THE IMPACT
OF SIMULATION-BASED LEARNING EXERCISES
ON THE DEVELOPMENT OF DECISION-MAKING SKILLS
AND PROFESSIONAL IDENTITY
IN OPERATIONAL POLICING

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by
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Certificate of authorship

I hereby declare that this submission is my own work and to the best of my knowledge and belief, understand that it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at Charles Sturt University or any other educational institution, except where due acknowledgement is made in the thesis. Any contribution made to the research by colleagues with whom I have worked at Charles Sturt University or elsewhere during my candidature is fully acknowledged.

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A note about interview transcripts

Excerpts from the transcripts of research participants’ responses to questions posed by the researcher are accurately reported and therefore reproduce the occasional awkwardness heard in speech.
# Abbreviations

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<td>ADPP</td>
<td>Associate Degree in Policing Practice</td>
</tr>
<tr>
<td>CP</td>
<td>centripetal participant</td>
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<tr>
<td>ICCS</td>
<td>Incident Command and Control System</td>
</tr>
<tr>
<td>IMT</td>
<td>Incident Management Team</td>
</tr>
<tr>
<td>ITAS</td>
<td>Immersive Technology Assisted Simulation</td>
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<tr>
<td>LPP</td>
<td>legitimate peripheral participant</td>
</tr>
<tr>
<td>MUDTAS</td>
<td>Multiple User Desktop Technology Assisted Simulation</td>
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<tr>
<td>NSWPF</td>
<td>New South Wales Police Force</td>
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<tr>
<td>OC</td>
<td>oleoresin (capsicum) spray</td>
</tr>
<tr>
<td>PBE</td>
<td>practice-based education</td>
</tr>
<tr>
<td>POI</td>
<td>person of interest</td>
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<tr>
<td>SOU</td>
<td>Simulation Operations Unit (of the NSWPF)</td>
</tr>
<tr>
<td>VKG</td>
<td>telecommunication system of the NSWPF</td>
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<tr>
<td>WTTU</td>
<td>Weapons and Tactical Training Unit (of the NSWPF)</td>
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Abstract

The advances in media technologies have afforded new opportunities for simulation-based learning which have been readily adopted by professions training for high-risk, high-stakes environments. The ever present reality of risk to personal and public safety coupled with financial considerations predicates the impracticality and untenable nature of practising decision-making by police officers in use of force and public order management in the real world.

Whilst there is a developing understanding by educators of the potential for technology-assisted simulations to provide authentic situated learning environments and of their influence on the transfer of learning, there remains much that research can contribute to this body of knowledge. The literature suggests educators in this area concentrate on the capacity for simulations to provide a conduit for confirming a learner’s cognitive competencies. There has been limited focus on the influence of simulation-based learning on the development of a learner’s professional identity and on their place within a community of practice.

The aim of the study therefore was twofold: first, to develop a response to the question:

What is the influence of simulation exercises in developing professional identity in policing?

In this research the work of Bourdieu (1990b) in providing a framework of sociocultural development and practice has aided the identification of the relationship between participation in a technology-assisted simulation and development of professional identity. In extending the understanding of the impact this learning experience has on situating the learner in their community of practice has drawn on the community of practice concept as proffered by Lave and Wenger (1991).
Underpinning the response to this question necessitated understanding the learner’s perception of how closely the technology-assisted simulation environment replicates reality and enables transfer of learning. The second aim of the study was to provide insight into the question:

**What characteristics of a simulation exercise are required to enable transfer of learning from the training environment to operational policing?**

Two technology-assisted simulation learning exercises conducted by the New South Wales Police Force (NSW Police Force or NSWPF), the central tenet of which is decision-making for high-risk and high-stakes situations, were selected for this study. The two exercises were the VirTra use-of-force simulation exercise in which novice student police officers at the NSW Police Force Academy participate, and the Hydra/Minerva simulation exercise for public order management in which experienced senior police participate. As a mixed-method study, data gathering involved pre- and post-simulation exercise questionnaires followed by post-simulation field-based interviews.

The results indicate that these technology-assisted simulations influence the development of novice and experienced police officers’ professional identity and aid in defining their place within their community of practice. The data further revealed that both novice and experienced police officers do not require the full suite of tactile elements to be present in a technology-assisted simulation for authentic situated learning to be achieved. Interestingly, in the context of aiding the transfer of learning, the study identified that for experienced practitioners who have a repertoire of real-world policing experience the task within the simulation is the most important element and the characteristics contributing to realism are less important. However this is the reverse for the novice, inexperienced police students, who have a limited repertoire of real-world policing experience. These learners require simulation characteristics which at a minimum engage sight, hearing and touch in replicating as closely as possible the real world.
Chapter 1  

Introduction

1.1  Introducing the research project

Globally, the education sector is increasingly turning to the technology community to explore new ways of delivering authentic situated learning which encourages contextualisation and transference of knowledge and skills from the classroom to application in the real world.

Police and law enforcement educators are no exception. Educating police officers for the highly volatile and dynamic world of their profession is a continual challenge. The intrinsic nature of their profession dictates embracing educational tools which best prepare an officer for the demands of their policing duties whilst creating minimal risk to their safety and the safety of others.

1.2  The researchable issues

In the rush to adopt technologies to advance the learning opportunities for police officers, the research which informs on the effectiveness of this form of learning experience is scrambling to keep pace. It is widely acknowledged that whilst valuable work and insight has been published in the field of simulation for educational purposes (see Beck, Nichols, & Verrilli, 2008; J. Herrington, Reeves, & Oliver, 2007; Nygaard, Courtney, & Leigh, 2012), the area is under-researched. This is particularly identified where simulations are employed in training professionals for high-risk, high-stakes decision-making. There is limited literature which provides insight into the influence of simulation-based learning exercises for training these professionals from a position of reflection from real-world application.¹ In conjunction, there is limited literature which reports on the characteristics of simulation environments which specifically aid or inhibit the transfer of learning from the training environment to application in real-world situations.

¹ ‘Real world’ refers to real objects, actions and situations as distinct from objects, actions and situations within a virtual environment.
In the main, research related to the development and implementation of simulation-based exercises for educational purposes is concentrated on the mechanics of the simulation exercise implementation and cognitive competencies of the learner. There remains a void in exploring the influence of simulation-based learning exercises on the sociocultural aspects for the learner and the members of the community of practice to which they may belong. The work of Bourdieu (1984, 1990b), which offers a conceptual framework for understanding the influence of learning experiences on a person’s sociocultural make up, has been employed in this research. As explained in Chapter 4, Bourdieu’s framework aids in understanding the influence of simulation-based learning exercises for a participant, beyond competency-based outcomes.

Consideration of the impact of simulation-based learning exercises on a participant’s sociocultural development has been further developed through application of communities of practice concepts advocated by Lave and Wenger (1991). Employing these two conceptual frameworks enables identification of the relationship between the novice and expert learners within a community of practice and the influence of simulation-based learning exercises on that relationship.

1.3 Significance of research

The combining of the two bodies of theory from Bourdieu and Lave and Wenger through this research has the potential to contribute to simulation exercise and environment design and the associated educational, financial and logistical implications. Further, the research has the potential to contribute to understanding the influence of participation in a simulation-based learning exercise on the development of a participant’s professional identity and their preparedness for application of the learning outcomes from the simulation exercises to their field of operation. Importantly, the research also has the capacity to inform on the relationship between the influence of the simulation-based exercises on the transfer of learning to real-world practice and their influence on professional identity. For educators concerned with developing learners for practical endeavours within the field of their professional operation, this research informs on the simulation exercise elements which novice and experienced learners identify as key contributors in aiding transfer of learning. An aspect of this research project which underpins the significance of the study is the inclusion of the participants’
reflection on the simulation-based learning exercises from their subsequent real-world operational experience.

This is particularly significant in the context of the simulations selected for this research, both of which are based within the police training domain and both of which have a focus on developing decision-making skills for application in a high-risk, high-stakes environment. One simulation affords opportunity for firing a Glock pistol in a simulated police citizen interaction. Potentially for many student police officer recruits this may be the first time they have made the decision to shoot a person (albeit a simulated person). The questions arise: Does this influence the development of their professional identity? How does this experience influence the transfer of knowledge and skills for real-world operational situations? Similarly, these questions arise in the context of the second simulation selected for this research, a team-based simulation exercise which affords opportunity for the simulated management of a high-risk public order incident by senior police officers. Again the questions arise: Does this influence their professional identity? How does this experience influence transfer of knowledge and skills for real-world operational situations? The following key research questions have been developed to explore the role of simulation-based learning exercises in a participant’s transfer of knowledge and skills from the training environment to the field of operation, and the influence of their simulation-based learning experience on their professional identity:

1. What is the influence of simulation exercises in developing professional identity in policing?

2. What characteristics of a simulation exercise are required to enable transfer of learning from the training environment to operational policing?

1.4 Overview of study

Within the New South Wales Police Force Education and Training Command there are two distinct simulation-based learning exercises. These have a common theme, which is to develop participants’ decision-making skills for operational policing. These simulations were selected for the research project on the basis of:

- the common theme
- the diverse participant cohorts
one designed for senior experienced police officers
- one designed for inexperienced student police recruits
- the diverse simulation exercises and environments
  - one requiring team participation – the ICCS Tactical Hydra simulation exercise and environment
  - one requiring individual participation – the VirTra use-of-force simulation exercise and environment.

To develop a response to the research questions, data have been collated and analysed from pre-, and post-simulation questionnaires and field-based interviews. Contextualisation of the simulation exercises was provided through interviews undertaken with NSWPF staff responsible for the conduct of the respective simulation exercises. From these data, a pre- and post-simulation, and field-based, decision-making profile was developed for the participants. In this process the participants’ perspectives on the level of realism experienced within the simulation environment, and identification of the simulation characteristics which aided or inhibited learning transfer, were revealed.

1.5 Thesis structure

This thesis progresses through nine chapters, providing a comprehensive discussion of the rationale for the theoretical framework, methodology and data source selection, presentation of the data collected, analysis of the data and the findings, the making of recommendations, and the suggestion of implications for the educational community.

Chapter 1 provides an introduction to the research project undertaken and reported in this thesis. The chapter includes the rationale for the research questions and a précis of the purpose and intent of the research. The thesis structure is presented.

Chapter 2 presents an historical background to the development of simulation technology and the subsequent relationship with educational endeavours in the military, aviation, medical, and law enforcement domains. The literature review includes

2 ‘Use-of-force’ refers to the use of physical force in weaponless tactics, for example, the use of wristlock, baton, oleoresin (capsicum) spray, taser, Glock pistol.
discussion of research endeavours in the field of two types of simulations, Multiple User Desktop Technology Assisted Simulation (MUDTAS) and Immersive Technology Assisted Simulation (ITAS). The discussion presented in the chapter is inclusive of the limited published literature which explores the influence of simulation exercises by reflecting from a field-based real-world operational perspective. A discussion of the pedagogical concepts underpinning practice-based education and situated and authentic learning concepts as association with simulations concludes the chapter.

Chapter 3 is devoted to a discussion of the theoretical framework of Bourdieu’s sociocultural view of how a person engages with their social and educational environment and the influence this may have on their practice and identity. The chapter includes a discussion of the synergy between Bourdieu’s theoretical framework and the concepts underpinning Lave and Wenger’s ‘community of practice’ and how this may apply to novice and experienced police officers.

Chapter 4 presents a justification for the methodological approach employed in this research as well as a comprehensive description of the data sources and a rationale for their selection. A discussion of the reliability and validity of the research project and data collection processes and ethical considerations is included in the chapter. It concludes with a discussion of the data analysis process applied for this research project.

Chapter 5 reports on the data collected in relation to the study of the simulation characteristics offered in the ITAS and MUDTAS environments. The chapter contributes to the development of an understanding of the individual simulation characteristics which collectively provide authentic situated learning experiences.

Chapter 6 constructs a pre- and post-simulation, and field-based, decision-making profile for the experienced police officers who participate in the ICCS simulation exercise. The profiles were developed from the data collected through pre- and post-simulation questionnaires and field-based interviews for the MUDTAS Incident Command and Control System (ICCS) Tactical Hydra simulation conducted by the NSWPF Simulation Operations Unit (SOU).

Chapter 7 constructs a pre- and post-simulation, and field-based, decision-making profile for the novice police officers in data source ‘Case One’. The profiles were
developed from the pre- and post-simulation questionnaires and field-based interviews for the ITAS VirTra simulation for novice police officers.

Chapter 8 draws together the data presented in Chapters 5, 6 and 7 to present and discuss the findings revealed through the research. The discussion in Chapter 8 focuses on two aspects of the research: (1) the relationship between participation in the simulation exercises and its influence on the participants’ professional identity, and (2) the common and diverse characteristics which influence the transfer of learning from the simulation environment to the real world of operation for the novice and experienced police officers. The findings in the chapter are discussed in the context of the literature presented in Chapter 2.

Chapter 9 presents the research findings in the context of the recommendations they promote for the NSWPF SOU and the NSWPF Academy VirTra training environment and the wider education community. Further, the chapter presents the limitations of this research, and the potential avenues for future research.

It is important to note that this research is centred on developing an understanding of the influence of simulation-based learning exercises and environments on the transfer of learning from the training environment to the real world of the participants’ profession. Whilst the simulation exercises selected for this research are designed to develop decision-making for police officers, the psychological aspects of the decision-making process for police officers is not a focus of this research.
Chapter 2  Historical context of simulations

2.1  Introduction

This chapter focuses on an exploration of the literature associated with simulation and the role of technology-assisted simulation in the field of education, especially as the literature applies to technology-assisted simulation in the field of police education. The chapter begins with definitions of simulations in general and of more specific categories of simulations. This explanation is followed by a presentation of historical developments in the use of simulation across a variety of professions for training and education purposes. The chapter progresses to a discussion of the relationship between simulations and the provision of authentic situated learning environments. Inclusive in the discussion of authentic situated learning and skill transfer is consideration of the role of realism, fidelity, presence and immersion in simulation environment elements. At this juncture, a discussion of the elements which create authentic situated learning environments provides an entrée to a discussion of the range of pedagogical roles for which simulations have been employed, including the relationship between simulation-based learning and the underpinning concepts of practice-based education. The chapter concludes with a drawing together of the preceding discussion which identifies questions that remain unanswered as to the impact of the use of simulations for the development of decision-making skills for real-world application. Further, this concluding discussion indicates the role of this research in seeking to inform the relationship between simulations, education and application in police professional practice.

2.2  Defining simulation

As educators and trainers have recognised the affordances of advances in computer technology assist in the delivery of customised, industry-specific, skill-specific training, there has been somewhat of a blurring of meaning between the terms ‘simulator’ and ‘simulation’. Morris and Thomas (1976, p. 66) provided the following distinction in describing simulation as the “ongoing representation of certain features of a real situation to achieve some specific training objective”, and simulators as “the media
through which a trainee may experience the simulation”. In line with this distinction, the simulation can be understood as the context or situation, and the simulator as the tool within that context or situation. This distinction is further described by Gagne (1962) in identifying the main three characteristics of a simulator as: (1) representing a real part of a situation, for example, a gas-fired Glock pistol employed in use-of-force policing situations; (2) consistently replicating the same task irrespective of surrounding elements changing; for example, the process for firing a gas-fired Glock pistol remains consistent irrespective of the conditions in which it is used; and (3) not replicating the complete situation but only that part necessary to provide for characteristics (1) and (2). Here for example, the gas-fired Glock pistol is an exact replica of those used by operational police officers; however, associated environmental conditions are not re-created. Aligning with this definition of a simulator by Gagne (1962) and the definition of a simulation by Morris and Thomas (1976) is the suggestion by Hays and Singer (1988, p. 15) that a simulation is distinguished as:

... reproducing the real-world phenomena as closely as possible to ensure simulation is a valid representation of these phenomena.

In following the precedent set in the previous simulator discussion, an example of simulation would be a training situation which required the use of a gas-fired Glock replica pistol\(^3\) in a specific use-of-force incident reflective of a real-world policing incident.

To aid clarity in the following discussion, it is valuable to provide an explanation of different types of simulations that are employed within the education and training environment. As indicated earlier in this chapter, the associated literature reveals simulations are considered representations of real-world phenomena with which a learner or learners interact in the process of:

- applying and practising skills
- demonstrating understanding
- engaging in a learning experience which resembles the reality of their profession.

\(^3\) A replica Glock pistol which propels gas instead of bullets.
In this context the simulation is a learning tool providing a conduit for learner development.

It is worthy of note that there is also a wealth of literature emanating from the world of computer technology which refers to simulation modelling. Feinstein, Mann, and Corsun (2002, p. 732) refer to the work of Render and Stair (1997, p. 692) in defining the concept of simulation modelling as “a well-established technique that duplicates the features, appearance and characteristics of a system or process”. As with the aforementioned simulations in education and training, the underpinning concept for simulation modelling is to represent the real phenomena albeit through modelling. Kaufman and Sauve (2010, p. 7) suggest:

... simulations are generally grouped into two broad categories: simulations in the sciences and engineering that are used to experiment and test hypotheses, and training simulations that offer environments that simplify reality and allow learning without the risks inherent in certain live situations.

This thesis does not include discussion of computer-generated simulation modelling; rather it is focused on simulations designed for integration into education and training programs. This underpinning objective for simulation exercises finds a nexus with the characteristics of experiential learning. Feinstein et al. (2002, p. 733), in discussing the relationship between simulations and experiential learning, refer to the work of Kolb (1984) and Specht and Sandlin (1991), who allude to experiential learning having its roots in the early work of Confucius:

... I hear and I forget, I see and I remember, I do and I understand.

Further, Feinstein et al. (2002, p. 734) support the notion that experiential learning is:

... A participatory method of learning that involves a variety of a person’s mental capabilities. It exists when a learner processes information in an active and immersive learning environment.

The brief discussion of the relationship between experiential learning and simulations is presented here to establish the overarching context and purpose of simulation design. The common denominator is the core role of the simulation to enable learners to participate actively in their learning in activities which both resemble reality and are relevant to their professional world. The following sections present the historical development of simulations generally and, more specifically, the influence of advances...
in technology which have been the catalyst for expanding role-play simulation to present experiential learning opportunities in environments which more closely resemble the real world.

It is helpful to the following discussion to present at this point a categorisation of simulations and their defining elements which has developed as a consequence of computer-based technology developments. Feinstein et al. (2002, p. 732) suggest that authors “waver on their definitions of role-playing, gaming and computer simulation”. It could be argued that all simulations require a degree of role-playing, since they need human input and the learner is assigned a role like an actor on the stage. Table 2.1 presents four categories of simulations which have been defined by the elements which contribute to the design of the simulation, the role of the participant, and examples of the learning environments for which the simulation is an appropriate learning tool.

Table 2.1  Categories of simulations

<table>
<thead>
<tr>
<th>Label</th>
<th>Major simulation design factors</th>
<th>Participant connection</th>
<th>Simulation scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2FRP</td>
<td>Face to Face Role Play</td>
<td>physical presence in simulation activity</td>
<td>doctor/nurse/patient communication; police officer–citizen conflict resolution; customer service communication</td>
</tr>
<tr>
<td>SUDTAS</td>
<td>Single User Desktop Technology Assisted Simulation</td>
<td>role-player in a computer desktop simulation (referred to as the human in the loop: Kelty, Beckett, &amp; Zalcman, 1999, p.1)</td>
<td>flight simulation; emergency management decision-making scenarios</td>
</tr>
<tr>
<td>MUDTAS</td>
<td>Multiple User Desktop Technology Assisted Simulation</td>
<td>role-player physically within the simulation interacting with real-time technology tools alongside other participants</td>
<td>multiple-participant military operations utilising computer technology, live video streaming, audio, smart boards, technology communications; multiple-participant Critical Incident Management scenarios with live video and police radio streaming, public media on-camera broadcasting, computer desktop capabilities</td>
</tr>
<tr>
<td>ITAS</td>
<td>Immersive Technology Assisted Simulation</td>
<td>role-player physically within a life-size surround screen environment</td>
<td>military and law enforcement use-of-force facilities with surround or flat screens video streaming life-size scenarios</td>
</tr>
</tbody>
</table>
Examples of the use of these categories of simulations are detailed in the following explanations.


SUDTAS (Single User Desktop Technology Assisted Simulation): Here the term ‘desktop’ has been used consistent with the often cited distinction between Immersive and non-Immersive Virtual Environments (see Robertson, Card, & Mackinlay, 1993). Phillips and John (2000) describe the design of a computer desktop simulation which allows trainee surgeons to practise techniques associated with ventricular catheterisation surgery with varying degrees of visual feedback but with no risk to the patient. The discussion by Kroeger and Cole (2009) centres on the modern navy computer desktop training system which enables a ship’s entire crew to rehearse tasks that they will face during everyday, extraordinary, and battle situations onboard a ship.

MUDTAS (Multiple User Desktop Technology Assisted Simulation): The extensive work of Crego (2004) discusses the Hydra and Minerva units which are designed to bring to life critical incidents, such as train derailments, plane crashes and collapsed buildings, which are managed by police and other emergency agencies. The use of video, audio, photos, operational radio traffic, telephone, maps, intelligence, documentation, background noise, a variety of problems, and the sequencing and timing of simulation allow re-creation of such incidents in a very vivid and realistic manner. Participants in this category of simulations may work in the face-to-face environment or meet in a virtual online environment. The combining of MUDTAS with participants meeting in a virtual environment is discussed in the work of Gregory, Dalgarno, Campbell, Reiners and Knox (Gregory et al., 2011) and Gregory and Masters (Gregory & Masters, 2012). VirtualPREX, which provides virtual professional experience for preservice teachers in Second Life virtual classrooms, is the focus of Gregory et al.’s, and Gregory and Masters’ work.
ITAS (Individual Technology Assisted Simulation): This category of simulations encompasses those environments designed to accommodate individual-participant interaction with a technology-assisted simulation environment. ITAS environments provide for real-time engagement by the participant with the simulation. Examples of ITAS environments are drawn from the military and law enforcement learning communities. The VirTra simulation environment, for example, with 300-degree surround screens displaying scenarios which replicate real-world situations for firearms judgement training (www.VirTra.com), exemplify the ITAS criteria. Similarly, Meggit Training Systems (www.meggitttrainingsystems.com), whose mobile firing ranges offer live marksmanship training solutions to prepare men and women who work in military, law enforcement and security organisations, adopt ITAS environment design concepts.

2.3 Historical simulation developments

On the premise that simulation is the replication of real-world phenomena, Hays and Singer (1988) argue that simulation has been used in training since the Middle Ages. They further suggest that early simulation design was rudimentary, in line with the purpose of the training and the resources available, for example, wooden horses and wooden swords to practice war tactics. The evolution in the design and development of simulations from these rustic beginnings to the sophisticated, technologically supported training and education environments provided for twenty-first-century learners is a product of a number of interrelated factors. Hays and Singer suggest that during the 1950s and 1960s most training device development consisted of elaborations and expansions of three historical trends, that is, early teaching machines, military training devices, and programmed learning stimulated by increasing technological capabilities. Salas and Cannon-Bowers (2001), in compiling a review of training research literature, suggest the military and the commercial aviation industry were the early investors in simulations, paving the way for other professions to be exposed to the potential benefits afforded by simulation-based training. Whilst the form and manner in which simulations have been embraced in learning environments create an eclectic mix, the focal point remains consistent: to provide learners with experiential learning opportunities for the application of newly acquired knowledge and skills in situations resembling real life. The ultimate goal of simulations is to develop preparedness for real-world situations.
It is important to explain the relationship between technology and simulations, drawing, in particular, on the fields of computer gaming and entertainment. In addition, clarification of the characteristics of what is known as ‘virtual reality’ is helpful in contextualising the perceptions and meanings attributed to simulation environments created with and reliant upon technology.

2.3.1 Simulations, technology and education

In heralding the potential value in the training and education communities of virtual reality, Thurman and Mattoon (1994, p. 63) concluded that “VR is a fundamentally new way of developing and experiencing interactive, synthetic environments that are produced by the integration of the computer with the human sensory system”. This acknowledgement of the sensory elements as integral to virtual environments is supported by the work of Blascovich and Bailenson (2006, p. 230). They state that:

... The term virtual environment refers to an organization of sensory information (e.g. the simulation) that leads to perceptions of a synthetic (artificial) environment as non synthetic (real). … virtual environments can be created on the basis of organized information via any sensory channel or combination of sensory channels including vision, audition, touch, olfaction, and taste. Sensory information e.g. light waves, sound waves, tactile pressure, and chemicals mediates our experience of objects, movements, and other aspects of environments whether virtual or physical.

Generally, there is interchangeable use of the terms ‘virtual reality’ and ‘virtual environments’ within the associated literature. Reporting on the design and implementation of the CAVE (Cave Automatic Virtual Environment), a globally recognised virtual reality/scientific visualisation system, Cruz-Neira, Sandin, and DeFanti (1993) discuss the distinction in suggesting that virtual reality and associated systems are centred on the visual domain. It could be argued that all simulations are virtual reality as they present situations requiring humans to interact with each other, or with technology, or a mixture of both, whilst in essence the simulation is representing (that is, virtualising) a real situation. It is the ever increasing capacity of technology to create virtual environments which resemble (simulate) real life which has captured interest and support, initially from the military and aviation industries, but expanding to include a wide range of professions and industries and their associated education and training environments.
2.3.1.1 Media, gaming and simulation

A defining factor that acknowledges the interwoven relationship between the education and entertainment media is the merging into contemporary language of the term ‘edutainment’, essentially a word created to suggest a blend of education and entertainment. Utilising entertainment to educate is not a new phenomenon; however, what is more recent is the use of technology developments in the entertainment industry to support developments in simulation design for educational purposes. There is a literature that indicates that those involved in educating for professions (with high risk and high cost factors) acknowledge that opportunities afforded by technology provide valuable learning experiences. Baylis (2000) supports the notion of computer-generated three-dimensional simulation environments offering the medium through which users may experience re-created reality environments, the provision of which in reality would be prohibitive due to cost, safety and logistical barriers. In their work exploring the use of three-dimensional gaming technology for developing knowledge transferable to real-world problem-solving, Garrett and McMahon (2009, p. 425) provide a succinct background to the melding of computer gaming technology and advances in simulation designs for educational purposes in commenting that:

… the abilities of 3D gaming technologies in particular the game engines used to power First Person Shooter (FPS) games, have not gone unnoticed, with proponents of computer assisted learning recognising the potential of these technologies to function as simulation environments. This has given rise to the serious games movement which focuses on the application of gaming technologies and concepts for simulation and learning purposes. FPS game engines have been successfully used to this end in fields such as architecture, military, mining, and safety.

As suggested by Kimenkowski, Kimenkowski, and Combes (2009, p. 13), the technological developments in the entertainment and gaming industries have extended the capacity of simulation environments to create:

… immersive, 3 dimensional stereoscopic virtual environments that closely mimic the real world in both context (the situation) and surrounds (the physical environment).

The field of education has embraced the development work within the gaming industry in providing affordable, off-the-shelf computer software which depict simulated environments for interactive play and learning. Examples of this acknowledgement and
use are evidenced throughout the education field in schools, colleges, universities and industries. Whitney, Temby, and Stephens (2009) subscribe to this progress in discussing game-based training for the Australian Defence community. Whitney et al. (2009, p. 213) state that:

… the advent of high fidelity first person shooter (FPS) commercial off the shelf (COTS) computer games has seen increased interest in using them as tools for training … the reported benefits of game based training include the comparatively low cost relative to live training, the extent to which these games can be customised to provide specific training scenarios and the ability to expose trainees to tasks that are too hazardous to conduct in the live environment.

It is important to note that discussion of ‘gaming’ and ‘serious gaming’ is included to establish their influential relationship with the development of technology-assisted simulation. Crookall and Saunders proffered a distinction between ‘games’ and ‘simulations’ in viewing simulation as a representation of some real-world system which embodies aspects of reality, includes rules and strategies, allows the simulation activity to evolve, and minimises the consequences of participant error. Whilst there is overlap with games which may also contain rules and provide for participants to manage outcomes, the key distinction, as suggested by Crookall and Saunders (1989) and more recently by Garris, Ahlers, and Driskell (2002), is that simulations propose to represent reality and games do not. It is, however, the combination of the design concepts from this gaming world – with the advances in cinematography demonstrated in the entertainment industry which have been an influential catalyst for developing simulation environments for education and training – which works to enhance fidelity and enable an ever closer resemblance to the real world. The opportunities for enhancing the realism of simulations have resulted in an increase in the volume and diversity of technology-enhanced simulations for adaption in an ever increasing range of professions. This range of simulations is exemplified by the simplistic computer desktop simulation utilising narrative and static pictures, to varying degrees of interactivity and animation, to those simulation environments which encapsulate 300-degree surround screen immersive, video-streamed real-time interactive platforms. Combining the properties of computer technology with those technologically enhanced properties transferred from the world of entertainment affords educators a myriad of options in designing simulations for education and training programs. Perla and McGrady (2011, p. 128) provide a pragmatic reflection of these afforded resources:
… we can harness the power of game design to tackle real-world problems. We can empower gamers to use their virtual-world strengths to accomplish real feats. Indeed, when game communities have been matched with challenging real-world problems, they have already proven themselves capable of producing tangible, potentially world-changing results.

In the past thirty years, educators in the fields of medicine, defence and aviation have been globally recognised as leaders in the use of simulations to support training endeavours. In this process these and other professions have adapted the potential offered by advances in technology to create and deliver simulation environments which seek to blur the lines between reality and virtual. As discussed in the following sections, the focus has been on the creation of the simulations and their capability to replicate real-world time situational context and content. There is less evidence through the literature of a focus on understanding the impact of learning through simulation as viewed from the subsequent field of real operation.

2.3.2 Military and aviation education, training and simulation

According to Malo, Stapleton, and Hughes (2004, p. 2), preparing soldiers for the hell of war and developing their capacity to react on instinct necessitate providing training environments which have the “same impact of chaos and fear as exists in real war”. They provide a vivid expression of their view of the relationship between simulations and the real world they seek to replicate:

… nothing replaces the importance of the sweat, blood, and tears of a live simulated training experience with all your senses (visual, audio, haptic, olfactory, gastronomy) driving the physical and mental and emotional life-and-death scenario in a full three dimensional, real-time world. (p. 2)

This sentiment resonates through the literature from defence organisations around the world. To create such training experiences, defence agencies have embraced the capacity of artistry and technology to place learners in heart-pounding simulations which engage not only the mind but stimulate the senses – the holistic environment reflective of real time and the real world. Raybourn, Deagle, Mendini, and Heneghan (2005, p. 3) provide a grounded approach to the relationship between simulation and

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4 ‘Real time’ refers to the depiction and occurrence of events which take place at the same rate as would occur in the real, or everyday, world.
defence training. Whilst acknowledging the often high cost of live exercises, Raybourn et al. (2005, p. 3) suggest:

… that complex problem solving approaches and novel strategies employed by first responders, emergency and catastrophe managers, or the military are often best learned experientially through exercise, role-plays or live action simulation.

It is therefore unsurprising that simulations utilised in the defence training arena adopt a many and varied approach to provide opportunity for participants to develop skills required to operate effectively in the field. Beck et al. (2008) suggest that the Simulator Networking (SIMNET) program of the late 1980s and early 1990s showed the value of simulations using computer-driven, three-dimensional immersive and networked combat simulators. The Aviation Center at Fort Rucker, United States of America, exemplifies the use of simulation for training, with army pilots flying simulated operations before deployment. In this simulation the emphasis is on providing a training opportunity utilising ground-based simulators integrated in complete simulation exercises. Tiron (2004, p. 2) reports the explanation provided by Lt. Col. Shotts of the Fort Rucker–based simulation for pilot training as follows:

… the exercise runs for about 10 days – two to three days for warming up in simulators and conducting combined arms, live-fire type scenarios, and six days dedicated to operations that grow in intensity.

Shotts also echoed the support attributed to the use of simulations in suggesting that:

… the good thing about simulation is if you make a mistake, you hit wires, you crash or your aircraft gets shot down, you live to tell it to somebody else. (p. 2)

A contemporary focus is for interoperability capacity. Interoperability capacity requires products and systems to work in a complementary process, and to account for social, political and organisational factors, present or future, without any restricted access or implementation (Institute of Electrical and Electronics Engineers, 1990). The key feature of such interoperability is to enable simulations to replicate large-scale defence operations which engage participants in inter-country and inter-agency teams (see Beattie, 2009; Jain & McLean, 2008; Kellaway, Baldock, Boyadjian, & Hamilton, 2009; Simpson & Oser, 2003) whilst seeking to contain training costs.

H. Williams (2009), a decorated military officer and editor of the internationally renowned IHS Jane’s International Defence Review, an intelligence resource for
defence and security operators, reiterates the trend for joint and coalition simulation operations. Williams expresses the military community’s reliance on technology to create relevant training environments in suggesting:

… Joint and coalition operations are the norm in the modern battle space; from the Gulf War in 1991 through to peacekeeping operations in the Balkans and present-day operations in Afghanistan and Iraq, as the number of participants and complexity of operations has grown; new technologies and methods have also developed to meet the training needs for joint and coalition operations.

Whitney et al. (2009) suggest that, within the defence community, game-based training utilising commercial off-the-shelf products is gaining popularity as they minimise costs and increase capability and fidelity. The extent of such popularity is typified by the financial investments in this training paradigm. For example, Whitney et al. (2009) report the US Army’s recent (2009) decision to invest US$50m in the development of a ‘games for training’ program.

In this context, the category ‘games’ includes simulation-based games. Sieberg (2001), in reporting progress in the training of US military officers’ pre-deployment, articulated the Pentagon mandate to use technology to train the video game generation who were entering the defence services. Alexander, Bruny, Sidman, and Weil (2005) published a comprehensive review of studies which explored issues of fidelity, immersion, presence and buy-in and their effects on transfer in PC-based simulations and games. This report presented evidence of the military community leveraging on the commonalities and affordances of games-based enabling technologies and simulations for training. The report further notes the findings of Fong (2004, p. 269), which identified examples of such leveraging with the incorporation of:

… Marine doom to sharpen teamwork and coordination skills within four-soldier fire teams, America’s Army to train West Point officers, and Full Spectrum Warrior to train squad leaders in urban warfare combat tactics.

Fong’s findings provide an insight into the diverse areas of skill training for which simulations are being utilised within the military.

2.3.2.1 Military and aviation simulations and research

As emerging software and hardware compete for a place in the military education and training arena, there has been a parallel increase in acknowledging the importance of
research which evaluates the impact of technology-enhanced simulation learning environments (Alexander et al., 2005; Garris et al., 2002; Jain & McLean, 2008; Li & Harris, 2001; Malo et al., 2004; Perla & McGrady, 2011; Raybourn et al., 2005; Richards, Dras, Porte, & Taylor, 2009). Following the analysis of 250 military training evaluations, Simpson (1999) suggested that the premise for evaluating training is not a fixed determination; rather, there are a wide range of objectives and these are vulnerable to change over time. The literature suggests three key areas for research: first, to determine the cost implications; secondly, to inform on design elements; and finally, to understand the influence on knowledge and skill transfer. The core business of military agencies in a western democracy is to protect, and where appropriate, fight. Whilst the characteristics of simulation may afford learning opportunities, either on the ground or in the air, and correlated research opportunities to explore the impact of such simulation training, there remains limited research on (1) the impact of simulation training on real-world application that is beyond the bounds of the training environment, and (2) the characteristics of a simulation training environment which aid the transfer of knowledge and skills to real-world application.

Earlier discussion identified examples of evaluations of the impact of training through simulation in the field of military education. Gopher, Weil, and Bareket (1994), for example, compared the flight performance scores of Israeli Air Force pilots in actual flight following game/simulation training and no game/simulation training. The recommendation from the authors was that this learning paradigm was useful for developing flight-relevant skills. Simpson and Oser (2003) proffered both a framework for evaluating large-scale training simulations and the underpinning rationale for their recommended approach. Kirkpatrick’s (1976) framework for evaluating training is the cornerstone of the Simpson and Oser (2003) guidelines for evaluating the military simulation learning environment, that is, the four levels of Kirkpatrick’s (1976) evaluation model, which include reaction, learning, behaviour and results. The works of Simpson and Oser (2003) and Kirkpatrick (1976) are of particular relevance in the context of the present research project. There are areas of commonality. The works are centred on understanding the influence of simulation-based learning, and the research seeks to be inclusive of the results of the learning experience beyond the doors of the training complex. A point of divergence occurs, however, where the participants in Simpson and Oser’s work whilst moving outside the training complex to the field are
restricted to applying their learning in a field-based training situation. In the research which is the subject of this thesis, the participants apply their simulation-based learning in real operational situations.

It is in the evaluation of the results phase where the military training and education community, in common with other high-risk professions, for example, medicine, aviation, and policing, are generally restricted to evaluating in the training environment; for example, flying real aircraft, or mobilising and managing troops in simulated battle through real jungles. However, due to the nature of the training, such evaluations remain within the confines of the training arena, both logistically and psychologically. This does not mean to suggest that evaluation cannot and does not take place in real-world field-based operational situations. Appreciatively, the nature of military business does not support unlimited public access to in-house trials, evaluations and research activities because of the risk of compromising competitive advantage. There is limited published research that explores extending research to the field of operation where military personnel are engaged or have been engaged in real-world operations (in contrast to the training-only environment) to reflect on and understand the impact of training through simulation.

2.3.2.2 Military and aviation simulations: Research issues

An inherent focus of simulation exercises in high-risk, high-stakes professions is to aid development of participants’ decision-making skills. Li and Harris (2001, p. 135) state that:

… the ability to make timely, appropriate, and effective decisions is an essential competence required of all military pilots. Increases in the quality of decision making have largely been regarded as a by-product of flight experience or in the case of military aviators acquired through situation-specific exercises that incorporated an increasing variety of potential tactical variables as training progressed.

Following extensive research into aeronautical decision-making (ADM) involving simulation exercises, Li (2009, p. 6) deduced that:

… an ADM training program significantly improved pilots’ situation assessment and risk management [however] there still needs to be established if these performance gains continue to be evident at a later date during actual operations.
Li’s comment alludes to the lack of research exploring the relationship between simulation exercises and application of decision-making skills in the conduct of real-time, real-world professional practice. There is an extensive literature for which the basis is discussion of decision-making for aviation and military operators (see Hays, Jacobs, Prince, & Salas, 1992; Salas, Bowers, & Rhodenizer, 1998). Within this literature, the focus is on the psychological aspects of decision-making, and this in the main is confined to the training environment. There is limited literature that considers the realised influence of simulation and its associated elements on the decision-making expertise of the participants in the real world of their professional operation, that is, that looks back from the field of operation into the training environment.

For the aviation and military professions, the mix of limited opportunities to research in real time and the dependence on assessing competencies in the training arena impact on the conduct of research beyond the field of training. Carretta and Dunlap (1998, p. 1) highlighted in their review of transfer of training effectiveness in flight simulation (1986–1997) the lack of research exploring the effectiveness of simulations for supporting transfer of training in complex decision-making to the real world in commenting:

... Typically, researchers fail to report sufficient detail regarding research methods, training characteristics, and simulator fidelity. In addition to these methodological concerns, there is a lack of true simulator-to-aircraft transfer studies involving complex pilot skills. This may be due to problems such as inadequate simulator design, cost, and availability, and access to simulators in operational flying units.

Discussion by Richards, Szilas, Kavakli, and Dras (2007), in referring to the immersive systems installed for training of military personnel as exampled by the Mission Rehearsal Exercise System used by the US Army and the Typhoon Emulated Deployable cockpit trainer in the RAF’s 29 Squadron Operational Conversion Unit, support the suggestion that there has been insufficient research conducted on the training effect of immersive simulation systems. Richards et al. (2007, p. 12) stated:

... Although, these systems have been in use for half a decade, there are no reports on their effects on training military personnel.

The developments and utilisation of simulations in the military environment and the lack of research which explores their effectiveness for preparing participants for the
application of their learning in the reality of their operational field are echoed by the experience of the medical fraternity. The following section discusses the relationship between developments in simulation-based learning and associated research into the effectiveness of this learning design for the medical profession.

### 2.3.3 Medical education, training and simulation

The pathway paved by developments in the adoption of simulations in medical education and training is not dissimilar from that prescribed in the military arena. The educational legacy of simulation-based medical education is reported by McGaghie, Issenberg, Petrusa, and Scalese (2010) as originating with the use of birthing manikins in the early seventeenth century. The medical fraternity generally regards the development of full-bodied simulators as the beginning of contemporary simulation adoption for education and training. For example, simulators which originated in the field of anaesthesia in the late 1960s are regarded as the forerunners of computer-assisted medical simulation environments of the 1990s (Lateef, 2010). History indicates that, for the aviation, medical and military fields, simulations emerged from an initial development for training-specific components of a larger task. The McGaghie et al. (2010) review of simulation-based medical education research in the period 1969 to 2009 indicated that the medical community supported the use of simulation technology with a similar rationale to that expressed by the military and aviation industries.

Morgan, Cleave-Hogg, McIlroy, and Devitt (2002, p. 10) articulate the generally acknowledged constraints pertaining to educating medical staff and the opportunities simulations provide to attempt to resolve some of these constraints in suggesting:

> ... In the past, the ability to repeatedly practice skills and exercise judgment in a hands-on manner was severely limited by patient safety issues. Medical students, particularly, were often relegated to the role of “observer” should a critical event arise and require management. The simulat[ion] technology offers the ability to provide experiential learning in a risk-free, realistic environment with events that can be repeated and videotaped for valuable feedback.

Gallagher et al. (2005) highlighted the medical community’s ready adoption of simulation technology for training in minimally invasive surgery to move the student from inactive observer to hands-on participant. This report also emphasised the need to be cognisant of the limited quantity of research available concerning the effectiveness of simulation training beyond the training environment.
2.3.3.1 Medical simulations: Research issues

As reported by McGaghie et al. (2010, p. 52), key acknowledgements arising from the research during the period 1969 to 2009 included: (1) “simulation technology provides a means for learners to engage in acquisition and practice of clinical skills without using live patients”; (2) “the evidence is clear that repetitive practice involving medical simulations is associated with improved learner outcomes”; (3) “simulation based practice in medical education appears to approximate a dose-response relationship in terms of achieving desired outcomes: more practice yields better results”; and (4) “few published journal articles on the effectiveness of high-fidelity simulations in medical education have been performed with enough quality and rigour to yield useful results”.

McGaghie et al. (2010, p. 53) expanded the review of research literature associated with medical simulations to include those conducted during the period 2003 to 2009 and suggested that improvements in the “methodological quality and rigour of research in this period is much improved”. This progress resonates in the work of Wayne et al. (2008), who conducted research which explored the impact of a simulation-based educational program on skill improvement and retention, documenting the ability of simulation-based training to significantly increase [medical] residents’ skills to allow for the setting of mastery standards and to demonstrate the retention of skill over a fourteen-month study period. A retrospective case–control study of cardiac arrest team responses in an internal medicine residency program conducted by Wayne et al. (2008) in 2004 extended the 2003 research and evaluated whether simulation-based Acute Cardiac Life Support (ACLS) education affects the quality of care during actual ACLS events. The study compared the performance of cardiac arrest teams who, during training, received simulation-based intervention education (n=38), with those who were not trained using the simulation-based education program (n=40). Wayne et al. reported that simulator-trained residents showed significantly higher (mean correct responses 68%; SD, 20%) adherence to American Health Authority standards when compared with traditionally trained residents (mean correct responses 44%, SD, 20%, p < 0.001). The point that is of relevance here is that, although McGaghie and colleagues were progressing research which explored aspects of simulation-based education, the research remained within the training arena. Wayne et al. commented:

... Although this technology has much promise, a key challenge is to link performance in the controlled simulation environment to the quality of the
patient care delivered. Small studies have evaluated clinical performance after simulator training with encouraging results, but their scope is limited. (2008, p. 56)

The 2010 report by McGaghie et al. identified the existing gaps in understanding the role and influence of simulations in medical education and training. Further, underpinned by the suggestion that simulation-based medical education outcome measurement is one of the greatest challenges now facing the field, and that progress in this area is necessary to advance simulation-based medical education effectiveness (p. 56), the report identified three elements of simulation-based education which align closely with those identified in the military learning environment as follows:

- there remains limited evidence of research which explores how much fidelity in simulation learning environments is enough or too much
- the interrelationship between skill decay and learning through simulations
- limited studies which report on the transfer of skill from the laboratory to real patient care settings.

As recently as 2011, medical professionals (Scott et al., 2011) continued the call for long-term follow-up of learners who had participated in simulation-based surgical education as, to date, data from such follow-up has been variable and generally weak. Long-term follow-up research would, according to Scott et al. (2011, p. 743), provide evidence of the learning retention experienced by the simulation learning paradigm and “support surgeons’ professional endeavours, provide data for credentialing and privileging and yield important information to improve the educational and training programs”. The view proffered by Scott et al. (2011) is reflective of the discussion presented by Cant and Cooper (2010) of a systematic review of nurse education which identified medium- and/or high-fidelity simulation using manikins as being an effective teaching and learning method.

Whilst, as evidenced in the Cant and Cooper (2010) review, there is widespread support for simulation in nurse education, there are similar constraints in it to those experienced within the medical/surgical profession – in particular, in relation to researching the transfer of learning and respective decision-making skills from the simulated environment to the rigours of real-world professional practice. Bruppacher et al. (2010, p. 990) concurred with this perspective in commenting:
no randomized controlled trials have been able to demonstrate the effects of simulation teaching in real-live patient care. Investigations into the effectiveness of simulation-based training for dynamic domains involving high stakes and invasive interventions such as in the fields of anesthesiology, surgery, critical care, and emergency medicine are limited. The unpredictable occurrence of medical crises in real patients makes many outcome studies unfeasible.

As suggested in the preceding discussion, the professions who, by the intrinsic nature of their business, place their members in high-risk, high-stakes situations on both an unpredictable and frequent occurrence are faced with the common issues of:

- complex and challenging educational dilemmas
- the advent of an increasing reliance on simulation technologies to address education and training requirements
- limitations, created by the very nature of their professions, on extending research opportunities to understand from the field of real-time practice the influence of technology-enhanced simulation exercises.

The following discussion highlights the similarities between the high-risk, high-stakes characteristics of the medical, aviation and military environments with the world of law enforcement. Tracing the developments in police education and training which has embraced the affordances of simulation technology assists in illuminating the convergent issues experienced in embedding simulations in education opportunities for these professions.

### 2.3.4 Police education, training and simulation

During the past thirty-five years, developments in computer-related technology have been providing increasingly more sophisticated simulation alternatives for training law enforcement officers. Such developments have leveraged on the back of progress achieved in the aviation, military and medical professions as law enforcement educators seek to address the challenges of training for high-risk, high-stakes professional environments. Herrington, Oliver, and Reeves (2003) claimed that many researchers and teachers now accept that well-designed multimedia environments provide an alternative to the real-life setting without sacrificing the authentic context.

As discussed in Chapter 1, two areas of police education which have embraced the affordances of technology to deliver learning in realistic contexts without sacrificing
personal and public safety are ‘use-of-force’ training, in particular firearms training, and ‘public order management’ training. As a focus of this research is on the use of simulation-based education in these two key areas of police education, it is appropriate to present the following discussion of the associated simulation developments in this domain.

2.3.4.1 Use-of-force simulation (ITAS) developments

The following statement by Bartley in 1992 provides a forthright reflection of the historical reality of progress in use-of-force education for police officers in western society. Bartley stated:

… firearms training has come a long way in the 20 years that I have been involved in law enforcement. I remember being told that I was “qualified” to go out into the streets and protect society – and myself – after obtaining a passing score on a simple bulls-eye course. After that I thought I could handle any life threatening situation … officers were limited to two decisions: shoot or don’t shoot … the courts have told us that it isn’t as simple as that. Officers need to be aware of other options and our approach to this training must be more realistic. (Bartley, 1992, p. 24)

An update of the changes which have occurred to the relationship between simulation technology and use-of-force training for police officers was proffered by M. Williams in March 2008 (p. 40), who stated:

… Simulation training has become a staple of firearms training in the 21st century. As noted police trainer Tony Blauer says, “it is our job to give the good guys experiences before the bad guys do”. And simulation training in its various forms is the key for growth through experience. We know that simulation training has to be stressful, job relevant, repeatable and diagnosable.

The employment of a simulation-based education approach supported by technology, in particular ITAS technology, for use-of-force (firearms) training has gained momentum over the past thirty years and is now an acknowledged and supported approach in this area of police education. One of the first recorded uses of lifelike simulation methods for policing occurred in 1972 and consisted of super 8 films depicting policing scenarios projected onto a canvas screen for recruit police officers to determine a response, shooting rubber bullets if appropriate (C. O. Dillon, 1972). Similarly, Edholm (1978) reported the creative measures employed by the Beverly Hills California Police Department in 1977–78 to emphasise realism in firearms training. The literature,
exemplified by Morrison and Shave (2002), Bertomen (2004), and Bailey (2001), suggests these early initiatives were emerging across a wide spectrum of agencies responsible for use-of-force training for the law enforcement environ. The technology has now evolved to provide state-of-the-art immersive 300-degree surround screen and sound, producing an ultra-realistic training environment (Griffith, 2009a; Wardell, personal communication, 2009). Griffith (2009b, p. 1) articulates the progress in suggesting:

... The first law enforcement simulators were 16mm projectors that flickered their filmed images onto sheets strung across shooting ranges. When the bad guy went for his gun, the officers had to fire and then await the judgment of his trainer as to whether it was a good shoot. Today’s [2009] simulators are high-tech computer systems with digital projectors, that play complex interactive scenarios. They are designed not only to teach officers when and how to shoot guns and less-lethal weapons but also how to talk to suspects to avoid escalation and confrontation. (p. 1)

Whilst globally there has been in place for several decades the use of simulation for firearms training both in law enforcement and the military, initially their use was concerned with skill development and assessment in the use of firearms (Copay & Charles, 2001; C. O. Dillon, 1972; Doering, 1980; Edholm, 1978; Griffith, 2009a; Knight, 2007; Morrison & Shave, 2002; Olsen, 2004; Pinizzotto, Kern, & Davis, 2004; Weiss & Davis, 2002). More recently an emerging trend to utilise technology-supported simulations for more holistic training has been evidenced. This move to incorporate additional aspects of training and assessment with firearms skill development ranges from a combination of firearms skills to the use of communications to resolve an incident (Gillis, 1999). Furthermore, inclusive in this progress is an escalation to the assessment of verbal communication skills, defensive tactics, physical conditioning and use of batons (Hodge, 2003). The clamour by ‘high-tech’ experts to service the expectations for law enforcement simulation technology led to a number of well-regarded simulation products entering the marketplace. Chief amongst these, as reported by Griffith (2009b), Bertomen (2004) and Nowicki (2009), were those which accommodated learning opportunities which extended beyond the traditional firearms range experience to placing the officer in an environment which re-creates as many of the environmental conditions that exist in their operational domain, such as the street.

