. L. (2013). On the outside looking in? The experience of being a straight, cisgender qualitative researcher. *Journal of Gay and Lesbian Social Services, 25*(2), 197–209.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage Publications.

Lowdon, I. R. R., & Wetherill, M. H. (1989). Parachuting injuries during training descents. *Injury, 20*, 257–258.

Maruyama, G., Ryan, Carey, S., (2014). *Research methods in social relations* (8th ed.) Ebooks Corporation.

Marshall, G. (1998). Social constructionism. *A Dictionary of Sociology*.

Mercer, J. (2007). The challenges of insider research in educational institutions: Wielding a double-edged sword and resolving delicate dilemmas. *Oxford Review of Education, 33*(1), 1.

Merleau-Ponty, M. (1962). The phenomenology of perception (C. Smith, Trans.). London, England; New York, NY: Routledge. (Original work published 1945).

Merleau-Ponty, M. (1963). The structure of behaviour (A. L. Fisher, Trans.). Pittsburgh, PA: Duquesne University Press. (Original work published 1942).

Merleau-Ponty, M. (1964). The primacy of perception and its philosophical consequences. In J. M. Edie (Ed.), *The primacy of perception and other essays* (J. M. Edie, Trans.), (pp. 12–42). Evanston, IL: Northwestern University Press. (Original work published 1947).

Merleau-Ponty, M. (2004). The world of perception (O. Davis, Trans.). (T. Baldwin, Intro.). London, England; New York, NY: Routledge. (Original work published 1948)

Merriam, S., & Bierema, L. (2014). *Adult learning: Linking theory and practice* (1st ed., The Jossey-Bass higher and adult education series).

Merriam, S., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation.* (4th ed.).

Merrill, M. D. (2002). First principles of instruction. *Educational Technology Research and Development*, *50*(3), 43–59.

Merrill, M.. (2013). *First principles of instruction identifying and designing effective, efficient, and engaging instruction* (1st ed.). San Francisco, CA: Pfeiffer.

Merton, R. (1972) Insiders and outsiders: A chapter in the sociology of knowledge. *American Journal of Sociology 78*(July), 9–47.

Murphy, G., & Calway, B. (2007, November 26–30). *Education for professionals through work-integrated learning.* Paper presented at the Australian Association for Research in Education (AARE) Conference, Adelaide, Australia.

National Centre for Vocational Education Research, & Australian National Training Authority. (2003). *Defining generic skills: At a glance*. Adelaide: NCVER.

Norton, G. G. (1984). *The Red Devils: From Bruneval to the Falklands*. London, England: Pen and Sword.

O'Leary, Z. (2005). *Researching real-world problems: A guide to methods of inquiry*. Sage.

Owen, G. (2014). Qualitative methods in higher education policy analysis: Using interviews and document analysis. *The Qualitative Report, 19*(26), 1–19.

Patton, M. (2002). *Qualitative research & evaluation methods* (3rd ed.). Newbury Park, CA: Sage Publications.

Pilz, M. (2012). *The future of vocational education and training in a changing world.* Dordrecht, Netherlands: Springer.

Prior, L. (2003). *Using documents in social research (introducing qualitative methods series).* London, England: SAGE Publications.

Prøitz, T. (2015). Learning outcomes as a key concept in policy documents throughout policy changes. *Scandinavian Journal of Educational Research, 59*(3), 275–296.

Punch, K. (2006). *Developing effective research proposals* (2nd ed.). London, England; Thousand Oaks, CA: SAGE.

Poisel, R. (2012). *Electronic warfare target location methods*. Artech House.

Power, N. (2008). Occupational risks, safety and masculinity: Newfoundland fish harvesters' experiences and understandings of fishery risks. *Health, Risk & Society, 10*(6), 565–583.

Rasmussen, J. (1997). Risk management in a dynamic society: A modelling problem. *Safety Science*, *27*(2), 183–213.

Reason, J. (2016a). *Managing the risks of organizational accidents*. Taylor and Francis.

Reason, J. (2016b). *Organizational accidents revisited*. Farnham, England: Ashgate.

Rutherford-Hemming, T. (2012). Simulation methodology in nursing education and adult learning theory (refereed articles). *Adult Learning, 23*(3), 129–137.

Salmon, J. (2015). Using observational methods in nursing research. *Nursing Standard (2014+), 29*(45), 36.

Salmon, P., Williamson, A., Lenné, M., Mitsopoulos-Rubens, E., & Rudin-Brown, C. M. (2010). Systems-based accident analysis in the led outdoor activity domain: Application and evaluation of a risk management framework. *Ergonomics*, *53*(8), 927–939.

Schwandt, T. (1999). On understanding understanding. *Qualitative Inquiry, 5*(4), 451–464.

Schwandt, T. (2007). *The SAGE dictionary of qualitative inquiry* (3rd ed.). Thousand Oaks, CA: SAGE Publications.

Senate Employment, Workplace Relations and Education References Committee. (2003). *Bridging the skills divide*, Canberra, Australia: Senate Printing Unit.

Sharp, B. (2001). Take me to your (male) leader. *Gender and Education*, *13*(1), 75–86.

Sikes, P., & Potts, A. (2008). *Researching education from the inside investigations from within*. Abingdon, England; New York, NY: Routledge.

Simons, H. (2009). *Case study research in practice*. London, England: SAGE Publications.

Smith, E. (2010). A review of twenty years of competency-based training in the Australian vocational education and training system. *International Journal of Training and Development, 14*(1), 54–64.