Acknowledging there are a number of ITAS systems available, three which play a pivotal role in the contemporary military and policing forum in relation to immersive
use-of-force training are described here as examples: (1) the Meggit Industries–owned F.A.T.S. (Fire Arms Training Simulator) system, (2) the MPRI (Military Professional Resources Incorporated) system, and (3) the VirTra system. In brief, the F.A.T.S. system is a single-room virtual shootout that confronts a student with onscreen real-world tactical scenarios. The moment-to-moment and ultimate outcomes of these scenarios are based upon the student’s voice commands and actions. The system places the officer inside a virtual, interactive environment that forces immediate judgements in a variety of tactical situations. An instructor observes what the student says and does and controls the onscreen potentially hostile subject’s behaviour that makes the confrontations tactically demanding and interactive (Andrews International, 2011). Bennell and Jones have provided the following perspective in relation to the F.A.T.S. system:

... As with other modern use of force simulators, F.A.T.S. features a life-size screen that allows high quality images to be projected from a ceiling-mounted video projector. Compared to earlier use of force simulators, F.A.T.S. training is more realistic because officers have access to a range of lethal and non-lethal weapons, included infrared-light emitting firearms, batons and chemical sprays. (Bennell & Jones, 2004, p. 18)

The following comments by Marrs (2011, p. 20) suggested that there are some limitations to the F.A.T.S. design which restricts the system from providing characteristics reflective of real-world situations:

...some limitations to this equipment, mainly that the officers will know that all threats will be coming from the movie screen in front of them and they do not have to watch their flanks.

The MPRI system, which has a strong background with the military (M. Williams, 2008), offers a multiple-target 300-degree shoot house, open field movement training and a 300-degree judgemental indoor system with various scenarios. Generally, these systems are flat screen, with the participant standing in front of the screen, and the threats emanating from a prescribed area in front of the participant. The MPRI and VirTra systems have the capacity to digress from the single-screen system, with 300-degree surround screens, placing the participant physically within the environment. A further development, which sets the VirTra system apart from the mainstream simulation products, is the extension of the elements to engaging seeing and hearing. VirTra includes a:
… training platform which has transducers so the trainee can feel explosion, heavy traffic, helicopter [vibrations]. (Wardell, personal communication, 6 October 2011)

ITAS policing exercises are designed to provide realistic environments in which police are able to practise their skills and apply knowledge in a safe environment. Safety here means lack of risk to the public or public property, and controlled risk to participating officers. Strandberg (1999) suggests that the ultimate goal for simulation is to offer opportunity for an officer to:

… react to a situation that they might well encounter on the street ... if they make a mistake it’s not a fatal mistake. Simulators offer a safe environment for police officers to learn, experiment, and put their policies and procedures into practice. (1999, p. 32)

Forsythe (2004) heralded the increasing reliance on simulation-based training in suggesting law enforcement personnel need experience making decisions in situations in which other people, whether suspects, bystanders or team members, are primary features, and future simulation technologies stand to have the greatest impact if they can incorporate these features. The early work of Bayley and Bittner (1984) argued for the importance of experience in police education, that is, the provision of experiences for raw recruits to practise the skills of their profession, and the utilisation of experienced/practised officers as trainers. This literature reinforces the need and value of providing opportunity for law enforcement students to learn through experiencing and practising in environments resembling the reality of their workplace.

The characteristics of ITAS suggest they are ideally situated to provide these learning experiences and, as previously discussed, the traction these learning tools are gaining for their learning approach is rapidly increasing. As the popularity of ITAS for use-of-force training increases, there is a corresponding increase in literature whose discussion centres on:

1. the logistics and rationale associated with incorporating use-of-force simulations in training programs (see Morrison & Shave, 2002)
2. training budget considerations (see Baldwin, 2012; Irwin, 2012; Peck, 2012)
3. marksmanship (shooting accuracy) outcomes (see Pinizzotto et al., 2004; Tracy, 2008; White, Carson, & Wilbourn, 1991)
(4) the advantages and disadvantages of using replica firearms with gas, laser or similar firing mechanisms in training (see Wilhoite, 1993);

(5) situational awareness training with simulations (see Saus et al., 2006)


2.3.4.2 Use-of-force simulations: Research issues

For similar reasons to those ascribed in the military, medical, and aviation arenas there is limited published research which explores the impact and relationship of simulation exercises completed in the law enforcement training environment on their real-world application. Here access to the field of work and the coexisting complex feasibility issues restrict research opportunities. Historically, research which reports on use-of-force simulation training focuses on how learners perform in the simulation environment with an emphasis on marksmanship accuracy or decision-making characteristics or a combination of both of these areas. The work of Helsen and Starkes (1999), for example, sought to evaluate the effectiveness of video-based simulators to enhance decision-making skills for police officers in the process of preparing them for the volatile, complex encounters to be expected in their field of work. Their project required officers who had completed use-of-force training to make decisions when confronted with life-size screen projections of scenarios requiring police intervention. The officers were evaluated on their marksmanship accuracy, the use of less than lethal use-of-force options, the number of shots fired, and the number and length of visual fixations they performed. The evaluations were restricted to the training environment; a post-simulation test was conducted using a slide and video approach to assess changes in response to simulated incidents. Bennell and Jones (2004), in reviewing the work of Helsen and Starkes (1999, p. 39), commented:

… the results suggest that the high fidelity with which video-based scenarios can be presented facilitates the acquisition and expansion of an adaptive behavioural repertoire for dealing with the precarious situations typically encountered in police work. Retrospectively, participants themselves reported that the simulation training and associated feedback served to heighten confidence in their ability to aptly respond to such critical scenarios.
These positive endorsements for the capability of simulation experiences to enhance officer preparedness for critical decisions in the use of force, specifically, lethal use of force, have been echoed in more recent evaluations. As suggested earlier, there is now an increasing bank of publications which discuss simulations and use-of-force training; however, reports of comprehensive research are limited. Scharr (2001) reported on a similar project to that undertaken by Helsen and Starkes. The work of Scharr, however, was based on exploring the effectiveness of one of the emerging popular simulation technologies, F.A.T.S. (Fire Arms Training Simulator). F.A.T.S. represented the new generation of simulation design as discussed previously, and Scharr sought to evaluate the effectiveness of this technology in developing an officer’s preparedness both mentally and physically for potentially life-threatening police–citizen incidents. At the core of Scharr’s evaluation process was the participant’s post-training questionnaire. The emphasis of the questionnaire was the participant’s self-identification of post-training changes in their attitude and perception towards use of force and their preparedness for such encounters in the real world of policing. Scharr’s reported findings echoed the positive influence of the simulation experience as reported from the less sophisticated slide and video simulation evaluation provided by Helsen and Starkes (1999, p. 1). Scharr commented:

… according to the evaluations (Appendix H), 97 percent of the officers reported that the overall training was effective to at least a great extent. Before the training, officers had a certain belief about their ability to perform their job in a safe and effective manner. After the training, officers clearly indicated they were surprised at how quickly a critical incident could occur, how likely it is that they will be perceived as law enforcement officers during a critical incident, how difficult it can be to work in teams and communicate during a critical incident, and how unfamiliar they were in using forceful verbal commands. (p. 1)

In the context of this research project it is important to note that discussion of specific characteristics of the simulation environment which influenced learning transfer was not the central focus of the 1991 reported work of Helsen and Starkes. Similarly, this area of interest in the characteristics of the simulation environment which influenced learning transfer was not a key underpinning aspect of Scharr’s (2001) report.

In the final report on the effectiveness of use-of-force simulation training in Canadian law enforcement agencies, Bennell and Jones (2004) discussed the research undertaken by the Justice and Safety Center at Eastern Kentucky University. Bennell and Jones
(2004) suggested that, in 2002, the work of the Center was a most comprehensive examination of use-of-force simulation effectiveness. This work, similar to that of Scharr, evaluated an ITAS product, PRISim™, a mobile simulation training device for law enforcement agencies (p. 40). The Justice and Safety Center (2003, p. vi) described the product as follows:

… PRISim™ system is an interactive firearms/judgment simulation system, housed in a 36-foot gooseneck triple-axle trailer that uses a Shootback™ cannon to fire a 33 grain plastic, 68 calibre nylon ball projectile at the trainee at appropriate points in the scenario.

The research conducted by the Center was extensive as they sought to determine the impact of the simulation experience on developing an officer’s accuracy, tactics, judgement and safety. Participants were assessed on these skills during the simulation and interviewed post-training. As evidenced in the report, a central area of interest was understanding the influence of participants’ level of preparedness for use-of-force situations. The authors stated:

… During these interviews, officers were asked questions on scenario realism, the ability to comfortably interact with the system, and if they felt better prepared to deal with a deadly force incident as a result of the training. The responses to these questions were positive, with the only noticeable difference being whether officers were able to comfortably interact during certain scenarios. (2003, p. vi)

The analyses presented in the Center’s evaluation suggested basic conclusions with regard to the use of the PRISim™ system. A part of the summary of the conclusions was reported as follows:

... The system appears to be beneficial in building and/or enhancing skills that are arguably the most important for the safety of the officer and others, i.e., accuracy, effective use of cover, avoiding the unintentional shooting or endangering of innocents and ensuring the shooting is justified. (2003, p. vi)

These conclusions, supporting the use of simulations for developing the response capacities of law enforcement officers when confronted with use-of-force decisions, concur with the suggestions by Ryan (2007), which included a review of lawsuits claiming failure of officer training. Ryan reviewed a number of lawsuits brought upon law enforcement officers associated with the officers’ discharge of their firearms. The grounds for the lawsuits were based on failure to provide adequate training for the
officers. Ryan suggested that, as use-of-force simulators and simulations provide for an increased suite of training scenarios, this converts to increased exposure to training in use-of-force decision-making exercises. Ryan further suggested that the potential outcome of this increased training is for more appropriate use-of-force decisions by officers in the real world of policing.

It is important to note that, whilst there is research support for the potential benefits of use-of-force simulation scenarios in training, the common denominator of research as evidenced by Helsen and Starkes (1999), Scharr (2001) and the Justice and Safety Center (2003) is that the research is contained within the training environment. The responses from participants in each of the simulation exercise research reports pertained to their perception of the influence of the simulation exercises during training and to predicting their level of confidence for decision-making in future professional practice. A search for available literature which explores whether experience in a simulation exercise and the subsequent perception and prediction of level of skills and knowledge is ultimately evidenced in the field, and what impact simulation exercises have on the transfer of learning to professional practice for police officers, revealed that this is an under-published area.

Murphy, Farr, and Loviscky (2007, p. 4), whose work compared traditional firearms training results with simulation firearms training results in the training domain, commented that:

… Our review also established that large-scale empirical studies that demonstrate the real effects of live fire training have not been carried out in recent decades, and are not feasible in current operational environments.

The discussion of literature to this point has provided background to the development and application of ITAS in the policing domain. Another category of simulation, the Multiple User Desktop Technology Assisted Simulation (MUDTAS) exercise, has also gained entry and traction in the police education and training paradigm. Exploring the application of MUDTAS affords an opportunity to develop an understanding of the impact of simulation exercises beyond the use-of-force application to the use of simulations for education and training in the wider policing domain.
2.3.4.3 Police major incident management, MUDTAS and simulation

The core business of policing in a western democracy is complex – keeping the peace, protecting lives and property – and manifests in a need to prepare officers for diverse unpredictable and potentially life-threatening situations involving one or many citizens. Advances in technology have not only supported sophisticated ITAS experiential learning opportunities, these advances have been adopted to create multi-user simulation exercises, an important development when considered in the context of reflecting the workplace environment which tends to be team-based. A defining characteristic of MUDTAS is the design rationale which enables a team or teams to participate simultaneously. Increasingly, law enforcement training in high-risk public order and critical incident management is turning to the capabilities of a MUDTAS approach to learning delivery. Computer technologists have expanded the capability of technology-assisted simulations to incorporate high interoperability characteristics coupled with leveraging on the advances in distributed systems technology to provide a wide range of MUDTAS.

In military and emergency response operations MUDTAS are employed to provide simulated operational exercises requiring joint agency responses, domestically and internationally (see de Vries, 2007; Kearse, Dudfield, Gehr, & Clark, 2009; Kellaway et al., 2009; Mastaglio & Callahan, 1995; Smith et al., 2007; Zalcman & Blacklock, 2009). The desktop label refers here to the simulation environment inclusive of a wide variety of technology-based elements. The elements include computer monitors to access video and audio presentations, and statistical and text data. Communication technologies which are considered components of MUDTAS include telephone, internet and radio-based communication technology. In MUDTAS environments, the technology assets are complemented by a variety of tabletop documents which may include maps, faxes, pictures and drawings. The simulation exercises are designed to elicit group/team work either face to face, via computer/technology interface or a combination of these modes. Allowing the simulation exercises to transgress streets, countries and oceans, the MUDTAS-designed simulation environment is adaptable and flexible for a diverse set of education and training requirements, supporting a wide range of professions. A common denominator for MUDTAS exercises is their capabilities in providing learning environments for developing participants’ decision-making skills in team-based scenarios. MUDTAS environments also include those simulation environments which
require single participants to interact with fictional characters who make up the team-based environment. An example of a MUDTAS environment which is inclusive of fictional characters forming a team-based exercise is reported by Straw (2007, para. 6) in the following:

… Chicago Health Department in conjunction with the U.S. Center for Disease Control and prevention and the University of Illinois developed Zero Hour – a scenario depicting a mass anthrax attack where participants are required to make critical operational decisions and respond to questions from an array of fictional characters who report to an inoculation center all while fielding simulated phone calls and requests for added equipment.

In 1996 Jonathan Crego developed a system which meets the criteria for MUDTAS. He explained that a key catalyst for developing a system which resulted in the creation of Hydra/Minerva simulation operations units was the quest to provide learning environments which allowed for decisions to be made in natural contexts. His work in exploring the impact of recognition-primed decision-making on the training of senior police officers reported that:

… through years of experience and thousands of trials, experts build up a set of patterns for organizing information in their domain (Means, Salas, Crandall, & Jacobs, 1994). The expert or experienced officer comes to see this world in terms of these patterns. This ability to pattern recognize facilitates rapid action because certain plans or procedures have become strongly associated with certain patterns [and] given the impact of pattern recognition in command and control the important training issue becomes: How do we build environments that highlight these useful patterns? (1996, pp. 83–84)

In addressing this conundrum, Crego suggested that simulation would provide more trials than would occur naturally in the command and control area of policing, and the consequence would be the production of a:

… significant experiential element enriching the stock of experiences from which an operational commander might draw when seeking to recognize these patterns inherent in problems in the real world … Simulation would provide not only trials of that which occur infrequently, it could also allow for trials of problems that would be prohibitively complex and expensive to recreate for training purposes. It can also expose novices to experiences that may be impossible to create in training environments. (1996, p. 84)

It is from this conceptual basis that Crego developed the Hydra and Minerva simulation systems. The Hydra and Minerva environments are founded on guided team-based simulation systems which seek to support real-time naturalistic decision-making. The
foundational characteristics attributed to the Hydra and Minerva systems exemplify MUDTAS environments.

Publicity material emanating from the New South Wales Police Force Simulated Operations Unit differentiates between the Hydra and Minerva simulation systems in the following way:

…Minerva has been designed as a real-time command simulation system allowing a simulated incident or emergency to unfold uninterrupted and in fast-time from the point of first approach to the point at which effective incident management has been established, typically 3 hours. In addition, Minerva is a team-based simulation system allowing for interaction and problem-solving between members of a command team, each of whom has different roles and responsibilities at a real incident.

Hydra has been developed to simulate more protracted incidents and investigations, which may take days or even weeks to resolve (in the case of major crime investigation, the Hydra system can simulate crime management activity spanning several months). The system’s design allows for slow-time strategic decision-making that typically follows initial tactical incident management of first response policing. (New South Wales Police Force, 2011, p. 11)

Pittman (2010, p. 70), in discussing the Los Angeles Police Department (LAPD) deployment of the first Hydra simulation system in the United States, provided a succinct description of the simulation tool in stating:

…Hydra is an immersive simulation training system that uses video feeds to monitor real-time decision-making during critical incidents. During simulations, trainees are divided into groups and each group is in a different room that is monitored via closed-circuit television and boundary microphones. The rooms are outfitted with the equipment the participants would need in a real life event. A control room that runs the events and houses the communications and subject-matter expert stations, a plenary room that act as the debriefing centre, three syndicate rooms that are the breakout centers and contain a Hydra computer, conference table and whiteboards. Officials control the exercise and feed information to the trainees that can consist of newscasts, intelligence briefings, and police radio traffic.

There are a number of documented examples of simulated public order incidents staged in the public domain, for example, the UK Government held a large-scale simulated chemical attack exercise in 2004 (Cohen, 2004). Similarly the European Union hosted a civil protection exercise in 2006 which focused on civil emergency responses to potential terror attacks (de Vries, 2007). The lesson learnt from these experiences is that
the provision of regular staged public order incidents to accommodate the training needs of individual law enforcement agencies is considered both logistically and financially untenable. It is in this context that MUDTAS serves a pivotal role in providing learning opportunities for law enforcement and emergency services agencies to develop their capacities to respond to major public incidents (incidents which reside in the public domain and whose nature has the potential to have large-scale impact on people and/or property). In particular, developing the decision-making capacity of officers responsible for management of major public incidents is complex. As Crego (1996) proffered, one of the factors which impacts on the learning cycle for senior police commanders, for example, is as follows:

… the police culture is unforgiving and major mistakes result in public inquiries and when mistakes of judgment are recorded, the unfortunate commander is seldom allowed to continue in command. There the cycle is broken and the commander is unable to carry the learning forward to the next concrete experience. (p. 98)

Crego’s simulation system designs exemplified the identification of the potential for adopting developments from the rapidly developing computer technology world to create simulation environments, to allow police commanders to practise decision-making for real-world situations.

2.3.4.4 Policing and MUDTAS: Research issues

Appreciatively, with such innovative approaches to learning, the question arises: Does it work? And, if so: What impact does MUDTAS have in the development of decision-making in critical incidents for senior commanding officers? As indicated in Chapter 1, the focus of the research study described in this thesis does not encompass the psychological issues related to decision-making for police; rather, the focus is firmly placed in exploring the aspects of the simulation environment which participants recognise as impacting on their decision-making in the field of their police practice. Interestingly, the work of Flin (1995), Crego (1996), Flin and Slaven (1996), and Klein and Zsambok (2009) in establishing the relationship between recognition-primed decision-making and simulation environments and exercises supports the notion that such environments can provide a stimulus for recognition-primed decision-making. Lines (1999), in discussing psychological factors in relation to decision-making for police commanders, suggested that such positive conclusions provide an introduction to
further research endeavours in relation to the impact of simulation exercises in training environments. Borodzicz (2004) articulated the sentiments of the policing community in writing that:

… simulations can be both time-consuming and expensive to produce. In the author’s research experience, it is not uncommon for major county exercises among the emergency services to be budgeted in millions rather than thousands of pounds particularly in the case of expensive computerized simulations such as MINERVA and HYDRA used by the police (Crego & Harris, 2001) and VECTOR COMMAND. (Vector Command U.K. 1999) … Of concern here is the extent to which such training proves to be of subsequent value. In an increasingly litigious and regulated society, the need for organizations to demonstrate ability is now almost as important as actual ability. How simulations are used and validated for training purposes is therefore likely to become an area of increasing significance.

The research work presented here is cognisant of Lines’ (1999) suggestions and those discussed by Borodzicz (2004), and has sought to:

- isolate the characteristics of the simulation which contribute to the influence of the simulation experience on an officer’s decision-making in the field
- develop an understanding of the influence of the simulation learning experience on an officer’s professional identity in their field of operation
- view the simulation and its influence on transfer of learning from the perspective of the participant’s application of decision-making strategies in the real-world post-simulation experience.

Incorporating these areas of exploration contributes to understanding how the simulation experience aids or inhibits the transfer of learning from the training environment to application in the workplace. Integral to aiding this exploration is discussing the relationship between simulation characteristics and the pedagogical approaches to education and training which acknowledge and employ such simulation characteristics.

### 2.4 Practice-based education and simulation

There is concurrence in the literature that suggests simulations are an avenue for practice within the wider arena of education and training. The term ‘Practice-Based Education’ (PBE) has evolved to have a diverse set of meanings dependent on the context in which it is situated. How ‘practice’ is defined has significant impact on the
meaning of PBE within the wider contextualised learning environment. As secondary, tertiary and vocational education providers seek increasing interconnection for students between the classroom and their world of work, their practice environment, under the umbrella of PBE, a myriad of diverse contextualised learning experiences are to be found (Bates, 2005). Benjamin and Harrison (2007) define practice-based learning as learning which arises out of, or is focused on, working practice in a chosen job, voluntary work, career or profession. Groenewald (2004) aligned the following forms of work-integrated learning with PBE: experiential learning programs, field-based learning, field placements, practice-orientated education, professional practice and work-based education, all of which denote learning and practising skills whilst based within one’s professional practice. Divitini and Morken (2007) suggest that PBE is centred on the idea that to learn professional skills, students need to experience how the professional community works and take part in the relevant practices of this community.

The numerous denotations of PBE can be loosely collated into four areas of meaning and in the main coexist within the field of their delivery as follows:

- practice-based, workplace-based or workplace integrated learning (practicum, internships, apprenticeships, formal education pathways which incorporate a session based within the workplace)
- practice through experiential learning (that is, practising or applying knowledge and skills in simulated or real situations)
- education programs or skill enhancement undertaken whilst being situated within one’s professional practice (referring to either novices or experts engaged in continuing education).

Whilst the concept of a community of practice which Billett (1996) suggested is created by those who belong to, and participate within the norms of, a particular practice has a place in this discussion, a more thorough discussion of this concept will be presented in Chapter 3.

Several fields in which PBE is the overarching educational approach are briefly explored here to contextualise the role of simulations in the PBE paradigm. The practicum or internship session within professional development education programs has become synonymous with the notion of PBE, that is, students undertake a period of their formal studies based within their field of work. Within the teaching profession, for
example, school-based practicum experiences are a mandatory requirement in pre-service teacher education programs designed to allow student teachers both to practise and apply their learning and to be immersed in the community of their practice, teaching (Keogh, Dole, & Hudson, 2006; Latham et al., 2004). Similarly in the education of health professionals, PBE holds multiple meanings, including:

1) educating students whilst they are based in their area of practice, for example, surgery, nursing, radiology nurses

2) providing opportunity for students to practise their skills either in real time or through simulation.

(See Charles Sturt University, 2009; Mole & McLafferty, 2004; Silver, Campbell, Marlow, & Sargeant, 2008).

This understanding of the role of PBE for health professionals resonates with the comments of Hughes (1998, p. 207), who suggested that:

… most work placements, or practicums are included in university programs as a way of making experience of the real world available to students … many of the benefits of involvement in a practicum accrue primarily from the authenticity of the experience.

The Education for Practice Institute (EFPI) at Charles Sturt University supports the generalised definition of PBE as being grounded in educational practice which allows for flexible application as an avenue for preparing the student for the demands of their profession. The EFPI articulated this PBE definition in the following:

... Practice-Based Education (PBE) refers to grounding education in goals, content and strategies that direct students’ learning towards preparation for practice roles post graduation. PBE is best understood as a curriculum framework that can be shaped to fit the particular situation (e.g. course, discipline, profession, location, resources). Within the framework PBE is manifest in subject, stream and activity level strategies such as goal setting and teaching, learning, assessment and program coordination-evaluation activities. PBE can occur in on-campus, workplace, distance, e-learning, self-directed and workplace learning components of curricula. PBE can adopt multiple approaches including problem-based learning, workplace learning (WPL), blended and flexible learning and inter-professional learning. (The Education for Practice Institute, 2010, p. 8)

In the field of policing, new recruits and experienced officers are engaged in PBE through practicums and internships (Chappell, 2005; Charles Sturt University, 2009)
based in their field of practice which intrinsically embodies practice through experiential learning. It is generally acknowledged that foundational recruit training incorporates skill development which is honed through practice (Bailey, 2001; Haynes, 2008; Knight, 2007), and applied in experiential learning opportunities initially within a training facility. Education and skill enhancement for police officers beyond the police academy environment is undertaken whilst situated within their field of professional practice (Cohen, 2004; Hasselt & Romano, 2004; Silver et al., 2008).

As presented in discussion earlier in this chapter, there is agreement amongst those who seek to offer simulation exercises as a component of the learning experience that the role for simulations is as a conduit for practising and applying knowledge to demonstrate understanding, affording experiential learning opportunities. A discussion of the concept of experiential learning is appropriate here to disentangle the often blurred labelling which occurs between experiential learning and PBE, and to clarify the relationships between experiential learning, PBE, and simulations.

2.4.1 Experiential learning and simulation

‘Practice-based education’ is an overarching approach to education design and delivery, while ‘experiential learning’ is a concept for learning design which, due to its intrinsic nature, is encapsulated under the banner of PBE. The work of Edgar Dale (1969) in the 1960s which explored how learners learn and presented the widely acknowledged ‘cone of learning’ concluded that learners engaged actively in their learning retain 90% of what they learn, compared to a retention of 10% of what they learn through reading. Extending this work, the experiential learning cycle as presented by Kolb (1984) and depicted here in Figure 2.1 suggests that learning begins with an active experience followed by reflection on the experience, interpreting the experience, modifying or adjusting understanding, and reapplication of the learning. Kolb provided a summation of this concept in articulating: “Experiential learning is the process whereby knowledge is created through the transformation of experience” (1984, p. 41).
Figure 2.1 The Adult Experiential Learning Cycle (Kolb, 1984).

The nexus between simulation exercises and experiential learning occurs through presenting a simulation exercise (in the absence of the real situation) to provide opportunity for an initial experience, followed, in the tradition of Kolb, by a well-constructed learning approach of reflection, adjustment, and reapplication. Simulation exercises provide the capacity for learning by doing, that is, learning experientially. Keeton and Tate (1978) summarised the pivotal role of the initial experience in the tradition of experiential learning. Keeton and Tate (1978, p. 2) suggested experiential learning is as follows:

… it involves direct encounter with the phenomenon being studied rather than merely thinking about the encounter or only considering the possibility of doing something with it.

Crego (1996, p. 94), in discussing Kolb’s premise in relation to experiential learning and its relationship to the role of simulations in a learning framework, concluded “… one can see that experiential learning is about learning by doing”.

Simulation exercises have the capacity to meet the inherent requirements of PBE and, more specifically, they offer experiential learning opportunities through creating learning experiences which:

- allow students to participate actively in the learning process
- allow opportunity to practise skills which require either or both thinking and doing
- reflect real-world situations and environments.
Of consideration here is the pedagogical approach which situates simulation exercises as a platform for experiential learning opportunities. If the simulation were presented for the student to practise, without placing it within a learning framework, there is the risk of the learning process leaning towards a teacher-centred, skill performance-orientated approach. Gagne, Briggs, and Wager (1992) discussed a systems approach to learning, in which the pivotal goal is to demonstrate a skill, following participation in a learning program founded on the concept that teaching a set of skills and subskills will transfer to learning retention and demonstrable skill acquisition.

An experiential learning approach embodies a more constructivist approach to learning which provides for the learner to construct knowledge for themselves. Learners individually and socially construct meaning as they learn. Inherent in this approach is the notion that learning is active. Hein (1991, p. 1) suggested that the constructivist approach involves:

… a personal and social construction of meaning out of the bewildering array of sensations which have no order or structure besides the explanations which we fabricate for them.

Further understanding as to the role of technology-assisted simulation in supporting a constructivist approach to learning will be developed below through consideration of the role of authentic and situational concepts in the learning paradigm.

### 2.5 Situated and authentic learning concepts and simulation

A review of the literature which is centred on discussions of the pedagogical affordances of situated and authentic learning assists in understanding the opportunities within the education field for realising the potential of ITAS and MUDTAS. The current research study seeks to inform on the characteristics of simulation-based learning exercises which may provide authentic and situated learning experiences. It is important in the context of this research therefore to explore the role of realism, fidelity, presence and immersion in contributing to simulation environments which embrace authentic situated learning concepts. Learning activities and environments which are cognisant of situated and authentic learning concepts provide opportunity for learner experiences which are contextualised and reflective of the real world of application. In a
discussion of the relationship between the concepts of situated learning and learning outcomes, Eiseman (2001, p. 1) suggested the following:

… situated learning advocates a greater recognition of the importance of context in learning, arguing that learning embedded in relevant context, provides both motivation for learning, and in particular heightened learning outcomes. Of particular focus in situated learning is learning for the acquisition and development of the knowledge, skills and attitudes required for professional practice.

Seminal authors Brown, Collins, and Duguid (1989) suggest in the theory of situated learning that meaningful learning will take place only if it is embedded in the social and physical context within which it will be used. Lave (1988) had extended this notion in proffering the view that the context shapes the relationship between the learner and what is learned and how knowledge is formed. Eiseman (2001, p. 3) referred to the work of Lave and Wenger (1991) in identifying that “learning is acquired and given meaning through social interaction within authentic contexts”.

As suggested by Collins (1994), in acknowledging the role of abstractions in learning, situating the learning opportunity in authentic contexts aids the learner to make sense of such abstraction. This notion was supported by Lebow and Wager (1994), who espoused that learning must be meaningful, and situating learning in authentic environments supports the learner to contextualise the learning for real-world application. Similarly, Knowles (1990) argued that adults learn new knowledge, understandings, skills, values and attitudes most effectively when they are presented in the context of application to real-life situations. Jonassen (1994, p. 223), in discussing the meaning of authentic, commented:

... Most educators believe that “authentic” means that learners should engage in activities which present the same type of cognitive challenges as those in the real world (Honebein, Duffy, & Fishman, 1993; Savery & Duffy, 1996), that is, tasks which replicate the particular activity structures of a context.

J. Herrington, Oliver, and Reeves (2003) concluded that exposure to learning environments which resemble real life will enhance student learning, and it therefore follows that learning contexts and activities should simulate conditions and experiences which allow students to gain contextualised application of their knowledge and understanding. Herrington and Herrington (1998) extended discussion of the relationship between context and authenticity in articulating their view on the related
concept of authentic assessment, emphasising the importance of the realistic value of the context and task for the assessment. This interest in authentic assessment grew in parallel with the emerging body of literature centred on discussion of authentic learning environments during the 1990s (see Birenbaum, 1996, 2003; Gulikers, Bastiaens, & Kirschner, 2004; Palm, 2008; Schnitzer, 1993; Swaffield, 2011). In 1989, Wiggins foreshadowed the alignment between authentic learning contexts and authentic assessment, on the one hand, and the requirements or criteria demanded by real-world application, on the other. Wiggins proffered the notion that it is the nature of the authenticity in each context which creates the common ground between the learning and assessment context and the requirements for application in the real world. In this connection, Wiggins suggested:

... the tasks are either replicas of or analogous to the kinds of problems faced by adult citizens and consumers or professionals in the field. (1989, p. 229)

Gulikers et al. (2004) and Palm (2008) concluded there was a lack of a universally accepted definition for authentic assessment in the literature. Palm suggested there are common denominators found in definitions of authentic assessment, as evidenced by the comment (p. 9):

... authentic assessment is often associated with assessment emulating real life task situations, but also possesses meanings such as assessment aligned with curriculum and assessment that effectively supports learning. The similarities between different definitions of authentic assessment often reflect the same choices of perspectives and foci, even if shared features can also be found in definitions where different perspectives and foci can be recognised.

In offering the grounds for a framework for authentic assessment, Gulikers et al. (2004) concurred with Palm’s explanation and identified common themes from a review of the work of Darling-Hammond and Snyder (2000), Van Merrienboer (1997), Birenbaum (1996), Savery and Duffy (1996), all of whom offered variations on a definition of authentic assessment. The review identified common foci which required, as a minimum, cognitive endeavours for authentic tasks, and the demonstration of competencies that apply knowledge, skills and attitudes to new situations. From this premise of understanding authentic assessment, Gulikers et al. (2004, p. 69) offered the following definition of authentic assessment which underpinned their work in this domain:
... an assessment requiring students to use the same competencies or combinations of knowledge, skills, and attitudes that they need to apply in the criterion situation in professional life. The level of authenticity of an assessment is thus defined by its degree of resemblance to the criterion situation.

Presenting the preceding overview of the emergence of, and definitions attributable to the concept of, authentic assessment provides clarification of the interpretation which has been applied in this research. Literature related to the discussion of authentic assessment in the context of simulation-based learning experiences is limited, particularly in the law enforcement educational domain. However, in the field of law enforcement education and training there is overwhelming support for contextualised, authentic learning experiences which provide opportunity for officers to ‘practise’ the application of their newly acquired knowledge and skills (see Cope, 2007; Shinder, 2001; Strandberg, 2005; Weiss & Davis, 2002). As support Bennell and Jones (2004, p. 21) concluded:

... military research has found that while students typically retain only 50% of instructional content based on simple handouts and visual aids, engaging trainees in realistic practice of required skills has the potential to increase retention rates to 90% and furthermore, there is consensus in the literature that long-term retention of tasks is improved by increasing the amount of practice in the original learning environment.

The premise that simulated real-life environments and tasks presented in ITAS and MUDTAS provide opportunity for contextualisation of knowledge and demonstration of understanding has been a catalyst for the ready acceptance by educators of such learning and assessment tools. As indicated in the discussion of simulation use in the medical, military, aviation, and policing domains, there is limited evidence from research as to whether contextualisation of learning and assessment in these environments transfers to real-world application, and as to which elements of these pedagogical tools influences the transfer of learning.

The current research is unique as it has been viewed through the lens of operational NSW police officers and their consideration of how the learning experience in the simulated environment has impacted on the decisions they make in the field. This approach seeks to understand the elements of ITAS and MUDTAS which create the authenticity of the learning environment and how they engender transfer of learning to real-world application.
2.5.1 Skill transfer

As referred to in section 2.5, a focus of this research has been to explore the relationship between the characteristics of a simulation-based learning exercise and the resultant skill transfer. Billett (1996) proffered the notion that transfer of knowledge and expertise is based on combining the cognitive and sociocultural constructivist perspectives of knowledge acquisition. Historically, these two isolated perspectives have suggested that transfer: (1) is mediated by the structures represented in the mind (Greeno, Smith, & Moore, 1993), and depends on the cognitive structure acquired in initial learning and applied in the transfer situation; and (2) depends on the social activity (sociocultural pathway) in which the learning takes place, where the emphasis is on the structure of the activity (Greeno et al., 1993).

Billett (1996), in his work on reconciliation between perspectives of thinking and doing, concluded that circumstances are an active and mutually transforming element in the construction of knowledge, which requires both cognitive structures and social activity for transfer to occur. Further, the concept that situated learning plays an integral role as an avenue for developing the capacity to transfer knowledge and expertise is at the core of the view put forward by Gott, Hall, Pokorny, Dibble, and Glaser (1993), in their findings on intentional transfer. In these circumstances, when the need to transfer is known, more able performers access prior mental models acquired in contextualised learning environments and these guide their performance in developing strategies for resolving new problems. Rieber (1992) similarly referred to the notion that:

... constructivists describe learning as occurring through interactions with one’s environment or culture. Therefore, the potential for learning at different levels is thought to grow as the environment becomes richer and more engaging for the learner. (p. 94)

This premise finds an alignment with the pedagogical construct which embraces simulations reflective of real-world practice for developing learner knowledge and understanding.

Similarly, Baudhin (1987) suggested that highly realistic training environments are required for the training to acquire meaning and that structured training experiences are required to support the development and application of learnt response sets (that is, mental models). What is of interest in the current research is the role of ITAS and
MUDTAS and their specific characteristics in aiding the transfer of knowledge and expertise. The following questions provided an avenue through which to progress this research:

- Do ITAS and MUDTAS learning environments provide adequate contextualisation (the social dimension) to allow the development and application of mental models?
- Do ITAS and MUDTAS learning environments provide a conduit for the transfer of such mental models to real-time situations in the learners’ professional practice?
- Are there elements of a simulation environment which increase the degree of transfer, and those which have a detrimental influence?
- Do novice and expert learners require similar or diverse elements within a simulation to aid transfer of learning?

Developing a response to these questions necessitated consideration of the characteristics of the concept of near and far transfer. Detterman and Sternberg (1993, p. 5) explained the difference between these concepts by suggesting that:

... the more similar the original learning situation and the new situation the more likely the transfer is to be called near transfer. The more different the original and new situations, the more likely the transfer is called far transfer.

The importance of this concept becomes apparent when it is considered in the context of the reality of the police environment, whose intrinsic nature dictates that no two policing situations are identical. A key element in aiding contextualisation of learning, the subsequent transfer of knowledge and the demonstration of understanding is the inherent requirement in the simulation exercises for problem-solving. According to Billett (1996) there is a clear intersect between problem-solving and the pathway to expertise as advanced in cognitive psychology and the sociocultural theories of the transfer of knowledge and expertise. An influential element embodied within the learning environments discussed here, ITAS and MUDTAS, is the requirement for problem-solving as a pivotal element of the simulation exercises. The consequence of embedding the requirement to problem-solve in simulation activities offers the opportunity for the learner to engage with the essential process of transferring knowledge and expertise to aid decision-making. Further, situating problem-solving as a key process in the simulation exercises provides for a nexus between the simulated
world and the real-world of operation. An important element for effective policing is the ability to make decisions using a combination of intuitive and explicit problem-solving strategies. The core characteristics of problem-solving (Andre, 1986) require mental and behavioural activities to deal with problems which may involve the combination of cognitive, emotional, behavioural and motivational components. Problem-based learning specifically in police training, according to Cleveland (2006), is a teaching or training method characterised by using real-world problems so students can learn critical thinking and problem-solving skills and acquire knowledge. Whilst in simulation scenarios there is not necessarily adequate opportunity to follow a problem-based learning model, as prescribed by Cleveland for example, the central tenet is the opportunity for problem-solving and the subsequent potential for transfer of the experience and learning to real-world situations. Norman and Schmidt (1992) reflected this premise in their review of evidence pertaining to problem-based learning in which preliminary evidence suggested problem-based learning may be a channel for the transfer of concepts to new problems.

Central to the discussion of practice-based education, problem-solving, authentic and situated learning, and transfer of knowledge and expertise is the affordance of simulation environments to replicate real phenomena. Previous discussion in relation to developments in the world of games and entertainment and their synergy with the education paradigm has revealed the increasing reliance on, and demand for, simulations to replicate real life. Understanding the value learners place on the elements of realism and fidelity in the simulation environments has the potential to contribute to the body of knowledge dedicated to instructional design of simulations which seek to present authentic situated learning experiences.

2.5.2 Realism and fidelity

With the move towards collaboration between the educational domain and the gaming and entertainment industries to develop learning environments reflective of real-world aesthetics and conditions, there has been to some degree unconscious blurring of the meanings attributed to realism and fidelity. Maran and Glavin (2003, p. 23) concurred with this suggestion in commenting:
Inevitably, in any discussion of simulation, the term fidelity will be used to describe some aspect of the reality of the experience. However, lack of consistency in the use of the term has led to much confusion.

In seeking to provide clarity for the term ‘fidelity’, Maran and Glavin offered the following:

Fidelity is the extent to which the appearance and behaviour of the simulator/simulation match the appearance and behaviour of the simulated system. (2003, p. 23)

The earlier work of Hays and Singer (1988), seminal authors in the field of simulation fidelity, concluded that “simulation fidelity is the degree of similarity between the training situation and operational situation which is simulated” (p. 50). Expanding their explanation of fidelity, Hays and Singer suggested simulation fidelity is a two-dimensional measurement of this similarity in terms of:

(1) the physical characteristics, for example, visual, spatial, kinesthetic etc.; and
(2) the functional characteristics for example the informational, and stimulus and response operations of the training situation. (p. 51)

Here, fidelity provides the measurement tool against which the level of realism achieved in a simulation exercise or scenario may be determined. Hays and Singer (1988) referred to categories of fidelity, that is, psychological, functional, physical and task.

Similarly, Maran and Glavin suggested:

... engineering or physical fidelity is the degree to which the training device or environment replicates the physical characteristics of the real task ... The concept of psychological or functional fidelity ... this is the degree to which the skill or skills in the real task are captured in the simulated task. (2003, p. 23)

Categorising fidelity in this manner and isolating the various components which create a simulation experience assist in understanding the impact of these components on training and on the subsequent transfer of learning. Whilst the technology fraternity drive the search to create ever more realistic simulated experiences, in the education field there are those who have acknowledged the need for caution in this endeavour. The work of Dahlstrom, Dekker, van Winsen, and Nyce (2009) in exploring issues relating to fidelity and validity of simulator training, in particular, within the aviation industry, suggested that there is an assumed relation between fidelity and transfer of training in many industries when they point out “the often taken for granted relationship
between simulator fidelity and the quality and transferability of training in complex, dynamic, safety-critical settings” (p. 305).

Dahlstrom et al. (2009, p. 308) further concluded that:

high levels of technologically driven fidelity can simply be wasteful in terms of costs and time relative to the pedagogical undertaking at hand ... as well featurism can be distracting both for the trainer and the trainee especially when the features argued for, promoted and designed in are skewed in the direction of realism.

Departing from realism in order to provide the most effective training was suggested by Hays and Singer (1988, p. 15) as a potential necessity, dictated by the specificity of the fidelity characteristics of the training situation. Thomas (2004, p. 1), whose work provides insight into the relationship between learning transfer and simulation technology, alluded to this notion of low fidelity offering high levels of transfer in commenting:

There exists considerable research evidence suggesting that low-fidelity simulation can achieve high levels of transfer of training, without the organisational burden of costs associated with high fidelity simulators. Similarly, research suggests that there is not a simple direct relationship between fidelity and learning outcome in the simulation based training environment.

This suggestion resonates with the findings by Maran and Glavin that:

... a number of studies have demonstrated that high transfer can be achieved with simple simulators (including paper exercises or simple cardboard models) when training cognitive tasks and procedures. (2003, p. 23)

Similarly, in a review of virtual reality as a medium for safety-related training in the minerals industry, Tichon and Burgess-Limerick (2009, p. 25) discussed the role of low- and high-fidelity in aiding transfer of learning and concluded:

... it has also been determined that while absolute fidelity in training for stressful workplace situations is not critical for skills to be transferable, the virtual environment does need to replicate conditions similar to those that will be encountered in the real-world when the aim of training is to develop cognitive skills such as hazard perception and decision making.

The question which, according to McGaghie et al. (2010), remains unanswered in the medical simulation field is: How much fidelity is enough or too much? A review of the literature in this field of enquiry does not present a conclusive answer. The literature
suggests there may be common denominators for design and instructional guidance in developing simulations focused on specific learning outcomes and, therefore, realism in some training contexts may be counterproductive. The suggestion is that training contexts which confine learners to specific detailed environments and situations may impede their ability to transfer the learning experience to other contexts. Winn, Windschitl, Fruland, and Lee (2002) supported this notion in proffering that the more the simulation practice adheres to rigid representations of reality, the higher the likelihood the learner will demonstrate an equally inflexible post-training performance.

A focus of the research presented in this thesis is the development of an understanding of the level of fidelity and of the elements which are pivotal in creating the simulation environment necessary to provide a course for developing a police officer’s capacity for transfer of learning to meet the demands of their profession. Intimately connected to understanding the relationship between fidelity and learning outcomes is understanding the role of immersion and presence experienced by the learner in the simulated environment. Exploring the relationship between the fidelity of the simulation environment and the sense of immersion and engagement this provides for the learner will assist in informing a response to the question posed by McGaghie et al. (2010, p. 53): “how much fidelity is enough or too much?” when applied to the policing education domain. As indicated earlier in this chapter, including not only responses from the VirTra and Minerva participants’ experience immediately post-simulation exercise but also their reflection on their return to operation in the field seeks to explore the influence of the fidelity of the simulation in a more comprehensive way than earlier research.

Developing an understanding of the role of fidelity in aiding the transfer of knowledge and skills from the simulation-based learning experience to the real world of a police officer’s professional practice has the potential to contribute to understanding if there are different simulation characteristics for novice, as opposed to experienced, learners in the policing domain.

2.5.3 Presence and immersion

As this research seeks to provide an understanding of the influence of both individual and collective elements of simulation-based exercises in police education programs, the
concepts of ‘presence’ and ‘immersion’ in relation to simulation are important areas of consideration. A review of the literature indicates that much of the work and discussion in relation to presence and immersion emanates from exploring these concepts as attributed to computer desktop–generated virtual environments (see Dalgarno & Lee, 2010; Dede, 1996; Egges, Papagiannakis, & Magnenat-Thalmann, 2007; Romano & Brna, 2000; Santos, Merat, Mouta, Brookhuis, & de Waard, 2005; Winn et al., 2002; Witmer & Singer, 1998). In discussing what is known or has been suggested about presence, Lombard and Ditton concluded that:

Despite the centrality and importance of presence, it has not been carefully explicated operationalised or studied. The work that has been done is fragmentary and unsystematic, in part because people interested in presence come from many different academic fields (including communication, psychology, cognitive science, computer science, engineering, philosophy, and the arts). Further, research conducted for or by private industry and government has typically remained proprietary. (1997, para.7)

Table 2.2 presents a summary of the findings from Lombard and Ditton’s (1997) research and assists in clarifying the meaning attributed to the concept of presence.

Table 2.2  Meaning attributed to the concept of ‘presence’

<table>
<thead>
<tr>
<th>Presence conceptualisation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence as social richness</td>
<td>The extent to which presence is perceived as sociable, warm, sensitive, personal or intimate when used to interact with people</td>
</tr>
<tr>
<td>Presence as realism</td>
<td>The degree to which a medium can produce seemingly accurate representations of objects, events, and people</td>
</tr>
<tr>
<td>Presence as transportation</td>
<td>Three distinct types of transportation: you are there, in which the user is transported to another place; it is here, in which another place and the objects within it are transported to the user; and we are together, in which two (or more) communicators are transported together to a place that they share</td>
</tr>
<tr>
<td>Presence as immersion</td>
<td>The idea of perceptual immersion: the degree to which a virtual environment submerges the perceptual system of the user; and psychological immersion: the degree to which a person is immersed, absorbed, engaged, engrossed</td>
</tr>
<tr>
<td>Presence conceptualisation</td>
<td>Example</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Presence as social actor within medium</td>
<td>Users’ perceptions and the resulting psychological processes lead them to overlook the mediated nature of an entity illogically</td>
</tr>
<tr>
<td>Presence as medium as social actor</td>
<td>Social responses to computer-generated media by users ignore the mediated nature of a communication experience, with basic social cues exhibited by the medium leading users to treat the medium as a social entity</td>
</tr>
</tbody>
</table>

The literature further suggests there is both an interchangeable use of the labels of presence and immersion, with potential for confusion, and there exists a tension in relation to the concepts of presence and immersion in the context of simulations. Witmer and Singer (1998, p. 225) suggested a helpful definition of presence as “the subjective experience of being in one place or environment even when one is physically situated in another”.

Similarly, Gorini, Capideville, De Leo, Mantovani, and Riva (2011, p. 99) discussed a mediated sense of presence created in simulated environments as a “technology-induced illusion of being present in one (simulated) place when one is actually present in another (physical place)”.  

In the often cited work of Slater, Linakis, Usoh, and Kooper (1996, p. 164), presence was defined as a “state of consciousness, the (psychological) sense of being in the virtual environment and corresponding modes of behaviour”. Slater et al. suggested that participants who are ‘highly present’ should find the environment more engaging than the surrounding reality, leading to behaviours which would be more aligned to those displayed in similar circumstances in the real world (1996). The tension occurs when the participant is physically located within the simulation environment but is not engaged in the environment, so their presence is distracted towards other places. To accomplish the feeling of presence, Santos et al. (2005) suggested the participant must be involved with the simulated/virtual environment and tasks to the point of becoming unaware of the mediating technology.  

Measuring the sense of presence experienced by a participant in simulations, for example, ITAS or MUDTAS, is complex and not necessarily conclusive as suggested in
the work of Slater (2004). Further, Slater, whilst indicating presence is a product of the technology, also suggested that questionnaires alone cannot measure presence. Similarly, Witmer and Singer (1998) suggested that measuring presence is not straightforward due to the multiplicity of factors, that is, selective attention, along with perceptual fidelity and other sensory factors which affect how much presence is reported. A further factor which adds complexity to the measurement of presence in a simulation is the confusion experienced by the learners in understanding the meaning of presence and immersion.

In seeking to clarify these concepts, Dede (2009, p. 66) suggested:

> Immersion is the subjective impression that one is participating in a comprehensive, realistic experience ... immersion in a digital experience [for example, VirTra] involves the willing suspension of disbelief, and the design of immersive learning experiences that induce this disbelief draws on sensory, actional and symbolic factors.

Sadowski and Stanney (2002) clarified the concepts and their interrelationship in suggesting that the feeling of immersion, whether physical or psychological in nature, offers opportunity for the user to engage with the sense of belief that they have left the real world and are now present in the virtual or simulated environment. Similarly, the work of Witmer and Singer (1998, p. 227) concluded that:

> Immersion is a psychological state characterized by perceiving oneself to be enveloped by, included in, and interacting with an environment that provides a continuous stream of stimuli and experiences.

Witmer and Singer further suggested that higher levels of presence will be achieved when the simulated environment produces a higher level of immersion, and that when a user is able to move within a virtual environment and interact with entities within that environment, the sense of immersion will also be increased. The authors extended this view, interpreting this movement and interaction as involvement, and concluded that involvement plus immersion will equal presence. The human factor was considered to be pivotal to this view.

In contrast, there is a school of thought, led by the work of Slater (see Slater et al., 1996; Slater & Wilbur, 1997), that immersion is an objective description of the technology which produces the virtual environment. The simulation environments, the subject of this research work, are at opposite ends of the spectrum in terms of the level
of reliance on technology. The diversity of characteristics between the two simulation-based learning environments in the current study will provide valuable insight into the debate seeking to define immersion in the virtual or simulated environment. It is important to note that the research methodology here extended beyond questionnaires to personal interviews with participants about their post-simulation experience.

2.6 Chapter 2 summary

This chapter has presented the historical developments in the technology domain, including the gaming and entertainment industries, and their relationship to, and impact on, the development of technology-assisted simulations for education purposes. Discussion of the implementation of technology-assisted simulations in the fields of policing, medicine, aviation, and defence, and resultant research from these endeavours has provided the background for the current research.

As discussed in this chapter, the literature identifies limited published research which explores, and reflects (from the field of real-world operation) on, the impact of simulation-based learning experiences in the transference of knowledge and skills from the training domain to the real-world of professional practice. The literature suggests that technology-assisted simulation environments such as ITAS and MUDTAS have the potential to offer an experiential learning paradigm whilst simultaneously providing a platform for presenting authentic learning and assessment contexts. Arthur et al. (2010) reported on the examination of the comparative effectiveness of distributed practice schedules in enhancing performance for participants trained through a command and control micro-world (microscopic level) simulation. Their study acknowledged the influential role played by extending research into a participant’s professional world, seeking to reflect on the impact of the simulation environment. There is a valuable commercial and intellectual advantage in understanding, from this real-world perspective, first, the role of fidelity and task in simulations and the balance between these two dimensions, and, secondly, the impact on participant learning of simulation-based learning experiences.

The review of prior research as discussed in this chapter demonstrates a need for further research which builds on understanding the influence collectively and individually of the characteristics of a simulation-based learning environment on the transfer of
learning. One of the key research questions explored in this study is: What characteristics of a simulation exercise are required to enable transfer of learning from the training environment to operational policing? An important aspect of the research is the extension into the field of operation post-simulation exercise to capture the reflections and observations of participants of the simulation-based learning exercise from the perspective of their real-world experiences.

Conducting this research with the VirTra and Hydra/Minerva simulation environments has the potential to contribute to the wider body of literature in this pedagogical domain and more specifically to the field of police education. The research outcomes have the potential for transfer to other high-cost, high-risk professions, for example, the medical field, where, similar to the military, simulations have been adopted into the education and training arena. A common denominator for these areas are the high risk and high stakes associated with the decisions made by members of these professions in the conduct of their real-world professional practice.

A further area of exploration for this research includes developing an understanding of the influence of simulation-based learning beyond the transfer of learning to its influence on a learner’s professional identity. The theoretical framework to be discussed in the next chapter will be particularly important in addressing Research Question 1 of this study: What is the influence of simulation exercises in developing professional identity in policing?
Chapter 3  Theoretical framework

3.1  Introduction

The purpose of this chapter is to discuss the theoretical frameworks which have been chosen to assist in explaining the influence of simulation training exercises on a police officer’s decision-making skills for real-world application. The chapter begins with a discussion of Pierre Bourdieu’s (1984) concepts of *habitus, field* and *capital*, which will assist in understanding the impact of learning experiences on the development of personal and professional identities. The relationship between professional identity and a community of practice, here the community of policing, is revealed through discussion in the latter part of this chapter which presents the nexus between Bourdieu’s concepts and the underpinning characteristics of membership within a community of practice as espoused by Jean Lave and Etienne Wenger (1991). Employing these complementary theoretical frameworks of Bourdieu, and Lave and Wenger, paves the way for explaining the tangible and intangible factors which influence how a police officer approaches, and makes decisions in, a simulated environment, and the factors which lead to the transference of learning from there to the unpredictable reality of the workplace.

Developing an understanding of the influence of simulation exercises on a police officer’s decision-making skills necessitates identifying and examining the many factors within a simulation exercise which, in combination, have the potential to influence the development of these skills. The selection of Pierre Bourdieu’s concepts of *habitus, capital* and *field* for this research is to provide a theoretical framework for understanding the influence of the simulation experience on the participant’s development. Employing Lave and Wenger’s concepts for a community of practice provides a framework through which to understand the influence of the simulation participation on the development of the participant’s relationships within their community of practice.
3.2 Introducing Bourdieu

The application of sociologist Pierre Bourdieu’s (see Bourdieu, 1977, 1984, 1990a, 1990b, 1998; Bourdieu & Wacquant, 1992; Thompson, 1991) ‘conceptual tools’ collectively provides a framework through which to clarify the relationships between: the personal attributes an officer brings to the policing role, the manner in which they engage with the expectations of their peers and the profession, the impact of on- and off- the-job training, and the demands of the law enforcement role which requires decision-making skills for high-risk situations. Calhoun, Li Puma, and Postone (1993) suggested that Bourdieu’s work which focused on developing a general theory of culture produced conceptual tools through which to explain the relationships between:

- a person (agent, that is, police officers);
- their habitus (beliefs, attitudes, education, life experiences);
- the fields (the social spheres in which they connect and/or operate, that is, a police officer’s workplace); and
- their capital (that is, a police officer’s education, rank, social status, which influence both the construct of the field, the manner in which a person engages with the field and the position a person has within that field).

Webb, Schirato, and Danaher (2002, p. 1) articulated the generally accepted value and meaningfulness of Bourdieu’s concepts as a means for understanding social interaction in suggesting:

... his concepts of habitus, field and capital ... constitute what is arguably the most significant and successful attempt to make sense of the relationship between objective social structures (institutions, discourses, fields, ideologies) and everyday practices (what people do and why they do it).

Pausing here to provide a brief background to these Bourdieuan concepts will pave the way for a more comprehensive understanding of the intersect between the research participants’ perceptions, behaviours, training and workplace experiences. Whilst there is some debate (Fowler, 1997; Robbins, 1991; Sterne, 2003) as to the origins of Bourdieu’s philosophical perspectives and the development of his ‘conceptual tools’ as a means for exploring sociological phenomena, Bourdieu identified, in The logic of practice (1990b, p. 10), that “habitus was an old Aristotelian and Thomist concept that I completely rethought”.

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In Bourdieu’s work, *In other words* he returned often to make the point that whilst authors such as Marx, Durkheim and Weber represent landmarks which structure our theoretical space and our perception of this space, he did not subscribe exclusively to either of their sociological perspectives; rather, he took from each that which he found useful and thus developed a new, broader, unrestricted perspective (1990a). Calhoun et al. (1993) suggested that Bourdieu argued social life must be understood in terms that do justice to objective, material, social and cultural structures, on the one hand, and the constituting practices and experiences of individuals and groups, on the other.

It is on the basis of this flexible, open-minded approach – with a preparedness to acknowledge the scientific approach to understanding social reality and the contention that there is a need to embrace a more reflexive practice in analysing why people do what they do – that Bourdieu’s notions of *habitus, capital and field* provide the pivotal tools to assist in providing a valuable systematic analysis of a person’s behaviour in a specific environment.

### 3.2.1 Habitus

Fundamental to understanding the role of simulation exercises in the development of a police officer’s capacity to undertake decision-making in high-risk situations is the need to understand what the novice or experienced officer brings to the situation. Specifically, the officer’s background, beliefs, education, confidence, expectations – their make-up, as Bourdieu described, the *habitus*:

... is an open system of dispositions that is constantly subject to experiences, and therefore constantly affected by them in a way that either reinforces or modifies its structures. (Bourdieu & Wacquant, 1992)

To provide a balanced interpretation and application of Bourdieu’s concept of *habitus*, consideration is given here as to how this concept has been further discussed by others. Webb et al. (2002, p. xii), for example, described Bourdieu’s concept of *habitus* as:

... a concept that expresses on the one hand the way in which individuals ‘become themselves’ – develop attitudes and dispositions – and, on the other hand, the ways in which those individuals engage in practices.

Similarly, Calhoun et al. (1993, p. 4) suggested that Bourdieu’s notion of *habitus* is in essence the “dynamic intersection of structure and action, society and the individual”.

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Bourdieu acknowledged that *habitus* is a living concept, allowing for ongoing modification, change and flexibility as a person lives in the moment, commenting that:

... the conditionings associated with a particular class of conditions of existence produce *habitus*, systems of durable, transposable dispositions, structured structures predisposed to function as structuring structures, that is, as principles which generate and organize practices and representations that can be objectively adapted to their outcomes without presupposing a conscious aiming at ends or an express mastery of the operations necessary in order to attain them. (1990a, p. 53)

Webb et al. (2002, p. 36), in summing up their interpretation of Bourdieu’s *habitus*, wrote:

In other words *habitus* can be understood as the values and dispositions gained from our cultural history that generally stay with us across contexts (they are durable and transposable) ... The durably installed generative principle of regulated improvisations ... [which produces] practices is Bourdieu’s reference to that part of *habitus* which is the partly unconscious ‘taking in’ of rules, values and dispositions.

Bourdieu tended to emphasise that the *habitus* does not imply a permanently static state; rather, it is an active state, open to changes influenced by experiences. It is structured by one’s past and present circumstances (for example, family upbringing and educational experiences) whilst at the same time it is structuring in that one’s *habitus* helps to shape one’s present and future practices (Maton, 2008). It is these notions which are central to understanding the impact of learning experiences on the education and development of a police officer.

Bourdieu’s concept of *habitus* analoegised to the policing domain suggests that those entering the policing profession bring with them their life experiences, for example, education, family and cultural beliefs. These past experiences will influence their development as a police officer. The many and varied learning experiences police officers are privy to, both in the formal police educational domain and the informal on-the-job environment, have the potential to continually reshape and evolve their *habitus*. In the current research, an area of exploration is that of understanding the influence the simulation-based learning experience exerts on the evolution of a police officer’s *habitus*. Bourdieu suggested that a person’s *habitus* is partly a subconscious act which will continue to be shaped and defined by a person’s experiences:
... the schemes of the *habitus*, the primary forms of classification, owe their specific efficacy to the fact that they function below the level of consciousness and language, beyond the reach of introspective scrutiny or control by the will. (1984, p. 466)

It is this notion of potential change in a person’s *habitus* that provides the window through which to observe/understand how professional development experiences such as simulation exercises may impact on an officer’s *habitus*.

Chan (2004, p. 333) suggested that, in considering the *habitus* of policing, it is valuable to consider Sackman’s (1991) four dimensions of cultural knowledge. These four dimensions include:

- axiomatic knowledge (the fundamental knowledge about why things are done the way they are). This is the known, self-evident knowledge of policing and aligns with Bourdieu’s notion of *doxa* – the presuppositions inherent in the *field* of policing (1990a). *Doxa* refers to the core values and discourses (M. Dillon, 2010) that a *field* articulates as its fundamental principles, which tend to be viewed as inherently true and necessary; and, in the current research, it aligns with the fundamental principles of western-democracy policing.

- dictionary knowledge (which provides definitions of, and labels for, persons, things and events encountered by police in the course of their work)

- directory knowledge (which informs police officers about how operational work is routinely carried out)

- recipe knowledge (which suggests what should or should not be done in specific situations, providing recommendations and strategies for coping with police work and proposing attitudes to be adopted towards police work and the reward expectations) – the officers’ *investment* in their profession; as Bourdieu identified: their *illusio*.

This view of *habitus* as it relates to police officers connects seamlessly with Bourdieu’s notion of *field*, the place where *habitus* manifests in practice. As Maton (2008) explained, the *habitus* does not operate in isolation but is intimately interwoven with, and has an unconscious relationship (Gregory et al., 2011) with, the concept of *field*. Further, Thompson (1991) suggested that a person’s particular practices or perceptions, their *habitus*, should be considered in terms of the relationship between the *habitus* and
the *field* or *social context* in which that person acts. Bourdieu referred to this interconnection between *habitus* and *field* when commenting:

> The *habitus* ... enables an intelligible and necessary relation to be established between practices and a situation, the meaning of which is produced by the *habitus* through categories of perception and appreciation that are themselves produced by an observable social condition. (1984, p. 101)

Seeking to explain the relationship between people’s practices and the contexts in which those practices occur, Bourdieu expressed the interrelationship between the three ‘thinking tools’ as:

\[ ((\text{habitus}) (\text{capital})) + \text{field} = \text{practice}. \] (1984, p. 101)

On this premise, the concept of *field* plays an influential role in creating and defining a person’s practice or way of practising. It is therefore important at this point to discuss in more detail the concept of *field*.

### 3.2.2 Field

Applying Bourdieu’s relational model to the study of a police officer’s learning experience and subsequent transfer of the experience into their professional practice necessitates contextualising the concepts of *capital* and *field* in the policing profession. Calhoun et al. (1993), in discussing this relational model, suggested that Bourdieu utilised the concept of *field* as a ‘frame’ defined by the ‘agents’ (for example, students, novelists, scientists) who step into the frame and the history, logic of action and forms of *capital* which are associated with the frame.

With Bourdieu’s tendency to use sporting analogies to explain concepts, he referred in *The logic of practice* (1990b, p. 67) to a *field* as “the pitch or board on which a game is played, the rules, the outcome at stake”. Bourdieu further analogised the relationship between the *field* and the agents within the *field* by proffering that a *field* is simultaneously a space of conflict and competition – the analogy here being with a battlefield, in which participants vie to establish a monopoly over the species of *capital* effective in it (Bourdieu & Wacquant, 1992). Bourdieu explicitly compared a *field* to a game in his comments:

> ... we can indeed, with caution, compare a *field* to a game although unlike the latter, a *field* is not the product of a deliberate act of creation and it follows rules
or, better regularities that are not explicit or codified. (Bourdieu & Wacquant, 1992)

Bourdieu expanded the explanation of the concept of *field* in suggesting a *field* may be described as follows:

... defined as a network, or a configuration, of objective relations between positions. These positions are objectively defined, in their existence and in the determinations they impose upon their occupants, agents or institutions by their present and potential situation (situs) in the structure of the distribution of species of power (or *capital*) whose possession commands access to the specific profits that are at stake in the *field*, as well as by their objective relation to other positions (domination, subordination, homology, etc.). (1992, p. 36)

Prior (2011) has interpreted Bourdieu’s concept of *field* as competitive arenas, social networks of conflict in which players manoeuvre to conserve or augment their address in relation to others in the same space. In this context, there would be little argument that the nature of policing could be considered a game; and Bourdieu’s underpinning concept of *field* synergises with the *field* into which officers step, to participate in their profession.

Bourdieu suggests that to determine a limit to a *field* is impractical as limits or boundaries are a product of the *field* itself and distinctions and rules only matter or have meaning for those involved, those who know how to read the game and have a stake in it. An equally important descriptor is that of overlapping fields, and people may have membership in multiple *fields* and move in and out of different *fields*. Similarly, the structure of the *field* is defined by the state of the relations of force between the players in the *field* (Bourdieu & Wacquant, 1992). In discussing the *field* of practice for police, Chan (2004, pp. 329–330) acknowledged that the *field* of policing is:

... like any other *field*, ... a social space of conflict and competition which is structured by hierarchies of rewards (*capital*) and sanctions (negative *capital*) ... and within the *field* of policing itself, agents compete for the control of various types of resource or *capital*.

Chan’s view of the policing *field* resonates with Dimitriadis and Kamberelis’ (2008) interpretation of Bourdieu’s concept of *field*. Dimitriadis and Kamberelis suggested that the *field* is a dynamic social arena in which struggles and exchanges take place that involve the practices common to the field, and result in the kinds and measure of *capital* a person can accrue.
Analogised, for the policing field, the players are the officers who have a vested interest in the play within the field as it has implications for their place in the hierarchy of policing (rank) and their interaction with the other players (officers). The ability to read the game in policing matters to the individual officer; knowing the construct of the field, the unwritten rules of engagement, perceptions, the collective attitude, and their own position within the field, influences their own actions in the field. The field for police is their world of work, and this research offers an opportunity to explore a microcosm of that world, developing an understanding of the influences which affect an officer’s actions within the field.

In Bourdieu’s conceptual framework, a player’s place within a field is dependent on the amount of capital they bring and/or obtain within the field. Whilst Bourdieu loosely defined capital within economic, social, cultural and symbolic categories, each of these influences the others and they subsequently overlap within the broader field.

Capital as described by Bourdieu has, as suggested here, an influence on the movement and place an officer takes in a field. To enable a more complete analysis of the influence of participation in simulation exercises such as VirTra and Hydra/Minerva, it is valuable to discuss the factors which would be embraced under the label of capital.

3.2.3 Capital

Fowler (1997, p. 31) suggested that central to Bourdieu’s work is the notion that there are different forms of capital. These forms are explained as:

- cultural capital – the knowledge, skills and other cultural acquisitions as exemplified by educational or technical qualifications;
- social capital – encompassing reputation, honesty and intellectual honesty;
- symbolic capital – illustrated by accumulated prestige or honour; and
- economic capital – material wealth in the form of money, stocks and shares.

For some, the accumulation of capital brings with it the capacity through the power of the capital they hold to maintain their position in a field and/or to utilise it to move around the field and influence the distribution of the forms of capital specific to the field. Bourdieu referred to people who do this as ‘agents’ as they facilitate and/or
negotiate distribution of *capital* and, consequently, influence the position people may have in a *field*. Specifically, Bourdieu referred to agents:

... as bearers of *capitals* and, depending on their trajectory and on the position they occupy in the *field* by virtue of their endowment (volume and structure) in *capital*, they have a propensity to orient themselves actively toward the preservation of the distribution of *capital* or towards the subversion of this distribution. (Bourdieu & Wacquant, 1992, p. 108)

Calhoun et al. (1993, p. 69) noted there are immaterial forms of *capital* – cultural, symbolic, and social – as well as a material or economic form, and that with varying levels of difficulty it is possible to convert one of these forms into the other. In *An invitation to reflexive sociology*, Bourdieu and Wacquant (1992, p. 119) noted that:

... *capital* presents itself under three fundamental species ... namely economic *capital*, cultural *capital* and social *capital* ... to these we must add symbolic *capital*.

In 1986 Richardson (p. 243) defined Bourdieu’s meaning of economic *capital* as that “which is immediately and directly convertible into money”. Bourdieu further clarified that cultural *capital* could be interpreted:

... as informational *capital* and social *capital* consists of resources based on connections and group membership whilst symbolic *capital* is the form the various types of *capital* take once they are perceived and recognized as legitimate. (Baldwin, 2012, pp. 3–4)

The policing context would suggest that these *capital* forms would translate to symbolic forms that represent the rank of an officer in the hierarchical organisation, with symbolic *capital* having the capacity to influence the social status an officer would expect to be attributed to their rank. The policing profession is widely acknowledged as having developed a culture (language, practices) specific to the practice of policing. The social *capital* held by an officer is therefore both dependent on and influences the cultural *capital* ascribed to the rank of an officer.

Chan (2004, p. 346) suggested that, for police officers, these forms of *capital* are recognised as presented in Table 3.1.
Table 3.1  Relationship between a police officer and Bourdieu’s forms of capital

<table>
<thead>
<tr>
<th>Cultural capital</th>
<th>Knowledge, skills and experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social capital</td>
<td>Goodwill, cooperation and camaraderie</td>
</tr>
<tr>
<td>Symbolic capital</td>
<td>Favourable reputation amongst an officer’s workmates and superiors and by extension</td>
</tr>
<tr>
<td>Economic capital</td>
<td>Rank within policing hierarchy (which denotes a monetary/salary value)</td>
</tr>
</tbody>
</table>

As shown in Table 3.1, extending Chan’s (2004) analysis, it would be reasonable to recognise economic capital as representative of rank (which, in the police employment domain, is associated with an identified monetary value) in the organisational hierarchy. Following Bourdieu’s concept of the interrelationship between field and capital, in the policing profession what constitutes the content of the forms of capital is legitimised by the officers, who are members/players in the field of policing. There are rules, regulations and standards within the police organisation which influence a portion of the legitimacy of capital, while the remainder is determined by the players on the field and is manipulated dependent upon the motivation of those players who join and leave the field.

The nature of those tangible and intangible elements which are encapsulated under each form of capital indicates that they may be acknowledged as belonging to more than one form of capital. Financial status, obtained, for example, by promotion within the policing organisation, is inextricably linked to reputation amongst peers and superiors. This example also demonstrates a further characteristic of Bourdieu’s relational concepts of capital and field, namely that capital rewards gained in one field may be transferred to another (Calhoun et al., 1993, p. 5). Here the capital rewards obtained by officers in the policing field (for example, by promotion) are transferrable to and recognised in the social realm in which they operate outside their policing environment.

Bourdieu’s foundational social concepts indicate that a person’s habitus will be further shaped by their engagement with a specific field (that is, the players and actions within that field) subsequently influencing their practice. This resonates with the communities of practice work of Lave and Wenger (1991). It is appropriate at this point, prior to
moving to a discussion of concepts of community of practice, to summarise this
discussion of the Bourdieuian concepts and their relationship to the current research
project.

3.2.4 Relationship between Bourdieuian concepts and research questions

As a key area of exploration within this research is developing an understanding of the
influence of simulation-based learning on learning transfer, it is the Bourdieuian
concept of *habitus* that leads to identifying and acknowledging the attributes officers
bring to their policing career and how these attributes change as a result of their learning
experiences. Experiencing simulation exercises has the capacity to influence an officer’s
*habitus* and potentially influence their perceived and actual *capital* within the policing
domain. Further, simulation exercise participation has the potential to enhance an
officer’s decision-making skills and hence their place and role within the *field* of
policing. Aligning the research participants’ perceptions, reflections, and consequences
of their simulation exercise experiences with the notions of *habitus*, *capital* and *field*
enables understanding of the role of simulation exercises in developing an officer’s
professional identity, and the identification of simulation characteristics which are
influential in developing an officer’s practice. Figure 3.1 presents a diagrammatic
representation of the interrelationship between a police officer’s *habitus*, *capital* and
*field*. 

As suggested in the preceding discussion, the police workplace characterises a field the members of which through their interaction and negotiations legitimise the individual and collective practices of the members on the field. Further, the practices of the members within the field legitimise the identification and accumulation of collective and individual capital. This suggested overarching perception resonates and synergises with the characteristics of a community of practice as advocated by Jean Lave and Etienne Wenger (1991). The notion that Bourdieu’s sociocultural concepts are complemented through alignment with those advocated by Lave and Wenger as underpinning concepts for learning in communities of practice is not new (Hodkinson & Hodkinson, 2004; Somers & Daemen, 2008). Lave and Wenger suggested that a community of practice is “a set of relations among persons activity, and world, over time” (1991, p. 98), and it is one’s interaction with the community of practice which

**Figure 3.1** Diagrammatic representation of Bourdieu’s concepts in the policing domain.
modifies a person’s *habitus*. Somers and Daemen suggested the theoretical perspectives of Bourdieu and Lave and Wenger are complementary in developing an understanding of the developmental role of learning experiences for the learner. Somers and Daemen (2008), in referring to the relationship between the theoretical perspectives of Bourdieu, and Lave and Wenger, proffered the suggestion that Lave and Wenger adopted Bourdieu’s social practice theory in their formulation of a ‘situated’ view of learning which is embedded within the foundations for their concepts for communities of practice.

Hodkinson and Hodkinson (2004) discussed the relationship between the two theoretical frameworks of Bourdieu, and Lave and Wenger, in their work, which applies Bourdieu’s social concepts to extend understanding of Lave and Wenger’s concepts of communities of practice. Mutch (2003) suggested in his critique of communities of practice and *habitus* that there is some tension created by the perspectives of Bourdieu, and Lave and Wenger. Mutch referred to Bourdieu’s suggestion that one’s *habitus* is durable and transposable with emphasis on dispositions to act in very similar ways in very different circumstances in noting the tension formed with Wenger suggesting dispositions are modified depending on the practices of a community with whom one engages. In the current research, employing the concepts attributed to a community of practice facilitates understanding why and how police officers develop their identity within the policing community and invest in, and engage with, the practices of the community to evolve their *habitus*, accrue capital and establish their place in the *field*.

### 3.3 Communities of practice

#### 3.3.1 Introduction

The concept of communities of practice is used as a theoretical framework in the current research as it assists in:

1. providing an understanding of the aspects of learning through simulation which impact on an officer’s identity and practice; and
2. exploring the role of simulation exercises as being a conduit for situated learning which is made meaningful through reflection and engagement with others in a shared experience.
Pivotal to understanding the full implications of the simulation exercise experience for an individual police officer, and the impact on those with whom they share their policing duties, is considering the nature and influence of competing or complementary influences. In the context of this research the influence from membership of a community of practice which comes to bear on an officer’s decision-making skills is an area of interest.

The following section will discuss the concept of ‘community of practice’ and explore the individual components which collectively create a community of practice. The relationship between an individual police officer and their community, and the influence of simulation-based learning experiences on the development of the officer’s professional identity within their community will be presented.

### 3.3.2 Concepts of communities of practice

The term ‘community of practice’ gained prominence initially in the late 1980s and in the 1990s through the seminal works of Rogoff and Lave (1984), Lave (1988), Brown, Collins, and Duguid (1989), Brown and Duguid (1991), Lave and Wenger (1991), and the individually authored work of Wenger. The general theme in these works is the notion that learning in communities of practice is situated and collaborative. Whilst this was one dominant common theme, there were also distinct differences in the foundational concepts as explained in the following. Lave and Wenger (1991) reported their study of situated learning and argued for a new approach to understanding learning, particularly in relation to development and application of learning in the workplace. In this context the authors advocated that learning for the community of practice members is through the reproduction and modification of an existing practice and embraces the influence on learning of the informal situated social interaction which occurs in the workplace.

The work of Brown, Collins, and Duguid (1989) and Brown and Duguid (1991) has a common underpinning concept with the work of Lave and Wenger, that is, that learning is situated and collaborative. Central to the discussion presented by Brown and Duguid (1991) is the notion that learning is enabled through the generation of new practice, and that central to the community of practice is the sharing of narrative.
The work of Wenger extended the initial premised theme of collaborative and situated learning to provide elaboration of the three characteristics which both identify and define a community of practice: mutual engagement, joint enterprise and shared repertoire. The role of the individual, and their relationship with the community of practice, is also further articulated with discussion of: membership of more than one community, and intersecting/overlapping communities; scaffold levels of participation in communities of practice; and the development of trajectories for progression within a community of practice and as an exit from a community of practice.

In 2002, Wenger, McDermott, and Snyder extended the generally accepted fundamental concepts of a community of practice to give guidance for developing and supporting communities of practice in the world of business. On a similar basis to that which predicated the work of Wenger, McDermott and Snyder, it is the characteristics of a community of practice as espoused in the original work of Lave and Wenger that underpins the theoretical framework for the current research project.

The meaningful characteristics of communities of practice were described by Lave and Wenger (1991, p. 98) in commenting:

[Community does not] imply necessarily co-presence, a well-defined identifiable group, or socially visible boundaries. It does imply participation in an activity system about which participants share understandings concerning what they are doing and what that means in their lives and for their communities.

The policing profession exemplifies a community of practice as suggested by this description: officers share in the practice of policing, the language and actions which are intrinsic to day-to-day operational policing work; and they share the organisational goals of maintaining law and order in both short-term circumstances and long-term. Barab and Duffy (1998) have provided an interpretation of the Lave and Wenger term ‘communities of practice’ in suggesting it encapsulates the importance of activity in binding individuals to communities and involves a collection of individuals sharing mutually defined practices, beliefs, and understandings over an extended time frame in the pursuit of a shared enterprise.

Wenger (1998) postulated that there are three interrelated (and by necessity coexisting) grouped characteristics which identify practice, the essential activity around which the communities of practice are created and maintained:
• Joint enterprise,
• Mutual engagement, and
• Shared repertoire. (p. 73)

These concepts require explanation as they provide the underpinning criteria which determine the contextualisation of policing as a community of practice.

3.3.3  Mutual engagement, joint enterprise and shared repertoire

3.3.3.1 Mutual engagement

The concepts of mutual engagement, joint enterprise and shared repertoire share a common theme in that they exist by embracing active content. Nardi and Miller (1991) and Wenger (1998) concurred that a commitment to the shared domain of interest is central to the existence of, and membership to, a community of practice and such commitment must be active. Communities of practice are not static, symbolic representations: the individual and the community constitute nested interactive networks, with individuals transforming and maintaining the community as they appropriate its practices. Wenger, McDermott, and Snyder (2002, p. 30) noted that:

Whatever creates that common ground, the domain of a community is its raison d’être. It is what brings people together and guides their learning.

The domain of interest is created through the intersection of the three key characteristics: mutual engagement, joint enterprise, and shared repertoire.

Wenger suggested that it is pivotal to the sustainability of a community of practice that mutual engagement be enabled as it has the capacity to unite members into a social entity. On this premise, Wenger acknowledged that mutual engagement is created through a community’s members being engaged in a common practice. Emphasis was placed by Wenger on the suggestion that a shared practice of mutual engagement can be created by identifying and acknowledging complementary knowledge members bring to a community, what knowledge members do not have and which, as a community, the members seek to learn. The action of acknowledging the attributes and knowledge a member brings to a community of practice provides the member an entree to the community of practice and to contributing to the joint enterprise.
3.3.3.2 Joint enterprise

‘Joint enterprise’ reflects the negotiated systems and communally agreed objectives which mould and support the transformation of the individual and the evolving community. The connection for the members within the community of practice occurs through their joint goal of making the enterprise relevant and by legitimising its practices. Participating in the negotiation of a joint enterprise provides an avenue for further community coherence. Joint enterprise, Wenger proposed, is:

the result of a collective process of negotiation that reflects full complexity of mutual engagement; and defined by the participants in the very process of pursuing it. It is their negotiated response to their situation and thus belongs to them in a profound sense in spite of all the forces and influences beyond their control. (1998, p. 77)

A further point of explanation was provided by Wenger in clarifying the concept that the enterprise is joint through “being communally negotiated not in that everybody believes the same thing or agrees with everything” (1998, p. 78).

In general, Australian police organisations are in part guided by the Universal Declaration of Human Rights (Balatinez, 2010), with the goals for policing organisations founded on the general mantra to keep the peace and protect life and property. In the frontline of policing this evolves as the shared daily policing experiences of upholding the law, that is, as a law enforcer. Irrespective of the diverse processes employed by policing organisations in achieving their goals, they are bound by the common objectives of law enforcement in western society.

The foundations for establishing the ‘rules of engagement’ within the community through joint enterprise are interconnected with the aspects of common cultural and historical heritage, as Wenger proffered, their ‘shared repertoire’.

3.3.3.3 Shared repertoire

Wenger suggested that shared stories and histories provide the basis on which the members are able to negotiate meanings and language for the community. Police officers bring to their profession their personal history, values and beliefs (as Bourdieu ascribed to their habitus) and through the shared learning of, and experience in, police work, a common language and knowledge base is negotiated. As Wenger (1998, p. 48) further explained:
we all have our own theories and ways of understanding the world, and our communities of practice are places where we develop, negotiate and share them.

Underpinning the community of practice is the creation of a shared repertoire which Wenger (1998, p. 83) explained as including:

... routines, words, tools, ways of doing things, stories, gestures, symbols, genres, actions or concepts that the community has produced or adopted in the course of its existence and which have become part of its practice.

The literary world is littered with a range of publications revealing the experience and stories of ‘cops on the beat’. There are also the informal times and places for stories to be shared whilst on duty – long hours of surveillance, the police station meal room, the kilometres covered and hours spent travelling in a patrol car. The formal sharing of stories, and with it, shared meaning, evolves through the formal documented reporting of cases and incidents attended by police in the conduct of their duties. The kinship and sense of ‘family’ that is acknowledged as traditional within policing embraces and encourages the sharing of stories. Whilst the motivation for sharing these stories is many and varied, one of the focal outcomes is the potential contribution such community sharing provides to the learning of police work. The potential learning from sharing a repertoire is applicable not only for the novice learner but, through the intrinsic nature of policing being a continuum of new experiences, such opportunity for learning extends to the more experienced officer. Sharing stories, contributing to the repertoire, aids the development of an individual’s identity within the community; for some, it aids entry into the community. A contemporary example of the value placed on the sharing of stories, language and artifacts, all contributing to the repertoire, is identified in police recruit training programs. Here such stories, language of the practice, and experiences are utilised as a learning tool, providing a guide for understanding the application of policing skills and concepts, and for potential entry into and acceptance by the community of practice.

Wenger suggested that, over time, the joint pursuit of an enterprise creates resources for negotiating meaning and this development of a shared repertoire aids community cohesion. Such repertoire is created from, and guides members in, the ways of knowing and doing within their work practices. The cohesion created by the elements of this repertoire is enabled not only through their individual attributes but also through their collective pursuit of an enterprise. The activities, dialogue, practices, goals of the
policing domain align seamlessly with those characteristics Wenger (1998) suggested as being present in the repertoire of a community.

Renewal of the shared repertoire occurs through the natural cycle of policing which dictates that new members will join the community and others will leave active engagement with the community (for example, upon retirement from the police service). The resultant effect is continual adjustment to the communal knowledge base. This process, Wenger suggested, is an element of mutual engagement where members engage in mature practice, and maintain the community through allowing the ‘newcomers’ to develop relationships and embody the communal practice and rituals, thus ensuring the continual evolution of the community of practice.

Appreciatively, at the core of the community of practice are the members. Membership and the associated place held within a community are dependent on the identity a member establishes by participation within the community. Lave and Wenger (1991) suggested that understanding the workings of a community of practice is achieved through understanding the notion of participation as it relates to communities of practice, their members and the identity of both. Active engagement and participation in the community of practice is a notion often repeated in discussion of communities of practice and, as Wenger emphasised, participation is an active process involving the body, mind, emotions, and social relations, and is not only situated within specific activities but extends to participation with the broader community which, in Bourdieuan terms, is aligned with the concept of the field.

3.3.3.4 Participation

On the premise that communities of practice evolve through providing a collective environment for learning, Lave and Wenger sought to clarify where an individual is situated in relation to the community based on their learning collateral. Lave and Wenger further suggested that a learning trajectory is an avenue through which an individual progresses in finding their place within the community. Those who are newcomers to the community of practice, not yet familiar with the rules of engagement, the shared repertoire, are on the cusp of contributing to mutual engagement and joint enterprise. In line with Lave and Wenger’s community of practice concepts, these newcomers would be considered legitimate peripheral participants (LPPs).
A police recruit, commencing their training as a police officer, epitomises the characteristics of an LPP. In line with Lave and Wenger’s suggestion that, as a member of the community amasses learning collateral, engages with the community, and contributes to the joint enterprise and shared repertoire, they move on a trajectory towards centripetal participation. Senior experienced police officers, as exemplified in those participating in the Hydra/Minerva public order incident simulation for the NSW Police Force Incident Command and Control course, have the potential to demonstrate centripetal participation.

Key concepts for Lave and Wenger’s communities of practice are the concepts for understanding communities of practice and the roles and actions of its members. To provide the basis for discussion in Chapter 8, further explanation of LPPs and centripetal participants (CPs), and the associated notions of identity, trajectories and brokering, is appropriate here.

### 3.3.3.5 Legitimate peripheral participants (LPPs)

The concept of LPPs has its foundation in the deliberations of Lave and Wenger in seeking to articulate a theory of learning which encapsulates situated learning. Important to their considerations was extending beyond the formal apprenticeship model of learning to embrace the informal learning which occurs within a community created through a common practice of language, cultural nuances, rituals and shared repertoire (1991). Lave and Wenger suggested that LPPs learn:

> who is involved; what they do; what everyday life is like; how masters talk, walk, work, and generally conduct their lives; how people who are not part of the community of practice interact with it; what other learners are doing; and what learners need to learn to become full practitioners. (1991, p. 95)

Fundamental to the concept of LPPs is not only learning situated in practice but learning as a pivotal component of practice. Lave and Wenger (1991, p. 53) suggested that:

> learning is not a condition for membership [of the community], but is in itself an evolving form of membership.

As indicated in the label ‘legitimate peripheral participants’ there are three core characteristics which in combination describe the one labelled as an LPP (Lave & Wenger, 1991). The first of these is the notion of legitimacy. Legitimacy is sanctioned
by the community when a potential community member commences and continues to be a part of the practice through demonstrating knowledge and understanding of the practice. The member demonstrates their legitimacy by application in practice of the ways of knowing and doing which are associated with the community of practice. The junior police student, commencing their training and association with the policing fraternity, receives their legitimacy from the community through demonstration of their understanding and application of the ways of the policing community. Measures of legitimacy are aligned with use of police jargon and demonstrated acceptable behavioural norms for the policing profession. As the junior police recruit reaches formal police training milestones they also earn a measure of legitimacy within the policing community of practice.

The second component of peripherality identifies the position or location of the practitioner within the field of a community of practice. The notion of peripherality, when considered in terms of communities of practice, does not equate with being on the outermost edge of the community but, rather, it suggests being in a place which has access to the community and opportunities for learning, understanding and increased involvement with the community. The suggestion that members who are positioned on the periphery of a community of practice have more than an observational post is articulated by Lave and Wenger (1991, p. 95) in the following comments: “... it crucially involves participation as a way of learning – of both absorbing and being absorbed in the ‘culture of practice’ ”.

In reference to the role of observation, this is an important concept in relation to members’ establishing their legitimacy as they develop from a legitimate peripheral member to a centripetal member. To develop a sound and defensible level of understanding and mastery of a community’s rituals, behavioural norms, language and cultural heritage, to be recognised as a centripetal member, requires observation and access to the breadth of activities and learning within the community.

A position on the periphery does allow newcomers access to:

... an increasing understanding of how, when and about what old-timers collaborate, collude, and collide, and what they enjoy, dislike, respect and admire. In particular, it offers exemplars (which are grounds and motivation for learning activity), including masters, finished products, and more advanced apprentices in the process of becoming full practitioners. (1991, p. 95)
Analogised to the policing domain, newcomers are the newly recruited police students adopting peripheral positions within the community of practice. The peripheral positions these newcomers hold offer access to understanding the cultural norms acknowledged and displayed by longer serving police officers, the behaviour which gains respect within the community of policing practice.

Importantly, peripherality in this context denotes a place from which the participant can move on a learning trajectory within the community towards centripetal participation. Centripetal participation is demonstrated by those in a position held by the seasoned practitioner, demonstrating sustained engagement with the community, and adoption of the rituals, cultural nuances, and ways of knowing and doing of the community of practice. The centripetal member has a role in brokering the newcomers to the community.

The intrinsic nature of communities of practice is predicated on participation of the members and this is the third component of LPP: participation. Through participation the community evolves, renews and remains sustainable. The measure of participation by a member prescribes their place in the field of the community of practice; whether a peripheral member or a full participant, active participation is a determining membership factor. Full participation is measured not only in active engagement: it also denotes a position of mastery of the rituals, language, and cultural norms of the community of practice. Conversely, members may be acknowledged by the community as having mastered the rituals, language and cultural norms of the community and may choose not to participate fully as a centripetal member demonstrating full membership; rather, they choose to move around within the community. From this position they are able to engage in brokering access to the community of new members and new knowledge for the community.

A member’s position within the community of practice, achieved through engagement with the learning within the community of practice, also reflects the members within the community.

3.3.3.6 Identity and trajectories

As members of a community of practice acknowledge each other’s participation within the community they are also acknowledging the identity the member has established
within the community. The notion of identity is, according to Lave and Wenger, profoundly connected to practice.

In referring to the connection between practice and identity, Wenger suggested that such identity is defined by the experience of participation. Participants are defined by the way they participate, the measure of their participation in their practice as a peripheral or central member. In concert with how participants define themselves is also the view other members have of a participant’s engagement with the community of practice. The community membership Wenger explained translates into an identity as a form of competence. Participants in a community of practice manifest themselves through what is known, what is recognised and what is readily understood. Equally, Wenger suggested participants’ identity is shaped by what is not known, is unfamiliar and what is difficult to interpret.

The notion that the development of a participant’s identity is a continual process is at the core of Wenger’s suggestion that, as participants experience a series of forms of participation within the community of practice, their identities form trajectories both within and across the community of practice. These trajectories, Wenger (1998) argued, are not static predetermined paths, but rather, a continuous motion. This view can be articulated as five forms of trajectories:

- **Peripheral** trajectories are those which do not lead to full participation with the community of practice – potentially a commencing police recruit who does not progress beyond the minimum engagement with the community of practice.

- **Inbound** trajectories are for newcomers who hold the prospect of becoming full participants within the community. For example, the new police recruit who engages with, and adopts, the cultural norms of the community of practice as a part of their journey to full membership.

- **Insider** trajectories reflect the continuum of renewal and renegotiating of a participant’s identity, supporting the notion that participation does not stop once full membership or centripetal participation has been achieved – the community of practice being constantly active provides the opportunity for insider trajectories to be experienced; for example, the seasoned police officer, who whilst achieving full membership continues to engage with the practices of the community, contributing to the continual evolution of the practices of the
community. Their place on the field, their capital accumulated and recognised, is influenced by the nature of their workplace, resulting in demands to renegotiate their identity through interplay with members of the community of practice. The result of such interplay also renews their legitimacy within the community.

- **Boundary** trajectories are those which realise a spanning across communities, forging links. For those who work across boundaries, dealing with a diversity of experiences, cultural norms, rituals, and shared repertoire presents challenges for sustaining an identity. For example, the senior officer who seeks to act as a broker for the LPP, occasioning access to broader communities of practice. An example within the NSWPF domain would be brokering access to specialist units within the service. For members of specialist units within the NSWPF, whilst they demonstrate the wider community of practice norms, they also establish their own community of practice and norms related to their professional practice within the specialisation field. A further analogy is the senior police officer who, having acquired legitimacy within the community of practice, seeks to broker for the newly recruited probationary constable entry to the community of practice and access to resources within the community which aid in establishing and defining the new recruit’s trajectories.

- **Outbound** trajectories have an emphasis that is placed on members joining and developing identities with communities of practice. Not all members remain within the community, and they may grow beyond the community. Wenger cited the example of children as they grow and move from one community to another. A member may create an outbound trajectory through choosing not to participate in the community, and avoiding active engagement beyond that which is necessary to maintain tentative membership. For the police officer due to retire from active service, an outbound trajectory may be their chosen course. There are those members who are effectively rejected by community members, resulting in an outbound trajectory. Potentially an example for the community of practice/s created in the policing profession may conceivably exist for the officer who does not adopt and practice the norms of the community. For example, the officer found officially guilty of illegal activities. In the policing environment, outbound trajectories have the potential to be established by those
who leave the policing profession, cutting all association with the profession and its members. It is also possible that members who have multiple memberships create outbound trajectories, not necessarily by choice, rather, the nature of multiple membership may restrict their capacity to have anything but limited engagement with each community of practice.

These forms of trajectory suggest that a community of practice is a field of possible trajectories and potential identities. Negotiating identity is not without tension. As the newcomers enter the community, seeking to establish their identities, they have a need to understand the history of the community and may not necessarily be seeking to change practice. Experienced members may have more of a vested interest in seeking to change for the future, moving forward from historical aspects of the community to create a new history. Wenger suggested that the past the present and the future are not in a simple straight line but embodied in interlocked trajectories.

According to Wenger (2000) the connection between practice and identity is as a nexus of multi-membership defined by the way a member reconciles various forms of membership into one identity. Members come to communities of practice with a history of belonging to many communities of practice; how a member engages with the practices of any one or more communities concurrently defines their identity within each community of practice. Wenger did not suggest that membership in communities of practice is mutually exclusive; rather that this multi-membership influences the identity the member establishes within each community.

There is similarity in perspective here with Bourdieu’s concept of field and the notion that members find a place or many places within the field of practice on the basis of the attributes which create their identity in the community. Bourdieu also contended that members may have a place in more than one field concurrently. Police officers belong to more than one community of practice concurrently: they are officers within their local area command, who may also belong to police specialist/expert communities, family communities, religious communities, education communities of practice.

Wenger suggested further that the relationship between practice and identity can be considered as a relation between the local and the global defined by negotiating local
ways of belonging to broader communities and manifesting broader styles and discourses.

This suggestion by Wenger seeks to explain the relationship between identity and practice in which members may choose to explore the role of their engagement with their community of practice and its impact on, and relationship with, the wider community. Wenger (1998) explained members’ involvement in this notion of exploring beyond the local community in the following comments:

In our communities of practice we come together not only to engage in pursuing some enterprise but also to figure out how our engagement fits in the broader scheme of things. Identity in practice is therefore always an interplay between the local and the global. (p. 162)

The five influencing factors on a member’s identity as previously described culminate in the premise that the community of practice is formed and maintained by the negotiation of its members’ identities, whilst at the same time, the individual member’s identity is formed by their negotiations with the community of practice. On this basis the relations a member establishes with their community of practice influences their legitimacy, their position/place within the community and their identity. As Bourdieu would subscribe, these relations determine the member’s capital accumulation and subsequent place in the field.

For the newcomer to the community of practice, acquiring knowledge and developing an identity which the community acknowledges and supports positioning on a learning trajectory towards mastery is the focal objective. Lave and Wenger suggested that it is the learning process undertaken by the newcomer in acquiring domain knowledge, participating within the community of practice, adopting and applying the language, rituals and cultural norms, negotiating relations which initially establishes them in a position of LPP. This process enables progression to full participation, acquisition of legitimacy and recognition of a place within the community of practice.

The learning journey for the police recruits commences with initial training, both formal and informal. They bring to this commencement of their journey, their life experiences, education, beliefs, way of viewing the world – as Bourdieu would describe, their habitus. The negotiation of meaning and regard for learning the nuances of police
culture, language, interaction with those inside and outside the organisation, and recognition and achievement of the informal milestones/benchmarks which bring with them acceptance/kudos within the policing fraternity, require active engagement by the junior officers. Included in this negotiation is regard for prior capital accumulation as explained by Bourdieu, and the influence it may exert on the creation of a learning trajectory within the community of practice.

Whilst there is a clearly defined formal learning trajectory for the recruit officer, it is achieving the formal learning whilst negotiating the informal which influences their place in the community of practice. This informal learning is realised as the adoption and application of the nuances attached to such language, culture and behaviour which are considered the norms of the community of practice and are the undocumented ways of knowing and doing within the community. Through the perspective of Lave and Wenger, it is not only the newcomer whose position and identity is determined by these factors. The old-timers are also subject to sustained negotiation of their positions. The senior NSWPF officers, for example, who undertake the Incident Command and Control course are seeking to alter their learning trajectories and their place in the field. Undertaking the training successfully for these officers adds to their capital and modifies their identity which is negotiated informally (the status amongst fellow police officers received through completing the police training course) and formally (promotion within the police organisation) with the community of practice. Such negotiation has the potential to change their position within the field.

The discussion in this section refers to the notion that communities of practice do not exist in isolation and their effectiveness in connecting with other communities influences their identity, the identity of the members and the community’s practice. How communities and members manage the interconnection between communities of practice is an important consideration in seeking to understand influences on the community’s practice, identity and identity of all members. As the members within individual communities of practice focus on their domains and deepen their expertise, they inevitably create boundaries (Clarke, 2010, p. 151).

3.3.3.7 Boundaries and brokering

Shared practice by its very nature creates boundaries. Wenger et al. (2002) suggested that whilst the label ‘boundary’ summons negative connotations, limitations and
exclusion, the reality is that boundaries can be sources of new opportunities, and crossing boundaries can be a source of a deep kind of learning. However, the challenge arises to enable facilitation of transactions between communities of practice. Here the role of brokering these transactions and forging links sustainable under potential confrontation and protest becomes pivotal. Wenger suggested: “the job of brokering is complex. It involves process of translation, coordination, and alignment between perspectives” (p. 109).

Further, the role of brokering requires the broker to have established a degree of legitimacy within the community of practice: by having accumulated capital which provides a platform from which they have influence in facilitating the passage of new knowledge from one community to another; by exploring new territories beyond the boundary of the community of practice; and by creating connections between communities of practice (Wenger, 2000).

Wenger (2000, p. 110) explained that the role of brokering requires:

... an ability to carefully manage the coexistence of membership and non-membership, yielding enough distance to bring a different perspective, but also enough legitimacy to be listened to.

In the context of western-democracy policing the importance attributed to boundaries and brokering as articulated by Wenger et. al. resonates. Wenger et al. suggested the following in clarifying the relationship between community boundaries:

... community development tends to turn a community within; boundary work turns it outward. Yet, communities of practice become truly knowledge assets when their core and boundaries evolve in complementary ways – creating deep expertise inside and constant renewal at the boundary. (2002, p. 154)

To respond effectively to the unique demands placed on police officers in contemporary citizen–police interactions necessitates working with the many arms of the medical fraternity, fire brigade officers, members of the public, and political and religious organisations, to name a few, all of whom have established communities of practice. The interplay and negotiation which occurs at the boundaries of these communities provides not only opportunity to collaboratively resolve immediate demands: it also provides opportunity for:
... something very creative [to] take place in the meeting of perspectives at these boundaries when participants make genuine efforts to listen to each other or to solve a common problem ... boundaries [becoming] learning assets in their own right. (Clarke, 2010, pp. 152–153)

3.3.4 Relationship between research questions and communities of practice

The simulation exercises undertaken by the participants in this research provide a microcosm of the multifaceted activities shared by officers in the wider world of their policing profession. Through application of the characteristics of communities of practice to the simulation exercise experience as articulated by the officers the following will be enabled:

- understanding of how the learning experience aids or hinders the development of an officer’s identity within the community of practice
- exploration and understanding of the role of the simulation exercise in an officer’s learning trajectory within the community of practice
- a way to understand the relationship between the newcomers and the old-timers, and the role the simulation exercise experience takes in influencing their relationships with each other and their community.