Smith, E., Smith, A., Hampson, I., & Junor, A. (2015). How closely do Australian Training Package qualifications reflect the skills in occupations? An empirical

investigation of seven qualifications. *International Journal of Training Research*, *13*(1), 49–63.

Snook, S. A. (2002). *Friendly fire: The accidental shootdown of US Black Hawks over northern Iraq*. Princeton, NJ: Princeton University Press.

Somekh, B. (2005). *Action research: A methodology for change and development (doing qualitative research in educational settings action research)*. Maidenhead, England: McGraw-Hill Education.

Somerville, M., & Abrahamsson, L. (2003). Trainers and learners constructing a community of practice: Masculine work cultures and learning safety in the mining industry. *Studies in the Education of Adults*, *35*(1), 19–34.

Somerville, M., & Lloyd, A. (2006). Codified knowledge and embodied learning: the problem of safety training. *Studies in Continuing Education*, *28*(3), 279-289.

Sparkes, A. C. (1994). Life histories and the issue of voice: reflections on an emerging relationship. *Qualitative Studies in Education*, *7*(2), 165-183.

Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.

Stake, R. (2004). *Standards-based & responsive evaluation*. Thousand Oaks, CA: SAGE Publications.

Stake, R. (2006). *Multiple case study analysis*. New York, NY: The Guilford Press.

Stolz, S. (2015). Embodied learning. *Educational Philosophy and Theory, 47*(5), 474–487.

Tennant, M., & Morris, R. (2001). Adult education in Australia: Shifting identities 1980–2000. *International Journal of Lifelong Education 20*(1/2), 44–54.

Tesser, A. (1994). *Advanced social psychology*. New York, NY: McGraw-Hill.

The Health and Safety Executive, UK. (2017). Retrieved from http://www.hse.gov.uk/risk/theory/alarpglance.htm

Thomson, P. (2015, January 22). Writing – A matter of planning and hunting. [Web log post]. Retrieved from http://patthomson.net/2015/01/22/writing-planning-and-hunting/

TRADOC PAM 525-8-2 – The US Army Learning Concept for Training and Education (US Army Publication)

Tusting, K., & Barton, D. (2006). *Models of adult learning: A literature review*. Leicester, England: NIACE.

Turner, N., & Tennant, S. (2010). 'As far as is reasonably practicable': Socially constructing risk, safety, and accidents in military operations. *Journal of Business Ethics, 91*(1), 21–33.

Tucker, S., & Turner, N. (2013). Waiting for safety: Responses by young Canadian workers to unsafe work. *Journal of Safety Research, 45*, 103.

Tucker, S., & Turner, N. (2014). Safety voice among young workers facing dangerous work: A policy-capturing approach. *Safety Science, 62(C)*, 530–537.

Turner, N., Gray, & Garry C. (2009). Socially constructing safety. *Human Relations, 62*(9), 1259–1266.

United States Army. (2003). *Static line parachuting techniques an training*. Amsterdam, The Netherlands: Fredonia Books.

Weber, R. (1990). *Basic content analysis* (2nd ed., Quantitative Applications in the Social Sciences). Thousand Oaks, CA: SAGE Publications.

Webster, D. K. (2008). *Parachute infantry: An American paratrooper's memoir of D-day and the fall of the Third Reich*. Dell Publishing Company.

Wegener, C. (2014). 'Would you like a cup of coffee?' Using the researcher's insider and outsider positions as a sensitising concept. *Ethnography and Education, 9*(2), 153–166

Weiss, R. (1994). *Learning from strangers: The art and method of qualitative interview studies*. New York, NY: Maxwell Macmillan International.

Weiss, R. (2004). In their own words: Making the most of qualitative interviews. *Contexts, 3*(4), 44.

Wheelahan, L. (2008). The problem with CBT (and why constructivism makes things worse). *Journal of Education and Work, 22*(3), 227–242

Wheelahan, L. (2016). Patching bits won't fix vocational education in Australia – A new model is needed. *International Journal of Training Research, 14*(3), 180–196.

Whitting, J., Steele, J., Jaffrey, M., & Munro, B. (2009). Does foot pitch at ground contact affect parachute landing technique? *Military Medicine, 174*(8), 832–7.

Wilkinson, D., Rayson, M., & Bilzon, J. (2004). The physical demands of parachute regiment training. *Medicine & Science in Sports & Exercise, 36*(Supplement), S261.

Wisniewski, R., & Hatch, J. (1995). *Life history and narrative (Qualitative studies series, 1)*. London, England: Falmer Press.

Workman, B. (2007). Casing the joint. *Journal of Workplace and Learning, 19*(3), 146–160.

Wragg, E. (2012). *An introduction to classroom observation* (Classic ed., Routledge education classic edition series). New York, NY: Routledge.

Wyndham, J. (1951). The day of the triffids. London, England: Michael Joseph.

Yin, R. (1994). *Case study research : Design and methods* (2nd ed., Applied social research methods series ; v. 5). Thousand Oaks, CA: Sage.

Yin, R. (2003). *Applications of case study research* (2nd ed., Applied social research methods series ; v. 34). Thousand Oaks: Sage Publications.

Yin, R. (2011). *Qualitative research from start to finish*. New York, NY: Guilford Press.

Yin, R. (2012). *Applications of case study research* (3rd ed.). Thousand Oaks, CA: SAGE.

Yin, R. (2014). *Case study research: Design and methods* (5th ed.)