It is appropriate at this point to draw together the fundamental concepts attributed to Bourdieu’s sociocultural perspective and Lave and Wenger’s communities of practice, and to clarify their roles in this research.

3.4 Application of theoretical concepts to the research project

To contextualise the following rationale for the application of Bourdieu’s sociocultural concepts and those attributed to communities of practice by Lave and Wenger requires revisiting the overarching research question for this project:

What is the influence of simulation exercises in developing professional identity in policing?

Bourdieu’s approach to understanding the influence of learning for an individual as expressed through the concepts of *habitus*, *capital* and *field* and the approach to understanding the influence of learning through Lave and Wenger’s concepts of a
community of practice are complementary. Figure 3.2 provides a graphic interpretation of this interrelationship.

**Figure 3.2** Interrelationships between *habitus*, capital, field, and communities of practice.

It is the interrelationship between the two theoretical frameworks which provides the rationale for their application in this research. Pivotal to providing a response to the core research question is understanding the influence of the simulation exercise experience in altering/modifying an officers’ professional identity. This response is developed by exploring the influence of the simulation-based learning experience on their *habitus*, where they view themselves in the community of practice and by default which position the community members endorse the research participant as occupying within the community.

Chapter 4 will address the methodology adopted to investigate the influence of the simulation exercises on the participants’ professional identity, their relations in the wider policing domain, and their decision-making skills in the often complex, volatile and unpredictable real world of their policing practice.
Chapter 4  Methodology

4.1  Introduction

This chapter presents a discussion of the methodology employed in this research. An explanation of the rationale for the data collection methods utilised is presented and followed by a discussion of the application of these methods to the study of the VirTra and Hydra/Minerva technology-assisted simulation-based exercises. Included in this chapter is an explanation of the VirTra and Hydra/Minerva simulations and their role in their respective police training programs. Discussion of the data analysis process and tools employed to explore the data collected concludes the chapter.

For this research to be understood and examined from an informed platform it is appropriate at this point to outline the underpinning epistemological orientation, selection of research methodology, data collection strategies, analysis and reporting frameworks.

4.2  Epistemological stance

Connell and Nord (1996) suggested there are many terms used to define and explain epistemological perspectives and paradigms. In the main, this research study draws on a constructivist view. There continues to be debate (Grbich, 2007; Guba & Lincoln, 1989; Patton, 2002; Shadish, 1995; Simons, 2009) about the absolute definition of the constructivist view. The view proffered by Michael Crotty (1998) that suggests that all reality, as meaningful reality, is socially constructed, aligns closely with the generally accepted constructivist view. Patton (2002) clarified the constructivist view when he suggested that constructivists study the multiple realities constructed by people and the implications of those constructions for their lives and interactions with others. The constructivist epistemological perspective which leads to a constructivism/interpretivism paradigm or world view through which lens this research has been conducted suggests that the constructivism/interpretivism position assumes that (Grbich, 2007):

- reality is viewed as socially and societally embedded and existing within the mind;
• knowledge is constructed jointly in interaction by the researcher and the researched through consensus; and
• multiple realities are presumed, with different people experiencing these differently.

Consistent with this perspective is that to develop an understanding of the impact of simulation exercises on the transfer of skills to professional practice requires due attention to be given to the different experiences and perceptions of each of the research participants, and to capturing these different perspectives (multiple realities). On this premise, the methodological approach for this research focuses on exploration of the way people interpret and make sense of their experiences in the world in which they live and in particular how they contextualise, interpret and apply learning experiences to their professional practice and their wider social environment. The constructivist/interpretivist view has an apparent nexus with the theoretical perspectives of Bourdieu (1998) and Lave and Wenger’s (1991) communities of practice, as discussed in Chapter 3. The emphasis on understanding the impact of the simulation experiences on the participants’ learning, and, in particular, the transfer of such learning to professional practice, relies on interpreting their perspectives and experiences. Bourdieu’s philosophy of practice and the notions of habitus, capital and field in seeking to explain how and why people think and act (as discussed in Chapter 3) provides an appropriate framework for the constructivist/interpretivist approach for the current research. Similarly, Lave and Wenger’s concept of a community of practice provides an appropriate framework through which to interpret the research participants’ articulated perspectives and demonstrated behaviour.

As the research project is focused on the role of the simulation experience in the transfer of knowledge and skills for real-world application, embracing not only technological influences but also the significant sociological factors is critical in producing credible, rigorous, exploration and interpretation of the research data.

To be inclusive of the sociological factors which have the potential to influence a person’s learning experiences and their subsequent application of learning in the real world leads to the opportunity to embrace an interpretive process. Neuman (1994) suggested that the concept of interpretive methods in research was founded on sociologist Max Weber’s (1864–1920) concern with looking at how people feel inside,
how they create meaning and how their personal reasons or motivations can be used to understand them. Punch (2005) reported that, during the 1960s and 1970s, whilst this interpretive practice research received much scrutiny, support and criticism (Coser, 1975; Mehan & Wood, 1995), it continued to gather momentum as a means for providing a rich body of theory and research.

With respect to the overarching research question for this research being founded on seeking an understanding of how participants interpret their experiences, the constructivist/interpretivist approach allows the meanings and values of these experiences to be revealed. Critical to the research process and to the provision of opportunity to access research data which enables the application of a constructivist/interpretivist approach is the choice of research method.

4.3 Case study methodology

4.3.1 Introduction

To enable contextualisation of the following discussion in relation to the data collection method and tools applied in this research it is appropriate to present the rationale for inclusion of the case study method utilised.

The decision to situate this research within a case study design framework was influenced by the following determining factors:

(1) the epistemological constructivist/interpretivist approach was consistent with a case study framework, allowing the exploration of how participants within a bounded entity perceive their experiences. This aligns with the suggestion by Creswell and Clark that constructivism works to shape a world view in which the understanding of meaning and phenomena is formed from participants’ subjective views -

... when participants provide their understandings, they speak from meanings shaped by social interaction with others and from their own personal histories, in this form of inquiry, research is shaped “from the bottom up” from individual perspectives to broad patterns and, ultimately to theory (2007, p. 22)

(2) the project objectives met the five case study criteria as identified and prescribed by Stake (2005) as -
• **Issue choice:** The choice of issue is the impact of simulation exercises on developing professional practice. This issue requires the in-depth study of a phenomenon which occurs in a specific time and place and is therefore context-dependent.

• **Triangulation:** The study of simulation environments lends itself to the use of a multiple data collection method as discussed in section 4.4.

• **Experiential knowledge:** A case study facilitates the conveying of experience of the participants and stakeholders as well as the experience of studying the case. Here it is understanding the experience of the police officers undertaking simulation exercises which is at the very core of the research project.

• **Contexts:** The phenomenon under study here is context-dependent, that is, this study requires that participants be undertaking training to develop their professional practice and that a simulation exercise be viewed as a core training method.

• **Activities:** Case study research is founded on understanding the activity and the functioning of the selected case; here it is the learning through simulation.

Further, the design framework for this research draws on a case study as defined by Robert Stake (1995) and Robert Yin (1993). Stake (1995) and Yin (1993) noted that case study researchers and their recommended approaches for case study research often diverge, with Yin taking a more objectivist or scientific orientation and Stake a more constructivist view. Whilst the design framework for the current research embraces underpinning criteria from both orientations, it is predominantly Stake’s constructivist approach which has been applied. Stake (1994) distinguishes three main types of case studies:

• intrinsic case studies, where the study is undertaken because the researcher wants a better understanding of particular cases;

• instrumental case studies, where particular cases are examined to give insight into an issue or to refine a theory; and

• collective case studies, where the instrumental case studies are extended to cover several cases to learn more about the phenomenon, population or general condition being studied.
It is this third category in particular with which this research has been aligned. An important criterion implied by Stake’s definition is the inclusion of more than one case, with focus being both within a case and across cases (Punch, 2005). Additionally, the choice of situating this research within the case study framework draws on Simons’ (2009) view of alternative approaches to evaluating educational programs that were not founded on a positivist, experimental approach. As Simons proffered, engagement in case study research should contribute to participants’ self-knowledge, and dissemination to audiences beyond the case allows others to learn from it to inform decision-making, policy and practice. Merriam (2009) further suggested that a qualitative case study is particularly appropriate for exploring problems of education practice. Burns (2000) articulated clearly the relationship between case study and educational research in commenting that the case study approach has had an extensive and well-regarded history in educational research, especially in areas of psychology, including developmental psychology.

Simons (2009) discussed at length the evolution of case study research in the education arena with particular emphasis on the role of educational evaluation in the process of justifying the place of case study research in the education field. Burns (2000) supported the view of Simons and elucidated further that the case study is the preferred strategy when how, who, why or what questions are being asked. As suggested by Yin (1993), the case study framework is appropriate when the investigator/s desire to:

- define topics broadly and not narrowly;
- cover contextual conditions and not just the phenomenon under study; and
- rely on multiple and not singular sources of evidence.

Yin (2003) provided further explanation in suggesting a researcher would use the case study method because they deliberately wanted to cover contextual conditions, believing that they might be highly pertinent to the phenomenon under study. In the context of exploring the role of simulation-based experiences in police education programs, the following comments by Simons (2009, p. 179) provide a particularly transparent justification for the use of a case study approach:

… [a] case study using qualitative methods in particular enables the experience and complexity of programs and policies to be studied in depth and interpreted in the precise socio-political contexts in which programs and policies are enacted; through closely describing, documenting and interpreting events as they unfold in the ‘real life’ setting, it can determine the factors that were critical in
the implementation of a programme or policy and analyze patterns and links between them.

In line with these design parameters, seeking to understand the role of simulation exercises in developing professional practice, exploring the experiences of both senior police officers and new recruits in a learning experience aligns with a case study framework. Yin and Stake’s prescription for case studies extends to influencing the data collection methods applied in the current research.

**4.3.2 Case study data collection methods**

The perspectives of Yin and Stake in reference to data collection methods employed in case studies have influenced the approach to data collection for this research. As with Yin and Stake’s divergent approach to case study, they also advocated divergent perspectives on data collection methods. Yin (2003) favoured an approach to case study research which emulates the scientific method and this approach relies on collecting empirical data to test hypotheses and rival hypotheses. For Yin (1994), a case study inquiry would explore many variables of interest, and rely on multiple sources of evidence and prior development of theoretical propositions to guide the collection of data. Yin (2003) suggested that the role of theory development prior to the conduct of any data collection is one point of difference between case studies and related methods such as ethnography (Guba & Lincoln, 1989; Van Maanen, 1988) and grounded theory (Strauss & Corbin, 1988). The current research does not readily lend itself to the development of a specific theory and/or a hypothesis prior to studying cases. The discussion in Chapter 2 indicates that, whilst there is an emerging literature which focuses on the concept of practice-based learning and the development and implementation of simulated learning environments, most notably in the fields of defence, health and aviation, there is limited literature which discusses the role and impact of simulation training for law enforcement officers. A purpose of the current research then is to explore these elements, to understand the capacity for utilising simulation in training as a learning delivery method in practice-based education for policing, and to be open to and contribute to emerging theories in this field.

Punch (2005) suggested that Yin referred to a case study as not being defined by object or particularity but as a comprehensive research strategy, incorporating specific data
collection and analysis approaches which investigate phenomena in real-life contexts and in which the boundaries between the case and the context are not necessarily clearly evident. In contrast, the founding philosophy for Robert Stake’s (1995) approach to case study research draws on Louis Smith’s definition that the case is a bounded system drawing attention to it as an object rather than a process. To facilitate the bounded system approach, Stake (1995) drew on qualitative research methods to create a greater understanding of the workings and nature within a case, treating the uniqueness of individual cases and contexts as important to understanding. In contrast, in Yin’s quantitative approach, uniqueness in and of cases is treated as error.

In the work of Yin (1993, 2003) and Stake (1995), there is concurrence that qualitative and quantitative data collection methods are appropriate within a case study framework. Yin (1994) suggested that case studies can be based on any mix of quantitative and qualitative data, and identified the six major sources of evidence commonly used in case studies: documentation, archival records, interviews, direct observations, participant observations and physical artifacts. This suggestion supports the notion that case study–based research does not necessarily exclude quantitative methods for data collection. Combining the perspectives of Yin and Stake leads to adoption of a mixed-method approach to data collection for case studies. This approach resonates with the work by Simons (2009) who, in drawing on the work of Stake (1995) and Yin (1994), suggested methodology does not define the case study; although it shapes the form of a particular study, a case study may comprise quantitative data, qualitative data and a mix of methods.

The rationale for data collection as concluded by Yin, Stark and Simons predicates the mixed-method approach taken in this research. Section 4.4 will discuss the qualitative and quantitative nature of the data collection for the case studies in the current research, which includes Likert-scaled survey questions, open-ended questions, interviews and field observation notes.

As the aim of this research is to understand the role of simulation exercises in transferring knowledge and skills into professional practice, there was a natural progression to seek out instances where simulation exercises are used as a component of training to prepare learners for application of skills in the real world of their professional practice.
4.3.3 Case study selection and description (VirTra and Hydra/Minerva)

4.3.3.1 Introduction

A primary goal of this research is to develop an understanding of the role of technology-assisted simulation-based learning experiences in the transfer of learning to real-world practice for police officers. A consequence of this goal is the decision to explore police education programs which encompass ITAS and/or MUDTAS exercises. Within the NSWPF education program, both ITAS and MUDTAS exercises are incorporated into training programs in which developing an officer’s capacity to transfer learning from the training domain to real-world application is a pivotal objective. In this research the two simulation exercises in police education programs have in common the application of a decision-making model in high-risk, high-stakes operational policing. The ITAS and MUDTAS exercises included in this research present a close alignment to a collective of the three types of case study criteria as advocated by Stake. Table 4.1 presents the alignment between Stake’s case study criteria and the ITAS and MUDTAS cases.

Table 4.1 ITAS and MUDTAS alignment with case study criteria

<table>
<thead>
<tr>
<th>Stake’s criteria</th>
<th>Alignment with ITAS and MUDTAS exercises</th>
</tr>
</thead>
<tbody>
<tr>
<td>The cases present an opportunity for developing an understanding of the unique and similar characteristics of each case</td>
<td>Exploring the experience of participants in the ITAS and MUDTAS exercises offers opportunity to understand the how, what and why of the simulation exercises’ impact for participants in the individual cases and collectively</td>
</tr>
<tr>
<td>Examination of a case provides a conduit for insight into an issue</td>
<td>Including both the ITAS (VirTra) case and the MUDTAS (Hydra/Minerva) cases provides opportunity to explore the impact of simulation exercises on learning transfer for inexperienced &amp; experienced police officers</td>
</tr>
<tr>
<td>Examination of more than one case offers the opportunity to learn more about the phenomenon and population</td>
<td>Inclusion of one ITAS case and two MUDTAS cases provides opportunity to provide rigour to what is learnt about simulation exercise experiences and their impact in the wider world of a police officer’s professional practice</td>
</tr>
</tbody>
</table>
It is timely here to describe the case studies included in this research in order to demonstrate their alignment to Yin and Stake’s criteria and to further substantiate the relevance of a constructivist/interpretivist epistemological approach.

4.3.4 Case 1 VirTra

4.3.4.1 VirTra simulation technology

The VirTra simulation training product, an example of ITAS, provides five screens and a 300-degree immersive training platform. The judgemental use-of-force training mode supplies a library of realistic scenarios taken from after-action field reports. The audio system and transducers simulate sounds and movement. The environment has the capacity to employ a Threat-Fire device safely which simulates return fire with an electric impulse (or vibration option). Figure 4.1 depicts the VirTra simulation environment.

Figure 4.1 Depiction of VirTra environment.

The VirTra system website (VirTra.com) reports the following characteristics for the simulation environment:

One of the most important aspects of any simulator is the quality of the content. A combination of excellent visual and audio equipment gives our content designers the biggest and best capabilities for intense scenarios. VirTra Systems goes to great lengths to ensure our training content is superior in quality, realism, immersion, and relevance ... At close range, it is easy to tell a fake human or computer game character from a real human, and this exclusive VirTra
courseware includes actors that look, move, and just feel more realistic because they are interactive high definition video.

Whilst the VirTra system has the capacity to accommodate training utilising a variety of firearms, the system installed at the NSW Police Academy, and the subject of this research, enables the participants to utilise a replica Glock pistol and OC spray (oleoresin capsicum, a chemical compound that irritates the eyes to cause tears and pain). The system does not provide for the use of tactical options such as batons or physical restraint.

The participant officer or officers step onto a platform surrounded by the screens, onto which the high definition video is played. The video is operated by an instructor and the response from the actors in the video may be altered in response to the interaction with the participant.

The VirTra system operated by the NSWPF is equipped with the Threat-Fire device; however, this was not included in the training program undertaken by the student officers who were participants in this research.

4.3.4.2 Contextualisation of VirTra within NSW Police Force training program

To place the VirTra ITAS (hereafter referred to as VirTra) exercise in context requires both a description of VirTra and a brief explanation of the content of the education program of which VirTra is a component.

The initial recruit training program for police officers in New South Wales requires undertaking study of the Associate Degree in Policing Practice delivered in partnership by the NSWPF and Charles Sturt University. To enter the program an applicant must meet academic eligibility criteria, fitness criteria, professional suitability criteria (character reference checks, psychological testing). The eligibility criteria do not require former training in policing-related employment, activities, study or practice. It is not necessary, for example, for an applicant to have had previous firearms experience. The program consists of five sessions of study, each of approximately three months’ duration. There are multiple study options for undertaking Session 1, including studying by distance education, during which time students attend compulsory residential schools at the New South Wales Police Force Academy (hereafter referred to as the NSWPF Academy). This option takes six months. Alternatively, Session 1 may be studied full-
time on the NSWPF Academy campus. On successful completion of Session 1, all students attend full-time on the NSWPF Academy campus to complete Session 2. Following successful completion of Session 2, the students take an Oath of Allegiance to the NSWPF Code of Conduct, known as a Ceremony of Attestation. From the time of attestation a student becomes a Probationary NSWPF Officer and is assigned to operational duties at a police station in one of the NSWPF Local Area Commands. The study of curricula in Sessions 3, 4 and 5 is completed by distance education concurrent with the probationary officer’s operational deployment.

The VirTra exercise is situated in the Session 2 program. To aid the contextualisation of the VirTra exercise it would be useful to briefly outline the areas of study for Sessions 1 and 2. The participants in the VirTra case had already completed the following Session 1 subjects:

1. the foundational theory and practice for investigation practices;
2. police–citizen communication;
3. legislative operational powers for NSW police;
4. interviewing techniques;
5. use of contemporaneous police notebooks;
6. physical fitness training;
7. the use-of-force options of weaponless control; and
8. simulated policing scenarios. These simulation exercises are face-to-face role-plays and conducted in a simulated village.

Session 2 of the ADPP program for the research participants in this study included:

1. *Legislation/ Law Enforcement Powers and Responsibility Act* (2002), which is the legislation that provides the legitimate authority for officers to use force and carry and discharge firearms in the course of their duties. This legislation is often colloquially referred to by the student officers as their *justification* (for use of force).

2. Weapons and Tactics Training, which includes physical training as follows:
   (a) A Tactical Options Model which prescribes the appropriate level of force for the circumstance
   (b) Weaponless control tactics such as the process for handcuffing a person
(c) The physical training for dry fire (no bullets) and live fire (with bullets) for the Glock standard issue NSWPF firearm on a standard line firearms range.

(d) Participation in simunition exercises – simulated police–citizen interactions which provide opportunity for student officers to make decisions in confrontational situations. The design of the scenarios requires the student officer to either shoot or resolve through communication. The student officer participants are provided with a Glock 17T pistol which is loaded with a simunition round with the capacity to shoot small plastic projectiles containing a coloured gelatinous substance. The citizen wears a full body protection outfit inclusive of full face protection. The environment is an unadorned four-walled room. These exercises are observed from a ceiling platform by subject trainers who provide advice and feedback to the student officer on their performance.

(e) Participation in Redman exercises. These exercises are simulated police–citizen interactions in confrontational situations and allow for student officers to practise their communication and negotiation skills with a potentially violent citizen. Here also the students are observed by subject trainers and are provided with feedback post-performance.

(f) Participation in a VirTra simulation exercise.

4.3.4.3 VirTra exercise Case One

This section provides an explanation of how the participation in the VirTra exercises was managed for the VirTra participants.

The participants in Case One undertook their VirTra exercises during the 11th week of their 14-week Session 2 program. At this stage in their training the participants had: participated in one or more simunition exercises; participated in one or more Redman exercises; completed their formal Glock firearms training and assessment; completed more than 90% of the theoretical component of their Session 2 academic subjects (including topic areas: crime scene investigations, legislation and procedures; legislation and procedures for use of force by police officers; communication skills; and ethical principles and procedures for police officers); and had participated in weekly simulated policing activities reflective of operational police duties in the simulated village (only weaponless control employed).
Table 4.2, below, provides the stepwise procedure employed in the delivery of the VirTra simulation exercise.

**Table 4.2   Steps involved in VirTra simulation exercise**

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>The participants were rostered to attend the simulation facility for a two-hour period in groups of approximately 20 and assembled in the briefing room</td>
</tr>
</tbody>
</table>
| Step 2 | An instructor on duty at the simulation facility:  
- read the safety briefing sheet to the students and explained that:  
  - the scenario is depicted on a 300-degree surround floor to ceiling screen on which will be played a filmed real time event  
  - participants will be able to communicate with the people on the screen  
  - the response from the characters on the screen will be dependent on the communication and interaction from the participant  
  - the character’s response is managed by the instructor observing and operating the VirTra simulation;  
  and  
- reminded the participants not to discuss their scenario with participants who had not yet had their turn in a VirTra exercise  
- advised participants there was no opportunity for a trial run for each participant and there would be no demonstration of the VirTra simulation  
- advised participants that their choice of use-of-force tactics was limited to communication, debilitating spray, and gas-fired Glock pistol  
- advised participants they would not receive details of the VirTra scenario prior to the commencement of the simulation exercise  
- advised the exercise would be on an individual participation basis  
- advised participants they would receive a debrief from an instructor immediately following their performance  
- advised participants there was no formal order for participation  
- advised participants that due to time constraints there would normally be only one opportunity to participate during Session 2, if time permits there will be opportunity to participate in additional scenarios |
| Step 3 | The participants voluntarily stepped forward for their turn in the VirTra simulation exercises, length of engagement in scenario ranged from 3 to 5 mins |
| Step 4 | The participants exited the VirTra room and received a one-on-one debrief from one of the trainers who observed the participant’s performance |
| Step 5 | The participants entered a room immediately adjacent to the VirTra simulation and completed the research questionnaire |
| Step 6 | The participants chose either to re-enter the VirTra simulation room to observe the performance of other participants or wait in the briefing room until the two-hour class had concluded |
4.3.5 Cases Two and Three Hydra/Minerva

4.3.5.1 Hydra/Minerva simulation technology

This section provides an explanation of the Hydra/Minerva simulation environment and the application of the program for the ICCS course participants in Cases Two and Three. The Hydra/Minerva simulation program is designed for installation in a training suite which comprises the following:

- a plenary/lecture room which acts as both a briefing and debriefing room
- three or four syndicate rooms containing a computer, video screen, telephone, each of which is networked to the control room, conference table and whiteboards; the rooms are outfitted with the equipment the participants would need in a real life event
- a fixed command support/control room from which each syndicate room is monitored via closed-circuit television and boundary microphones. The technology network enables the feed of information to the participants; it may consist of intelligence briefings, police radio traffic, newscasts, or telephone calls. Officials control the exercise and feed of information to the trainees. The control room houses the subject matter experts, program training staff, and replicated police radio communications.

Figure 4.2 Graphic depiction of Hydra/Minerva simulation environment.
4.3.5.2 Contextualisation of the Hydra/Minerva simulation exercise

The simulation exercises which utilise the Hydra/Minerva MUDTAS technology to present a simulated policing incident chosen for this research, Cases Two and Three, are embedded in the NSWPF education program for incident command and control training. The NSWPF literature refers to the Hydra/Minerva simulation exercise for the ICCS course as a Tactical Hydra. To enable an informed analysis of the data collected in this research necessitates the clarification of the relationship between the broader training program known as the ICCS course and the Tactical Hydra MUDTAS as a culminating simulation exercise for the ICCS course. The ICCS course is conducted over five days and participants attend full-time, residing on the training campus for the duration of the course.

The initial briefing provided to participants at the commencement of the ICCS course explains that its objective is to enhance the knowledge and skills of current and potential operational NSWPF Police Commanders in the management of major public incidents and the NSWPF responses to emergencies. In line with this objective, the participants for the ICCS course are selected on their field experience in Police Command or Police Forward Command positions and/or on their potential to develop their capacity in the role of Police Commander or Police Forward Commander. In addition, where possible, a selection of staff from each of the respective Local Area Commands from which the Police Commanders or Police Forward Commanders are drawn are included as part of the sixteen-member learning cohort. The participants are allocated to teams, based, where possible, on the similarity of their real-time operational location.

Prior to commencement of the course participants are provided with ICCS course pre-reading material, the understanding of which is to: (1) inform or refresh knowledge in relation to NSWPF Emergency Powers; and (2) provide the basis for an examination conducted during the ICCS course. The ICCS course is meticulously structured to include learning opportunities in subject areas which will assist in informing the decisions taken in managing a NSWPF response to a major public incident. The topics and subject areas are presented in Table 4.3.
Table 4.3  
*Topics and subject areas for the ICCS course*

<table>
<thead>
<tr>
<th>Topic</th>
<th>Core subject area</th>
</tr>
</thead>
</table>
| Operational command and critical incident decision-making           | Operational command process:  
  - (1) situational assessment  
  - (2) appreciation process  
  - (3) plan [operational orders]  
  - (4) execute  
  - (5) debrief  
  - Theories of critical incident decision-making and the concept of recognition-primed decision-making (Flin, 1995) |
| ICCS functional areas                                               | Planning, operations, administration, logistics, investment, intelligence, public information (media)                                             |
| Risk management                                                     | Applying a risk management tool to the planning of a policing operation                                                                        |
| ICCS intelligence function                                          | Activating intelligence responses to inform decisions and risk management                                                                      |
| ICCS public information                                             | Strategic use of commitment to public information and media management of event                                                                |
| The appreciation process                                            | Appreciation process model:  
  - (1) review of situation  
  - (2) aim  
  - (3) factors and deductions  
  - (4) opponent courses  
  - (5) police course                                                                 |
| Command post management                                             | Command post considerations: location, staff required, responsibilities                                                                       |
| Identifying high-risk incidents                                     | National guidelines for deployment of police in high-risk incidents; definition of high-risk situation:  
  - (1) seriousness of threat  
  - (2) expressed intention by subject  
  - (3) reasonable grounds to believe may use lethal force  
  - (4) prior history (criminal)  
  - (5) possible victims                                                                 |
| Public order management awareness and policy                         | ICCS model (refer to Figure 4.3)                                                                                                                  |
| Crowd psychology                                                    | Catalysts for crowd behaviour; crowd management strategies                                                                                     |
| Public order legislation                                            | Legal obligations and legislation which defines: riot, violent disorder, major events, terrorism, and the authority invested in NSW police officers to manage incidents |
| Emergency management arrangements                                    | *State Emergency and Rescue Management Act* (1989), staffing an emergency management response, roles and responsibilities                        |
| Role of Police Forward Commander (PFC)                              | Who becomes a PFC, their role and responsibilities                                                                                             |
| Examples of operational ICCS application                            | Discussion of Operation Aroona (Dubbo, NSW)                                                                                                    |
The topics presented in Table 4.3 are delivered in the ICCS course by subject experts, many of whom also have had experience in commanding major public order incidents for the NSWPF. Inclusive in the subject delivery is contextualisation of the learning through presenting examples of the application of the learning in previous major public order incidents managed by NSWPF. At strategic points in the ICCS course agenda, desktop simulations enable the participants to apply their understanding of the subject areas. The continuous focus is on providing developmental opportunities for decision-making. The relationship between these subject areas and the ICCS model is represented graphically in Figure 4.3. The diagram also depicts simplistically the decision-making process. An important feature to note here is the six areas of consideration which contribute to strategic decision-making in line with the ICCS model and which also influence the strategic communication between the Commander of the incident and all other parties involved in the incident or who are impacted upon by the Commander’s decisions.

![ICCS model diagram]

**Figure 4.3** ICCS model.

An integral component of the ICCS course structure is the inclusion of team-based desktop simulation exercises which reflect the decision-making process required in real-world police operations. The simulation exercises run in parallel with the knowledge-based learning sections in the program, offering opportunity for the participants to apply their learning in simulated policing exercises. Importantly, the simulation exercises increase in complexity and time required as the course progresses. These simulation
exercises require a team approach face-to-face with text-based information and instructions. Teams are supplied with whiteboards, maps and data sheets relevant to the exercises. A debriefing discussion is conducted at the conclusion of each exercise to share the rationale and outcomes achieved for the individual team approach to the simulated policing exercise. The final simulation for the ICCS course is the Hydra/Minerva eight-hour exercise conducted on Day 5.

### 4.3.5.3 Hydra/Minerva ICCS simulation exercise

In general, the ICCS simulation exercise in the Hydra/Minerva suite at the NSWPF facility maintains a consistent delivery procedure. The delivery of each ICCS simulation exercise is not identical: minor adjustments are made to the delivery procedure mindful of evolving educational best-practice delivery techniques and of reflective consideration of each iteration, so that it may inform future implementations. The ICCS simulation exercise begins with an explanation on Day 4 of the ICCS course. This explanation is logistical in nature, advising the commencement time of the exercise and location. Table 4.4 describes the steps involved in the ICCS simulation exercise delivery.

**Table 4.4  Steps in the ICCS simulation exercise delivery**

<table>
<thead>
<tr>
<th>Step</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Briefing of all participants, which includes viewing of a video of a previous real-world public order riot. The viewing of the video sets the simulation exercise in context with explanation to the participants that the ICCS simulation exercise will be focused on providing opportunity for the participants to apply their understanding of the ICCS in a simulated public order event. Participants are advised of the start time and the finish time (five hours after the start time), and the duration of an exercise debrief (three hours is allocated) immediately following the exercise. Participants are advised that the event and their actions occur in real time, so, for example, if a resource such as a water cannon is requested and in real time it would take an hour to arrive at the location, in the simulation it will also take an hour to arrive. Participants are advised they will rotate through the syndicate rooms and the plenary room at 1 hour to 1.5 hour varying intervals with a 5-minute hot debrief between rotations (and that there will be a meal break for all participants of a maximum of 45 minutes). Each rotation begins where the previous one concluded, that is, management of the event within each syndicate room is handed to the next team assigned to that syndicate room.</td>
</tr>
<tr>
<td>Step</td>
<td>Explanation</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>Step 2</td>
<td>The participant group is divided into 4 subgroups and the police forward commanders are selected. The groups are allocated their syndicate room or the plenary room for the first rotation.</td>
</tr>
<tr>
<td>Step 3</td>
<td>The participants are provided with commencing exercise status, the local area command to which they have been assigned, time of day, current events occurring within Local area command.</td>
</tr>
<tr>
<td>Step 4</td>
<td>1st rotation: 1 hour followed by 5-minute hot debrief and 15-minute meal break</td>
</tr>
<tr>
<td>Step 5</td>
<td>2nd rotation: 45 minutes followed by 5-minute hot debrief</td>
</tr>
<tr>
<td>Step 6</td>
<td>3rd rotation: 1.5 hours followed by 5-minute hot debrief and 30-minute meal break</td>
</tr>
<tr>
<td>Step 7</td>
<td>4th rotation: 1 hour</td>
</tr>
<tr>
<td>Step 8</td>
<td>Exercise debrief with all participants, subject experts, police radio controllers, control room supervisors, exercise supervisor and NSWPF media liaison staff in attendance.</td>
</tr>
<tr>
<td>Step 9</td>
<td>Exercise closure by NSWPF Assistant Commissioner, under whose portfolio the ICCS course is situated.</td>
</tr>
</tbody>
</table>

* Note: ‘hot debrief’ refers to providing the following team with the core operational situation and incident management decisions in progress.

Having contextualised Cases One, Two and Three for this research, it is appropriate to follow with an explanation of the data collection methods and analysis applied to these cases.

### 4.4 Data collection: Mixed method

The following discussion aids in developing an understanding of the alignment between the data collection methods utilised in this research and the nature of the case studies to which they have been applied. In section 4.3.2 reference was made to the work of seminal authors of case study methodology and their agreement that a mixed-method approach to data collection is appropriate for case study research. The alignment between a mixed-method approach for data collection and the overarching interpretivist methodological approach to the research lies in the increasing support for the value of
text in understanding participants’ experiences complemented by the key quantitative data. In 1994, Neuman (1994) advocated for the value of such complementary sources of data collection in suggesting that numbers, statistics and precise quantitative measurements can be sources of information which supplements or complements qualitative data.

The rationale for employing both qualitative and quantitative data collection methods is founded on the concept of triangulation of data collection by Erzberger and Kelle (2003). This approach suggests that the use of different investigation methods may yield a fuller and more complete picture of the phenomenon concerned if the methods are brought together. Bergman (2008) reiterated this perspective in explaining the notion that combining both qualitative and quantitative data may provide complementary information that illuminates different aspects of what is being studied.

Within the mixed-method approach adopted for this research it is the qualitative methods which have the potential to give voice to the participants’ experiences, underpinned by the quantitative data. Qualitative methods of gathering data do provide the avenue to obtain the insider’s perspective, the meanings people attach to events, providing a holism and richness to understanding social phenomena. Bryman (1988) suggested that qualitative data can be used to help explain underlying broad relationships revealed through quantitative data. Patton (2002) captured the core value of qualitative research when discussing the role of qualitative findings as illuminating people behind numbers, which has the capacity to put faces to statistics in the process of deepening understanding.

The following description from Miles and Huberman (1994, p. 10) provides a clear articulation of the value of qualitative data:

... Qualitative data, with their emphasis on people’s lived experience, are fundamentally well suited for locating the meanings people place on the events, processes, and structures of their lives: their perceptions, assumptions, prejudgments, presuppositions and for connecting these meanings to the social world around them.

The contribution of qualitative research methods to understanding a phenomenon is reflected in the comments by Lieblich, Tuval-Mashiach, and Zilber (1998) in stating “The use of narrative methodology results in unique and rich data that cannot be obtained from experiments, questionnaires, or observations” (p. 9).
In the current study, triangulation of a variety of sources of data is used to provide more explicit understanding of the participants’ experiences and to enhance the validity of the findings by comparing and checking the findings from one method with those from the other (see Bryman, 1988; N.K. Denzin, 1978). Greene, Caracelli, and Graham (1989, pp. 255–274) suggested that there are five purposes for combining methods in a single study:

- triangulation, in the classic sense of seeking convergence of results;
- complementarity, in that overlapping and different facets of a phenomenon may emerge;
- development, wherein the first method is used sequentially to help inform the second method;
- initiation, wherein contradictions and fresh perspectives emerge; and
- expansion, wherein the mixed methods add scope and breadth to a study.

This explanation of the purpose for combining methods provides a sound argument for the collection of data which will provide for sophisticated rigour of the data collection and analysis, disclosing the richness and diversity of the social setting (Neuman, 1994).

The study of participants in simulation environment experiences and the characteristics of simulation exercises provide an avenue for collecting both qualitative and quantitative data. In this study the data sources associated with Case One, Case Two and Case Three present an opportunity to collect quantitative data through Likert-scaled questionnaires specific to participant skills and attributes, and characteristics related to simulations. Whilst there is a diversity in the questions posed for each data source, there are also similar questions in relation to technical aspects of the simulation environment. For example, the post-simulation survey includes the following question:

I consider the scenario depicted in the simulation was reflective of real time – Yes/No.

This theme of questioning is followed through in the post-simulation interviews with the following question:

Q.11: When you now reflect on your experience in the VirTra simulation exercises, how realistic do you think they were? Please explain.
This type of quantitative data, whilst less sizeable than the qualitative data, nonetheless has a role to play in providing the completeness, the fuller picture, which is more meaningful than each of the components individually (see Creswell, 2009; Greene et al., 1989; Patton, 2002; Rossman & Wilson, 1985; Tashakkori & Teddlie, 2003). The qualitative data collection tools employed in this project include short-answer survey responses as well as interviews with participants. Section 4.7 provides further discussion of the survey and interview question design.

To progress discussion of the data collection for this research it is appropriate to turn to consideration of the data sources and the design of the data collection tools to underpin the clarity of the subsequent data analysis process.

### 4.5 Data sources

Section 4.4 provided details in relation to the key data sources for this research emerging from Cases One, Two and Three. The data sources chosen for this research were purposive rather than random (Kuzel, 1992; Miles & Huberman, 1994) on the suggestion by Miles and Huberman (1994) of two key criteria for purposive selection:

1. boundaries, to define aspects of the case that could be studied within the limits of time and means and which connected directly with the research question(s); and
2. a frame, to uncover, confirm or qualify the basic processes or constructs that underpinned the study.

In this research, the ICCS course and associated simulation exercises (Cases Two and Three) presented a naturally occurring bounded case, the nature of which provided opportunity to contribute directly to the research questions. Further, the research process, which included pre- and post-simulation surveys and post-simulation exercise interviews, were able to be conducted within the research project time frames. Similarly, the VirTra simulation exercise Case One presented a naturally occurring bounded case. Case One also presented an opportunity to conduct the research within the project time frame.

The inherent nature of the cases chosen for this study in being a simulation exercise provide a natural frame within which to explore the central tenets underpinning the research. To assist in determining the appropriate sampling and data collection
processes for this research, pilot studies which included a cohort of ICCS participants and a cohort of VirTra participants were conducted.

### 4.5.1 Pilot case study

A process which included conducting a pilot study of the ICCS simulation exercise and the VirTra simulation exercise was implemented during 2009. The pilot study for the ICCS simulation exercise was conducted with 17 participants who completed the ICCS course and simulation exercise. From a total available cohort of 17 participants, 8 completed the pre- and post-simulation surveys and an interview three months post-participation in the ICCS course. The pilot study provided valuable insight and helped with the removal of ambiguity in the wording of the pre- and post-survey questions. Further, the pilot study created an opportunity for the researcher to gain experience in interview techniques, specifically understanding and utilising a semi-structured interview approach.

In the pilot study for the VirTra simulation, a potential 150 participants were identified. The VirTra pilot study did provide an opportunity to refine the wording of pre- and post-simulation questionnaires to address perceived ambiguity. The following section provides an explanation of the selection of participant samples for this research.

### 4.6 Sampling

Purposeful sampling of participants was chosen for this research. Two aspects for consideration in choosing the sampling approach for this research were, firstly, the length of time required to complete the data collection process and, secondly, limited opportunities to access meaningful numbers of participants through the complete research process to complete pre- and immediately post-simulation surveys, followed by a three- to four-month post-simulation interview process.

The rationale for purposeful sampling is based on the need to obtain a sample of information-rich cases to study in depth (Creswell, 2009). The data sources chosen, Cases 1 (VirTra simulation exercise) and 2 and 3 (ICCS simulation exercise) were identified as being information-rich data sources. The participants within these cases were representative of a wider NSWPF population that may experience the ICCS, and
officers recruited post-2009, who may experience both the ICCS and the VirTra simulation during their police training. Cases One, Two and Three met the time frame criterion and the resourcing provisions for this research. Table 4.5 illustrates the relationship between the sample data sources, data collection methods, and sample size, and includes the additional data sources of field observations, document analysis and trainer interviews.

Table 4.5 Sample data sources, data collection methods, and sample size

<table>
<thead>
<tr>
<th>Data source</th>
<th>No. of participants</th>
<th>Data collection method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Simulation exercise</td>
</tr>
<tr>
<td>VirTra pilot study</td>
<td>120</td>
<td>VirTra</td>
</tr>
<tr>
<td>Case One</td>
<td>372</td>
<td>VirTra</td>
</tr>
<tr>
<td>VirTra trainers</td>
<td>3</td>
<td>VirTra</td>
</tr>
<tr>
<td>ICCS pilot study</td>
<td>17</td>
<td>Hydra/Minerva</td>
</tr>
<tr>
<td>ICCS Case Two</td>
<td>17</td>
<td>Hydra/Minerva</td>
</tr>
<tr>
<td>ICCS Case Three</td>
<td>16</td>
<td>Hydra/Minerva</td>
</tr>
<tr>
<td>ICCS trainers</td>
<td>3</td>
<td>Hydra/Minerva</td>
</tr>
</tbody>
</table>

4.6.1 Case One participants

The selection of participants in Case One was undertaken in two steps. First, the participants invited to complete the pre- and post-simulation surveys were members of a cohort of students undertaking Session Two of their police recruit training during the research study time frame. The main factor which predetermined membership of the
cohort was the date on which the student had been approved as eligible to undertake the study pathway to employment as a NSWPF officer. Applicants were placed in a waiting list based on their application approval date. There were a number of common denominators which also determined membership of the student cohort. In particular, all of the students in the cohort would have received a pass status for academic and professional suitability. This suitability also included components of physical fitness, personality traits and character referencing. All members of the student cohort were required to be over the age of eighteen years.

There was no filtering of this student cohort in relation to invitation to complete the pre- and post-simulation surveys. The second selection process in relation to Case One occurred in respect of sampling selection for the post-simulation interviews. In this process the interview participants were selected to collectively achieve a sample which represented a balance of gender, operational location, and age. Table 4.6 depicts the characteristics of the participants interviewed for Case One.

Table 4.6  Case One participant demographics

<table>
<thead>
<tr>
<th>Number</th>
<th>Gender</th>
<th>Operational location</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male</td>
<td>Metropolitan</td>
<td>20–30</td>
</tr>
<tr>
<td>2</td>
<td>Male</td>
<td>Metropolitan/Coast</td>
<td>20–30</td>
</tr>
<tr>
<td>2</td>
<td>Male</td>
<td>Country</td>
<td>20–30</td>
</tr>
<tr>
<td>3</td>
<td>Male</td>
<td>Metropolitan</td>
<td>30–45</td>
</tr>
<tr>
<td>1</td>
<td>Female</td>
<td>Metropolitan</td>
<td>20–30</td>
</tr>
<tr>
<td>1</td>
<td>Female</td>
<td>Metropolitan/Coast</td>
<td>20–30</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
<td>Country</td>
<td>20–30</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
<td>Metropolitan</td>
<td>30–45</td>
</tr>
<tr>
<td>1</td>
<td>Female</td>
<td>Metropolitan/Coast</td>
<td>30–45</td>
</tr>
</tbody>
</table>

4.6.2  Case Two and Case Three participant demographics

The participants in Cases Two and Three were predetermined on the basis that they had been chosen by the NSWPF to participate in the ICCS course. The selection was based on NSWPF criteria, which are aligned to promotion and professional and operational
experience. Collectively there were thirty-three participants across Cases Two and Three. Table 4.7 depicts the characteristics of gender and length of service in the NSWPF for the twenty-five participants who completed the pre-simulation survey. The average length of service for the twenty-five participants was 26.5 years. Table 4.7 identifies that there were three female participants and, in an attempt to provide gender balance for the research, they were specifically invited to participate in the post-simulation interview. Through unforeseen circumstances, the three female participants were unable to complete an interview in the research study time frame. As indicated in Table 4.7, of the thirteen participants who completed the post-simulation field-based interview, four were based in metropolitan areas and nine were based in country locations.

Table 4.7 Case Two and Three participant demographics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Length of service (years)</th>
<th>Interviewed</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>29</td>
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</tr>
<tr>
<td>Female</td>
<td>17</td>
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<td>Metropolitan</td>
</tr>
<tr>
<td>Female</td>
<td>28</td>
<td>No</td>
<td>Metropolitan</td>
</tr>
<tr>
<td>Male</td>
<td>40</td>
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</tr>
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<tr>
<td>Male</td>
<td>37</td>
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<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>30.5</td>
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<td>Metropolitan</td>
</tr>
<tr>
<td>Male</td>
<td>26</td>
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<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>15</td>
<td>Yes</td>
<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>24</td>
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<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>26.5</td>
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<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>27</td>
<td>Yes</td>
<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>Yes</td>
<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>21</td>
<td>No</td>
<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>Yes</td>
<td>Country</td>
</tr>
<tr>
<td>Gender</td>
<td>Length of service (years)</td>
<td>Interviewed</td>
<td>Location</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Male</td>
<td>20</td>
<td>No</td>
<td>Metropolitan</td>
</tr>
<tr>
<td>Female</td>
<td>16</td>
<td>No</td>
<td>Metropolitan</td>
</tr>
<tr>
<td>Male</td>
<td>22</td>
<td>No</td>
<td>Metropolis</td>
</tr>
<tr>
<td>Male</td>
<td>34</td>
<td>Yes</td>
<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>22</td>
<td>No</td>
<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>21</td>
<td>No</td>
<td>Metropolitan</td>
</tr>
<tr>
<td>Male</td>
<td>38</td>
<td>Yes</td>
<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>15</td>
<td>No</td>
<td>Country</td>
</tr>
<tr>
<td>Male</td>
<td>20</td>
<td>Yes</td>
<td>Metropolitan</td>
</tr>
<tr>
<td>Male</td>
<td>28</td>
<td>Yes</td>
<td>Country</td>
</tr>
</tbody>
</table>

4.7 **Data collection instruments**

The following data collection methods were applied in this study:

- **A pre-simulation survey**, which sought information relating to the participants’ prior experience in the domain on which the simulation is focused. For example, there were questions pertaining to: perceived confidence and competence levels; expectations for learning in the simulation; expected impact on their professional practice.

- **A post-simulation questionnaire**, which sought information relating to the participants’ experience in the simulation environment. For example, there were questions pertaining to: whether expectations of the simulation experience were met; how they perceived the impact of the experience will manifest in their operational practice.

- **Interviews with participants** three to five months after participating in the simulation exercise. The purpose of these was to seek information which provides reflection from the field of the impact of the simulation experience on how participants’ currently work in their field of practice.

- **Interviews with trainers** pre- and post-training. These interviews were designed to gather information on the trainers’ expectations of the simulation experience
for the participants. The post-simulation interviews were designed to understand from the trainer’s perspective how the participants performed in the simulation and to identify aspects of the simulation that may have hindered or assisted that performance.

- Collection of *field observation notes* by the researcher. Observing the simulation exercises for Cases One, Two and Three provided an opportunity to supplement the survey and interview data and to contextualise the resultant comments.
- Document *analysis of the training documentation* for the simulation exercises. Examining the training documentation provided guidance on the formal expectations of the simulation exercises, aligning intended learning outcomes and expected capability for these exercises.

The decision to include two cases centred on the ICCS course was founded on the concept of multiple case sampling, which adds confidence to the findings and has the potential to strengthen the precision, validity and stability of findings (Miles & Huberman, 1994). Following the experience with the ICCS and VirTra pilot studies where not all participants completed the pre- and post-surveys or were available for interviews, consequently limiting the data collected, it was decided to include two cases for the ICCS simulation exercise. This exercise had a much lower number of participants. The 372 VirTra simulation participants were all included in the offer to participate in the research. The decision to invite all participants in Case One to participate was premised on the potential for participants to withdraw or be unavailable for interview.

The preceding discussion of the rationale for case selection provides the context in which to move to a discussion of the pre- and post-simulation survey design. Case Two and Case Three are combined in the data presentation in Chapter 6.

### 4.7.1 Pre- and post-simulation survey design

Serving NSW police officers and student recruits are generally acknowledged as being ‘time poor’ and this factor was taken into consideration in the design of the pre- and post-simulation surveys. Additionally, it was acknowledged that, irrespective of their good intentions, participating in this research would not rate highly on a prioritised scale compared with the often urgent needs of the officers’ daily policing duties. In light
of these circumstances, the surveys and the questions contained therein needed to be relevant and somewhat appealing in terms of being not too arduous to complete and able to be completed expediently. Utilising surveys offered the opportunity to achieve uniformity of measurement and consequential reliability (see N. K. Denzin & Lincoln, 2008; Miles & Huberman, 1994; Patton, 2002).

The pre-simulation surveys provided a valuable reference point during the subsequent interviews. The pre-simulation survey questions were designed to capture information related to:

- prior experience relevant to the learning content;
- prior experience with simulation exercises;
- expectations of the simulation exercise; and
- perceived confidence and competence within the specific learning domain.

The post-simulation survey questions focus on the participants’ experience with the simulation exercise, capturing information related to:

- how they felt undertaking the exercise (related to confidence and competence);
- elements of realism in the simulation exercise; and
- perceived impact of the exercise on their learning.

The rationale for using Likert scale questions in the surveys was that they offer the opportunity to obtain people’s ‘position’ on aspects of their learning experience, prior knowledge, and familiarity with simulation exercises (Alreck & Settle, 1985). Likert scaling allows for simple vocabulary, and economy of words and method as one set of instructions applies to all questions. An additional advantage of the Likert scaling was the potential for summated value which, for this research, offered the opportunity to correlate within and between groups.

In recognition of the attributes of Likert-scaled surveys, questions similar to the example in Table 4.8 were employed for Case One post-simulation exercise.
Table 4.8  

Example of Likert-scaled question relating to the concept of immersion

<table>
<thead>
<tr>
<th>Question 3:</th>
<th>Very strongly agree</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>Very strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I felt completely immersed and focused on the VirTra simulation scenarios”.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Open-ended questions were included in the surveys to allow the individual respondents more freedom of response to enable feelings and/or information to be revealed that would not be forthcoming with Likert-scaled questions (Gay, Mills, & Airasian, 2006; Wiersma & Jurs, 2009). A further consideration prompting the inclusion of open-ended questions was the suggestion by Burns (2000) that their use may result in respondents revealing previously unexpected or unanticipated answers, providing an additional avenue for exploration of potentially meaningful concepts. In line with the intent of the Likert scaled Question 3 (“I felt completely immersed and focussed on the VirTra simulation scenarios”), a related open-ended question sought to extend an understanding of how the participants felt if immersed in the simulation with the inclusion of Question 7 Please describe the emotional reactions you were aware of during the VirTra simulation scenarios. The interconnection between the Likert-scaled questions and the open-ended questions for both the pre- and post-simulation surveys in Cases One, Two and Three offered rigour to the data collection approach. The valuable contribution from such interconnection is the potential to provide triangulation of the findings from the research.

A further data collection tool applied in this research, the semi-structured interview, sought to substantiate the responses within the pre- and post-simulation surveys and to extend understanding of the influence of simulation exercises in the transfer of skills and knowledge. The design of the interview questions therefore took into consideration the questions presented in the surveys and sought to build on the responses.

4.7.2  Interview design

Likert-scaled and open-ended questions in the pre- and post-simulation questionnaires focused on the perceived potential influence and actual influence of elements on
decision-making in the simulation experience. The focus in the interview questions was to develop an understanding of the relationship between the simulation exercise experience and application in the real world of the participants’ work. This method was chosen in lieu of focus group interviews. The rationale for including individual interviews was to address concerns in relation to the willingness of participants to discuss openly about their experiences in front of their fellow students or police officers. Conducting individual interviews in this research acknowledged the need to respect that participants either work together in a hierarchical system or, in the situation of Case One participants, are students who potentially compete with each other for grades and employment security. The researcher’s familiarity with the nature of the policing environment in terms of time constraints, job priorities, and the importance of developing credibility and trustworthiness with interview participants, assisted in understanding the requirement to ensure the interview questions were relevant and the interviews were conducted in a respectful and efficient manner.

The wealth of literature which discusses qualitative research methods suggests individual interviews are not neutral tools for data gathering but active interactions between two (or more) people, leading to negotiated, contextually based results, with interviewing moving towards encompassing the hows of people’s lives (Fonatana & Frey, 1994). It is this co- construction of meaning which provides for addressing the key research questions of this study.

The goal of the semi-structured interview was to develop understanding through the researcher’s placement in the field with the participants as they undertook their respective simulation exercises, allowing for the development of rapport, trust and understanding of the language and culture of the respondents (Fonatana & Frey, 1994). The shared environment which, in the context of this research, is the simulation exercise, provided therefore for a relationship between the researcher and the interviewee in which a structured interview would be inappropriate and would present an artificial relationship potentially placing constraints on naturalistic responses from the interviewee. The semi-structured interview allowed also for the potential of previously unexpected aspects to emerge and, in light of the limited literature discussing the transfer of skills for policing avenues, this would be of considerable value. Punch (2005), in discussing semi-structured interviews, suggested they lie on a continuum. At one end lies the formal, structured interview, where questions are planned and
standardised in advance, moving to the opposite end of the continuum where interview questions are not planned; rather they are general questions to “get the interview going and keep it moving” (p. 170). The semi-structured interview, with pre-planned questions to focus the interview, however, unlike the structured interview, has no pre-planned responses.

The semi-structured interview offers the opportunity for the participant to provide rich and meaningful articulation of their learning experiences which they may not be able to do in Likert-scaled and the open-ended questions on a questionnaire. As the purpose of such interviews is to capture a participant’s perspective of their experience, utilising questions which will encourage their story to be told is central. Further, being prepared as the interviewer to allow for the interviewee to depart from any preconceived responses is important because it is these departures which potentially provide the richness of text and meaning.

The interconnection between the pre- and post-interview Likert-scaled questions, the open-ended questions, and the semi-structured interview questions in this research was demonstrated through continuing a theme in the questions. For example, questions in relation to the realism of the simulation scenarios in Case One were posed in the Likert-scaled survey and short-answer questions and, following this theme, the semi-structured field-based interview contained a question in relation to the realism factor. The following is a sample question and response from the field-based interview which demonstrates the manner in which interview questions were formed to engage the participant in reflection:

Q.11: When you now reflect on your experience in the VirTra simulation exercises, how realistic do you think they were? Please explain.

... definitely, the domestic [simulation] was realistic, at the time I didn’t think it would be like that. But having dealt with domestics like that in the field and having to use the capsicum spray, like in the VirTra I thought he was coming straight for me but he went to his missus, which I have seen in the field but not with a knife.

The post-simulation interviews undertaken with participants from Cases One, Two and Three were electronically recorded and supplemented with note-taking by the researcher. The electronic recordings were transcribed to enable accurate verbatim quotes to be included in the research reporting.
The interview process applied in this study drew on concepts from narrative inquiry which suggest that it is essential to prepare questions which will invite the story to be told and for the interviewer to develop the appropriate relationship with the interviewee to allow meaningful narratives to be revealed.

To enable the researcher to further contextualise participant survey and interview responses for Cases One, Two and Three, the trainers responsible for the delivery of the simulation exercises were interviewed. Semi-structured interviews were undertaken with the trainers, allowing them to articulate their perspective on the purpose and process of the simulation exercises.

The interviews conducted in this research were complemented by field notes and observation, providing an opportunity for the triangulation of the data and confirmation of emergent findings.

4.7.3 Field notes and observation

The NSW Police Force provided the researcher with the opportunity to be present during the simulation exercises as part of Cases One, Two and Three. Access was provided for the researcher to meet with the VirTra Case 1 participants, enabling:

- observation of the VirTra Case One members’ simulation exercise briefing;
- observation of the VirTra Case One members’ individual simulation exercise debriefing;
- observation of the VirTra Case One members’ personal reactions to participation in the simulation exercise;
- rapport to be established between the researcher and the VirTra Case One participants, providing a supportive relationship for the research interview sessions; and
- review of the learning documents associated with the VirTra simulation exercise.

Similar access was provided for the researcher to meet with the ICCS Cases Two and Three participants. The researcher attended the full-time course with the ICCS Case Two members, sharing both class time and the associated social meal times. The
researcher also attended the ICCS Case 3 simulation exercise and the introduction and simulation briefing sessions of the ICCS course. Such access provided opportunity to:

- observe the participants in their team-based desktop simulation exercises;
- contextualise the learning sessions within the ICCS course;
- develop a rapport with the participants, establishing relationships for the research interview sessions; and
- review the learning documents associated with the ICCS simulation exercise.

In summary, Table 4.9, on the following page, indicates the relationship between the data sources, the data collection tools, the form of the data and the qualitative or quantitative nature of the data. Table 4.10, which follows Table 4.9 immediately, indicates the data collection timetable for the research.
Table 4.9  Summary of data sources and data collection tools

<table>
<thead>
<tr>
<th>Research questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) What is the influence of simulation exercises in developing professional identity in policing?</td>
</tr>
<tr>
<td>(2) What characteristics of a simulation exercise are required to enable transfer of learning from the training environment to operational policing?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data source</th>
<th>Data collection tool</th>
<th>Data</th>
<th>Qualitative/quantitative</th>
<th>Appendix</th>
</tr>
</thead>
<tbody>
<tr>
<td>VirTra Case One</td>
<td>Pre-sim. Survey</td>
<td>Likert-scaled qq. Short-answer qq.</td>
<td>Quantitative Qualitative</td>
<td>E</td>
</tr>
<tr>
<td>Post-sim. Survey</td>
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<td>Quantitative Qualitative</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>Post-sim. Interview</td>
<td>Interview transcript</td>
<td>Qualitative</td>
<td>G</td>
<td></td>
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<tr>
<td>VirTra trainers</td>
<td>Pre-sim. Interview</td>
<td>Interview qq.</td>
<td>Qualitative</td>
<td>A</td>
</tr>
<tr>
<td>Post-sim. Interview</td>
<td>Interview qq.</td>
<td>Qualitative</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>ICC Case Two</td>
<td>Pre-sim. Survey</td>
<td>Likert-scaled qq. Short-answer qq.</td>
<td>Quantitative Qualitative</td>
<td>H</td>
</tr>
<tr>
<td>Post-sim. Survey</td>
<td>Likert-scaled qq. Short-answer qq.</td>
<td>Quantitative Qualitative</td>
<td>I</td>
<td></td>
</tr>
<tr>
<td>Post-sim. Interview</td>
<td>Interview qq.</td>
<td>Qualitative</td>
<td>J</td>
<td></td>
</tr>
<tr>
<td>Sim. exercise field observation notes</td>
<td>Handwritten notes</td>
<td>Qualitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydra/Minerva sim. exercise docs</td>
<td>Text documents</td>
<td>Qualitative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICC Case Three</td>
<td>Pre-sim. Survey</td>
<td>Likert-scaled qq. Short-answer qq.</td>
<td>Quantitative Qualitative</td>
<td>H</td>
</tr>
<tr>
<td>Post-sim. Survey</td>
<td>Likert-scaled qq. Short-answer qq.</td>
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<td>Post-sim. Interview</td>
<td>Interview qq.</td>
<td>Qualitative</td>
<td>J</td>
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<td>Text documents</td>
<td>Qualitative</td>
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</tr>
<tr>
<td>Hydra/Minerva &amp; ICCS trainers</td>
<td>Pre-sim. Interview</td>
<td>Interview qq.</td>
<td>Qualitative</td>
<td>C</td>
</tr>
<tr>
<td>Post-sim. Interview</td>
<td>Interview qq.</td>
<td>Qualitative</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.10  Data collection timeline

<table>
<thead>
<tr>
<th>Action</th>
<th>2009–10</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D J F M A M J J A S O N D J F M</td>
<td></td>
</tr>
<tr>
<td>VirTra Case One trainer pre-simulation interviews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VirTra Case One pre-simulation survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VirTra One post-simulation Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VirTra One participant field interviews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VirTra One trainer post-simulation interview</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICCS Case Two trainer pre-simulation interviews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICCS Case Two pre-simulation survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICCS Case Two post-simulation Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICCS Case Two trainer post-simulation interview</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICCS Case Two participant field interviews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICCS Case Three pre-simulation survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICCS Case Three post-simulation survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICCS Case Three trainer post-simulation interview</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICCS Case Three participant field interviews</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.8 Ethical considerations

The data collection for this research associated with the ICCS Hydra/Minerva case study was conducted under the Charles Sturt University School of Policing and the Australian Graduate School of Policing Human Research and Ethics Committee (SOPS-AGSP HREC) Protocol Number 110/2009/01 granted on 7 May 2009. Particular care was taken in the conduct of the data collection and the reporting of findings to protect participant confidentiality. The ICCS participants were provided with an Information Statement (Appendix K) and Consent Form (Appendix L) which indicated that due to the limited number of participants there existed the potential for an individual participant’s views to be identified. In the reporting of findings, the identity of participants was protected by the researcher’s ascribing a code to each participant. The voluntary nature of participation and the fact that participants were able to withdraw at any stage without penalty were also emphasised in both the Information Statement and Consent Form. Additionally, prior to each data collection phase the researcher reminded the participants of the voluntary nature of their participation and of their ability to withdraw from the research without penalty.

The data collection associated with the VirTra simulation was approved by the Charles Sturt University School of Policing and the Australian Graduate School of Policing Human Research and Ethics Committee (SOPS-AGSP HREC) Protocol Number 108/2010/01 granted on 3 February 2010. The researcher was known to the VirTra participants through the researcher’s role as a staff member at the NSW Police Academy. Importantly, in recognising that the VirTra participants may have felt obligated to participate, the researcher advised them in the project VirTra Information Statement (Appendix M) and the VirTra Participant Consent Form (Appendix N) that (1) the confidentiality of their participation and subsequent survey and interview comments would be protected, and (2) their participation may be withdrawn at any stage without penalty or disadvantage.

Protection of the VirTra participants’ identity was achieved through the researcher’s ascribing a code to each participant and these codes were used when reporting individuals’ comments. Prior to dissemination of the pre- and post-VirTra simulation
surveys and the field-based interviews, the researcher reiterated to participants the voluntary nature of their participation and the opportunity to withdraw without penalty.

All data obtained through this research, including completed surveys, field notes, interview recordings, interview transcriptions and participant codes, were stored in a locked cabinet accessible by only the researcher. Data material stored on computer was password-protected and only the researcher knew the password.

4.9 Data analysis

Consistent with the idea that the role of data analysis is to make sense of the data, a process of consolidating, reducing and interpreting what was seen, heard and read was employed in this research (Merriam, 2009). There is a wealth of literature describing processes and concepts for the analysis of qualitative data. Gay et al. (2006) and Patton (2002) have both stated that, whilst there is no absolute or precise approach for analysing qualitative data, an important step is organising the data. As the focus of the current research was to understand the changes which may or may not have occurred as a result of the learning experience in the simulation exercises, a practical approach to the organisation of the data was to consider the three stages of interaction and reflection on the simulation exercise. Therefore, a pre-simulation profile, post-simulation profile, and a field-based profile were developed for Case One and Cases Two and Three.

A pivotal idea common to much of the literature on analysis of qualitative data is the coding and/or categorising of data to create themes, the interpretation and collation of which provide the premise of findings from research (N. K. Denzin & Lincoln, 2008; Miles & Huberman, 1994; Patton, 2002; Punch, 2005). Initially, the researcher attempted to utilise a thematic data analysis approach as proffered by Patton (2002) as follows:

- familiarisation – initial reading and rereading of qualitative data;
- first-level coding and categorizing;
- second-level coding (patterns across the data – clustering);
- memoing; and
- case summaries/ thematic presentation with illustrative quotes.
This approach, combined with a descriptive statistics approach (see below), enabled consolidation of themes within the three profiles from the Likert-scaled survey responses, the open-ended question responses and comments in interview from trainers and case participants. Identifying themes was achieved initially through employing first-level coding. Following an open coding process, as advocated by Strauss and Corbin (1988), allowed the researcher to be open to the data, revealing points and words of potential importance to the study. This approach allowed the data to take the lead in revealing what points of relevance and importance were articulated in the participant questionnaire responses and interviews. An alternative approach would have been to follow the process preferred by Miles and Huberman – “that of creating a provisional ‘start list’ of codes prior to field work” (1994, p. 58). The nature of the questions included in the pre- and post-simulation questionnaires and the semi-structured interviews did form some naturally occurring broad areas of interest. However, no pre-established start list of codes was created in this research. In the tradition of Strauss and Corbin, each line of data was examined, reviewed and coded. The next step was for second-level coding, which Miles and Huberman have described as pattern coding in the following:

pattern codes are explanatory or inferential codes, ones that identify an emergent theme, configuration, or explanation ... Pattern coding is a way of grouping those summaries [from first level coding] into a smaller number of sets, themes or constructs. (1994, p. 69)

An example of the use of second-level coding was the clustering of responses which related to emotions from Case One. In the first-level coding, notions such as ‘fear’, ‘anxiety’ and ‘nervousness’ were identified; then these were then drawn together in second-level coding as a theme relating to emotional response. During the process of analysing the data for this research, initially the software program Nvivo (Bazeley, 2007) was employed to assist in the coding process. However, the researcher found that using the software placed a sense of distance between the researcher and the data. The researcher hence personally transcribed the semi-structured interview responses and became familiar with the data and, using a print-based coding and memoing process, acquired a similar sense of familiarity with the data from the Likert-scaled questions and the short-answer questions.
The statistical data derived from the Likert-scaled questions is presented in this research following the descriptive statistics approach suggested by Gay et al., who described it as including the following:

... data analysis techniques that enable a researcher to meaningfully describe many pieces of data with a small number of indices ... The major types of descriptive statistics are measures of central tendency, measure of variability, measures of relative position and measures of relationship. (2006, p. 304)

The suggestion by Burns (2000, p. 44) that “descriptive statistics consist of graphical and numerical techniques for summarising data, that is, reducing a large mass of data to simpler more understandable terms” was an underpinning concept which aligned closely with the data analysis approach for the current research. Following an approach to data analysis which included descriptive statistic presentations enabled the large volume of data from the questionnaires to be presented in a meaningful manner. In the context of the data analysis presented in this research, descriptive statistics were employed; for example, in providing evidence of central tendency for level of realism experienced by the VirTra Case One participants (section 5.3.1), employing a descriptive statistics approach enabled a ‘picture’ to be presented from the responses to the Likert-scaled questions which supported the descriptive articulations by participants in the short-answer questions and interview responses. A further valuable attribute for applying a descriptive statistics approach was the affordance it provided to present an overview of specific experiences, reflections and interpretations from the participant cohort for Cases One, Two and Three. Descriptive statistics utilised in this work include mean and frequency counts and data represented graphically with a range of pie charts, column and bar graphs.

Chapters 5, 6 and 7 present the data in line with this data analysis approach. Following narrative research tradition (see Chase, 2005; N. K. Denzin & Lincoln, 2005; Patton, 2002), interview responses were analysed by first listening to the voices or themes within each interview/narrative and then across interviews within the Case. The interview responses from the trainers associated with each Case have been included in discussion of the emergent themes from the participant data. The analysis of the data for this research is reported in Chapter 8, with the interrelationship between the data within the Cases and between Cases diagrammatically represented in Figure 4.4 (on the following page), to aid clarification of the data presented in Chapters 5, 6 and 7.
Figure 4.4  Diagrammatic representation of data collection process.
Chapter 5  Simulation realism results

5.1  Introduction

One of the key questions for this study focuses on exploring the characteristics of simulation exercises which provide authentic situated learning environments and influence the transfer of learning. This chapter presents the data collected from both the VirTra (Case One) and ICCS (Cases Two and Three) participants in relation to this focus. The results relating to this research question for the two simulation types are presented separately in this chapter, with the key ideas being brought together in the discussion chapter, Chapter 8.

The data revealed five naturally occurring categories and this has been the catalyst for the structure of the presentation of results in this chapter. The five categories emerging from the data are as follows. Category 1 includes evidence of whether the participants considered the simulation was reflective of real situations. Category 2 includes evidence relating to the elements of the simulation which contribute to the realism of the exercise. Category 3 includes evidence in relation to the sense of immersion and engagement for participants in the simulation exercise. Category 4 includes evidence from participants’ own field-based experiences supporting the realism of the simulation; and Category 5 includes evidence of areas which detract from the realism of the simulation.

5.2  Authenticity of ICCS simulation

The questions framed for the ICCS participants in the field-based interviews allowed opportunity to give voice to how they personally related to the realism of the scenario. The comments aligned with four general categories as discussed earlier. Categories 1 (Table 5.1), 2, 3 and 4 relate to each other through a common thread of supporting the notion that the simulation does provide a realistic learning environment. In addition, Question 10 from the ICCS post-simulation questionnaire (“Please comment on the sense of realism you experienced with the simulation exercise”) provided an opportunity for participants to articulate their reflections about the realism aspects offered by the simulation exercise. It is important to clarify here that, whilst Question
10 from the post-simulation questionnaire and Question 2 from the field-based interview questions (“Did you feel at the time that the simulation exercise created an atmosphere reflective of real time? You might like to comment on the extent to which you felt immersed in and focused on the exercise”) are similarly worded questions. These questions were put to participants to reflect and comment on at different stages of their connection and experience with the ICCS simulation exercise. When responding to Question 10 on the post-simulation questionnaire, the participants were situated within the training environment. Participants responded to Question 2 of the field-based interviews from the place of their operational deployment in the field. These staged opportunities to reflect were designed to support a rigorous process in understanding the elements which contribute to creating a simulation exercise experience reflective of the real world.

5.2.1 Category 1 (simulation as reflective of real situations)

The responses to Questions 2 from the ICCS post-simulation questionnaire are presented in Table 5.1. These responses point out that the ICCS participants considered the simulation exercise was reflective of real situations. In addition, these results indicate that the participants considered they felt engaged and/or immersed in the simulation exercise.

Table 5.1 ICCS participants’ identification of realism of ICCS simulation exercise (n=21)

<table>
<thead>
<tr>
<th>Post-simulation survey question</th>
<th>Very strongly agree</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>Very strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 2: “I consider the scenario depicted in the simulation was reflective of real situations”</td>
<td>8 (38%)</td>
<td>9 (43%)</td>
<td>4 (19%)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
5.2.1.1 Category 1 summary

The participant responses presented in Table 5.1 indicate that the MUDTAS exercise was reflective of situations and conditions experienced in the real world of policing operations. It is worthy of note here that the participants were senior police officers and, at the time of their participation in the ICCS course, they had already had experience of a major public order event requiring a policing response, thus affording an informed perspective on the level of realism of the ICCS simulation exercise.

5.2.2 Category 2 (elements which influence realism of simulation)

Category 2 was created by the collation of ICCS course participants’ identification of the elements which support the realism of the simulation environment. The data here were drawn from Questions 1 and 2 of the field-based interviews and Question 7 of the post-simulation questionnaire. The questions were as follows:

- Question 1: “Please describe your experience in the simulation exercise: what actually happened? What was it like for you?”
- Question 2: “Did you feel at the time that the simulation exercise created an atmosphere reflective of real time? You might like to comment on the extent to which you felt immersed in and focused on the exercise”
- Question 7: “A period of approximately three months has elapsed since you participated in the ICCS simulation exercise; can you tell me how your experience in the exercise has influenced your decision-making in the field? Please could you give some examples?”

In general the participants’ comments on the realism of the scenario were not confined to Question 2, which is directed specifically at the realism factor of the scenario. Responses to Questions 1 and 7 of the field-based interviews also revealed comments pertaining to the elements of the simulation exercise which created a simulation experience for the participants reflective of real-world situations. The participant responses to Question 7, which are discussed later in the chapter (section 5.2.4), elicited an articulated connection between the simulation and policing incidents in the field which reflect on the realism of the simulation exercise. Responses to Question 1 and 2 relating to the realism factors have been combined in Table 5.2, as there was commonality in the elements identified within these responses. Similarly, the responses
from Question 10 of the ICCS post-simulation questionnaire have been included in Table 5.2 and identified through attached labelling (for example, ‘Q.10’). The responses indicating the participants’ sense of immersion and engagement in the simulation exercise have been presented separately, in Table 5.3.

There are a number of ICCS participants who have additional reflective criteria which impact on their responses here. This information has been included under the column, ‘additional reflective criteria’, and relates to those participants who may have had prior exposure to this simulation exercise or who were involved in the real policing incident upon which the simulation exercise is based.

The field-based interview questions that form the basis for Table 5.2 are:

- Question 1: “Please describe your experience in the simulation exercise: what actually happened? What was it like for you?”
- Question 2: “Did you feel at the time that the simulation exercise created an atmosphere reflective of real time. You might like to comment on the extent to which you felt immersed in and focused on the exercise”
- Question 10: “Please comment on the sense of realism you experienced with the simulation exercise”.

<table>
<thead>
<tr>
<th>Element</th>
<th>Comments</th>
<th>Question numbers</th>
<th>Additional reflective criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure</td>
<td>“I felt under pressure, was very realistic in the sense of calls coming in just like they do in the real world. For example when I was trying to get a bus, I couldn’t get a bus” (P.8)</td>
<td>Q.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“there is a level of pressure to perform to get the job done just as there is in the real world of policing” (P.18)</td>
<td>Q.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“The simulation was as realistic as possible, it presented pressures and decision-making skills that I would feel in real life situations ” (P.3)</td>
<td>Q.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“It is difficult to create an atmosphere that produces the pressure of a reactionary incidence policing event that is taking</td>
<td>Q.10</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.2  
*Elements influencing realism of ICCS simulation (n=12)*
<table>
<thead>
<tr>
<th>Element</th>
<th>Comments</th>
<th>Question numbers</th>
<th>Additional reflective criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing</td>
<td>“time just disappeared [during the exercise] because it was a continuing exercise and felt real” (P.23)</td>
<td>Q.10</td>
<td>Prior participation in this sim.</td>
</tr>
<tr>
<td></td>
<td>“The real time based incident gives you a sense of realism” (P.21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy of information</td>
<td>“Making decisions on what you have been told … and that is not always straightforward, some of the information was conflicting … it is reflective of real time you don’t often know for certain what is actually right” (P.4)</td>
<td>Q.2</td>
<td></td>
</tr>
<tr>
<td>Environment (incident details)</td>
<td>“Yes I do think it is reflective of real time, what creates that is the way the information comes through and the way the teams are set up and the way information comes and goes the constant interruptions” (P.15)</td>
<td>Q.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“I felt under pressure, was very realistic in the sense of calls coming in just like they do in the real world” (P.8)</td>
<td>Q.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“as soon as we started the radio started blaring as we started working on the map, time logs, listening making decisions it felt like we were there” (P.16)</td>
<td>Q.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“The simulation exercise is as close to the real situation as you could get, it is run in real time and encompassed conflicts and situations which you would possibly face” (P.14)</td>
<td>Q.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“The situation, roles performed, pressure experienced were all realistic and provided real-time experience” (P.12)</td>
<td>Q.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“As the real time based exercise progressed it gives you that sense of realism and you find yourself quickly immersed in the incident whatever role it is you are playing” (P.21)</td>
<td>Q.10</td>
<td></td>
</tr>
<tr>
<td>Element</td>
<td>Comments</td>
<td>Question numbers</td>
<td>Additional reflective criteria</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Environment (noise)</td>
<td>“the noise, the participation of everyone else and that is just like a real situation” (P.1)</td>
<td>Q.2</td>
<td>Prior participation in this sim.</td>
</tr>
<tr>
<td>Resources</td>
<td>“For example when I was trying to get a bus I couldn’t get a bus just as happens in reality” (P.8)</td>
<td>Q.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“there are different things you have to do out there in the real world like people being injured, arranging for assistance, getting more staff and I have been involved in this for operations, the simulation had all of these components” (P.8)</td>
<td>Q.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“just like in the field, we were trying to find units, there was a highway patrol we couldn’t find, we were waiting for Intel to come in and resources to arrive” (P.24)</td>
<td>Q.2</td>
<td></td>
</tr>
<tr>
<td>Expectations</td>
<td>“very close to real life jobs that go on, the detail and expectation are very similar to what happens in the field” (P.15)</td>
<td>Q.1</td>
<td></td>
</tr>
<tr>
<td>Stressful</td>
<td>“Hectic and stressful at times, you lose the thought process that it is just a simulation exercise” (P.21)</td>
<td>Q.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Fairly realistic, fairly intense and very involving” (P.23)</td>
<td>Q.1</td>
<td>Prior participation in this sim.</td>
</tr>
<tr>
<td>Real time incident detail</td>
<td>“I appreciated the use of an actual past incident for the exercise as I have been involved in other exercises which in my view would not be reflective of real situations” (P.21)</td>
<td>Q.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“I considered the exercise to be realistic (being based on real jobs)” (P.15)</td>
<td>Q.10</td>
<td></td>
</tr>
</tbody>
</table>
5.2.2.1 Category 2 summary

The responses from ICCS simulation participants presented in Table 5.2 in relation to elements of the simulation which influenced the sense of realism suggest a level of interdependence. The suggestion that the timing of the simulation scenario being based in real time was a prominent contributing factor to the sense of realism was both individually identified and identified by association. The association occurs in the inherent requirement for the simulated event to replicate a real event (which participants commented was a contributing factor to the realism of the simulation): there is a need for sequencing of events within the simulated environment to replicate real-world sequencing. A further indication of the interdependence comes from considering the participant comments which suggest ‘pressure’; here the pressure to progress to resolution and the pressure to perform are impacted by the sequencing of the unfolding simulated event. The influence of timing as a contributing factor in the realism of the simulation is identified through comments related to resourcing. The sense of realism is sustained through a consistent adherence in the simulation to reflecting how the situation would unfold in the real world. An example provided is when a request for a bus does not result in a bus arriving immediately. There is no suggestion that no bus will arrive; however, what is indicated is that it is not immediately to hand and this potentially is what would occur in a real-life situation. The responses provided in relation to the sense of realism the participants experienced within the simulation environment are also indicative of the sense of immersion in the simulation experienced by the participants. The following category presents data which indicate the relationship between factors contributing to realism and immersion/engagement in the ICCS simulation exercise.

5.2.3 Category 3 (immersion and engagement in simulation)

The second part of Question 2 from the field-based interviews was the catalyst which elicited the comments presented in Table 5.3 (on the following page), specifically:

- Question 2 (second part): “You might like to comment on the extent to which you felt immersed in and focused on the exercise”.
Table 5.3  Immersion and engagement in the ICCS simulation exercise

<table>
<thead>
<tr>
<th>Element contributing to immersion and engagement</th>
<th>Comments</th>
<th>Additional reflective criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>“Very immersed and focused, time just disappeared … felt real, very engaging” (P.23)</td>
<td>Prior participation in this simulation exercise</td>
</tr>
<tr>
<td></td>
<td>“I think you had to be immersed, you did not know what was coming next, you couldn’t just have a coffee, and you had to be ready for anything that could happen” (P.11)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“It raced along, can’t get the opportunity not to get involved” (P.21)</td>
<td></td>
</tr>
<tr>
<td>Non-specific elements – general sense of immersion/engagement</td>
<td>“When you immerse yourself in a role-play you are not aware that it is a role-play because it is a pretty realistic scenario” (P.22)</td>
<td>Prior participation in this simulation exercise</td>
</tr>
<tr>
<td>Flexibility of altering the introduced elements of the simulation exercise as it is rolled out</td>
<td>“the sim is very close to realistic because they can adjust it, the time spans, the resources, another incident can be created at the same time, it makes it very real and you do get immersed” (P.25)</td>
<td>Policing role in real incident on which simulation scenario in the ICCS is based</td>
</tr>
<tr>
<td>Environment (collective elements)</td>
<td>“Felt like we were there, realistic, as soon as we started the radio started blaring, we started working on the maps, … all that stuff … And making decisions, it felt like we were there” (P.16)</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>“For me personally easy to immerse myself in it and get wrapped up in it … if you really go with a mind set to play then it is not far removed from what happens” (P.13)</td>
<td>Prior participation in this simulation exercise</td>
</tr>
<tr>
<td></td>
<td>“it certainly was not a holiday and the thought of people watching you from outside that I found off putting, but then I forgot about it because of the phone ringing” (P.8)</td>
<td></td>
</tr>
</tbody>
</table>
5.2.3.1 Category 3 summary

As evidenced in the responses presented in Table 5.3, the participants indicated that the simulation exercise did reflect the reality of an unfolding real-time policing incident and provided stimulus for engagement and immersion in it. Developing an understanding of the participants’ sense of immersion and engagement in the ICCS simulation environment and exercise is valuable for understanding the specific aspects of the simulation experience which contribute to transfer of learning. A further area considered in assisting to identify the role of the ICCS simulation in providing an authentic situated learning environment is whether the participants recognise a direct correlation between the simulation exercise and policing incidents they have been engaged with in the field.

5.2.4 Category 4 (simulation and field-based experiences)

In responding to Questions 2 and 7 in the field-based interviews, participants provided comments on how they judged the authenticity and realism aspects of the ICCS simulation exercise through comparing the exercise with their own field-based experiences. Questions 2 and 7 are as follows:

- Question 2: “Did you feel at the time that the simulation exercise created an atmosphere reflective of real time? You might like to comment on the extent to which you felt immersed in and focused on the exercise”; and
- Question 7: “A period of approximately three months has elapsed since you participated in the ICCS simulation exercise; can you tell me how your experience in the exercise has influenced your decision-making in the field? Please could you give some examples?”

In this area, participants provided responses from three levels of experience and knowledge.

5.2.4.1 Level 1 response (participants with experience of a similar real policing incident)

First, Participant 25, who had been involved in the real-time public order incident on which the ICCS simulation exercise is based, commented as follows:

I had actually been at the riots at Rosemeadow, I was here at Campbelltown and worked the night it happened … and I have done the simulation a couple of
times. This simulation is very good as close as we are going to get to realistic because they can adjust it, the time spans, the resources, another incident can be created at the same time, it makes it very real and you do get immersed.

5.2.4.2 Level 2 response (participants with prior experience of the ICC simulation)

The second level refers to those participants for whom participation in the ICCS simulation, the focus of this research, was not their first participation. This group had participated on at least two prior occasions. Participant 13 provided a succinct example in the following comment:

for example an operation at the Olympic stadium for a big concert, it was run according to the simulation scenario presented, which we assumed was best practice … so it was close to what happens in the real world.

Similarly, Participant 22 considered that the ICCS simulation exercise reflected the reality of policing in commenting:

yes I did, I actually was at the world trade protest and it is the only other time that was as busy as the scenario with information coming in all at the same time and that can happen, people yelling and screaming, so this scenario was fairly realistic.

5.2.4.3 Level 3 response (participants without prior experience of ICC simulation)

The third level refers to those participants for whom this was their first exposure and involvement with the ICCS simulation exercise. Participant 23 commented in relation to a specific aspect, that is, the accuracy of information:

So you have that information coming in and it is reflective of real time you don’t often know for certain what is actually right. That is very much reflective of real life, for example, we had the Boggabilla floods. We were 130 kilometers away and we had reports coming in from places that the flood waters had arrived and they are going in a certain direction. You have to take it on face value and [it] involves a significant amount of trust.

And Participant 11 summed up their view in commenting:

It was real, and if I was called out to put together a team that is certainly how it happens, it was a real life situation and it came over that way, that is what it is all about.
As would be anticipated, there were participants who offered comments in relation to the aspects of the simulation exercise which they considered detracted from the overall realism.

5.2.4.4 Category 4 summary

Category 4 presented participant responses in relation to the nexus between the ICCS simulation exercise and environment and the real world of policing from the following perspectives:

- a similar field-based operational experience;
- prior experience with the ICCS simulation; and
- no prior experience with the ICCS simulation.

The data presented here demonstrate the participants identified there were characteristics of the ICCS simulation which combined to provide a simulation exercise and environment which presented the fundamental characteristics of a similar real-world situation.

5.2.5 Category 5 (detractors from realism)

Within the responses provided for Questions 2, 3 and 7 of the field-based interviews, participants commented on the aspects which they considered as detracting from the realism of the ICCS simulation. Question 10 of the ICCS post-simulation questionnaire provided opportunity for the participants to comment on the sense of realism including detractors to the realism. Overall, there were limited comments in this area, which is unsurprising when considered in the context of the data presented in section 5.2 indicating agreement that the ICCS simulation exercise was reflective of real time and engaged the participants. Presentation of those comments which were offered in relation to the detractors is valuable in providing a balanced view of the realism of the simulation exercise and to inform future simulation operations.

The following comments were captured in response to Question 10 of the post-simulation questionnaire:

As real as possible for a simulation the difficult areas are being able to look out the window to double check if resources are at the command post. (P.1)
... on the other hand the forward command post was slightly unrealistic as I have never experienced a forward command post with that many available resources: that is, staff, phones, whiteboards etc. That is not say it would not occur, but I consider it to be unlikely at the Local Area Command level. (P.15)

The only aspect that appeared somewhat unrealistic was having a number of inspectors involve at the forward command post. (P.16)

5.2.5.1 Category 5 summary

The participant comments in relation to characteristics of the ICCS simulation which may have detracted from the sense of realism experienced in the simulation exercise and environment did not suggest that the identified characteristics did impact on their overall experience with the simulation. An important aspect to note is that as indicated in Table 4.7, the participants in the ICCS simulation have between 15 and 40 years operational experience and therefore an informed and experienced view of the real world policing landscape. Further, participants 13, 22, 25, and 23 as identified in Table 5.3 have prior experience of the ICCS simulation and or experience of a real world major public order policing incident similar to the simulated exercise.

The following sections present the views of the VirTra participants in relation to the realism of the VirTra scenario. Discussion of the similarities and comparisons between the realism aspects of the VirTra and ICCS scenarios is presented in Chapter 8.

5.3 Authenticity of the VirTra simulation

In a similar manner to the results reported above in relation to the realism of the ICCS simulation, the results relating to the realism of the VirTra scenario have also been divided into five categories.

5.3.1 Category 1 (simulation as reflective of real situations)

Question 2 of the post–VirTra simulation questionnaire was designed to assist in understanding the sense of realism the participants felt in the VirTra scenarios. The responses to Question 2 have been collated and presented in Table 5.4.
Table 5.4  Level of realism experienced by VirTra participants (n=372)

<table>
<thead>
<tr>
<th>Question 2: “The VirTra simulation scenarios made me feel as if I were actually at the scene in real time”.</th>
<th>Very strongly agree</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Very Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>53 (14.2%)</td>
<td>87 (23.4%)</td>
<td>126 (33.9%)</td>
<td>46 (12.4%)</td>
<td>38 (10.2%)</td>
<td>9 (2.4%)</td>
<td>13 (3.5%)</td>
</tr>
</tbody>
</table>

The responses in Table 5.4 indicate that 71% of participants considered the VirTra simulation scenarios made them feel as if they were at the scene in real time; 16.1% of the participants indicated that they did not agree that the VirTra simulation scenarios made them feel as if they were in a real-time scenario. Table 5.4 indicates that 46 respondents (12.4%) were undecided on this question. The factors that influenced a participant registering a response of ‘undecided’ were not specifically articulated in this research.

Figure 5.1  Level of realism experienced by VirTra participants (n=372).

The presentation of the data from Table 5.4 in Figure 5.1 graphically demonstrates the strength of the positive responses in relation to the total responses, offering evidence of the effectiveness of the VirTra product to create a simulation environment reflective of real life.
To place into perspective the support for the realism of the VirTra simulation scenarios requires exploring whether the scenarios offered opportunity for the participants to apply their decision-making skills. Question 4 in the post–VirTra questionnaire sought to reveal whether the simulation exercise required the participants to apply their decision-making skills. Table 5.5, below, presents the responses to Question 4 and reveals that 92.2% of participants agreed the VirTra scenarios provided an opportunity for the application of decision-making skills.

Table 5.5  *Opportunity to provide decision-making skills in VirTra simulation*  
(*n*=372)

<table>
<thead>
<tr>
<th>Question 4:</th>
</tr>
</thead>
<tbody>
<tr>
<td>“The VirTra simulation scenarios provided an opportunity for me to apply my decision-making skills”.</td>
</tr>
<tr>
<td>Very strongly agree</td>
</tr>
<tr>
<td>98</td>
</tr>
<tr>
<td>(26.3%)</td>
</tr>
</tbody>
</table>

Interestingly, whilst 18.5% of the participants indicated in Question 2 that they did not consider the VirTra simulation scenarios made them feel as if they were at a real-time scene and 14.2% were undecided about the matter, the percentage who considered that they had not had their decision-making skills tested in the VirTra simulation scenario was revealed in Question 4 as 3.1. Figure 5.2 presents the responses for both Questions 2 and 4 and illustrates the reduction in the number of participants who had considered the VirTra simulation scenarios as not making them feel as if it were a real situation in relation to the number who did not consider that they had opportunity to apply their decision-making skills in the VirTra simulation scenario. These results indicate that, from the participants’ perspective, it was possible for the simulation to prepare them for the application of decision-making skills even if the simulation were not completely realistic. A more comprehensive presentation of the data related to the identified detractors from the sense of realism of the VirTra simulation is presented in section 5.3.5.
Figure 5.2 Simulation considered realistic (Q.2) and as using decision-making skills (Q.4).

5.3.1.1 Category 1 summary

The data in section 5.3.1 indicated the participants considered the VirTra simulation environment and scenario made them feel as if they were at a real-world situation. Further, the data suggest that for those participants who were undecided about the level of realism experienced in the VirTra simulation and those participants who considered there was a low level of realism the simulation continued to afford them opportunity to apply their decision-making skills in the use of force.

5.3.2 Category 2 (elements which influence realism of simulation)

Category 2 was created by collation of the elements identified by the VirTra participants as contributing to the realism of the simulation. Question 6(a) of the post-simulation questionnaire reads:

Please identify the elements of the VirTra simulation which you consider assisted in providing a realistic scenario.

The responses revealed six distinct elements and these are presented in Table 5.6. An explanation of the meaning the participants attached to these elements is included. To provide further clarity for each element, examples of comments from the participants are included in Table 5.6 (on the following pages).
In addition, Question 11 of the field-based interviews required the participants to reflect on the realism of the VirTra from the reality of the field. The elements identified in the interview responses aligned closely with those in the post-simulation questionnaire. In Table 5.6, examples of the interview responses are presented alongside those from the questionnaire, revealing the similarity in elements identified as contributing to the realism of the VirTra scenario.

Table 5.6 Identification of elements contributing to realism of VirTra scenario (n=365)

<table>
<thead>
<tr>
<th>Element</th>
<th>No. of responses</th>
<th>Examples of responses from post-simulation survey</th>
<th>Examples of comments from field-based interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound effects: participants</td>
<td>226 (61.9%)</td>
<td>“the sound effects helped make the scenario more realistic” (P.6542)</td>
<td>“very realist as it happens because that is exactly like the one I went to in the field all the same elements, the sounds, the dark at night, unknown what is around the corner” (P.1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“the sound effects were real” (P.6444)</td>
<td>“it is pretty realistic because it was really loud they were in your face and rushed … that is a bit like in the field” (P.10)</td>
</tr>
<tr>
<td>Surrounded screens: participants</td>
<td>217 (59.5%)</td>
<td>“definitely the surrounding screens improved the realism aspect of the VirTra which helped awareness and focus” (P.6310)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Surround screens – create the feeling as you were in real life situation” (P.5903)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“surround screens with pictures makes it more real as it would be out on the street” (P.6220)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“loved the surround screens, made it feel real” (P.6347)</td>
<td></td>
</tr>
<tr>
<td>Element</td>
<td>No. of responses</td>
<td>Examples of responses from post-simulation survey</td>
<td>Examples of comments from field-based interview</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------</td>
<td>--------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Language: participants’ reference to language was directed at the ability to understand the people in the scenario, speaking the same language.</td>
<td>127 (34.8%)</td>
<td>“being able to understand what people were saying” (P.6309) “the language used was great, the male was very real in use of language which a man would actually say” (P.5919) “the interaction between you and the person in the scenario” (P.6273)</td>
<td></td>
</tr>
<tr>
<td>Timing: identification of timing, with the exception of those who identified timing as a detractor, was in the context of being included in an overall list of elements which positively contributed to the realism. The sense of how quickly incidents progress was highlighted in relation to the element of timing.</td>
<td>163 (44.7%)</td>
<td>“the sound effects, language and timing were really good, what I would expect in the real world” (P.5891) “very happy with it, felt like I was in the scene” (P.6413)</td>
<td>“the scenario of the man with the screw driver was fantastic really good, shows how tiny jobs can escalate very quickly” (P.6) “on the screen it was real human beings and it was real threats and frantic and I felt the real sense of danger” (P.4)</td>
</tr>
<tr>
<td>People: participants distinguished between interacting with life-size real people in the scenario and animated replications as being a positive influence on the realism of the VirTra scenario.</td>
<td>20 (5.5%)</td>
<td>“actual people not targets” (P.6338) “the emotion of the people at the scene” (P.6517) “Scenarios are accurate – how people would act” (P.6351) “the reactions of people in the scenarios contributes” (P.6383)</td>
<td>“the aggression, the confrontation of the victim’s emotion and their need for help, just like in the VirTra” (P.12) “the domestic, what made that realistic is the fact that [in the real situations] no one listens to you, the stress of the event, you can’t get through to people and you do have to use your appointments” (P.7)</td>
</tr>
<tr>
<td>Element</td>
<td>No. of responses</td>
<td>Examples of responses from post-simulation survey</td>
<td>Examples of comments from field-based interview</td>
</tr>
<tr>
<td>--------------------------------------------------------------</td>
<td>------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Visual effects:</td>
<td>25 7%</td>
<td>“the warehouse scenario scene was more detailed in the execution and in my view resembled a warehouse and what we would encounter in the future” (P.6021)</td>
<td></td>
</tr>
<tr>
<td>The reference to visual effects was in the context of the overall effect of the situation depicted in the surround screen. As opposed to the surround screen category which refers to the physicality of the screen surrounding the officer at 300 degrees.</td>
<td></td>
<td>“I found the depiction to be fairly realist and it would be similar to a policing situation I may be required to attend” (P.6283)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>“the realism of the scenario got my nerves pumping, felt like I was there” (P.12)</td>
<td></td>
</tr>
</tbody>
</table>

**5.3.2.1 Category 2 summary**

The sound effects, the surround screen environment and the timing and sequencing of events within the simulation scenario were the top three influential characteristics contributing to the realism of the VirTra simulation.

**5.3.3 Category 3 (immersion and engagement in the VirTra simulation)**

Establishing an understanding of the sense of immersion and engagement experienced by the VirTra participants provides an avenue for reflection on the realism of the VirTra scenarios. The responses to Questions 3 and 7 of the VirTra post-simulation questionnaire revealed the level of immersion and engagement experienced by the participants in the simulation. Question 3 of the VirTra post-simulation questionnaire asked the participants to rank their sense of immersion and engagement. The results are presented in Table 5.7.
Table 5.7  
Sense of immersion and engagement in the VirTra simulation (n=367)

<table>
<thead>
<tr>
<th>Question 3: “I felt completely immersed and focused on the VirTra simulation scenarios”.</th>
<th>Very Strongly Agree</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Very Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>61</td>
<td>96</td>
<td>124</td>
<td>47</td>
<td>24</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>(16.6%)</td>
<td>(26%)</td>
<td>(33.7%)</td>
<td>(12%)</td>
<td>(6.5%)</td>
<td>(2.1%)</td>
<td>(1.9%)</td>
</tr>
</tbody>
</table>

To complement the results in Table 5.7 the comments from participants which reflect on their emotional responses in the simulation scenario provide insight into the level of immersion and engagement they experienced during the scenario. Examples of these responses, divided into five categories (nervousness, anxiousness, self-consciousness, bodily reactions, and relaxation) are presented in the following sections. The participant comments revealed common emotional responses to the simulation experience and in some instances there was additional explanation. This is valuable as the comments reveal that, for some who indicated they did not think the simulation was realistic, then reported “feeling nervous, and felt their heart beating”. Table 5.8 presents the data in relation to the emotional response felt by those who indicated they disagreed, strongly disagreed or very strongly disagreed with the suggestion they felt completely immersed and focused in the VirTra simulation scenarios (Question 3).
<table>
<thead>
<tr>
<th>Question 3</th>
<th>Question 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I felt completely immersed and focused on the VirTra simulation scenarios.”</td>
<td>“Please describe the emotional reactions you were aware of during the VirTra simulation scenario (e.g., Were you aware of being anxious, nervous, pressured, self-conscious? Were you aware of your heart beating?)”</td>
</tr>
<tr>
<td>24 participants disagreed</td>
<td>1 felt self-conscious</td>
</tr>
<tr>
<td></td>
<td>1 felt confused</td>
</tr>
<tr>
<td></td>
<td>2 felt no emotional response</td>
</tr>
<tr>
<td></td>
<td>20 felt anxious and nervous</td>
</tr>
<tr>
<td>8 participants strongly disagreed</td>
<td>2 felt self-conscious</td>
</tr>
<tr>
<td></td>
<td>2 felt calm</td>
</tr>
<tr>
<td></td>
<td>2 provided no response</td>
</tr>
<tr>
<td></td>
<td>1 felt unsure</td>
</tr>
<tr>
<td>7 participants very strongly disagreed</td>
<td>3 felt nervous</td>
</tr>
<tr>
<td></td>
<td>2 provided no response</td>
</tr>
<tr>
<td></td>
<td>1 felt frustrated with the technology</td>
</tr>
<tr>
<td></td>
<td>1 felt unsure of what they were doing</td>
</tr>
</tbody>
</table>

To contextualise the data presented in Table 5.8, an explanation of each of the responses and examples is presented. It is important to note that with the exception of two participants who provided only single-word answers, for example, “nervous”, the remaining 365 participants commented on being aware of more than one emotional reaction in their simulation experience, as typified by Participant 6310, who commented:

You are notified of the scenario before you start and even though I knew what I was going into, I was still nervous and felt my heart rate climb. Because I was alone during the scenario I was completely self conscious as to my reactions.
5.3.3.1 Nervous

The sense of nervousness which the participants indicated they felt both before and during the simulation were further qualified with comments describing a number of different causes of their nervousness, as indicated in the following examples:

- the condition of being unsure what to expect from the simulation

Here Participant 6087 expressed:

... I was nervous going into the scenario, not sure what to expect, but once it started I was immersed in it and this helped me focus.

- the unpredictable nature of the scenario

Here Participant 6573 reflected:

... [I was] nervous as not sure of what to expect.

And Participant 6611 commented they were:

... nervous, unsure of what was going to happen next, increased heart rate.

Similarly, the sense of the unexpected creating a feeling of nervousness was expressed by Participant 6351 in commenting:

I had an oh shit moment when I saw a person point a firearm at me.

- the situation of having both instructors and other students watching their performance

Here Participant 6531 commented as follows:

I was very nervous and self conscious as we had never done anything like this before and other students were in the room which was off-putting.

(This notion of being watched and its impact on how the participants responded is also articulated in section 5.3.3.3.)

- a sense of pressure to perform

This notion of feeling a pressure to perform was articulated by Participant 6231 in the following comment:
I felt nervous and found that I didn’t say things I thought I would have because of the pressure in the moment.

Participant 5903 proffered the following reflection in respect to feeling a sense of pressure to perform in stating:

I was a bit nervous and pressured to make the right decision under pressure, I lost my ability to communicate with the victims because I knew there was an armed man on premises.

Participant 12 commented on a reaction in the VirTra simulation which commenced with nervousness and grew to a non-reaction. This is evidenced in the following comment from Participant 12:

... at first I was nervous because I wanted to do well but then I froze and started watching it and not reacting.

Of the 148 participants who indicated they were nervous, 90 of these also indicated they were anxious.

5.3.3.2 Anxious

As indicated in section 5.3.3.1, 90 participants indicated they were anxious and nervous. For example Participant 6323 commented:

Nervous, anxious, it’s good because no other training here [college] really captures that sensation of being there in the moment.

The responses which included both ‘anxious’ and ‘nervous’ did not distinguish between the two feelings, and the qualifying comments in section 5.3.3.1 apply equally to the respondents who identified feeling anxious. Examples of comments which included identification of feeling anxious, again grouped according to the reason for feeling anxious are as follows:

- the condition of being unsure what to expect from the simulation

  I was anxious as you knew something was going to happen but didn’t know what was to come. (P.6372)

  I felt anxious, heart rate up, almost I think as a real life incident would do. (P.6204)

- the unpredictable nature of the scenario
Participant 6478 made the following observation in relation to the unpredictability of the simulated incident:

[I was] being anxious about what was going to happen in each of the scenarios.

Similar sentiments were given by Participant 6314 in commenting:

[I was] Anxious due to not knowing what to expect.

- the situation of having both instructors and other students watching their performance

The comments provided by Participant 6505 indicated they felt anxious because they were being watched:

... A bit anxious because all my classmates were watching.

- a sense of pressure to perform

Participant 6295 made the observation they were anxious due to feeling pressured. This is illustrated in the following comments from this participant:

... I was anxious and felt pressured during the scenario.

Ten participants who identified themselves as having felt anxious and nervous also identified that these feelings were combined with feeling excited. For example, Participant 4871 suggested:

I was nervous but excited.

For some participants who commented on the sense of nervousness and anxiety experienced during the simulation, a parallel sense of self-consciousness was also recognised.

5.3.3.3 Self-conscious

Thirty-three participants indicated they recognised a feeling of being 'self-conscious' during their simulation experience. Two distinct reasons were identified as contributing to the sense of self-consciousness. The first related to feeling uncomfortable with talking to a screen. Participant 641 indicated the reason for their self-consciousness in commenting:
I was feeling self-conscious ... this became worse when I had to talk to the screen. I felt silly doing this.

The second element which contributed to the sense of feeling self-conscious related to the fact that participants’ knew their performance was being watched by others. Here, the comment by Participant 15 is indicative of this situation:

[I] felt self-conscious I knew you had all the instructors watching you while you’re talking to a screen.

Similarly Participant 5913 commented:

I was aware of feeling foolish due to not being able to concentrate on the scenario due to being watched by an audience.

A further element identified by the participants which was intimately connected to their recognition of being ‘nervous’, ‘anxious’ and ‘self-conscious’ was their awareness of how their body was reacting to the simulation environment. Intimately connected to the sense of being nervous, anxious or self-conscious, or a combination of these feelings, is the awareness of how the body reacts to the simulation stimuli. Forty-seven participants specifically identified that they could feel their heart beating faster during the scenario.

5.3.3.4 Bodily reactions

All of the participants who identified that during the simulation scenario they were aware of changes in their body (the heart beating faster) also identified that, as we have just seen, they felt either nervous, anxious, self-conscious or a combination of these feelings. For example, Participant 6224 commented:

I felt nervous and pressured, my heart was beating and I felt that this [incident] could really happen in real life.

A similar reflection was proffered by Participant 6183 in stating:

I was shaking … I think my eyes were like dinner plates I was very nervous and I think my palms were sweating.

The degree to which the participants felt nervous or anxious did not consistently match with the comments in relation to the heart beating. For example Participant 6227 identified they felt slightly nervous and they noticed their heart beating and a sense of adrenaline overload. Participant 6227 suggested:
[I was] slightly nervous … noticed heart beating and adrenaline overload the sensation increased [my] hyper vigilance.

By contrast, the previous comments by Participant 6183, who acknowledged being very nervous, provided a visual description of their bodily reaction: palms sweating, eyes like dinner plates.

In contrast to those participants who identified a ‘heightened sense’ during the simulation exercise are those who acknowledge they felt ‘relaxed’ and/or did not recognise any change in their demeanour.

5.3.3.5 *Relaxed*

Three factors were identified in the responses from participants who suggested they felt relaxed during the VirTra simulation or did not notice any change in their demeanour. The factors which were identified as contributing to the participants feeling relaxed were as follows:

- knowing the exercise was not examinable

As suggested by Participant 6382:

I felt relaxed as I was not being assessed which helped.

- knowing no-one could be hurt

The notion that knowing no one could be hurt influenced the relaxed state in which the participants experienced the simulation. As suggested by Participant 6454:

I felt fairly calm because I knew I could not be hurt

Comments in relation to feeling ‘relaxed’ from the participants are related to their knowledge that no-one can be hurt and connect with those sentiments articulated by participants who indicated they were relaxed as they knew it was not the real world.

- being fully conscious that the exercise is only a simulation and not the real world
The following participants’ comments exemplify the responses for those who did not recognise any change in their demeanour as they remained aware that the simulation was not the real world.

Participant 6676 suggested:

I[was] relaxed, felt like walking into a game parlour.

Similarly, Participants 6099 and 6234 respectively offered the following comments:

I was aware that it was simulated so I wasn’t really nervous but very close to the real world.

I felt calm and just did the scenario; it did not make me feel anything as I was in front of a computer screen.

Table 5.9 presents the statistical data which indicate the percentage of VirTra participants who identified individual emotional responses as discussed in Category 3.

Table 5.9  \textit{Emotive response factors identified by VirTra participants (n=365)}

<table>
<thead>
<tr>
<th>Emotion</th>
<th>No. of participants who identified this emotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nervous</td>
<td>148 (40.3%)</td>
</tr>
<tr>
<td>Anxious</td>
<td>90 (24%)</td>
</tr>
<tr>
<td>Self-conscious</td>
<td>33 (8.9%)</td>
</tr>
<tr>
<td>Increased heart rate and/or sweaty palms</td>
<td>47 (12.8%)</td>
</tr>
<tr>
<td>Relaxed and no perceived change in demeanour</td>
<td>47 (12.8%)</td>
</tr>
<tr>
<td>Pressure</td>
<td>23 (6.2%)</td>
</tr>
<tr>
<td>Unsure</td>
<td>28 (7.6%)</td>
</tr>
<tr>
<td>Excited</td>
<td>10 (2.7%)</td>
</tr>
<tr>
<td>Non-examinable/assessable</td>
<td>3 (0.8%)</td>
</tr>
</tbody>
</table>
An additional avenue through which to explore the participants’ reflection of the realism of the VirTra scenario was to provide an opportunity during the field-based interview for the participants to consider whether they had experienced incidents in the field which were reflective of those experienced in the VirTra simulation.

### 5.3.3.6 Category 3 summary

The data in Category 3 draw together the participants’ perspectives on their emotional responses when participating in the VirTra simulation experience. The data indicate that from the participants’ perspective it was possible for the simulation to prepare them for the application of decision-making skills and draw an emotional response whilst participating in the VirTra simulation even if they did not consider the simulation completely realistic.

### 5.3.4 Category 4 (simulation and field-based experiences)

Three participants readily identified aspects of their field experience which supported the notion that the VirTra simulation was reflective of the real world of policing. The remaining participants interviewed had not yet been in a field position which required similar decision-making as that within the VirTra. Participant 9 indicated they considered the simulation exercise during their academy training was more aligned with their field experience to date. Participant 9 indicated they referred to a building search scenario during ‘contact and cover’ recruit training. It was indicated by Participant 9 that searching buildings is a common field-based task for Participant 9 and fellow officers in the NSW Police Force Local Area Command in which they are deployed. Participant 9 indicated that the VirTra scenarios were realistic and provided an example to support this perspective in commenting as follows:

> Definitely, the domestic was realistic, at the time I didn’t think it would be like that but having dealt with domestics like that in the field and having to use the capsicum spray. Like in the VirTra I thought he was coming straight for me but he went to his missus, which I have seen in the field but not with a knife.

Similarly Participant 1 suggested the VirTra was very realistic because:
There were humans, real threats and sense of danger, the same as the one I went to a couple of weeks ago me and another female officer. He [Person of Interest] had broken bail conditions, was intoxicated … and he approached with a knife.

And Participant 3 commented:

... [it was] very realistic, the sight, sound, timing, I am in a rough area so am constantly thinking and trying to be aware, at the end of the day there is always the likelihood of a gun or knife being involved in the incidents we attend.

5.3.4.1 Category 4 summary

The comments from participants which are presented in Category 4 indicate that the VirTra scenario experience is closely aligned to that which probationary police officers experience in their real world of policing. The presence of danger and the context and content of the simulated incidents the participants indicate is reflective of the real world.

To ensure opportunity for a balanced perspective in relation to how the realism of the VirTra was perceived, participants were offered the opportunity through responding to Question 6(a) of the post-simulation questionnaire and Question 11 of the field-based interviews to indicate if they thought the VirTra did not reflect reality and the elements which contributed to this perception.

5.3.5 Category 5 (detractors from realism)

The responses to Question 6(a) of the post-simulation questionnaire elicited 54 mentions of aspects which detracted from the realism of the VirTra scenario.

These 54 mentions aligned through common themes into five groupings. The five groups with corresponding explanation and examples are presented below.

5.3.5.1 Lack of realistic communication interaction

Within this group three common themes emerged:

- a lack of interaction with the characters on the screen (10 responses)

Participant 6566 commented:

... not talking back, you feel ridiculous not being able to interact with the people in the scenarios.
Similarly Participant 6513 commented:

Communication was ineffective … speaking was pointless and distracting.

- the screen characters not responding (12 responses)

Here Participant 6288 suggested:

... didn’t feel real, not responsive to communication, good for shooting practice that is about it.

- characters did not respond to directions (6 responses)

The suggestion that the realism was negatively impacted by the lack of avenue for the characters to respond to directions was explained by Participant 6129 in commenting:

It seems like you are being ignored, you talk to the screen and the characters on it with no response from them.

Participants identified aspects of the mis-communication in the VirTra combined with technical aspects of the computerised simulation as detracting from the realism.

5.3.5.2 Technical elements

Participants identified four aspects related to the technicality of presenting the VirTra simulation which detracted from the sense of realism. These four aspects included:

- split screens

Four participants identified that in their simulation session the split screens were not aligned and this distorted the image on the surround screens.

- not full screen

One participant suggested that their scenario was impacted by not having a full screen:

... not a full screen, that is, top to bottom, part of the scenario is cut off and it felt more like a video game than a training aid.

- distorted sense of space
Seven participants identified that they considered the unrealistic sense of distance created in the simulation as detracting from the sense of realism. Participant 6453 placed this reflection into context in commenting as follows:

... the space between me and the offender in the homeless scenario was unrealistic. If he came right up to the screen then I would have been more inclined into spraying him.

- unclear audio and image

Eight participants identified an inability to understand what was said by the characters on the screen and two participants also referred to a lack of clarity with the images on the screen. In respect of the warehouse scenario, Participant 6590 indicated:

... [I was] unable to recognise that the man had a gun, image unclear.

### 5.3.5.3 Knowing the environment is only screens

A further aspect identified by two participants was their overt awareness that the environment was only screens which detracted from the realism of the simulation experience. Participant 6537 provided the following comments in relation to their perspective of the realism of the environment which indicates the influence of being consciously aware that the environment is manufactured:

[The] surround screens, knowing that it was virtual and not real made me treat it a bit like a computer game.

### 5.3.5.4 Lack of physicality

Three participants identified the inability to touch the person on the screen and therefore have a more realistic choice of options to manage the situation as a detraction from the realism of the simulation. The suggestion was the restriction that only a spray or gun could be used created an unrealistic situation. As Participant 6457 suggested in commenting in relation to the domestic violence scenario:

I would not let the couple get that close I wanted to separate them but I couldn’t.

Participant 6425 also commented in relation to the lack of physical options in suggesting:
5.3.5.5 Detractors identified from field-based experience

As indicated earlier, the VirTra participants were offered an opportunity during the field-based interviews to identify the alignment between the VirTra simulation and the reality of incidents in the field.

Two participants provided comments following comparison between the VirTra simulation and their field-based experience which identified detractors from the realism of the VirTra scenarios. The remaining interviewed participants provided comments which supported the realistic nature of the VirTra simulation, as reported in section 5.3.4. The common theme which emerged in relation to characteristics which detract from the realism of the VirTra simulation from the field based perspective were identified as an unrealistic communication interaction between the officer and the characters in the simulation scenario.

Participant 9 commented they considered the VirTra was just a computer screen:

... it is hard when you talk to the computer screen, it is all about the human response rather than the computer response, I prefer that because you get more real interaction.

And Participant 13 also suggested the detraction was created through the lack of effective communication in the VirTra simulation in commenting:

I could not use communication to effect as the responses were present no matter what I did and I wanted to step in and be more in control.

5.3.5.6 Category 5 summary

The data collected in relation to the elements of the VirTra simulation which detracted from the realism of the simulated environment suggests that malfunction of the technical features of the simulation have an adverse effect on the realism of the simulated exercise and environment. The identified detraacting elements related to the technical characteristics of the VirTra environment which included distorted imagery and audio. Participants did not suggest that the content or context of the simulated incident did not reflect the reality of field-based incidents. However, the participants referred to the limitations of the technical makeup of the VirTra environment when
suggesting the pre-programmed conversations and the inability to touch the ‘characters’ in the scenario was not reflective of real world situations and for 31 participants this did detract from the realism of the simulated experience.

5.4 Chapter 5 summary

This chapter has presented the data in relation to the ICCS and VirTra participants’ experiences in their respective simulation environments and the participants’ observations and reflections from a field-based perspective on the authenticity of the ICCS and VirTra simulations.

As indicated in the chapter, the ICCS participants suggested that the simulation experience was reflective of real-world situations and provided opportunity to apply the theory and skills developed in the preceding ICCS course. In respect of the characteristics of the ICCS simulation which influenced or detracted from the participants’ immersion in, and engagement with, the simulation and the associated sense of realism, the following was noted:

- The psychological fidelity whereby the simulation exercise task is based on a real-world event was recognised by the participants as authentic.
- The time lines for events within the simulation were based on real time.
- The flexibility of the sequencing of the simulation task as it unfolded reflected the unpredictable nature of the progress of a real-world situation.
- The physical fidelity of sounds, the methods of communication within the simulation, the dialogue and graphical depiction of the characters and scene, and the allocation and availability of resources were recognised by the participants as authentic and representative of real-world situations.
- The pressure to perform and to resolve the simulated situation were considered as aligning with expectations experienced in the real field of police operations.
- The emotional reaction the simulation exercise evoked from the participants was indicative of the sense of immersion and engagement experienced by the participants.

In respect of the characteristics of the VirTra simulation which influenced the participants’ immersion in, and engagement with, the simulation and the associated sense of realism, the following was noted:
The psychological fidelity whereby the simulation exercise task is based on a real-world event was recognized by the participants as authentic.

The physical fidelity of environmental sounds, the dialogue and graphical depiction of the characters in the scene were recognized as authentic.

The VirTra scenarios replicate American accents and language idioms which were not identified as detracting from the sense of realism, immersion and engagement experienced by the participants.

The emotional reaction the simulation exercise evoked from the participants was indicative of those experienced by participants in their real-world field-based incidents.

The heightened awareness of safety and the pressure to make decisions related to safety experienced in the VirTra scenario was identified as reflective of that experienced by the participants in their real-world policing operations.

Several factors were identified as detracting from the sense of realism of the simulation including:

- screen characters not responding as expected in real-world interactions;
- technical faults with the simulation environment resulting in split screens, distorted sense of space;
- the simulated environment not allowing for physical contact with the screen characters which may have been the choice of action for a police officer in a real-world scenario; and
- participants knowing the environment and situation was not real.

An important note is the data indicate that, from the VirTra participants’ perspective, it was possible for the simulation to prepare them for the application of decision-making skills and to draw an emotional response from them, even if they did not consider the simulation completely realistic.

Establishing the participants’ perspective on the physical and psychological fidelity of the simulated environment and their sense of immersion and engagement is fundamental to exploring, first, the subsequent impact of the simulation experience on the participants’ transfer of learning and, secondly, the influence of the simulated learning experience on the participants’ professional identity. Chapters 6 and 7 will present the data which contribute to contextualising the influence on the transfer of learning and
development of professional identity for the ICCS and VirTra participants resulting from their respective simulation experiences.
6.1 Introduction

In the process of exploring the impact of simulation exercises on developing the decision-making skills of participants, it is appropriate to build a profile of the participants and their perceived capability and performance pre- and post-simulation. This approach to presenting the data which follows the influence of the ICCS simulation experience on the participants’ professional development will assist in informing on Research Question 1: What is the influence of simulation exercises in developing professional identity in policing?

This chapter presents results from the ICCS participants’ survey responses pre- and post-simulation followed by their field-based interview comments provided three months post-simulation participation. A brief discussion of the way in which the ICCS participants’ capabilities appeared to change as a result of the simulation training exercise concludes the chapter.

6.2 Profile 1: Decision-making skills pre–ICCS simulation exercise

For the ICCS participants, the pre-simulation profile was created through combining pre- simulation survey responses which reveal: (1) participants’ ranking of how they and their supervisors and peers perceive them in terms of level of confidence and competence in relation to decision-making; (2) the factors which participants consider as influencing their decision-making; and (3) the factors which the participants take into consideration in making decisions in their workplace. To provide balance to these considerations, the participants also identified the factors they consider as contributing to the production of poor decisions. Identifying the process and steps taken by ICCS participants when making decisions provides an additional lens through which to confirm the influential factors they consider and act on in formulating policing decisions. It is helpful in contextualising the learning journey of the ICCS participants.
to provide an overview of the participants’ perception of their decision-making capabilities pre-simulation exercise participation. In acknowledgement of their years of service within the NSWPF and the rank they have attained, not unexpectedly, the participants’ responses illustrated a positive perception of their capabilities and competence. Table 6.1 presents the data from the ICCS pre-simulation questions which sought to build the self-perceived commencing decision-making strength of the participants.

Table 6.1 \textit{ICCS participant decision-making strength}

<table>
<thead>
<tr>
<th>Question no.</th>
<th>Very Strongly Agree</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Very Strongly Disagree</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.7: “As a police officer I feel confident in my decision-making skills”</td>
<td>4</td>
<td>13</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q.8: “I consider I am perceived by my peers as competent and reliable in my decision-making”</td>
<td>2</td>
<td>15</td>
<td>11</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q.9: “I consider I am perceived by my supervisors as competent and confident in my decision-making”</td>
<td>3</td>
<td>14</td>
<td>11</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.2.1 Factors influencing the development of decision-making capability

To aid our understanding of how the ICCS simulation participants’ level of confidence has developed, participants were asked through the pre-simulation survey what factors they consider influence the development of their decision-making capability (Q.2: “What factors do you consider have had the greatest influences on developing your decision-making skills with NSWPF?”). The responses revealed four categories of influencing factors as follows:

- operational policing experience – including the application of skills, learning by having a go, being placed in critical situations involving decisions affecting life, having to make life and death decisions quickly, learning from errors made in the past, general policing experience

- education factors – including on-the-job training, learning from education, training, university education

- observation of others – including both junior and senior officers in police operations. (This category included the opportunity to see how others react and the decisions they make, seeing a good leader and decision-maker in action, watching others in senior roles, observation of superiors and the things they consider in making decisions.)

- mentoring and shadowing – including, as a collective category: shadowing others in various senior roles, mentoring by senior officers, actively seeking feedback from peers, and commander and strong mentor network for support and guidance.

The above factors, with their corresponding number of related responses, are presented in Table 6.2 on the following page.
Table 6.2  *Factors influencing development of decision-making skills*

<table>
<thead>
<tr>
<th>Category</th>
<th>Inclusion</th>
<th>No. of responses identifying these factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational police experience</td>
<td>• Practice making decisions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Application of decision-making skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Trial and error</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Decision-making in critical situations (life and death)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Observation of effect of decisions made</td>
<td>29</td>
</tr>
<tr>
<td>Education</td>
<td>• On-the-job training</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Internal NSW PF courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• External education (for example university)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Observing other officers (senior and junior)</td>
<td>• Observing good decision-making in pract.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Observing how sen. officers make decisions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Observing the success and failure of decisions made by both sen. &amp; jun. officers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Mentoring from senior officers</td>
<td>• Receiving feedback from senior officers on decisions made on the job</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Shadowing others in senior roles</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

6.2.2  *Personal attributes influencing decision-making*

In Table 6.3 the personal attributes collated from the ICCS pre-simulation survey have been grouped according to type of attribute. Strength of character, for example, included responses which related to ‘courage of conviction’. Here it is noteworthy to consider that 20 responses for personal characteristics is the sum of each mention of the 6 separate inclusive characteristics listed in the category, whilst the strength of character, humility and analytical categories scored 19, 17 and 14 respectfully, based exclusively on the number of times these characteristics were individually identified by participants.
‘Trust in others and trust in information provided by others’ was also individually prominent as an attribute with 8 separate listings.

Table 6.3 Personal attributes identified for decision-making in ICCS

<table>
<thead>
<tr>
<th>Category</th>
<th>Inclusion</th>
<th>No. of responses identifying these attributes</th>
<th>Examples of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal characteristics</td>
<td>• Decisive • Confident • Calm • Fair/firm • Ethical/honest • Empathetic</td>
<td>20</td>
<td>“common sense, fair and firm”, “decisive”, “ability to remain calm”, “not getting too excited – wound up, clouds judgment”, “integrity, belief in own ability”, “calm, caring, honest”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strength of character</td>
<td>• Courage of convictions to follow through on decision • Leadership • Ability to make unpopular decisions • Ability to direct</td>
<td>19</td>
<td>“strength of character”, “courage to make difficult and at times unpopular decisions”, “ability to make decision and stick to it facing the consequences of decisions right or wrong”</td>
</tr>
<tr>
<td>Humility</td>
<td>• Acceptance of errors and capacity to learn from failures • Ability to not blame others • Ability to accept advice/ reassess • Adaptable/flexible</td>
<td>17</td>
<td>“ability to consider alternatives”, “ability to seek advice”, “being able to admit mistakes and learn from them”, “ability to reassess when other information is made available”</td>
</tr>
<tr>
<td>Analytical skills</td>
<td>• Problem-solving ability • Logical • Ability to remain impartial • Patience • Focused</td>
<td>14</td>
<td>“ability to quickly digest complex situations and make decisions”, “ability to digest information”, “analytical, logical”, “analytical thinker, problem solver”</td>
</tr>
<tr>
<td>Trust in others</td>
<td>• Trust in the ability of others</td>
<td>8</td>
<td>“ability to seek advice”, “trust in others”, “know your people”, “take in different views”, “willingness to listen to others”, “ability to ask for help”, “ability to comprehend others and understand their capabilities”</td>
</tr>
</tbody>
</table>
Figure 6.1, below, provides a graphic representation of the five categories of personal attributes, indicating the influence of the four individual attributes in relation to the collective ‘personal characteristics’ category. Assistant Commissioner Clarke (sponsor of the ICCS course for the NSWPF) also identified these key personal attributes as the cornerstone for good decision-making in policing. He stated:

... you need to be calm, have some analytical capability, you need courage to make decisions and take risks and have personal resilience with the ability to accept criticism one way or the other ... don’t take it personally. (Clarke, 2010)

Figure 6.1  ICCS: level of influence for five categories of personal attributes.

To avoid any misperceptions and the potential to account for personal attributes under more than one category, examples of responses provided by participants have been included to allow for a transparent view of the inclusive characteristics/attributes within each category. Understanding the content of these categories is important when viewed in association with those factors participants identify as being of importance when making decisions in their policing duties.

6.2.3  Factors considered in decision-making

The ICCS participants were invited to rank in order of importance the factors which they consider when making decisions on the job. Question 5 of the pre-simulation questionnaire provided opportunity for participants to identify their own list of factors
which they considered when making decisions in their police work. (Q.5: “When making decisions in your police work, what factors do you take into consideration? Please list these and rank them in order of importance on a scale of 1–10, 1 representing the most important”). The purpose of seeking responses to Question 5 was to provide:

- correlation between the personal attributes, the basis on which decisions are made in the policing context, and the decision-making process for individual participants
- additional insight into the profile of decision-making capabilities pre-simulation
- a verifying mechanism with those factors the ICCS participants consider have the potential to produce poor decisions.

The responses were consistent across the cohort, with common description of the factors. Deviations were minor, reflective of individual language usage and continued to be clearly identified as belonging to one of the categories. For example:

- **cost** – included reference to financial considerations, cost of operation
- **community expectations** – included reference to community pressure, community needs
- **context** – included reference to what is the situation
- **impact of decision** – included reference to consequences of decision, implications of decision
- **time constraints** – included reference to the time available to make a decision
- **resources** – included reference to availability of staff
- **NSWPF policy** – included reference to NSWPF policies and procedures; legal considerations; knowing the justifications for a decision; knowledge of legislation and powers
- **knowledge of subject** – included reference to data gathering, intelligence information, knowledge of situation
- **risk** – included reference to risk assessment, safety of community and police
- **outcome required/organisational goals** – included reference to corporate expectations, goals of the business of policing.

Figure 6.2 indicates the collated categories of factors considered by the ICCS participants when making workplace decisions. The ranked importance of each of these categories is presented to provide a comprehensive picture of the value placed on the
individual factors by the participants. To illustrate an interpretation of these results, the category ‘outcome required/organisational goals’ has been ranked first (blue column) in importance by five respondents. In addition, the categories have been depicted in a diagram as Figure 6.3 to illuminate the importance, proportionally, placed on the seven top ranked factors when making decisions in a policing context.

**Figure 6.2** Factors ranked by ICCS participants in decision-making pre-simulation.

For the purposes of Figure 6.2 the number of times each factor was mentioned as being the 1st ranked factor for respondents was calculated. The proportion of the total number of mentions of all factors was calculated and the percentage of this total for each factor is shown in Figure 6.3.

**Figure 6.3** Factors important in police decision-making.
6.2.4 Ranking of influencing factors in decision-making

As shown in Figure 6.2, prior to participating in the ICCS simulation exercise and post the ICCS training course, understanding and applying the appropriate NSWPF policies and procedures which form the basis of an officer’s justification for the decisions made and actions taken was identified as the factor which was the most influential for the ICCS participants in their decision-making. At almost 50% less weighting were two factors with equal weighting: outcomes required/organisational goals, and the risk to NSW police and the community. Conceivably, there is a need here to acknowledge the potential seepage between the factors, for example, ‘NSWPF policies and procedures’ and ‘outcomes required/organisational goals’, as the policies and procedures underpin, direct and inform the outcomes required by the organisation. Similarly with risk to NSW police and the community there is the potential for overlap with the factor described as impact of the decision (at 14%). Acknowledging and including due recognition of the potential for overlap assists in placing these results into context. ‘Knowledge of subject and context’ was equally weighted at 7%. The remaining factors – community expectations, cost, resources – were weighted at less than 5%.

Reviewing these responses from ICCS participants in relation to the decision-making process they employed pre–ICCS simulation further contextualises the meaning of each of these categories. In addition, this reveals the reality in an operational policing context between those factors with less than 5% or at 7% weighting and the 31% for NSWPF policy and procedures (legal justification). Assistant Commissioner Clarke provided contextualisation of these results in advising that:

> The first step is about gathering as much information as you can, before you make the decision, bearing in mind any constraints. This is where we [Police trainers] push hard on appreciation of the situation, fully grasp [it], going methodically through the various courses of action, take a very risk based approached. At the end, what we are really doing is mitigating the risks around a situation, whether it is pre-planned or a resulting public order incident, to bring it back to normality. (Clarke, 2010)

Before moving to presenting the ICCS participants’ comments in relation to the decision-making process they employed prior to attending the ICCS course and simulation exercise, it is valuable to consider factors identified by participants which have the potential to produce poor decisions.
6.2.5 Factors influencing poor decision-making

As an avenue to provide confirmation of consistency in the ICCS participants’ perception of the factors which influence the development and application of good decision-making practices, the cohort was invited to identify those factors which have the potential to produce poor decisions (Figure 6.4). Interestingly, the results confirmed the emphasis placed on the provision of available information when seeking to make decisions.

6.2.5.1 Lack of information

Lack of information was consistently identified as the most prominent reason for poor decisions in the field of policing. Figure 6.4 illustrates the prominence of this factor. For the purposes of Figure 6.4, the number of times each factor was mentioned as being within the top seven factors for each respondent was calculated. This focus on the importance of having or obtaining knowledge is succinctly summarised by one ICCS participant (P.4) in interview, who stated:

... there is nothing worse from the troops on the ground point of view to give the impression that the Commander does not have a clue about the situation or what to do.

![Figure 6.4 Factors identified by ICCS participants as producing poor decisions.](image)

6.2.5.2 Lack of time

Lack of time was identified as a factor in poor decision-making by 17% of participants, ranking this as the second most common/recognised factor. Here also the ICCS
participants articulated during their interview the strong influence timing has in relation to making decisions. The consistent theme reverberating throughout the interview responses was that the time one has in which to make a decision directly impacts on the decision-making process and, further, this is one component contributing to the pressure an officer feels when making a decision.

6.2.5.3 Indecision

A category that emerged in responses to the question about poor decision-making factors was indecision. Clarification is required about the appearance of this factor as individually identified within responses to the pre-simulation Question 6 (“In the policing context, which factors do you consider have the potential to produce poor decision-making? Please list and scale”). The responses to the pre-simulation questions relating to what factors are important for decision-making and what factors influence decision-making in police work did not allude to indecision as an influential factor. This raises the question as to whether making decisions is so embedded in the nature of policing that the participants’ responses previously did not focus on whether a decision is made or not but rather on the influences that impact on the quality and type of decisions. As proffered by Assistant Commissioner Clarke:

It [policing] is a job where decisions have to be made everyday even by probationary constables, taking the liberty off someone or their life ... what we always tell them is that if it is reasonable and in good faith it will be stood by and so they have to have confidence to make the decision, the worse thing they could do is not make a decision in the cops. (Clarke, 2010)

Figure 6.5 (on the following page) illustrates the relationship of the individually identified factors which produce poor decision-making to the percentage of participants who identified the factor.
6.2.6 Prioritised considerations in decision-making

The reliance on information is highlighted further by participants when asked to outline the process they follow when making operational policing decisions. Of the 29 responses, 25 listed gathering information as their first priority. The remaining 4 responses did not specifically identify gathering information as the first priority; however, interpretation of the language used in listing the relevant participants’ first and second priorities would indicate an unspoken reliance on assessing information. Table 6.4 presents example responses from 4 participants in relation to the ICCS participants’ identification, in order of priority, of the steps taken in decision-making. To aid in developing an understanding of the relational importance of the factors participants identified for the decision-making process, Table 6.4 includes the first step and then the second step chosen.
Table 6.4  Factors considered in decision-making process

<table>
<thead>
<tr>
<th>First step identified</th>
<th>Second step identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rely on prior experience (knowledge of potential process and outcomes)</td>
<td>Rely on knowledge re legislation</td>
</tr>
<tr>
<td>Appreciation of situation (gather information)</td>
<td>Risks/possible outcomes (gather information)</td>
</tr>
<tr>
<td>Policy and procedure (gather relevant information)</td>
<td>Asking people (gather information)</td>
</tr>
<tr>
<td>Relying on experience (in snap decisions)</td>
<td>Taking more time to make strategic decision</td>
</tr>
</tbody>
</table>

The emphasis on obtaining information as a first consideration to inform decisions corresponds with Figure 6.4, where ICCS participants identified, prior to the simulation exercise, a lack of information as the prominent cause of poor decisions. The significance of beginning the decision-making process by gathering/obtaining relevant information is further reinforced by the responses indicated in Figure 6.6. Here the highest three ranking factors which are initial considerations for ICCS participants in influencing their decisions are related to knowledge/information factors. Included in the knowledge/information factors are: NSW police policy/legislation, information in relation to the outcomes and goals for the organisation, and information in relation to the risks to NSW police and community. This trend is promoted and supported by the NSWPF as indicated by ICCS trainer 1, who commented: “the first step is about gathering as much information as you can before you make a decision ... this is where we push hard on appreciation of the situation”.5 Here a number of the ICCS participants commented that their first step was to gather information:

... back to basic decision-making steps, collate information

... I spend time checking information, police policy and doing research, a lot of commanders will tell you they spend a lot of time researching information.

---

5 Sgt Balatinez (Balatinez, 2010), lecturer at the September 2010 ICC course, described the ‘appreciation process’ as follows: “The appreciation process is the assessment of a problem in a logical sequence, an aid to ensuring all aspects relating to the situation are considered. It is a management tool for planning and reduces the chance of aspects being overlooked”.

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The final area of consideration in completing a profile of the ICCS participants’ decision-making pre–ICC course and simulation is to include their own observations of the process they follow in making decisions. ICCS participants were asked to describe how they made decisions in their workplace.

Figure 6.6 Steps 1 to 4 in decision-making process.

Collation of the observations of ICCS participants’ view of the steps they follow in making decisions revealed consistent trends in terms of the sequence of the actions they identified; and these are presented in Figure 6.6.

**Step 1:** For 26 of the participants this step was identified as gathering information. Potentially this was also the first step for the remaining three participants. Arguably 2 of these 3 participants, who identified review against previous experience/incidents, would not be able to undertake this step unless they had information in relation to the situation under consideration. Similarly, the one participant whose first step was to look for the legal basis/implications would not be able to undertake this step unless they had available information in relation to the situation in question. The emphasis on gathering information available as the first step correlates with the previous responses discussed in relation to the factors participants identified as influencing decision-making and the factors which they considered as having the potential to produce poor decisions.

**Step 2:** Here the actions were aligned into two general categories of making the decision or continuing to obtain information: 27 participants continued to act on gathering further information; 2 participants moved straight to making a decision. It is
important here to note the full responses of these 2 participants who had both identified gathering and considering the information as Step 1:

P.1: ... try to quickly evaluate all of the information and make the decision then move on; and
P.2: ... look at the situation and the problem and alternatives and make the decision.

**Step 3:** This step centred on making and implementing the decision. The 2 participants who identified ‘review options’ also included ‘make the decision’. Similarly, the 2 participants who identified ‘communicate’ referred to ‘communicate the decision’.

**Step 4:** 5 participants articulated the final step as evaluating/reviewing the impact/outcome of the decision.

**6.3 Profile 2: Decision-making skills in the simulation exercise**

The second profile created provides an understanding of the decision-making strategies the ICCS participants engaged during the ICCS simulation, and their reflections on how the simulation-based learning will influence their future policing. This profile was created from responses to the ICCS post-simulation questionnaire.

To contextualise the ICCS participants’ responses in the post-simulation survey, it is appropriate to establish the participants’ attitudes towards the simulation exercise and their sense of engagement in the scenario. As presented in section 5.3, 100% of participants in the ICCS simulation agreed the exercise was reflective of real policing. Further, as indicated in Table 5.1, 100% of participants agreed they felt immersed and engaged in the simulation exercise. Section 6.3 below is divided into several subsections to enable the presentation of the key areas of the data. The subsections are presented sequentially, in line with the development of a comprehensive profile of the participants’ decision-making skills utilised in the simulation exercise and of the factors which impacted on the application of their decision-making.

**6.3.1 Level of awareness of decision-making in simulation**

The results are separated into two areas: the participants’ level of awareness of the decision-making process they followed through the simulation, and their perception of
how this awareness may impact on their future policing. The first section concerns four survey questions (Q.4, Q.5, Q.6, Q.11) designed to elicit verifying responses, and results relating to the first three of these questions are presented in Table 6.5; results relating to the fourth question (Q.11) follow the table. The key suggestion emerging from the data presented in Table 6.5 is that the ICCS simulation affords participants an opportunity to apply decision-making skills they had learnt in the preceding ICCS course, opportunity to develop an awareness of their strengths and weaknesses in decision-making and opportunity to apply decision-making skills they had not previously applied in their policing duties.

Table 6.5  
ICCS participant level of awareness of simulation decision-making skills

<table>
<thead>
<tr>
<th>Post-simulation survey question (n=21)</th>
<th>Very strongly agree</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 4: “I was able to employ key decision-making skills from the preceding ICCS course”.</td>
<td>5 (23.8)</td>
<td>11 (52.3%)</td>
<td>3 (14.2%)</td>
<td>1 (4.7%)</td>
<td>1 (4.7%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This participant (P.4) identified in interview that they had implemented Incident Management Teams prior to attending the ICCS course</td>
<td></td>
</tr>
<tr>
<td>Question 5: “I learnt about my strengths and weaknesses by participating in this simulation exercise”.</td>
<td>6 (28.5%)</td>
<td>7 (33.3%)</td>
<td>7 (33.3%)</td>
<td>1 (4.7%)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This participant (P.4) is the same one who responded Disagree to Q.4</td>
<td></td>
</tr>
</tbody>
</table>

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Question 11(a) on the post-simulation questionnaire (“During the exercise, were you aware of your own decision-making process?”) sought to understand whether participants were aware of their decision-making process during the ICCS simulation exercise. The rationale for including this question was to develop an understanding of whether the participants were consciously applying decision-making skills or whether there was a sense of intuitive decision-making occurring during the simulation exercise. There were 18 responses for this question, one of which identified that the participant did not have to make decisions in the role they took during the simulation. The remaining 17 participants confirmed that they were aware of their decision-making process during the simulation; however, this varied in level of intensity. The level of consciousness in relation to the decision-making process ranged from “... I was extremely aware ...” (P.2), “... Fully aware of my decision-making process ...” (P.11), to “... not really, not until I stopped myself, it was easy to go into auto-pilot...” (P.7) and similarly, “... I wasn’t really aware of my own decision-making process ... I found myself thinking about my own operational experience and deciding what needed to be done ...” (P.4).

The responses to Question 11(b) (“How would you describe your decision-making process at the time?”) provide clarity and an understanding of the depth of consciousness in relation to the participants’ decision-making processes.

As noted, 17 of the participants indicated they were aware of the decision-making process they followed during the simulation exercise. The responses revealed three
specific elements which were of importance to the participants that resulted in these being individually articulated in the responses.

6.3.2 Recording decisions

First, there was an identified focus on the point of writing/recording the decisions the participants took during the exercise. The following comments are indicative of this focus:

... I was aware of my decision-making process documenting decisions as I went. (P.21)

... I was able to record both pending and completed decisions on the white board ... (P.15)

... I attempted to remain conscious of the decisions I was making I had them recorded on the log and would seek to review them when required to progress to the next decision ... (P.16)

... they were recorded. (P.17)

6.3.3 Time

The second area of focus was the emphasis on how time impacted on the decision-making process. The following participant comments provide insight into consideration of the time factor:

... rushed – took a long time to slow down … (P.10)

A decision was required immediately and although the steps were taken to arrive at the conclusion they may not have been recorded ... (P.14)

... decisions were more reactive to situation. Not enough time to analyse the decision ... (P.6)

... there wasn’t time to make a written appreciation of the situation ... (P.4)

... it is never easy in these pressure situations, everyone’s stress levels rise ... I was aware of my decision-making process and document decisions as I went ... (P.21)

... making the pressure decision was difficult, I may not have followed the specific [ICC] ideal at the time … (P.9)
6.3.4 Judgement on decisions

The third area of focus related to the awareness that participants experienced of being judged on the decisions they made during the simulation, and their responses reflected their self-judgement. This consideration is reflected in the following participant comments:

I felt my decisions were timely and well thought through, and were appropriate in the circumstances… (P.12)

... my decision-making process became more confident as the exercise continued ... (P.3)

I was extremely aware that my decisions would be scrutinised by senior officers and my peers and the decisions would impact the effective and efficient management of the incident/event ... (P.18)

I did make a significant change to how I approach these situations, based upon what I had learnt during the week. I stayed far more strategic; I allowed others to fulfill their roles based upon my intent. I felt as though I had actually commenced to manage the incident to resolution ... (P.4)

... my decision-making process was based on previous experience and learning during the week ... (P.13)

6.3.5 Judgement on decision-making: Exercise debrief

As discussed in Chapter 4, the delivery design of the ICCS simulation includes an exercise debrief at the conclusion of the simulation scenario. The ICCS post-simulation questionnaire provided opportunity for the participants to reflect and comment on the debrief process and to indicate the value of the debrief process for their learning outcomes from the ICCS simulation exercise. Questions 13 (a) (“How did you receive feedback on your performance in the simulation?”) and 13 (b) (“Did this meet your expectations and needs? Please explain”) were posed to capture the participants’ reflection on the debrief process.

Table 6.6 (on the following page) presents the responses which revealed four distinct themes including: confirmation or disagreement as to the adequacy of the feedback; articulation of expectation and requirement for personalised performance feedback; recognition that the circumstances were not conducive to verbal personalised performance reports; and a preference for a written personalised performance report.
Table 6.6  
**ICCS simulation performance debriefing and reporting (n=21)**

<table>
<thead>
<tr>
<th>Response category</th>
<th>Number of responses</th>
<th>Examples of comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Debrief met expectations</td>
<td>Yes=11, No=10</td>
<td>“The type of feedback was constructive as it focused on processes and performance” (P.18)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Verbally, met my expectations” (P.12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“No as no individualised feedback given” (P.17)</td>
</tr>
<tr>
<td>(2) Articulation of expectation and requirement for personalised performance feedback</td>
<td>10</td>
<td>“I was hoping for an honest assessment of my performance one on one” (P.21)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I expected one on one feedback and recommendations for development” (P.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“whilst the debriefing is valuable I feel a one on one with an experienced officer would be more valuable” (P.1)</td>
</tr>
<tr>
<td>(3) Recognition that the circumstances were not conducive to verbal personalised performance reports</td>
<td>4</td>
<td>“the group feedback necessitated discretion in comments to avoid embarrassment ... this is counterproductive” (P.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I initially expected more personal feedback and closer monitoring of each individual including written feedback I recognise this would be very resource intensive” (P.14)</td>
</tr>
<tr>
<td>(4) Preference for a written personalised performance report</td>
<td>7</td>
<td>“a written summary would have been good to take away and reflect” (P.15)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“a written assessment would be valuable” (P.8)</td>
</tr>
</tbody>
</table>

6.3.6  **Potential influence of simulation exercise on future decision-making**

This section is devoted to the evidence gathered in relation to participants’ perception of the impact of their simulation experience on future policing practices. To direct the participants’ reflection of their simulation experience to considering the potential influence of the simulation exercise experience on their future decision-making strategies in their policing duties, the following question was included within the post-simulation questionnaire: Question 8: “The simulation exercise provided an opportunity for me to apply decision-making skills which I expect to transfer to my future policing practice”.

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The respondents agreed they had an opportunity in the simulation to apply the decision-making skills which they would anticipate utilising in their future policing (see Table 6.7).

Table 6.7  Expectation of transfer of decision-making skills to operational policing

<table>
<thead>
<tr>
<th>Question 8: “The simulation exercise provided an opportunity for me to apply decision-making skills which I expect to transfer to my future policing practice”.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>21</td>
</tr>
</tbody>
</table>

* This participant identified in interview that the role they were tasked in the simulation was not as busy or demanding as they had anticipated.

In continuing the theme of questions which related to the perceived value of the simulation exercise to their future policing, participants were asked to identify the most valuable aspects of the exercise for their future practice. Question 14 (“What were the most valuable aspects for your future policing practice gained from participating in the simulation exercise for you? Please provide the rationale for your answer, you may use examples”) was posed in the post-simulation questionnaire to provide an opportunity for the participants to articulate further specific knowledge, skills, and learning they anticipate transferring from the simulation to their field of practice.

A number of common themes were evident in the responses and these are discussed in the following sections.

**6.3.6.1 Opportunity to apply ICCS model: 10 responses**

Participants identified that the opportunity to apply their learning in relation to commanding a major public incident utilising the ICCS model and implementing an IMT (Incident Management Team) was a valuable learning experience.

As Participant 14 commented:

My knowledge of ICC prior to attending this course was very minimal. Learning the structure and application of the ICC model, and seeing and putting it into practice during the Hydra exercise demonstrated the practical application of
ICC. I now feel more comfortable if I am faced with a situation where I will be running or working in an IMT.

Participant 13 suggested the valuable aspect for their future policing was having the opportunity to

… get a feel for what works and what doesn’t work.

Included here is the response from Participant 11, who identified that one of the valuable aspects of the simulation for future policing was the opportunity to watch other participants make decisions under pressure in the application of the ICCS model. To contextualise this response, Participant 11 also identified that decision-making was not tested in the simulation exercise due to the role they were tasked to undertake.

6.3.6.2 Test knowledge: 13 responses

Nine participants identified that the opportunity to test their knowledge and understanding, and to develop an understanding of their strengths and knowledge gaps, through participating in the simulation was a highly valuable aspect of the exercise. As Participant 21 commented:

… the simulation based process is a valuable tool to see where we are at and to work on any perceived weaknesses.

Similarly Participant 16 suggested:

It provided the opportunity to participate in a scenario which could resemble a real life situation. This helped me identify the stressors I would be under in such a situation which would help me deal with them as required.

6.3.6.3 Consultation: 2 responses

Whilst consultation with both internal and external stakeholders is an intrinsic component of the application of the ICCS model, the value of consultation and communicating decisions was specifically identified by two participants. Participant 15 commented that:

I had a clearer picture of how the positions not only work together, but how important it is to communication with each other to make informed decisions.
In respect of communication with external stakeholders, Participant 17 suggested a valuable aspect was understanding and applying a:

… strategic approach to the management of the media issues for police … and control of messages going out.

Question 15 (“What do you consider will be the impact on your future policing of participating in this simulation exercise?”) was posed to capture the reflection by participants on the influence of the simulation for their future policing.

The nineteen participant responses to the above question were grouped into three areas of impact: increased confidence, preparedness to apply newly acquired decision-making skills in the field, and increased knowledge.

6.3.6.4 Increased knowledge: 9 responses

This group included responses which indicated that the simulation had contributed to increasing the participants’ knowledge of decision-making. Included also in this group were responses which indicated an increased knowledge relating to associated skills for good decision-making. As Participant 3 commented:

... [it] gave me an insight of what it is like in the initial stages of an incident. Taught me to stand back and take an overall assessment of the situation, the need to have a full appreciation of the incident occurring.

Similarly, Participant 17 described that the impact from participating in the simulation would be:

... increased knowledge and currency in relation to issues around emergency management and public order.

There appeared to be a measure of overlap between increased knowledge and preparedness to apply the ICCS model and newly acquired decision-making skills in the field as it may be perceived that underpinning the increased preparedness is an increase in knowledge.

6.3.6.5 Increased preparedness to apply the ICCS model in the field: 7 responses
Responses grouped here ranged in detail about the specifics of preparedness and application but all did have the general suggestion that the impact for the participants’ policing is an increased preparedness and ability to apply the ICCS model for decision-making and incident management. This perception was succinctly summarised by Participant 14:

I now have some experience in decision-making process in regards to incident management. I will be able to apply the appreciation process and risk management tools we used during the ICC.

Participant 16 proffered a similar response:

… hopefully it will enable me to perform my role as an incident commander more effectively and assist in helping achieve the desired outcome for each individual incident.

These sentiments were those also expressed by Participant 18 in commenting:

… readiness to participate in public events and building a knowledge and skills base to manage these public order issues.

6.3.6.6 Increased confidence: 5 responses

An increased sense of confidence is the third grouping here, and similar to the interrelationship between sections 6.3.6.4 and 6.3.6.5 above, there is an interrelationship between sections 6.3.6.4 and 6.3.6.5 and the current section, 6.3.6.6. This interrelationship acknowledges the potential for increased confidence to underpin increased preparedness and has the potential to be a consequence of increased knowledge. The impact of the simulation experience on the participants’ future policing, as identified by Participant 20, was:

… confidence to meet high-risk difficult situations and address and resolve successfully.

Reference to increased confidence was also included in the response submitted by Participant 14 as:

… I feel more confident in being able to manage a large scale incident.

There were two further aspects identified here: first, Participant 1 suggested that the impact on their future policing would be to:
constantly evaluate and self assess their knowledge, skills and relationships in reaching the outcome required.

Achieving these outcomes included helping others do the same and learn from every opportunity. It is noteworthy here to place this response into context through consideration of Participant 1’s response to post-simulation Question 9 (“How did experiencing in the simulation exercise meet your expectations?”). Participant 1 commented:

… It confirmed in the main my skills and experience in these areas, it was my understanding that my role in this training was to assist less experienced officers think at a higher level.

Participant 4 referred to future plans to:

… drive good decision-making throughout their area of command and seek to involve staff in the management of events and incidents.

This response also acknowledged:

… the importance of intent and strategy to implement that intent which will have a far greater prominence in my deliberations in daily operations as well as when I am planning for or responding to an incident.

The collation of the responses from the post-simulation surveys completed the decision-making profile developed from the observations and reactions by participants immediately post-simulation participation. Completing the picture was the development of the participants’ decision-making profile on return to their professional policing environment.

6.4 Profile 3: Decision-making skills from the field of practice

Approximately three months after the ICCS participants had returned to their policing duties the researcher undertook individual interviews with thirteen participants. The interviews were designed to develop a field profile of the decision-making process attributed to the participants through exploring:

- the participants’ perception of their decision-making in their policing duties
- the participants’ understanding of the impact of and lessons learnt from the simulation experience on their policing.
6.4.1 Reflection on ICCS simulation experience

A platform from which to begin the profile development in this phase was the reflection by the participants on their decision-making during the simulation. The point of difference between this reflection and a similar question posed in the previous post-simulation profile building was the potential for this current reflection to be influenced by the time lapse since the simulation experience and the participants’ immersion in the demanding reality of their daily policing duties.

As an avenue to create this initial platform Question 4(a) (“The simulation exercise is designed to provide opportunity for participants to apply their decision-making skills in a public order incident. Please can you tell me about your decision-making process in the exercise?”) was included in the interviews. Responses to this question are discussed in the following sections.

6.4.1.1 Knowing your people and team

The responses to this question revealed an interesting insight into the elements which participants consider important when managing an incident and making decisions in their policing duties. The importance of knowing the capabilities of the staff in the team was not indicated in previous profiles. The emphasis placed on this issue in reflection of the simulation experience would indicate that participants only recognised and gave voice to the considerable influence this factor has on making decisions as a consequence of exposure to a situation in which they did not necessarily know the capabilities of their team members. To provide an indication of the importance of this factor, 11 of the 13 participants interviewed discussed this factor as their immediate response to explaining the decision-making process they followed in the simulation experience. Examples of comments that were offered are:

... my ability at the beginning, impacted by and added to the overwhelming … was that I had not worked with those people before so I was not sure what their skill levels were what their expectations were ... it helps to know the people you are working with. (P.23)

... one of the biggest things about making decisions is the team you are working with if the team is switched on then ability to make decisions is amplified. (P.13)
... personal knowledge of the commanders on the ground is critical, gives you an element of confidence you know that if you get advice from them then if you know their capability and skill level you can say that is a good thing or not. (P.4)

I had an inspector who actually worked in the area [of the scenario] so I could use him. (P.16)

I worked through and identified who I had available to me ... and assigned tasks to the people I had. (P.21)

This reliance on knowing and understanding the capabilities of the team is intimately connected with the second key action which participants identified as part of the process followed when making decisions during the simulation exercise, namely gathering information. Participants indicated that gathering available information about the incident and the resources available was a first step in resolving the simulation scenario. The confidence the decision-makers placed in the accuracy of the information linked directly with the confidence they placed in the ability and capabilities of their team members. This is exemplified in the following comments by Participant 4:

... probably the biggest thing was that I had Andy Bullock the tactical commander and I had absolute confidence in him and that was a big plus for me.

... for example if Steve Cullen\(^6\) said form up here and go down there you would have the confidence to do that but if I go back to when I was just a young Constable we had a serious matter where a guy fired a number of shots into a block of units and the police commander who turned up was from the Police Choir and he had no idea.

### 6.4.2 Influencing factors on decision-making in the simulation

The second part to Question 4 asked the participants about the specific elements of the simulation which had a greater influence on their decision-making in the simulation exercise. Question 4(b) read as follows: “Were there specific elements which had a greater influence on your ability to make decisions [in the simulation]?” The participant responses to part (b) were a seamless expansion on the two key themes raised in response to part (a). The two key themes raised in response to part (a) were the impact of knowing the team you work with and having confidence in the information you are given.

\(^6\) Chief Superintendent Steve Cullen is a senior tactical advisor for the NSWP and delivers training on Public Order Management Awareness on the NSWP’s Incident Commanders’ Course.
The responses to part (b) of Question 4 identified factors which had not been revealed previously and there was reiteration of previous factors, emphasising their importance in the decision-making process. These are presented in sections 6.4.2.1 to 6.4.2.4 below.

6.4.2.1 Time

The pressure of time was a factor raised here, as it had been previously. One participant observed:

... as forward commander the speed of the onset was a big element in the process and the fact that decisions needed to be made immediately based on what was coming in on the radio ... (P.16)

Similarly Participant 11 commented:

Timing you knew the pace was on, decisions had to made quicker, which you may not have to in real time – you knew within the next few minutes something was going to happen because that is the way the scenario is run, you are not given an hour to think about it.

6.4.2.2 Strategic decision-making

The responses gave a sense of the simulation incident unfolding rapidly, with many actions occurring at the same time:

One of the issues that comes up, as a Duty officer and forward commander, when it is on, it is on, that is, the phone is ringing hot and going off, and then the radio going off and then people coming asking what to do, so multiple things to think about at the same time ... so in the decision-making it is trying to free yourself up to think and step back from the situation and look at the bigger picture. I was trying not to be so immersed not thinking about the bigger picture, I was trying to use all of the resources I had with me, about what I had available to me, and tasking appropriately and so not getting overwhelmed by all of the demands. (P 21)

The notion that to aid the development of good decisions in a leadership role one needs to be able to step back from the ‘frontline’ and to think strategically across the whole of a situation is implied in the preceding response. As presented previously, this notion was also reflected in the pre-simulation responses where time was identified as an influencing factor and relates directly with the ICCS trainers’ emphasis on the key action of undertaking an appreciation of the situation.
The consistent issue that is revealed here is that situations have the potential to unfold rapidly with a wide array of demands being placed on the Commander at any one point in time; and it requires resilience to remain focused on developing strategic direction for the incident as a whole. This resilience manifests in the ability of the Commander to remove themselves from the ‘hot seat’ of the incident and take the time to assess the situation holistically. Participant 4 provided a succinct explanation of this reflection:

You still need to be able to sit yourself apart to think what am I going to do, you have to have confidence in people and ultimately the decision is mine and I make it on the information I receive. It is a bit of a balancing act, you have to immerse yourself in the Command team so that you get the information and right advice, at the same time you have to set yourself apart, cannot be a group decision, it has to be your decision. Very important as a Commander be able to, take step back and look at the situation and whilst you might be churned up inside as to what the hell do I do now it is important to have that calmness and that considered manner and to consult and ultimately you need to be decisive.

The comments of Participant 1 concur with the sentiments expressed by Participant 4 in suggesting:

Keep free and try and think at the higher level ... so in the decision-making it is trying to free yourself up to think and step back from the situation and look at the bigger picture.

6.4.2.3 Consultation

An influential process in decision-making which was identified through participants’ reflection on their experience in the simulation, and which by its nature creates connection to all other influencing factors identified in the profile of decision-making during the simulation, was that of consultation. The quality of, and reliance on, consultation depends on the Commander’s level of confidence in, and knowledge of, their team members. As referred to earlier, one of the unsettling factors for participants in the simulation exercise was the limited knowledge they had of the capabilities of their assigned team members.

Here consultation was referred to in a range of terms from ‘having a pow-wow’ to ‘consulting widely’. Those who identified consultation as an influential element also proffered the rationale for attaching importance to this factor. The comments offered by Participants 11, 4, 22 and 25 are reflective of the centrality of this factor:
... this is what I think what you think, that is what it is all about, getting everyone to discuss and come out with the best solution. (P.11)

... Consult widely and quite often experienced people with knowledge will come to the same conclusion, quite often there will be a consensus. But in some cases they won’t all agree and that is where as a Commander you need to set yourself apart, we are going to sit down and talk about the issue but at the end of the day I make a decision. (P.4)

... One thing I have become acutely aware of is that pretty much everyone will have a particular opinion and some that I may not have thought of. (P.22)

... The decision-making process was influenced by having that tactical adviser there saying this is what you need to do, this is a priority so this is what we went and did and we were able to achieve that and then when we moved on from that the next decision was to get advice from the Tactical Advisor and use whatever we had available. (P.25)

### 6.4.2.4 Time available for consultation

Time available impacted on whether consultation was undertaken, the level of effectiveness of the consultation and in what manner consultation was undertaken. For example Participant 22 commented:

... Like some of the information that was coming in I tasked investigators to do certain things and put it on the radio and then told the commander, I didn’t necessarily go to him and say I have this information what do you want me to do, I just do it. I kept a log of what I did and then if the commander said we need to do something I can check and say we have done that, he has so much coming in he does not need to know the ins and outs.

### 6.4.3 Valuable learning aspects of the ICCS simulation exercise

Interview Question 9 was designed to encourage participants to reflect on the whole of the ICCS simulation experience and identify valuable learning aspects. The rationale for posing this question was to provide an opportunity for participants to identify learning experiences which may not be directly related to decision-making but which may, however, collectively, influence decision-making. In addition, the responses would provide a basis from which to consider the differences between the perceived impact and actual impact of the ICCS simulation exercise. The question posed in the interview as Question 9 was: “Please can you tell me what you consider are the valuable learning aspects of the ICCS simulation exercise for you?” Themes emerging from responses to Question 9 are discussed in the following sections.
6.4.3.1 Collegiality and team work

Ten of the ICCS participants interviewed referred to aspects of team work as the most valuable learning aspect of the ICCS simulation exercise. A number of differing perspectives of team work were included in the responses, ranging from:

the opportunity to listen to what others say and do (P.1)

to

... It was good to work as a team because teams don’t get stood up\textsuperscript{7} like that, that regularly. For me the opportunity to be part of that team and learn the roles. The jobs I tend to go out to it is with the forward commander working on the bonnet of the car and as far as a team, you are sort of on your own, talking to people and talking to the Commander. (P.16)

The acknowledgement of the value of the collegiate, collaborative learning environment offered by participation in the simulation exercise was evidenced in the comments provided by Participant 21:

... Working through with your colleagues where you work with and off each other. Learn not only from the exercise but also your colleagues as well.

Perception of the valuable learning aspect of participation in the ICCS simulation as a reminder of how teams work and how individuals work in a team was articulated by Participant 13, as evidenced in the following comments:

... Provides opportunity where you get to appreciate the dynamics around you, in our job that is incredibly important to remind us of because we tend to be strong personalities and when you are asked to work in a team it is something you have to be very conscious of and the simulation is an opportunity to remind yourself and other people just how it works in a team.

The opportunity to learn about individual skills and strengths in decision-making was also regarded as a valuable aspect of participation in the ICCS simulation. Participant 23 suggested the ICCS simulation:

... reinforces the fact you do have abilities that you may not even be aware of in relation to controlling and decision-making.

\textsuperscript{7} To be ‘stood up’ means in this context for a team to be put together to manage a major public order policing incident.
In completing the profile of ICCS participants’ decision-making skills in the field the participants have offered observations of their decision-making capabilities and competencies through reflection on their participation in the simulation.

6.4.4 ICCS simulation factors transferred to the field of practice

The area which has the potential for a far-reaching impact in this research is understanding the factors which transfer between a simulation experience and the field of practice. Three interview questions focused on eliciting responses from the participants which would assist in understanding what aspects of the experience in the simulation transferred to their field of operation. Question 7 posed the following: “(a) A period of approximately three months has elapsed since you participated in the ICCS simulation exercise. Can you tell me how your experience in the exercise has influenced your decision-making in the field? Please could you give some examples?”

The response to interview Question 7 revealed two areas of influence created from the ICCS simulation experience; these are presented in the following sections.

6.4.4.1 Model for decision-making

The thirteen ICCS participants interviewed who had no prior experience with the ICCS were unanimous in confirming that the most valuable learning aspect they have transferred to their operational policing is the provision of a structure or model they can utilise for making decisions. This was identified as extending beyond major public order incident management to daily policing operations. Participant 4, who had personal experience in a major incident management situation with the NSW Bathurst car racing event, where an Incident Management Team was established, articulated this extended role of the ICCS decision-making process:

… like when we were at Bathurst I had an Incident Management Team of three, the model calls for six people … as a Command development strategy, develop the concept of working with those various elements of ICC to be used in both the short and long term as you can apply the same principles you need planning, logistics, intelligence, human resources, communication different types of these elements. All of the elements of command are necessary for the day to day activities and what you practise day to day is what you put in place when you do have a public order incident.
This sentiment of applying the ICCS model in daily policing operations resonated in the comments from Participant 13. Participant 13 indicated previous involvement in a major incident at the Sydney Olympic Stadium for a large concert and the policing operation was conducted in line with the ICCS model. Participant 13 suggested:

... Yes you do use it [ICCS model] on a daily basis just on a smaller scale, the gist of it is that you divide up what needs to be done you have people who are capable around you to provide you with input into the decision-making process and you have someone with whom you can bounce off options. So the ICC concept applies all the time just that you may do it with a team of 6 or 12 or you may do it with just you and someone else. So it expands, contracts, speeds up, slows down depends on the incident.

This concept that the ICCS model assists the decision-making process across various levels of policing was consistent with comments given by Participant 16, who had not yet managed a major policing incident:

... I haven’t had a major incident which required the formation of an IMT, however in attending a number of incidents, fires, fatal motor vehicle accidents, you think about each of the aspects of the ICCS model. You cover off on what needs to be done for each incident.

As indicated in these comments, whilst understanding and applying the ICCS model was identified as contributing widely across the decision-making domain, the interviewees also qualified their responses to indicate that it was not always a copybook or best-practice application of the model. The implication is that not all situations require all components of the model and there is a need to be flexible in its application.

Indicative of the responses, the individual circumstances of the policing incident have the potential to influence the application of the ICCS concepts in part or in whole to aid decision-making. As Participant 21 suggested:

... I would draw on the experience from the course and some of the structure that was put in place but I could not say 100% that I would use all of it, that 100% all processes would be adopted … I think everyone would agree in the real world we don’t have the time to sit and go through the process … a lot of the time the command post is on the bonnet of the vehicle … especially in the initial stages, it is chaos, and just trying to manage what is in front of you doesn’t allow you to go into those real structured process … sometimes we don’t have those fantastic environments, where we can sit and logically go through slowly the process to come up with where we are going … sometimes we just need to do it intuitively, and get it done on the run, that is the nature of the job.
This issue of flexibility was woven through a number of the participants’ comments, as in the case of Participant 23, who indicated:

... The nature of policing is that you have to be flexible and sometimes you have to move away from the model ... but it is important to understand why you do this.

This recognition that decision-making in the realm of policing requires flexibility and adaptability as a means through which resolution may be achieved underpins the responses from the ICCS participants with prior experience with the ICCS.

6.4.4.2 Confirmation of decision-making process knowledge

Eight ICCS participants who had prior experience in managing major incidents in the field identified the manner in which the simulation experience has influenced their field operation: it is by way of refreshing the currency of their knowledge. Additionally they identified that the ICCS simulation experience confirmed that the decision-making process they currently adopt in the field is consistent with ICCS best practice. The situations they observed and how these were managed in the simulation exercise were identified as the catalyst for transfer of learning from the simulation to their world of work. Participant 11 suggested:

... I think I still do things the same way, but [now] with more recent knowledge, for example one I did which was a high risk (Search Warrant) I make sure I have covered off on everything ... some things [in the simulation] were not covered off properly and these you remember and transfer to the field.

It is important to contextualise these comments: Participant 11 referred to the above search warrant incident during the interview as an example of the complexity of the decisions police are required to make in their operational duties:

... The decision could be to go in and knock on the door and the bloke be armed and someone gets their brains blown out ... look at a Search Warrant, you do a risk assessment, files of information, you analyse the risk before you decide ... that is a decision where if you make the wrong one a person gets shot.

Similarly, Participant 24 provided an example of the skill and knowledge they transferred from the simulation experience to their policing operations:

... Referring back to an operation in January 2011 a two night operation, the skills I picked up from the course I transposed there even though I have
previously worked in an Incident Management Team. The simulation was a reminder of the clarity of the roles so one doesn’t cross over roles.

Reaffirming the approach taken prior to the simulation exercise was also emphasised by Participant 1, who commented that:

... the course reaffirmed the approach I have been taking for a number of years now I am confident that it is the right approach … the course helped me reaffirm that confidence.

One participant with prior exposure to major incident management in the field concurred with the above comments in relation to reaffirming their approach to decision-making and offered suggestions about additional areas where the experience in the simulation has influenced their operation in the field. Participant 22, in reflecting on a specific incident, commented:

... Previously involved as Operational Commander for a major search and I left the search and rescue coordinator as the officer in charge, since then I have had a job where I had the duty officer go as the forward commander to take the pressure off that coordinator, that is what I have done differently.

The participant responses to Question 7 provided real-time examples of the transfer of skills and knowledge developed in the ICCS course and from the ICCS simulation experience. To enable an understanding of the impact of the simulation experience separate from the ICCS course, the participants were asked to consider whether they are aware of reflecting on the simulation experience when they are in the process of making decisions in the field.

6.4.4.3 Awareness of use of simulation experience in field-based decision-making

As an avenue to further build on Profile 3: Decision-making skills in the field, two questions were posed to the ICCS participants to gauge their reflections on the simulation experience and its influence on their current decision-making in the field. Question 8 was posed as: “Are you aware of reflecting on the simulation experience and lessons learnt and applying that knowledge in decision-making in your policing practice?”

The thirteen participants interviewed agreed that they were aware of reflecting on the simulation experience and lessons learnt and applying those in their current policing
work. A wide range of depth of reflection was indicated. Participant 16, for example, qualified their response with a suggestion that the reflection is time-dependent, and commented:

... Sometimes I am, if I get a minute out there [in the workplace] I can stop and think, but other times when things occur quickly and you are coming back and doing a SITREP\(^8\) you can see how you worked through the decision-making process.

Whilst Participant 22 revealed the depth of their reflection in revisiting decisions made previously in their command and identifying what would now change for the future:

I have even been to my boss and said in hindsight we should have done this X and in the future we should do Y.

A common point of reflection was revealed in the responses to this question, in particular the concept of reflection on practice as aiding learning and, in this case, reflection on the simulation experience as aiding learning and application for the real world. Participant 25 contextualised the impact of reflection and its influence on their current decision-making role within the policing environment in the following comments:

... I have retained all of my notes on the course, the decision-making strategies and the simulation and would refer to these before I am involved in a similar situation. Same as a Constable in the truck, they go to a domestic violence incident or a motor vehicle accident they are thinking, hang on this is what I have done before. It is all about training.

The suggestion that in their future policing the participants will ‘fall back’ on the skills and experience from the ICCS simulation reverberated throughout their comments in relation to reflection on their simulation experience. The responses suggested the participants were actively learning from their reflection and applying this in their current policing context. To more clearly define the aspects of the simulation experience which are now influencing the manner and application of their decision-making, the participants were asked to consider what were the most valuable learning aspects from the ICCS simulation. This question is similar to the one posed in the post-simulation survey; however, here the context in which they are responding has altered. They are

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\(^8\) SITREP is the label given to a NSWPF situation report on a policing incident.
now responding from a position three to four months after the simulation exercise and are able to consider the valuable aspects of the simulation from the reality of their workplace. The following section, 6.4.5, presents the responses to Question 5 in the context of the relationship between the whole of the simulation experience and the participants’ current policing activities.

### 6.4.5 Current field-based decision-making process

The final area to explore in this phase is the participants’ articulation of their current field-based decision-making process and the factors which influence this process. To achieve this the following interview question was posed: Question 5: “In your policing when you make decisions, are you aware of how you make those decisions? Do you think you do this intuitively based on past experience or do you consciously work through a process? Please explain”.

#### 6.4.5.1 Criticality of incident

Without exception, all of the interviewed ICCS participants suggested that the situation and circumstances of an incident influence an intuitive or more consciously considered decision-making process being employed. The link between the circumstances and how an ICCS participant makes decisions was both the time available to make the decision and the criticality of the decision. As Participant 4 commented:

> ... I would say, the less important decisions are done intuitively but a lot of my critical decisions are based on past experience and I combine this with research.

Similarly, Participant 16 suggested:

> ... Depends on the decisions if I am sitting in the office and I have a fair bit of time then I use the process, can take the time to look at alternatives, work them around and find the best position, run it past people for their thoughts. But on the street the decisions are made on the go, based on past experiences, based on policy and procedure and what I have learnt.

The notion that decision-making is based on what has been learnt was graphically explained by Participant 22, who suggested that decision-making is based on a
combination of intuition, past experience and a conscious working through of a process, and it depends on the job:9

... If I am going to a job, you get certain information and try and confirm things, but if you are driving to a job you are running it through in your head what resources you have. If someone comes at you with a weapon well you make an instantaneous decision based on your training and justify your use of force.

6.4.5.2 Time

The time available to make decisions was identified as a contributing factor in determining the manner in which participants choose to make their decisions.

In referring to the time factor, participants suggested:

... sometimes you don’t get the opportunity [to take the time to sit back and work through a process] you have to go on a gut feeling and go quickly and there is a lot more to that gut feeling ... all the things that are stored in your head at the time. (P.13)

... depending on the amount of time available either relying on skills and experience in snap decisions or taking more time to make a strategic decision, sometimes we just need to do it [make decisions] intuitively, and get it done on the run, that is the nature of the job. (P.21)

Whilst all of the interviewed participants agreed that intuition was a prominent basis on how decisions are made within the policing field, it was Participant 1 who clarified the meaning of intuition and the recognition that intuition is underpinned by experience of a similar or related kind and knowledge that a decision made in a particular way will bring a particular response.

Experience is also one of the prominent factors participants identified as influencing their decision-making when they responded to the following interview question: Question 6: “What do you think are the influences on your decision-making? Stakeholders, policy, politics, the public, past experience?”

In a similar manner to the responses to Question 5, the participants prefaced their comments with ‘it depends on the circumstances’: whether the incident is a major

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9 ‘Job’ is a colloquial expression used in the policing profession to refer to a policing incident.
policing operation or a less complex routine situation. This aspect was articulated by Participant 13:

... Depends on the context, 99% of the time you are sitting in the office being a manager, Commander, so those sorts of decisions are probably arrived at much differently to those in an emergency however it is usually the same framework except one is happening much quicker.

6.4.5.3 Safety

The responses to Question 6 revealed six factors that influence decision-making which were identified by more than one participant and one factor identified by only one participant. Table 6.8 presents the data identifying the factors, and the number of participants who identified them. Five ICCS participants identified officer safety as the factor they consider first in formulating decisions in the management of policing incidents. Participant 25, who had experienced in real time the policing incident on which the ICCS simulation exercise was based, commented:

... People safety is very important I don’t expect people to go in where I would not go. The leadership of their supervisors is very important, they have faith that their supervisor is not going to put them in a position that would compromise, and they rely on their supervisors not to put them in an inappropriate situation.

Consideration of officer safety as the foremost factor in decision-making was also evidenced in the response from Participant 16 in commenting:

... Officer safety is the first thing I think about, move onto policy and what are the guidelines then community and relevant stakeholders.

Similarly, Participant 21 suggested that officer safety was “paramount and is foremost in my mind when making decisions” in parallel to consideration of “making sure we have the resources, but at the same time what kind of risks am I exposing my people to”.

Participant 22 suggested that whilst decision-making is primarily influenced by safety this is inclusive of a combination of policy, politics and past experience:

... a combination of all of those, public interest, risk to police, like if it is a bloke with a firearm you have to decide if your police are trained enough to contain and negotiate and follow policy asking “what is the fallout if someone gets killed or injured?”
The emphasis on considering safety resonated with the comments made by Participant 11, who acknowledged the many factors which need to be considered at any one point in time when making a decision:

... Legislation, impact of decision, depends on the decision you are making, the decisions could be to go in and knock on the door and the bloke be armed and someone gets their brains blown out, you have lot of things to think about the decision [it] could end up with the death of someone.

6.4.5.4 Media and community perception

As evidenced in Table 6.8, media intervention, previously not mentioned in Profiles 1 and 2, received four responses here. Participant 21 suggested:

... An interesting factor I had not considered previously was the perception the community takes out of an incident through media reports … and the perception of the organisation as to whether we are in control or not in control.

<table>
<thead>
<tr>
<th>Influencing factor</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officer safety</td>
<td>5</td>
</tr>
<tr>
<td>Community perception</td>
<td>4</td>
</tr>
<tr>
<td>Media intervention</td>
<td>5</td>
</tr>
<tr>
<td>NSWPF policy and procedures</td>
<td>4</td>
</tr>
<tr>
<td>Political</td>
<td>4</td>
</tr>
<tr>
<td>Staff involvement</td>
<td>3</td>
</tr>
<tr>
<td>Outcome required</td>
<td>1</td>
</tr>
</tbody>
</table>

6.4.5.5 NSWPF policy and procedures

As suggested previously by Participant 11, there are a number of factors that are considered at the one time in formulating decisions in the field of policing. Whilst for example not all respondents mentioned NSWPF policy and procedures or legislation as influences on their decision-making, it underpins and informs the consideration of other influencing factors. For example, consideration of officer safety would also require consideration of the policy and procedures that relate to officer safety. Similarly,
consideration of community perception would require consideration of policy and procedures on which justification of the decisions made and action taken are based. This consideration contributes to responding to potential adverse community perception and reaction.

6.4.5.6 Political considerations

Those respondents who identified specifically the influence of political considerations in their decision-making also included the suggestion that decision-making was influenced by a number of factors, that is, stakeholders, NSWPF policy, past experience. However, the key point here was the inclusion of specific examples of the influence of political factors, the label ‘political’ being attributed to both New South Wales Parliament and to the NSWPF hierarchy. Participant 24 referred to historical policing incidents where political implications were paramount, that is, the Redfern riots, the Macquarie Fields riots, both within the NSW Police Force and parliamentary environment:

... You are influenced by hierarchy, more senior police and what they want to happen … the political implications, if you look over the years where there has been a significant public incident, Redfern and Macquarie Fields … there has been scrutiny by the media and political parties … you need to keep your mind open.

6.5.4.7 Staff involvement

The responses which included reference to staff involvement were similar to the previous identification of consultation. Here there was an added dimension which expanded the rationale for consultation suggesting that staff involvement encourages ‘buy in’ to the decision-making process and resilience to accomplish a resolution to a policing incident. In addition, Participant 13 suggested that involvement of staff in the process produces a better decision:

... For me personally, if I can get others to be involved in the process because you get a better decision and you can get to a point where they recognise when is a good time to give input and when is not and they respect that.

Participant 8 suggested that involvement of staff is an influential factor as it impacts on the “morale of staff in the workplace” and the many and varied effects that creates. Participant 4 made a number of references to the influence of involving staff in the
decision-making process and the value this has to the potential outcome both in the short term and for future decision-making situations.

6.4.5.8 **Outcome**

Whilst only one participant specifically identified the outcome required as the influence on their decision-making, as previously discussed there is interchange between the outcome required and meeting NSWPF policy and procedures. There is the potential to conclude that the ‘outcome required’ is acknowledged as an underpinning influencing factor in all policing incidents and does not therefore need to be articulated. Inclusion of this participant’s response is important as they have made a direct connection between the influence on their decision-making in the field and the simulation by using the simulation as an example:

... I look at what is the outcome I want and expected by the community and then I am prepared to back myself on that and if need be I’ll explain that whether it’s a member of parliament or anyone else ... so the outcome is what drives it and you need to be strong enough and resolute enough to stick to what is the outcome of what we want in this situation. If we put that into context of the simulation it was like our mission ... so everything must go, what is our mission. (P.1)

6.6 **Chapter 6 summary**

The structure of this chapter has followed a framework of several profiles which have presented the data collected in relation to senior police officers and their decision-making pre, during and post their participation in the ICCS simulation exercise. Within the three profiles the participants’ perspectives on the factors they considered in their decision-making in operational policing pre- and post-simulation were captured to understand the influence of the simulation experience on their decision-making. An important aspect of the data presented in the chapter was the inclusion of the participants’ field-based reflections post-simulation on their decision-making process.

The data for Profile 1 suggested that the ICCS participants were confident with their decision-making skills. Prior to participating in the ICCS simulation exercise the factors the participants considered important in making operational policing decisions were ranked as follows:

(1) NSWPF policy
(2) and (3) the risk to police and the community, and the corporate outcome expectations (these shared equal ranking)

(4) the impact of the decision

(5), (6) and (7) community expectation, time available and the context of the decision (these also shared equal ranking in importance).

Parallel to the participants’ ranking of factors to be considered in making field-based decisions, the steps in the decision-making process as identified by the participants were:

1. gather the information
2. determine the risk
3. decide on the action
4. review the outcome.

The changes which occurred in the ranking of the factors which the participants consider important in their field-based decision-making post–ICCS simulation indicate the influence of the simulation-based learning experience. To contextualise the changes in the ranking of decision-making influences as presented in section 6.4, Profile 3, it is valuable to note the participants’ experience in the ICCS simulation.

The data in section 6.3 indicated the participants agreed they had opportunity in the ICCS simulation to apply the ICCS decision-making model; however, there was limited opportunity to analyse their decisions due to the time factors associated with the simulated incident to be managed. The data further indicated the participants agreed participation in the simulation exercise provided insight into their strengths and weaknesses in the application of decision-making skills. Three areas of valuable learning which the participants identified they would take forward into the field post-simulation were: an increase in:

1. preparedness to make decisions in major public order events
2. knowledge of major public order events
3. confidence in decision-making.

The results presented in section 6.3 enable the results in section 6.4 to be considered with the knowledge that the participants had opportunity to apply their decision-making skills in the ICCS simulation exercise.
The results in section 6.4 contributed to the development of an understanding of the influence of the ICCS simulation-based learning exercise on the participants’ decision-making skills. In particular, consideration of the factors the participants identified as influencing their decision-making post-simulation aids clarity in understanding the changes that occurred in part as a consequence of participating in the ICCS simulation.

Interestingly, the participants in the Profile 3 results indicated that an important factor in decision-making is knowing the team one is working with and their individual capabilities, attributes and knowledge. This factor had not been identified in Profile 1 or Profile 2; it was only after completing the simulation and reflecting on their field-based experience that the participants identified the importance of this factor. A second factor which was not previously identified was that of the role of the media in the communication process associated with police decisions and associated impact on the community.

The results in section 6.4 indicated that, on reflection on their field-based operational positions, the participants identified the following factors as influencing their decision-making:

- the risk (safety) to police officers and the community – identified by 5 participants;
- the role of the media – identified by 5 participants;
- NSWPF policy, community perception and the political impact – identified by 4 participants;
- Staff involvement – identified by 3 participants; and
- the outcome of the decision – identified by 1 participant.

There are clear changes in the measure of importance the participants attributed to the factors they considered as influencing their decision-making pre- and post-simulation. In particular, in the pre-simulation profile, NSWPF policy was ranked as the most influential factor on decision-making; in the post-simulation Profile 3, this factor received mention by 4 of the 13 participants interviewed. In the pre-simulation Profile 1, risk (safety) was ranked the second most influential factor in decision-making, whilst in the post-simulation data this was identified by 5 of the 13 participants as influencing their decision-making. An interesting aspect identified in consideration of the data for Profile 1 and Profile 3 is that, whilst knowing the team capabilities and knowledge was
considered highly influential, in the field-based interviews this was mentioned by only 3 of the 13 participants as a factor influencing their field-based decisions.

This summary would not be complete without a reference to the participants’ consideration of time available to make decisions as a factor which influences field-based decision-making. The results presented in Profile 3 indicated that the criticality of a situation determines whether a decision is made intuitively or if a conscious, more protracted decision-making process is followed. Threaded throughout the data in sections 6.2, 6.3 and 6.4 are direct and indirect references to the influence of the time available on the decision-making process. The critical nature of the situation impacts directly on the time available to make a decision and, by association, impacts on the rank order of the influence of factors in the decision-making process.

Two key discoveries which emerge from the data presented in this chapter related to the participants’ identification of the value of the ICCS simulation exercise. First, those participants who had no prior experience of managing a major public order event in their operational duties indicated that the ICCS simulation experience provided a model and structure for them to use not only for major policing decisions but also as guidance for more routine field-based decisions. For the participants who had prior experience of overall command of a major public order policing incident or who had field-based involvement in such an incident, the ICCS simulation experience provided opportunity to re-confirm their knowledge and understanding of the ICCS decision-making model.

The following chapter, which presents the data in relation to the VirTra participants’ simulation experience, is organised in a similar manner to that utilised in Chapter 6. The similar organisation of data is to assist in aligning and contrasting the experiences of senior and junior police and the respective influences on the transfer of learning by participation in simulation-based learning exercises.
Chapter 7  VirTra simulation results

7.1  Profile 1: Pre-simulation decision-making skills

In a similar manner to the presentation of ICCS profiles in Chapter 6, the VirTra profiles are presented here in this chapter. Profile 1 is the pre-simulation decision-making profile, Profile 2 is the list of decision-making skills utilised in the VirTra simulation, and Profile 3 is the field-based decision-making profile.

For the VirTra participants, the pre-simulation decision-making profile was created through combining the responses to the pre-simulation questionnaire which:

- invited participants to rank their confidence levels with the use of a firearm prior to their mandatory firearms training during their police recruit training;
- invited participants to rank their confidence levels with the use of a firearm following mandatory firearms training during their police recruit training;
- identified the factors which impacted on their decision-making involving the use of a firearm;
- identified factors which produced poor decisions involving the use of a firearm for police recruits;
- identified the participants’ level of preparedness for the VirTra simulation; and
- identified the expected influence of the VirTra simulation experience on the participants’ future policing practice.

7.1.1  Prior employment background of participants

The starting point for the creation of this profile was to have an appreciation of the experiences the participants brought to their recruit training and in particular their firearms training. Table 7.1 indicates the range of employment experience of the participants prior to undertaking the NSW police recruit training program. A total of 342 participants completed the response to the pre-simulation Question 1: “Prior to undertaking training for the NSW Police Force I have been employed as:”.

208
Table 7.1  *Prior experience of NSW police recruits (n=342)*

<table>
<thead>
<tr>
<th>Employment prior to NSW police recruit training</th>
<th>No. of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defence and correctional services</td>
<td>15 (4.4%)</td>
</tr>
<tr>
<td>(e.g., fulltime or reservist with army, navy, air force; prison warden)</td>
<td></td>
</tr>
<tr>
<td>Customer service and retail</td>
<td>82 (24.3%)</td>
</tr>
<tr>
<td>(e.g., real estate agent, shop assistant)</td>
<td></td>
</tr>
<tr>
<td>Trade (qualified)</td>
<td>61 (18.1%)</td>
</tr>
<tr>
<td>(e.g., electrician, plumber, roofer, tiler, mechanic, carpenter)</td>
<td></td>
</tr>
<tr>
<td>Hospitality</td>
<td>29 (8.6%)</td>
</tr>
<tr>
<td>(e.g., chef, barperson)</td>
<td></td>
</tr>
<tr>
<td>Health and fitness</td>
<td>19 (5.6%)</td>
</tr>
<tr>
<td>(e.g., personal trainer, gym instructor)</td>
<td></td>
</tr>
<tr>
<td>Social work</td>
<td>5 (1.4%)</td>
</tr>
<tr>
<td>(e.g., youth worker)</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>20 (5.9%)</td>
</tr>
<tr>
<td>(e.g., university, TAFE)</td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>17 (5.0%)</td>
</tr>
<tr>
<td>(e.g., lawyer, nurse, teacher)</td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>12 (3.5%)</td>
</tr>
<tr>
<td>(e.g., security officer)</td>
<td></td>
</tr>
<tr>
<td>Unqualified</td>
<td>38 (11.27%)</td>
</tr>
<tr>
<td>(e.g., labourer, factory worker)</td>
<td></td>
</tr>
<tr>
<td>Information services</td>
<td>3 (.89%)</td>
</tr>
<tr>
<td>e.g., computer technician</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>41 (12.1%)</td>
</tr>
<tr>
<td>(e.g., office worker)</td>
<td></td>
</tr>
</tbody>
</table>

Experience in customer service and retail accounted for the background of 24.3% of participants, whilst a trade background was identified by 18.1% of participants. These were followed in popularity by experience in the administration field by 12.1% and
experience in fields which did not require qualifications by 11.2% of the participants. A background in a defence force, the health and fitness industry, the security industry or in a professional practice (such as lawyer, teacher, nurse) or as a higher education student accounted for similar percentages of participant backgrounds in a range between 3.5% and 5.9%. Employment in the fields of information services and social work had been acquired by 0.89% and 1.4% of the total cohort respectively.

7.1.2 Prior firearms experience of participants

Combining this insight into the range of backgrounds possessed by the participants with their firearms experience prior to commencing their police recruit training extended the foundational profile of the cohort. Table 7.2 indicates the type of exposure to firearms usage experienced by the participants prior to commencing the NSW police recruit training program.

Table 7.2 Participants’ prior firearms experience (n=343)

<table>
<thead>
<tr>
<th>Type of prior firearms experience</th>
<th>No prior firearms experience</th>
<th>Hunting</th>
<th>Military</th>
<th>Amusement</th>
<th>Security &amp; students repeating recruit training</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of participants</td>
<td>206 (60.0%)</td>
<td>49 (14.2%)</td>
<td>24 (6.9%)</td>
<td>41 (11.9%)</td>
<td>23 (6.7%)</td>
</tr>
</tbody>
</table>

To provide a sense of the proportions of the total cohort of participants who did or did not have experience with firearms prior to commencing their police recruit training, the results in Table 7.2 are depicted graphically in Figure 7.1. Approximately 60% of the total cohort of respondents had no experience with firearms prior to commencing their studies within the ADPP.
7.1.3 Level of confidence with firearm usage pre–recruit training

To progress the building of this profile, participants were asked to identify their level of confidence with the use of a firearm pre and post their mandatory firearms training within the recruit training program (and pre their VirTra experience). As indicated in Table 7.3, participants ranked their level of confidence, choosing from a range of ‘not very confident’ (little or no experience) to ‘very confident’ (had held and used a firearm reasonably often, consistently over a long period of time). A total of 339 responses were received. Whilst in Table 7.2, 60% of the 343 respondents indicated no prior experience with a firearm, Table 7.3 indicates that 55.4% of the 339 respondents to Questions 3 and 4 of the pre-VirTra questionnaire ranked their level of confidence with handling and firing a firearm as ‘not very confident’ prior to their mandatory firearms training in the police recruit program. This percentage of respondents who indicated they were not very confident prior to the mandatory firearms training in the police recruit program reduced to 7.96% post-mandatory training and prior to their VirTra simulation experience. As illustrated in Table 7.3 (on the next page), following participation in mandatory firearms training, 27 (7.9%) continued to rate their level of confidence at ‘not very confident’ whilst there was a reduction in the number who rated their level of confidence as having some confidence. For the categories ‘confident’ and ‘very confident’ an overall increase was revealed in levels of confidence with using and handling a firearm.
Table 7.3  VirTra participants’ commencing level of confidence with use of firearms

<table>
<thead>
<tr>
<th>Question no.</th>
<th>Level of Confidence</th>
<th>Reduction of</th>
<th>Reduction of</th>
<th>Increase of</th>
<th>Increase of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.3: “How would you rate your level of confidence with handling and firing a firearm prior to your WTTU training?”</td>
<td>Not very confident (little or no experience)</td>
<td>188 (55.4%)</td>
<td>69 (20.3%)</td>
<td>53 (15.6%)</td>
<td>29 (8.5%)</td>
</tr>
<tr>
<td></td>
<td>Some confidence (had held and fired a firearm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confident (had held and used a firearm a number of times)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very confident (had held and used a firearm reasonably often, consistently over a long period of time)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q.4: “Following your WTTU training and prior to undertaking the VirTra simulation scenarios, please indicate how confident you now feel with the use of a firearm”.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduction of 47.49%</td>
<td>Reduction of 5.85%</td>
<td>Increase of 42.2%</td>
<td>Increase of 11.26%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>27 (7.9%)</td>
<td>49 (14.4%)</td>
<td>196 (57.81%)</td>
<td>67 (19.7%)</td>
<td></td>
</tr>
</tbody>
</table>
7.1.4 Factors expected to impact on decision-making

Identification of the factors the respondents expected to impact on their decision-making in the VirTra simulation exercises further developed the pre-simulation decision-making profile of this cohort. This information was collated from responses in the pre-simulation Question 7: “What factors do you expect will impact on your decision-making in the scenarios? Please rank them on a scale of impact from 1–10, 1 representing the most impact”.

Two characteristics of the responses were highlighted. First, the responses were in the main one word responses, for example, nerves, armed offender; and secondly, one factor was listed on only one occasion, that is, tunnel vision. The remainder of the factors were commonly identified by the respondents. These factors are listed in Table 7.4 with explanatory notes.

Table 7.4  Factors with potential to impact on decision-making in the VirTra simulation

<table>
<thead>
<tr>
<th>Factor</th>
<th>Rank</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Total mentions 1–3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Threat level (level of potential harm to officer or public)</td>
<td>49</td>
<td>49</td>
<td>21</td>
<td>119</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>Situation (features of the scenario)</td>
<td>37</td>
<td>70</td>
<td>78</td>
<td>185</td>
<td>48</td>
<td>38</td>
</tr>
<tr>
<td>Justification (legal implications of actions)</td>
<td>41</td>
<td>18</td>
<td>12</td>
<td>71</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Stress/nerves/pressure (the anxiety of the unknown and the pressure to make the right decision)</td>
<td>43</td>
<td>20</td>
<td>9</td>
<td>72</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Armed offender (whether the offender had a weapon)</td>
<td>38</td>
<td>19</td>
<td>8</td>
<td>65</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Confidence (level of confidence as a probationary constable)</td>
<td>20</td>
<td>23</td>
<td>13</td>
<td>56</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Training (level of preparedness)</td>
<td>12</td>
<td>15</td>
<td>9</td>
<td>36</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Communication (ability to use communication in the situation)</td>
<td>6</td>
<td>21</td>
<td>10</td>
<td>37</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Factor</td>
<td>Rank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Totals 1–3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Attitude of POI (mental state of the POI and their reaction to police direction)</td>
<td>3</td>
<td>8</td>
<td>17</td>
<td>28</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Knowledge of situation (information about the situation, police intelligence on the person/s involved)</td>
<td>9</td>
<td>11</td>
<td>10</td>
<td>30</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Level of experience (exposure to policing incidents)</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>19</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Reaction time (ability to react to any changes in the situation)</td>
<td>11</td>
<td>6</td>
<td>9</td>
<td>26</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Options available (whether the situation allows for other less lethal options to be utilised)</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>10</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Fatigue</td>
<td>1</td>
<td>7</td>
<td>7</td>
<td>15</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Partner ability (level of support and performance from partner)</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Repercussion of decision (consequences of decisions made on the job)</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Age of offender (whether the offender is a child, teen, young or old adult)</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Assessable (knowing that the participant’s performance is being assessed)</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Personal beliefs and killing someone (potential personal reaction to killing someone)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Tunnel vision (inability to take in surroundings)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Decision-making</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Further explanation of the grouping of responses is provided in Table 7.5. Here examples of the responses provided by the participants are presented to allow transparency in the interpretation of the responses. In addition, the examples presented
in Table 7.5 also verify the similarity in responses from the participants and the commonality of the factors which were at the core of their decision-making.

Table 7.5 *Identified factors with potential to influence decision-making in VirTra simulation*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Examples of participants’ responses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Situation</strong></td>
<td>Time and location of situation, environment, surroundings, how many people, bystanders, night, day</td>
</tr>
<tr>
<td>(features of the scenario)</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Armed offender</strong></td>
<td>If person has firearm or other weapon, if armed, level of force offender uses, weapon involved</td>
</tr>
<tr>
<td>(whether the offender had a weapon)</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td>Ability, preparedness, ability in using appointments, training, education</td>
</tr>
<tr>
<td>(level of preparedness)</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Level of experience</strong></td>
<td>Experience, prior experience, lack of experience in hostile situations</td>
</tr>
<tr>
<td>(exposure to policing incidents)</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Justification</strong></td>
<td>Justifications in use of firearm, law and powers for justification, knowledge of justifications, deciding whether to shoot</td>
</tr>
<tr>
<td>(legal implications on actions)</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Stress/nerves/pressure</strong></td>
<td>Nervousness, nerves, stress, anxiety/stress, pressure – got to react at appropriate time, nerves – have not done a lot of threat scenario training, apprehension, anxiety of the unknown</td>
</tr>
<tr>
<td>(the anxiety of the unknown and the pressure to make the right decision)</td>
<td></td>
</tr>
<tr>
<td><strong>Confidence</strong></td>
<td>Confidence, confidence using a firearm, confidence in ability</td>
</tr>
<tr>
<td>(level of confidence as a probationary constable)</td>
<td></td>
</tr>
<tr>
<td><strong>Fatigue</strong></td>
<td>Fatigue, exhaustion of the officer</td>
</tr>
<tr>
<td><strong>Reaction time</strong></td>
<td>Time to react, speed of scenario, reaction speed, the reactionary gap, time available to make decision, speed of event occurring</td>
</tr>
<tr>
<td>(ability to react to any changes in the situation)</td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>Communication, POI response to verbal communication, assertiveness</td>
</tr>
<tr>
<td>(ability to use communication in the situation)</td>
<td></td>
</tr>
<tr>
<td><strong>Threat level</strong></td>
<td>Likelihood of me or my partner being killed or seriously injured, resistance of offender, immediate threat of serious injury, level of threat, threat to my partner, risk to bystanders</td>
</tr>
<tr>
<td>(level of potential harm to officer or public)</td>
<td></td>
</tr>
<tr>
<td><strong>Personal beliefs and killing someone</strong></td>
<td>Killing someone, personal beliefs, beliefs</td>
</tr>
<tr>
<td>(potential personal reaction to killing someone)</td>
<td></td>
</tr>
<tr>
<td>Factor</td>
<td>Examples of participants’ responses</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td><strong>Age of offender</strong></td>
<td>Age of POI</td>
</tr>
<tr>
<td>(whether the offender is a child, teen, young or old adult)</td>
<td></td>
</tr>
<tr>
<td><strong>Tunnel vision</strong></td>
<td>Tunnel vision</td>
</tr>
<tr>
<td>(inability to take in surroundings)</td>
<td></td>
</tr>
<tr>
<td><strong>Attitude of POI</strong></td>
<td>Aggression, mental state</td>
</tr>
<tr>
<td>(mental state of the POI and their reaction to police direction)</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge of situation</strong></td>
<td>Priors, intel, knowledge of situation, information from radio (police VKG)</td>
</tr>
<tr>
<td>(information about the situation, police intelligence on the person/s involved)</td>
<td></td>
</tr>
<tr>
<td><strong>Assessable</strong></td>
<td>Concentrating on graded assessment, knowing it is only a virtual scenario, examinable</td>
</tr>
<tr>
<td>(knowing that the participant’s performance is being assessed)</td>
<td></td>
</tr>
<tr>
<td><strong>Partner ability</strong></td>
<td>My partner, other officer present, other officer’s confidence, other officer’s presence</td>
</tr>
<tr>
<td>(level of support and performance from partner)</td>
<td></td>
</tr>
<tr>
<td><strong>Options available</strong></td>
<td>Any other way of preventing risk, options, other option to de-escalate situation</td>
</tr>
<tr>
<td>(whether the situation allows for other less lethal options to be utilised)</td>
<td></td>
</tr>
<tr>
<td><strong>Repercussion of decision</strong></td>
<td>Potential outcome, unlawful discharge, outcome of decision made, consequences of taking action, likely outcome</td>
</tr>
<tr>
<td>(consequences of decisions made on the job)</td>
<td></td>
</tr>
<tr>
<td><strong>Decision-making</strong></td>
<td>Decision-making</td>
</tr>
</tbody>
</table>

As shown in Table 7.4, participants commonly identified five factors which impacted on their decision-making and these were ranked in order of significance. The five factors which were attributed rankings indicating a high impact on the participants’ decision-making were: the situation, whether the offender was armed, the level of threat involved in the situation, whether an officer is justified in using lethal force, and the nervousness and anxiety of the officer in attending and managing the situation. The level of threat, the consequence of which impacts on the decision-making of the participant, is the key link between these and the remaining factors identified by the participants.

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10 Intelligence information is colloquially expressed as ‘intel’ in the field of policing.
The elements which create a situation requiring a police response will indicate an existing level of threat (armed offender) or the potential level of threat; this level of threat impacted on the participants’ decisions as to which level of force would be required to manage the situation. The decision in relation to level of force requires consideration of the participant’s justification (legal authority) to use the level of force. The common theme was the actual or perceived level of threat (harm or injury to person or persons). The presence of an existing level of threat or potential threat influenced the sense of pressure, nervousness and anxiety experienced by the participant.

As indicated, the responses to Question 7 were in the main single word descriptors and the importance of their contribution to completing the pre-VirTra decision-making profile of the participants was revealed when they were put into context with the responses to the remaining questions.

### 7.1.5 Factors producing poor decision-making

Contributing to informing on the responses from Question 7 are those provided by participants to Question 8 of the questionnaire. Here the factors identified as having the potential to produce poor decisions were similar to those identified in Question 7 as impacting on decision-making. Question 8 read: “In the policing context, which factors do you consider have the potential to produce poor decision-making? Please list these and rank them in order of greatest impact on a scale of 1–10, 1 representing the most impact”. See Table 7.6.

<table>
<thead>
<tr>
<th>Element</th>
<th>Rank 1</th>
<th>Rank 2</th>
<th>Rank 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of experience</td>
<td>24</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Lack of confidence</td>
<td>22</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Preparation/training</td>
<td>34</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Lack of knowledge</td>
<td>18</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Poor on-the-job training</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
## Responses

Responses were grouped on the basis of similar descriptors, that is, responses which stated ‘stress’ were grouped with those which stated ‘anxiety’. Group 1 included the descriptors which related to lack of experience, knowledge and training. Group 2 included the descriptors relating to the physical state of the person. The Ungrouped descriptors are presented in their own right to reveal the importance placed on each individual factor by the participants.

Question 7 in the pre-simulation questionnaire was designed to encourage the respondents to consider factors which may produce poor decision-making and then to consider these in the context of how prepared they felt they were to undertake the simulation exercise. The following results for Question 10 provided an opportunity for respondents to articulate their considered level of preparedness.

### 7.1.6 Level of preparedness for VirTra scenario

To progress the development of the participants’ pre-VirTra simulation decision-making profile, Question 10 of the pre-VirTra simulation questionnaire required participants to consider their level of preparedness for the VirTra experience.
Table 7.7 presents the results for Question 10 (“I consider I am prepared and confident about my performance in the VirTra simulation scenarios”), which required respondents to identify their level of preparedness on a scale of ‘very strongly agree’, ‘strongly agree’, ‘agree’, ‘undecided’, ‘disagree’, ‘strongly disagree’ and ‘very strongly disagree’. Question 10 was responded to by 353 persons.

Table 7.7  Level of preparedness for the VirTra simulation

<table>
<thead>
<tr>
<th>Question 10: “I consider I am prepared and confident about my performance in the VirTra simulation scenarios”.</th>
<th>Very strongly agree</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>Very strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>41 (11.6%)</td>
<td>133 (37.6%)</td>
<td>140 (39.6%)</td>
<td>36 (10.1%)</td>
<td>0</td>
<td>1 (0.28%)</td>
<td>2 (0.5%)</td>
</tr>
</tbody>
</table>

Figure 7.2 (on the following page) provides a graphical representation of the responses to Question 10; it depicts the relationship between the proportion of VirTra participants who considered they were prepared and confident about their potential performance in the VirTra simulation, and the 3 participants who did not consider they were prepared, and the 36 participants who were undecided about their level of preparedness and confidence.
Figure 7.2 Participant agreement about preparedness for the VirTra simulation exercise.

7.1.7 Expected impact of VirTra experience on future policing

The final set of responses from the pre–VirTra simulation questionnaire which contributed to Profile 1 relates to the expected impact of the VirTra experience on the participants’ future policing. Question 16 (“How do you expect participating in the VirTra simulation scenarios will influence your future policing practice in the field?”) was designed to capture the perceived potential influence of the VirTra simulation experience on the participants’ learning. As presented in Table 7.8, a total of 321 responses were recorded for the question. The responses to Question 16 were grouped according to similar descriptors. Example responses for each grouping are presented in Table 7.8.
Table 7.8  *Areas of policing practice perceived to be influenced by simulation experience*

<table>
<thead>
<tr>
<th>Area of impact</th>
<th>No. of responses</th>
<th>Examples of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased confidence</td>
<td>72</td>
<td>“By participating in the VirTra scenarios I have more confidence while in the field”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“more confidence on the job”</td>
</tr>
<tr>
<td>Improved decision-making</td>
<td>70</td>
<td>“It will improve my decisions”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“make better decisions”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“help make decisions”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“better decision-making, quick thinking; it will improve and test my decision-making skills”</td>
</tr>
<tr>
<td>Increased preparedness for real situations</td>
<td>46</td>
<td>“make me more aware of what can happen on the street”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“it will give me knowledge of what might occur in the field”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“more prepared for real world”</td>
</tr>
<tr>
<td>Increased awareness of types of situations and context for decision-making</td>
<td>33</td>
<td>“Better understanding of what is required and expected in certain circumstances”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“what to expect in real life”</td>
</tr>
<tr>
<td>Increased experience and exposure</td>
<td>22</td>
<td>“Exposure and confidence”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“guide us in the choice/decisions we will have to make”</td>
</tr>
<tr>
<td>Improved decision-making under stress</td>
<td>17</td>
<td>“It will help greatly with my decision-making under stress, shooting in limited time”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“helps to build confidence and how to deal with and handle stressful situations”</td>
</tr>
<tr>
<td>Positive impact for the future</td>
<td>15</td>
<td>“In a positive manner; allow me to be more prepared”</td>
</tr>
<tr>
<td>Improved reaction time</td>
<td>4</td>
<td>“Will hopefully build up muscle memory so in times of duress I can react quickly and efficiently”</td>
</tr>
<tr>
<td>Allows opportunity to relate back to it from the field</td>
<td>4</td>
<td>“Gives me a base I could rely on to get me through situations”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“the VirTra gives the student police officer a more realistic idea of the real world, it develops the student to learn from mistakes”</td>
</tr>
<tr>
<td>Limited or none</td>
<td>8</td>
<td>“Not sure yet as I am wrapped up in VirTra not being real”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“don’t know yet as haven’t been faced with situations but hope that it would help me make the right decision”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“not sure how it will affect”</td>
</tr>
</tbody>
</table>

The responses to Question 16 indicated that 97.6% of respondents anticipated that their experience in the VirTra simulation would have a positive effect on their future policing
practice. The 2.4% who indicated they anticipated limited or nil impact on their future policing as a result of participating in the VirTra scenarios did not indicate the basis for their responses.

Figure 7.3 provides a graphical representation of the areas of policing practice perceived to be influenced by the VirTra simulation experience. The column graph depicts the relationship between the expected positive influences and the number of responses indicating limited or no perceived influence on their policing practice from the participants’ experience in the VirTra simulation.

![Figure 7.3 Perceived areas of policing practice to be influenced by VirTra experience.](image)

The results presented in Profile 1: Pre–VirTra simulation combine to create an understanding of how the participants perceived their preparedness for the VirTra scenarios and their perception of the factors that would influence their decisions in the scenario. Further, Profile 1 includes the participants’ perception of the potential influence from their VirTra experience on their future policing. The next step in presenting a complete pre– and post–VirTra experience decision-making profile of the
participants is to show the results collected from the post–VirTra simulation experience questionnaire to create Profile 2.

### 7.2 Profile 2: Post–VirTra simulation experience

Profile 2 draws together the experiences of the participants in the VirTra simulation and allows for exploration of the application of their decision-making skills in the simulation environment. To allow the participants’ responses to be examined from an informed context it is valuable to note the results in section 5.3 (at Table 5.4) which indicated 71.5% of the VirTra participants considered the simulation scenario to be reflective of real-world policing. In addition Table 5.5 indicates that 92.2% of the participants agreed the VirTra scenarios provided an opportunity for application of decision-making skills, 4.9% were undecided on this factor and 2.9% disagreed with the suggestion the VirTra scenarios offered opportunity for application of decision-making skills.

#### 7.2.1 Level of performance in the VirTra simulation scenarios

With 96.8% of the participants agreeing that the VirTra scenarios provided an opportunity to apply their decision-making skills, exploring how the participants felt about their performance in the VirTra scenarios provided additional dimensions to Profile 2.

Question 9 of the post–VirTra questionnaire invited participants to reflect on their performance in the VirTra scenarios and to provide an explanation for the basis of their ranking. Table 7.9 (on the following pages) presents the responses to Question 9. The responses were grouped by similar descriptors; examples of the responses for each grouping are included to provide clarity in the interpretation of the responses.
Table 7.9  *Level of performance in the VirTra simulation (n=372)*

Question 9: “How do you think you performed in the VirTra scenarios? Please explain your response. You may like to refer to specific examples from your participation”.

<table>
<thead>
<tr>
<th>Level of Performance</th>
<th>No. of responses</th>
<th>Examples of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasonably good, pretty good, well</td>
<td>176 (47.3%)</td>
<td>“Used tactical options well”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I think I did well in the factory scenario, I managed to shoot both offenders and be assertive”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I think I performed well, I applied appropriate communication and use of my tactical options”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I think I did well in both of my scenarios, In the one with the agitated man I tried to calm him down by speaking to him when he did not calm down I decided to hold my OC in the concealed position, he continued to act in an agitated state and pointed it in my direction where I made the decision to spray him”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Good especially to realise what is behind me”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Very good, didn’t die”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Very good I was told I was completely justified I didn’t do anything wrong and I felt comfortable”</td>
</tr>
<tr>
<td>Okay</td>
<td>98 (26.3%)</td>
<td>“Generally okay, I found it hard to talk to the screen but over time it became easier”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Yes it went okay; I was okay but in the shooting scenario I only shot the person once”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Okay I was too patient and the offenders crept up very quick the situation turned back quicker than I thought it would”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I need to be more situationally aware, I think I did okay”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I felt I went okay I should have drawn my firearm before I went into the warehouse it all happened really quickly”</td>
</tr>
<tr>
<td>Could have done better</td>
<td>52 (13.9%)</td>
<td>“Not as well as I could have, I should have gone into the second scenario with my gun drawn and I should have moved around a little bit more and adopted a better tactical position”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I should ask more questions that are relevant to the scenario, should be more prepared and should be more alert”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Barely satisfactory minimal response from the subject threw me off vaguely, I unjustifiably sprayed him in the firearm scenario, I didn’t shoot any innocent victims however tunnel vision that formed [led] to me missing the offender behind me”</td>
</tr>
</tbody>
</table>
Question 9: “How do you think you performed in the VirTra scenarios? Please explain your response. You may like to refer to specific examples from your participation”.

<table>
<thead>
<tr>
<th>Level of Performance</th>
<th>No. of responses</th>
<th>Examples of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not perform well</td>
<td>45 (12.0%)</td>
<td>“Shit I froze and didn’t respond”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I was shot dead by the offender from behind a good thing if we can do more of these scenarios”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I got shot in the first attempt … we should do more of this”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I failed I got shot in the warehouse scenario as I didn’t recognise that the man had a gun”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Not well poor shooting stance”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Not well, wasn’t ready for it, need more experience with VirTra”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I froze a bit I didn’t use my tactical options effectively enough I didn’t get my firearm out when I entered the scenario”</td>
</tr>
<tr>
<td>Not sure</td>
<td>1 (0.26%)</td>
<td>“Can’t really grasp how good I did, doing it once for a few minutes doesn’t really let you get a full experience”</td>
</tr>
</tbody>
</table>

The results presented in Table 7.9 indicate that 73.6% of the participants committed to an outright performance level which was ‘reasonably good’ or ‘okay’. Those participants whose responses were included in the ‘could have done better’ category (13.9%) did not commit to a positive or negative determination of their performance; rather they identified where they could improve. Figure 7.4 (on the following page) depicts graphically the relational percentages for the level of performance categories.

7.2.2 Level of awareness of use of Tactical Options decision-making model

To provide further extrapolation of the participants’ perceived performance and links between this performance and their use of the Tactical Options Model for use-of-force decision-making, participants were asked to identify whether they were conscious of their decision-making process during the VirTra simulation. Specifically, they were asked if they were consciously aware of mentally working the Tactical Options Model as taught during their ADPP studies. Question 10 of the post–VirTra simulation questionnaire was designed to encourage the participants to reflect on their performance and specifically on how they made their decisions during the simulation scenarios. Table 7.10 presents the collated responses to Question 10 and includes examples of the descriptors.

The responses presented in Table 7.10 (on the following pages) indicate that 80.43% of the participants were aware of their decision-making during the VirTra scenario, and this 80.43% also recorded they were consciously aware of following the Tactical Options Model for decision-making. In addition, 51.1% of this group identified in their responses they were aware of making a conscious decision to use their firearm.
Table 7.10  
Awareness of decision-making during VirTra simulation

<table>
<thead>
<tr>
<th>Level of awareness</th>
<th>No. of responses</th>
<th>Examples of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n= 368</td>
<td></td>
</tr>
</tbody>
</table>
| Aware of use of Tactical Options Model | 296 (80.4%) | “Yes, using the tactical options model did make it easier to decide what course of action to take”
|                    |                 | “Yes, reassessing decisions constantly depending on the way the scenario was going”
|                    |                 | “Yes, as the scenario escalated I opted for different options through the use of my appointments”
|                    |                 | “Yes I knew what action to take when I was encountered with it, my justification to use what appointment was good”
| Not consciously aware of using the Tactical Options Model | 12 (3.2%) | “Not really, was more natural decision, our training had prepared us well”
|                    |                 | “It wasn’t a conscious decision, just happened naturally”
|                    |                 | “Not at all, things happened and I reacted to them, I am sure subconsciously I did but I didn’t think ‘tactical options’ in my head”
|                    |                 | “You don’t have a lot of time to think tactical options have started to become second nature you just react”
| Not consciously aware of decision-making; just reacted | 48 (13.0%) | “No it came instinctively, however justification for using appointments were at the back of my mind”
|                    |                 | “Not really, it was more a matter of simply reacting to the situation I wasn’t consciously evaluating the tactical options model however my decisions were appropriate to the scenarios”
|                    |                 | “I wasn’t aware of the process I just knew from what occurred in front of me to what option to use”
|                    |                 | “No didn’t really have time to think just reacted”
| Not consciously aware of using Tactical Options Model initially | 1 (0.27%) | “No I acted instinctively initially and then realised I had time to think to consider my options and did so”
| Did not use the Tactical Options Model | 2 (0.54%) | “No was only focused on ending the threat”
|                    |                 | “Not really, just identify a threat and match it, that is, drew my firearm when the POI had a firearm”
|                    |                 | “No, in the first scenario I decided to draw my OC spray, but had a mind blank in the second scenario and didn’t even draw my firearm I think the pressure of being the first time doing these scenarios affected my thinking”

Question 10: “During your performance in the VirTra scenario were you aware of your decision-making process? Did you make a conscious decision to follow the Tactical Options Model? Please explain”. 
Question 10: “During your performance in the VirTra scenario were you aware of your decision-making process? Did you make a conscious decision to follow the Tactical Options Model? Please explain”.

<table>
<thead>
<tr>
<th>Level of awareness</th>
<th>No. of responses $n=368$</th>
<th>Examples of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, did not use the Tactical Options Model due to VirTra design</td>
<td>9 (2.4%)</td>
<td>“Not really, I could not understand what they were saying so I didn’t know what to use”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Well I did not speak because it did not feel real so I went straight to the higher options”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“No there were only 2 options – appointments and communications hence I did not have the choice between most of my tactical options”</td>
</tr>
</tbody>
</table>

Note: Appointment is a policing expression which refers to weapons equipage or paraphernalia

7.2.3 Factors that influenced decision-making in the VirTra scenarios

The responses to Question 10 indicated there were factors which impacted on the participants’ decision-making. Providing a complete profile of the participants’ decision-making in the simulation requires an examination of these factors. Further, this information will be valuable when considered in conjunction with those factors the participants expected to impact on their decision-making and those factors that do impact either in the VirTra simulation scenarios or when the participants are working in the real world of policing. The responses to Question 11 were collated into 16 groups on the basis of descriptor similarities. Table 7.11 presents the collated responses to Question 11.
Question 11: “What factors impacted on your decision-making in the scenario? Please rank them on a scale of 1–10, 1 representing the greatest impact”.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Rank 1</th>
<th>Rank 2</th>
<th>Rank 3</th>
<th>Total mentions</th>
<th>Examples of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat to safety of self and others</td>
<td>54</td>
<td>31</td>
<td>8</td>
<td>93</td>
<td>“Self-preservation; protection of others” “Immediate risk to my life and life of others” “The vulnerability I felt, no cover.(^{11}) no partner.”</td>
</tr>
<tr>
<td>Presence of firearm or weapons with offender</td>
<td>53</td>
<td>12</td>
<td>5</td>
<td>70</td>
<td>“Offenders carrying firearms” “The fact that 2 men had guns and one person was dead”</td>
</tr>
<tr>
<td>Scenario situation and environment</td>
<td>37</td>
<td>17</td>
<td>15</td>
<td>69</td>
<td>“The unknown” “The situation” “Environment”</td>
</tr>
<tr>
<td>Behaviour of people in scenario</td>
<td>20</td>
<td>17</td>
<td>11</td>
<td>48</td>
<td>“Actions of people in the scenarios” “The peoples’ reaction in the scenario”</td>
</tr>
<tr>
<td>Prior information on the scenario (Intel, briefing)</td>
<td>20</td>
<td>6</td>
<td>6</td>
<td>32</td>
<td>“What information I had about the job” “What prior intel on the person” “Information from radio [VKG]”</td>
</tr>
<tr>
<td>Officer justification for actions</td>
<td>19</td>
<td>7</td>
<td>5</td>
<td>31</td>
<td>“Justification for using my tactical options affected my decisions” “All my justifications”</td>
</tr>
<tr>
<td>Presence of victims and witnesses</td>
<td>13</td>
<td>18</td>
<td>11</td>
<td>42</td>
<td>“Victims or witnesses at the scene” “People dead” “People at the scene”</td>
</tr>
<tr>
<td>Nerves, stress and pressure of the job</td>
<td>13</td>
<td>6</td>
<td>0</td>
<td>19</td>
<td>“Stress” “Pressure” “Anxiety” “I was nervous and this made me not use effective communication”</td>
</tr>
</tbody>
</table>

\(^{11}\) ‘Cover’ refers to objects behind which an officer can take cover for protection.
Question 11: “What factors impacted on your decision-making in the scenario? Please rank them on a scale of 1–10, 1 representing the greatest impact”.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Rank 1</th>
<th>Rank 2</th>
<th>Rank 3</th>
<th>Total mentions</th>
<th>Examples of responses</th>
</tr>
</thead>
</table>
| Attitude of offender        | 12     | 9      | 5      | 26             | “Level of aggression by offender”  
“Response by POI to my verbal communication”  
“Attitude and emotional state of POI” |
| Unfamiliarity with VirTra   | 5      | 0      | 0      | 5              | “The fact that I had no idea what was going on, perhaps a walk through so people know what to expect from VirTra” |
| Communication               | 3      | 7      | 3      | 13             | “Not being able to actually communicate”  
“How people reacted to my communication”  
“The fact they would not listen to me (design of VirTra)” |
| Speed of scenario           | 1      | 1      | 1      | 3              | “Speed of scenario”                                                                 |
| Training                    | 1      | 1      | 1      | 3              | “All that we have been taught”                                                        |
| Being observed by others    | 1      | 1      | 1      | 3              | “Others watching”  
“Everyone in the class watching me”                                                     |
| (students, staff)           |        |        |        |                 |                                                                                       |
| Non-realism of VirTra       | 1      | 2      | 0      | 3              | “Level of detail to make a decision was not on the screen”  
“Not feeling real”                                                                    |
| Consequences of actions     | 0      | 0      | 2      | 2              | “Fear of making wrong decision”  
“Potential consequences”                                                               |

7.2.4 Perceived value of VirTra experience for future policing

To aid in compiling a comprehensive profile of the participants’ decision-making in the simulation the post–VirTra questionnaire sought to explore how participants perceived the experience in the VirTra simulation would influence their decision-making when attending real-time policing incidents. This information will be utilised to align with the data collected from participants once they are operational as police officers and in an informed position to comment on the relationship between their perceptions and reality.
Included in the post-simulation questionnaire was Question 17: “What value/benefit do you consider the VirTra simulation experience will add to your policing in the field?” The question was designed to provide opportunity for the participants to consider their VirTra simulation experience in the context of their future policing. The time lapse between the participants’ VirTra experience and their first day on the front line of policing in the real world was approximately five weeks.

In collating the responses to Question 17, eight groupings were established. Table 7.12 presents the groupings with examples of responses included in the groupings to assist in offering clarity in the groupings’ interpretation.

Table 7.12  Perceived benefit to policing from VirTra simulation experience

<table>
<thead>
<tr>
<th>Area of benefit</th>
<th>No. of responses</th>
<th>Examples of responses</th>
</tr>
</thead>
</table>
| Develops preparedness for real situations and types of    | 221              | “It is great for the people like me who have never held a firearm previously, it gave me courage”  
Simulated real and present threat and more importantly firing a gun at a real person”  
“Made the scenario real with real situations and real people with lives at risk … will have huge benefits to my policing in the field”  
“I think it allowed me to think as in a real threat when all elements of policing come together”  
“Extremely valuable the next time I use my firearm will be for real”  
“Helps show that I will react when need to and I am capable of making the correct decision without hesitation”  
“Puts you under pressure to make a quick decision this will happen in the field”  
“Extremely valuable really immerses you in the situation”                                                                 |
| Increases confidence                                      | 26               | “Helps me be more confident in approaching scenes and make quicker decisions”  
“More confidence in real situations, quicker thinking”  
“Confidence to shoot a threat”  
“It really gave me a sense of how the tactical options model is put into practice It allowed me to feel what it is like to be responsible for my own decisions regarding the use of my appointments I have a lot more confidence even after only a few minutes exposure” |
Question 17: “What value/benefit do you consider the VirTra simulation experience will add to your policing in the field?”

<table>
<thead>
<tr>
<th>Area of benefit</th>
<th>No. of responses</th>
<th>Examples of responses</th>
</tr>
</thead>
</table>
| Exposure to decision-making under pressure           | 34               | “Assist in giving you the ability to make decisions on the spot and what the consequences may be if you make the wrong decision”  
“Helps to develop my skills to think on the spot and react in the right manner”  
“Decision making when and how to respond in certain ways, as well as what situations to expect and be aware of”  
“I think it will help me make better and quicker decisions”                                          |
| Allows safe practice to build best practice         | 5                | “More experience, less risks, more confidence”  
“It’s a safe environment to practice our skills without the fear to our safety”                                                                        |
| Limited impact due to limited VirTra exposure       | 34               | “Just doing one scenario does not make very much impact”  
“Not much I was only in the simulation for approx. 30 seconds”  
“Not much as we only did about 3 minutes”                                                            |
| Increased drill and appointment familiarity         | 6                | “Good for transition skills that’s about it”  
“Target shooting that’s it”                                                                            |
| None                                                 | 16               | “None, made me feel stupid”  
“I really didn’t feel that it was realistic so I don’t think it helped”  
“Not all that much, if we did it more and it was more real it would be useful”  
“Because we only do one session I don’t think it is enough to affect our future policing”            |
| None or limited; VirTra considered a video game     | 3                | “I play too many video games to take it seriously.”  
“It’s good but I feel that I still knew it was a screen and computer so I didn’t talk to them”         |
| Not sure                                             | 4                | “Not sure yet – could possibly help”  
“Possibly if we had more exposure to VirTra it would be very valuable, not enough exposure to VirTra is the only problem” |

The fact that the participants indicated that their VirTra experience will impact on their policing practice suggest that the experience will provide a platform on which the
participants will be able to reflect once they have been operational in the policing field. This reflection in the form of interviews conducted in the field three months after the VirTra scenario experience also provided the participants a conduit through which they could give voice to the reality of the impact of the VirTra scenario experiences. The data presented in the following Profile 3 presents the results of interviews undertaken with the participants in the field to create the field-based decision-making profile.

7.3 Profile 3: Decision-making skills from the field of practice

A period of between three and four months – this varied with each participant – elapsed between the participants’ undertaking the VirTra scenario and their undertaking a field-based interview for this research. Whilst there was a prescribed VirTra participant post-simulation semi-structured interview question list, the participants’ enthusiasm to discuss their experiences often led to their answering a number of the prescribed questions without the question being proffered. During the interviews this was acknowledged and the participants were asked if there were any further comments they would like to record against each question.

In a similar manner to Profile 3 for the ICCS participants, the field-based interviews were designed to develop a field profile of the decision-making process attributed to the VirTra participants through exploring the participants’:

(1) perception of their use-of-force decision-making in their real-world policing duties and

(2) understanding of and lessons learnt from the simulation experience on their policing.

7.3.1 Reflection on VirTra experience

The first question in the interview was designed to assist in drawing the focus to the context of the interviews and to offer opportunity for the participants to reflect on their VirTra scenario experience at the academy. Whilst this question was similar to that posed in the post-simulation questionnaire, the potent point is that the VirTra participants were responding from a field-based perspective as opposed to the previous academy-based student platform. The responses to Question 1 (“Do you recall the VirTra simulation scenarios you participated in during your WTTU training at the
college? Was this a valuable learning experience for you? Please explain””) identified that the participants interviewed (n=15) were exposed to one or more of the three scenarios. The scenarios included a domestic violence scenario, a warehouse search scenario, and a concern for welfare police–citizen interaction with a homeless man scenario. See Table 7.13.

Table 7.13 VirTra simulation scenarios experienced by interview participants

<table>
<thead>
<tr>
<th>VirTra participant</th>
<th>Domestic scenario</th>
<th>Warehouse scenario</th>
<th>Homeless man scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>4</td>
<td>X</td>
<td></td>
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<tr>
<td>5</td>
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<td>X</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>14</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>15</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The collation of interview data from the VirTra participants following three months of mainstream field-based policing experience provided insight into the impact of the VirTra simulation on their preparedness for the unpredictable world of policing. Similarly, developing a Profile 3 for the VirTra participants encompassed collating the field-based interview data in line with the data presentation for Profile 3 for the ICCS participants. The following presentation of field-based interview data reveals the VirTra participants’ reflection on their VirTra decision-making experience, their perceived alignment between the training and the reality of policing the streets, and the
impact on their decision-making in their professional practice. Presentation of these data begins with reflection on the simulation experience and leads to reflection on the participants’ current experiences as operational police officers.

### 7.3.2 Factors influencing decision-making in the simulation

To begin the process of developing an understanding of the impact of the simulation experience on decision-making for the field of policing, the first step was to establish what factors impacted on the participants’ decision-making in the VirTra scenario. Question 12 of the field-based interview was designed to capture this information. The participants’ responses to Question 12 are presented in Table 7.14.

#### Table 7.14 Factors impacting on decision-making in VirTra scenarios

<p>| Question 12: “What factors do you think impacted on your decision-making in the scenario? Please explain”. |</p>
<table>
<thead>
<tr>
<th>Factor</th>
<th>Participants’ comments</th>
</tr>
</thead>
</table>
| **Level of threat** (safety of the officer and public) | “the dangers, the way people reacted to my instructions, the threat they posed” (P.7)  
“my safety and the safety of others, the level of threat caused me to shoot” (P.14)  
“There were two people to the side (of the building) who had not come out, feared for their life and my life. End the threat” (P.6)  
“In the domestic violence one there is lots of yelling and you are trying to break them up so safety becomes an issue and the level of threat” (P.1)  
“What was going to happen to me, my safety and the safety of others, I shot the offender in the scenario, because I yelled out he didn’t stop, it was the level of threat that caused me to shoot” (P.14) |
| **Prior knowledge of the situation** | “Information received before I went in, that is, shots fired, so went in with firearm drawn” (P.3) |
| **Unpredictability** (unknown) | “You know you will need to do something but you are not sure what, just waiting for the next piece to unfold” (P.4)  
“The realism of the scenario and not knowing what was going to happen next” (P.13) |
| **Physical characteristics** (noise, time of day, number of people, location) | “the situation, late at night, noise … yelling” (P.1)  
“other people jumping out screaming and yelling at you” (P.7)  
“the sound and the fact that it surrounded me and it happens so quickly” (P.9)  
“people jumping out with their guns … there are lots of people jumping around so you had to be on your toes a lot” (P.7) |
Question 12: “What factors do you think impacted on your decision-making in the scenario? Please explain”.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Participants’ comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>“level of threat, noise adds to the anxiety in both of the scenarios” (P.1)</td>
</tr>
<tr>
<td>Legal rights (justifications for actions)</td>
<td>“my legal rights in terms of whether I could draw and use my firearm” (P.7)</td>
</tr>
<tr>
<td></td>
<td>“I remembered my justifications … you can use capsicum spray … I would not have been justified in tasering or shooting him” (P.12)</td>
</tr>
<tr>
<td></td>
<td>“[My] justifications for use of force” (P.11)</td>
</tr>
</tbody>
</table>

It is appropriate here to provide clarification of the categories in Table 7.14. These explanations will also assist in clarification of the categories in Table 7.16, which presents the factors transferred from the VirTra simulation to field-based operations.

- **Level of threat** – encompasses a broad spectrum of safety-related factors, such as the presence, strength and number of weapons involved. Level of threat may also carry with it the connotation of whether it is an immediate threat and the perimeter of the threat, that is, will it have a domino effect beyond the immediate environ? The number of people involved, either as innocent bystanders or active participants in the incident, also relates to this category.

- **Prior knowledge of the situation** – refers to having foreknowledge of what has occurred in the incident up to the point when the participant arrives on the scene (steps into the VirTra scenario). This may include advice as to the number of people involved, whether weapons are present, whether persons have been injured. Information as to whether the persons involved are known to police and in what context is also related to this category.

- **Unpredictability** – an aspect that was emphasised by participants throughout the interviews. The reference is in relation to the acknowledged nature of police work, the unpredictability of how interactions with members of the public will progress, the mental state of the people involved. Relevant here too is limited knowledge in relation to the factors which create incidents which require police intervention, for example, no prior knowledge about the people involved, no
prior knowledge about any weapons carried by the people involved. The lack of information available when police attend a call for service at a location also pertains to this category. The factors which combine to create situations for which there is no predictable process or outcome vary with each police response situation. It is this core feature which participants referred to in interview.

- **Physical situation** – refers to the environmental conditions which exist for each policing response incident. Common factors include: the time of day, the weather, the noise level created by physical or human factors, visibility factors, that is whether the incident happens by day or night. Physical barriers involved, for example, water, building structures, open spaces, enclosed spaces, are also relevant.

- **Anxiety** – refers to the personal level of concern associated with the unpredictability of policing incidents. Anxiety also refers to the lack of experience in managing policing incidents and the resultant concern with performance level.

- **Legal rights and justifications** – refers to the level of confidence and understanding of use-of-force options for NSW police officers. The underpinning dimension here is whether the participants’ confidence and competence in relation to these justifications is of a sufficient level to allow timely decision-making to occur.

Understanding the factors which impacted on the participants’ decision-making in the VirTra simulation provided a platform from which to align the aspects of the VirTra which the participants considered most to contribute to their learning.

### 7.3.3 Valuable learning aspects of the VirTra simulation

The VirTra participants were asked to reflect on the perceived influence of the VirTra experience on their policing. This is valuable when considering the responses from the participants about the value of the learning they actually experienced when they were subsequently in the real world of their operational policing. Table 7.15 (on the following page) presents the participants’ comments in relation to whether they considered the VirTra was a valuable learning experience. In the process of answering
this question, the participants revealed their thoughts in relation to the anticipated impact of the VirTra experience on their future field-based policing.

The responses to the second part of Question 1 ("Was this a valuable learning experience for you?") were not limited to Yes or No answers. Table 7.15 presents examples of the participants’ responses and examples of the rationale underpinning their considerations in relation to the value of the simulation scenario to their learning.

Table 7.15  Value of VirTra experience

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Valuable?</th>
<th>Examples of rationale given</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeless man</td>
<td>Absolutely</td>
<td>“The sense of someone coming towards you, had never been put in the situation … it was totally foreign, you have to react quickly” (P.6)</td>
</tr>
<tr>
<td>Warehouse</td>
<td>Definitely</td>
<td>“Encompassed everything you do before going to the field puts it all into perspective” (P.3)</td>
</tr>
<tr>
<td>Warehouse</td>
<td>Yes</td>
<td>“Teaches you to scan a lot more … not to get complacent” (P.4)</td>
</tr>
<tr>
<td>Warehouse</td>
<td>Pretty good</td>
<td>“Made you see what was happening in real life” (P.10)</td>
</tr>
<tr>
<td>Warehouse</td>
<td>Yes</td>
<td>“I found that for situations that are stressful and we would never be able to have the experience of until it happens at work I thought it was really great” (P.7)</td>
</tr>
<tr>
<td>Domestic</td>
<td>Yes</td>
<td>“It was a valuable learning experience to give practice to deal with people who are aggressive and how to use your appointments” (P.12)</td>
</tr>
<tr>
<td>Domestic</td>
<td>At the time, no, now I know better</td>
<td>“At the time I didn’t get it because I had never been faced with anything like that before, my natural instinct was to go with my hands and grab him [POI], now I know better and would use communication and use my voice to manage the situation” (P.15)</td>
</tr>
</tbody>
</table>

Three participants interviewed indicated they had previous firearms experience. Participant 9, who had military experience, indicated that the value of VirTra was for people nervous about holding a firearm. Participant 11, also with more than twenty years’ military service, indicated that it was good for tactical or combat shooting.
Participant 10, with previous firearms experience, indicated that whilst they considered the VirTra was like a computer game, they thought its value was in offering an insight into what could happen in real life.

### 7.3.4 Factors transferred between VirTra simulation and field of practice

In progressing from participants’ reflection on the factors which affected decision-making in the simulation to understanding how those factors may have influenced the participants’ field-based decision-making, Questions 9 and 10 were posed in the field-based interviews. These two questions were designed to capture participant reflection from two perspectives: first, determining whether, at the time of making a decision in the field, the participant referred to their VirTra experience and, secondly, gauging participants’ reflection on the broader potential influence of the VirTra experience on their policing practice. As an objective of Questions 9 and 10 was for participants to identify the elements they recognised as transferring from the VirTra simulation to their operational practice, the responses have been combined. These responses are presented in Table 7.16.

**Table 7.16 Factors transferred from VirTra simulation to field-based operation**

<table>
<thead>
<tr>
<th>Question 9: “Following your experience in the field in making decisions about the use of your firearm, can you tell me how the simulation training experience affected your decision-making in those incidents?”</th>
<th>“The main thing I got out was to be prepared for the unexpected” (P.3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 10: “Were you aware at the time of the incident in the field of reflecting on your experience in the simulation unit? How did this impact on your decision in the field? Please explain”.</td>
<td>“What I did in the real situation was made sure I was very aware of what was going on and all of the possibilities, just like in the simulation” (P.1)</td>
</tr>
<tr>
<td>Preparation for the unexpected</td>
<td>“Made me realize I have to keep sharp and be aware of what is going on around me ... so in the field incident I stayed focused on what was going on around me” (P.13)</td>
</tr>
<tr>
<td></td>
<td>“In my field job I was going into the unexpected, just like the man on the mobile phone in the simulation, it made me continue to be aware of expecting the unexpected” (P.6)</td>
</tr>
</tbody>
</table>
Question 9: “Following your experience in the field in making decisions about the use of your firearm, can you tell me how the simulation training experience affected your decision-making in those incidents?”

Question 10: “Were you aware at the time of the incident in the field of reflecting on your experience in the simulation unit? How did this impact on your decision in the field? Please explain”.

<table>
<thead>
<tr>
<th>Heightened awareness of unpredictability</th>
<th>“You might let one thing go but you have to keep thinking about everything else because you don’t know what will happen next, I learnt this from the simulation”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Being aware that there is the possibility of a weapon being produced in any situation and how quickly tiny jobs can escalate” (P.6)</td>
</tr>
<tr>
<td>Ability to make decisions quickly</td>
<td>“The simulation taught me to consider quickly, you don’t want to shoot the wrong person” (P.3)</td>
</tr>
<tr>
<td></td>
<td>“In the field it happens so quickly, just like the simulation” (P.1)</td>
</tr>
<tr>
<td></td>
<td>“The simulation taught me how important it is to react in time, make the decision in time” (P.6)</td>
</tr>
<tr>
<td>Confidence in knowledge of use-of-force justifications</td>
<td>“I was less concerned about the firing, because I had prior experience of that, this for me was more about the justifications for use of the firearm in the field” (P.11)</td>
</tr>
<tr>
<td></td>
<td>“The simulation experience heightened my awareness of the use of appointments and understanding when justified to use it” (P.6)</td>
</tr>
</tbody>
</table>

7.3.5 Current field-based use-of-force decision-making process

A number of interview-based questions focused on developing an understanding of the decision-making process that the inexperienced newly appointed probationary constables employ in situations that require a field-based police response. As mentioned earlier, these interviews were undertaken three to four months after the VirTra participants’ deployment to a police station. The period was calculated to allow time for the participants to become comfortable in their surrounds and their daily operations. Due to the unpredictable nature of policing, there was no guarantee that the participants interviewed would have had occasion to make decisions involving use of force; however, as the interview data indicate, 10 of the 15 probationary constables interviewed had occasion to draw their firearm. Questions 3, 4, 5, 6 and 8 of the field-based interviews, with examples of responses from the participants, are presented in the following section. These responses reveal a number of themes and the data have been collated in line with the themes. Four themes were revealed through the responses
proffered by participants to Questions 3, 4, 5, 6 and 8. But whilst there are four themes presented, it is important to note that these are seamlessly interwoven for the participant at the time of their field-based decision-making. Table 7.17 presents the four themes with sample responses collated under each theme.

Table 7.17  *Influences on VirTra participants’ field-based use-of-force decision-making*

<table>
<thead>
<tr>
<th><strong>Theme 1: Decision-making as an intuitive automatic response</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question</strong></td>
<td><strong>Participant comment</strong></td>
</tr>
</tbody>
</table>
| Q.3  “At the time of the incident were you aware of making a conscious decision to follow the Tactical Options Model from your Weapons training at the college?” | “happened so quickly made it second nature … it becomes routine” (P.3)  
“yes, but I think this was intuitive, you are not really aware of going through all of the steps, it just happens” (P.1)  
“It was happening so quickly, but I was certainly cognisant of the different levels of force and you quickly go through those” (P.11) |
| Q.4  “At the time of the field incident, were you aware of your emotional response? Please explain.” | “so quick, the adrenalin is pumping, the training kicks in and takes over” (P.3) |
| Q.6  “How would you describe your reaction? Can you tell me about your instinctive response in the incident?” | “I would say that it was instinctive, I was on the edge the whole time it was 2 a.m. we were tired but my sensess were heighted because he[POI] had a knife” (P.4)  
“It felt instinctive, due to the circumstances, because you don’t know what you are going to find and how quickly”(P.1)  
“this was the first time I had to cover someone with my gun, but I had it out before with building searches, we go into those with our guns drawn, it becomes routine.” (P.3) |
<p>| Q.8  “Please can you tell me the role of other officers in the incident? Were they senior to you? Did they give a direction to you? Or did you make the decision independently? Please explain.” | “we didn’t discuss drawing our weapons, we basically both did it, …it just seemed the most appropriate and reasonable move in the circumstances” (P.1) |</p>
<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.5</td>
<td>“I didn’t consciously think I was going to have to shoot them, I was using the gun for control” (P.3) “at the time he was threatening to shoot his head off and shoot everyone else.. I thought I am not going to get shot and not going to let anyone else get shot ... it didn’t bother me they are my friends and I want them to be safe” (P.4) “I was very aware of making a conscious decision to draw my weapon” (P.1) “yeah I was aware, I think it is a dangerous frame of mind to be in to think that the only time I can draw my weapon is if I am going to fire it, where I am cognisant that I can pull the weapon out point it at the person and if they back down I can holster the gun” (P.11)</td>
</tr>
<tr>
<td>Q.6</td>
<td>“I was very conscious of my own decisions” (P.11)</td>
</tr>
<tr>
<td>Q.4</td>
<td>“no, I think I went through the normal motions at this stage, what was the threat to life what was the next step, life if he came towards me, fire on the person” (P.11)</td>
</tr>
<tr>
<td>Q.8</td>
<td>“I made the decision [to draw my gun] they did have their firearms drawn before me but I had it in my own mind that my firearm was going to be drawn” (P.12) “I definitely followed her direction, I could not see her at one point so I did decide to move down the hallway” (P.4) “we didn’t discuss drawing our weapons, we basically both did it, … it just seemed the most appropriate and reasonable move in the circumstances” (P.1) “didn’t get to the point where I had to make an independent decision, I just followed their lead” (P.13) “it was quite collaborative, if anything it was the other probationer taking the lead talking to the offender” (P.11)</td>
</tr>
<tr>
<td>Q.4</td>
<td>“At the time of the field incident, were you aware of your emotional response? Please explain.”</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>“so quick, the adrenalin is pumping, the training kicks in and takes over” (P.3)</td>
<td></td>
</tr>
<tr>
<td>“my heart was going through my chest” (P.9)</td>
<td></td>
</tr>
<tr>
<td>“We were in a hallway which was pretty narrow and we pretty much just had to run ... when we got outside we looked at each other and went –did that really just happen?” (P.4)</td>
<td></td>
</tr>
<tr>
<td>“I was very aware of my heightened senses, my heart was beating faster, not actually anxious because you don’t have time more the sense of being fully aware of everything around you, sound, sight” (P.1)</td>
<td></td>
</tr>
<tr>
<td>“my heart was going through my chest” (P.9)</td>
<td></td>
</tr>
<tr>
<td>“I think there is a lot of adrenalin running through, I remember when I left the college saying to a friend I hope I never have to pull this gun out and I have and I am not upset by it at all” (P.12)</td>
<td></td>
</tr>
<tr>
<td>“no, I think I went through the normal motions at this stage, what was the threat to life what was the next step, life if he came towards me, fire on the person” (P.11)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q.5</th>
<th>“During your firearms training at the college, you are taught that to draw your weapon you are prepared to fire. Did you recall making this decision during the incident? Can you tell me about that decision-making process?”</th>
</tr>
</thead>
<tbody>
<tr>
<td>“at the time he was threatening to shoot his head off and shoot everyone else.. I thought I am not going to get shot and not going to let anyone else get shot ... it didn’t bother me they are my friends and I want them to be safe” (P.4)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q.6</th>
<th>“How would you describe your reaction? Can you tell me about your instinctive response in the incident?”</th>
</tr>
</thead>
<tbody>
<tr>
<td>“it was an individual decision I was definitely nervous and apprehensive” (P.3)</td>
<td></td>
</tr>
<tr>
<td>“I would say that it was instinctive, I was on the edge the whole time it was 2 a.m. we were tired but my senses were heighted because he [POI] had a knife” (P.4)</td>
<td></td>
</tr>
</tbody>
</table>
7.3.5.1 Decision-making as an intuitive automatic response

The interview responses revealed that for some of the interviewed participants the decision-making process involving the use of a gun revealed a sense of being an automatic process. For others, there was an awareness of making a very conscious decision to draw their gun. The suggestion that the decision-making was intuitive was intimately connected with the circumstances of the situation; in particular, the level of threat posed by the situation and the time frame in which to make a decision. The responses to Questions 3 and 6 in particular provided valuable comments in relation to this theme.

7.3.5.2 Conscious awareness of decision-making process

Conversely to the theme revealed in section 7.3.5.1, interview comments revealed that for some participants they were very aware of the decision-making process in relation to
the use of a gun in their field-based incident. Questions 4, 5, 6 and 8 provided an array of responses which supported Theme 2 in Table 7.17, suggesting the participants were consciously aware of their decision-making process. Interestingly, Participant 11 articulated the connection between the notion of being aware of the decision-making process and making a quick and deliberate decision:

... It was happening so quickly, but I was certainly cognisant of the different levels of force and you quickly go through those.

### 7.3.5.3 Emotive response in decision-making process

Without exception the ten participants interviewed who had occasion to draw their weapon agreed that they were consciously aware of their emotive response to the situation in which they were involved in the field. This awareness involved either emotion, such as anxiousness, or awareness of their physical bodily responses, such as heightened senses and/or a faster heart beat.

### 7.3.5.4 Independent and collaborative decision-making

An aspect to consider in developing an understanding of the field-based decision-making process for the VirTra participants was their level of confidence to make independent decisions in relation to use of force. Interview Question 8 was developed to provide an avenue through which participants could discuss their decision-making process and, in particular, the notion of whether they were conscious of making their decisions independently of the actions of the other officers involved in the incident. Responses varied and included identification of participants who were very aware of making an independent decision, to those who indicated that they just followed the lead of their senior officers. In addition there were participants who indicated that, at the time of the incident, they were not conscious of making an independent decision; rather it was a collaborative action to draw their guns, and this occurred without the decision being articulated.

It is valuable in understanding the relevance and contribution of these themes to the field-based decision-making profile to provide contextualisation through identification of the factors which impact on decision-making in the field. The following section, 7.3.6, presents the factors which the participants identified through interview as impacting on their field-based decision-making.
7.3.6 Factors impacting on decision-making in the field

Presented in Table 7.17 are the factors drawn from those identified in the participant interview responses as impacting on decision-making in the field. Whilst the participants were not asked directly to comment on the factors they considered as so impacting, the responses to the questions directly related to their field-based incident assisted in identifying five categories of influential factors. Interestingly, these categories are similar to those developed from the interview responses of the ICCS participants and the factors that impacted on their field-based decision-making.

7.3.6.1 Criticality of incident

An emphasis on the criticality of the incident as influencing the decisions and actions taken by the participants in their field-based incident was evident throughout the individual interview responses. This element of criticality is also somewhat interchangeable with the notion of safety. To more clearly define these two areas, those comments which relate to criticality include those which discuss the level of threat within an incident. The comments related to personal or officer safety are included in section 7.3.6.3. As evidenced in the following comments, the level of immediate threat within an incident was an important influence on the decision-making considerations for the participants. Examples of the consideration given to the criticality of the incident in making decisions are evidenced as follows:

... a man with a knife and this was upgraded as we were going there to a man with a gun and then confirmed shots fired then information several people are injured … we had our vests on and firearms drawn. (P.3)

... When we approached him he picked up an axe … at that stage all three of us had our hands on our firearms. (P.11)

... he then approached towards us with a knife and my partner said get towards the door now, then yelled at him “drop the knife” and then said to me RUN … it was really scary at the time. (P.4)

... We spoke to the victim he said he saw the man with a pistol in his hand so … I had my gun out … definitely the situation was life threatening because the victim had seen a gun in the POI’s hand. (P.12)

A common aspect of these situations is the transparent relationship between the threat to the officers and the responding action to draw a firearm. The exception was for Participant 4, who retreated from the immediate scene. Interwoven with the criticality
factor is the one of time available to make a decision. The evidence suggests criticality and time factors impact on each other as well as on the overall decision-making process.

7.3.6.2 Timing

As indicated above, the time available to make a decision in critical situations directly influences the resultant decision. The following comments confirm the relationship between the criticality of the incident and the time available. The implication is that the limited amount of time available forces a decision to be taken. As suggested by Participant 12:

... You only have a split second to make the decision and it can be full on at times.

Similarly, the following comments support this notion that the critical aspects of the situation directly impact on the time to make a decision and, by default, time becomes a factor in the overall decision-making process:

... It happened quite quickly … And we pretty much just had to run. (P.4)
... It is so quick … the training kicks in and takes over … Afterwards a big deep breath. (P.3)
... We did not have time to make a plan but we had each other’s backs. (P.6)

These interview comments revealed the safety of the officer, their partners and by implication any other people involved in the field-based incident were interdependent on the factor of time available to make a decision.

7.3.6.3 Safety

As suggested in section 7.3.6.1, safety and the criticality of the incident are seamlessly interwoven. However, presented here are those comments which more specifically identify the safety of the officer or their partners and members of the public as an influencing factor in the field-based decision-making process. Participant 4 offered a clear and concise example:

... I thought I am not going to let anyone else get shot and I am not going to get myself shot. (P.4)
In a similar vein, the following comments support the notion that safety is an important influencing factor here:

... I was very aware of safety, I was kind of looking out for the husband, and thought I am not going downstairs by myself, I will stay with the others. (P.13)

... I was very cognisant of the rules regarding my use of lethal force, justification, that’s why I had my weapon still holstered at first he was 25 meters between us and he would not be able to lunge at that distance, as we approached him, if he refused to do as instructed then there may be justification for use of lethal force. (P.11)

... We did not have time to make a plan but we had each other’s backs. (P.6)

... It was pretty unknown because they had turned the lights off … I had been told to have my firearm drawn, it gave me a sense of protection. (P.9)

The comments which allude to safety as an impacting factor on field-based decision-making also indicate the relationship between the participant and other officers. In addition the participants, in referring to the role taken by other officers in the field-based incident, by default indicate the influence this has on the individual participant’s decision-making. The following section, 7.3.6.4, presents comments from participants which provide evidence of the influence the other members of a responding team have on the decisions and actions taken by the participants.

### 7.3.6.4 Team

In section 7.3.6.3 it was suggested that the comments provided by the participants in relation to other team members and how they interact with these members is important in the decision-making process. The level of interaction between team members ranged from complete compliance and agreement by the participant with their team members’ suggestions or directives to a more collaborative approach to the decisions and actions undertaken by the team. Participant 4 spoke of the clarity of their thought processes at the time of making field-based decisions:

... I thought I am not going to let anyone else get shot and I am not going to get myself shot … I definitely followed her direction. (P.4)

Likewise, Participants 7, 13 and 6 indicated they relied on the lead of their senior officers at the time of making important decisions in the field-based incident:
... The senior constable was mainly in the lead of doing that because he has a lot more experience and I was happy for him to do that. (P.7)

... I felt good because I had someone there ahead of me, in fact two people ... Mostly the Sergeant took over and told me what to do, I just followed her lead. (P.13)

... The Sergeant I was working with was a person with over 25 years experiences so I had absolute confidence in him. If it had been someone younger, I might have felt differently, but the Sergeant gives a sense of confidence. (P.6)

... I was working with a female officer that night ... I offered to go [into the building] first, we just had to look out for each other, cover each other’s backs ... she was only 6 months senior to me. (P.9)

In the above comments there is revealed a sense of camaraderie with the presence of a more experienced officer or officers. This is not unexpected as student officers continue their learning, simultaneously undertaking both formal university studies and field-based policing training, and refer to their policing peers for guidance and affirmation of their progress. An additional reference point for these less experienced officers is their recent recruit training as a repository of field-based experience; but this, however, is limited.

7.3.6.5 Academy recruit education

In light of the participants’ comments in relation to lack of time to make field-based decisions – the urgent and critical nature of incidents which require “split second decisions” (P.12) – it is interesting that a number of participants clearly recalled referring to their training to develop their decision and action at the crucial point in time. Example comments from the participants in relation to this factor are presented below:

... I was very cognisant of the rules regarding my use of lethal force, justification, that’s why I had my weapon still holstered at first he was 25 meters between us and he would not be able to lunge at that distance, as we approached him, if he refused to do as instructed then there may be justification for use of lethal force. (P.11)

... I was very aware of safety, I was kind of looking out for the husband, and thought I am not going downstairs by myself, I will stay with the others, this came from my weapons training. (P.13)

... I do remember when we entered the building thinking about what we did at the college about doing a building search. (P.9)
7.4 Developmental changes in use-of-force decision-making

An area of interest in the current research is the role of the ITAS experience in the development of a participant’s professional identity. An avenue through which to view the developmental changes which occur as the participant travels through the learning journey from pre-simulation to field-based operations is a continuum of the participant’s level of experience and confidence with decision-making in use-of-force situations.

7.4.1 Continuum of learning and development in use of firearm

Three tables are included here which collate responses from the VirTra participants from two perspectives. The data in these tables – Tables 7.18(a), 7.18(b) and 7.19 – complement each other as they follow the learning and developmental journey of the participants. Tables 7.18(a) and (b) present the collation of six VirTra participants’ commencing status in relation to familiarity and confidence with use of firearms, level of preparedness for decision-making and use of firearms in the VirTra scenarios. This is followed by description of the level of reality these six participants experienced with the VirTra simulation, their emotional reaction to use of force in the VirTra scenarios, their perception of their performance and the impact this experience may have on their future policing. The selection of the six participants was on the basis that they had provided responses to all pre- and post-simulation questions and participated in a field-based interview. Excerpts from the field-based interviews with these six participants are included in Tables 7.18 (a) and (b) and are those responses which indicate the level of preparedness and confidence with decision-making associated with use of a firearm based on their experience in the real world of policing. Presenting the data in Tables 7.18 (a) and (b) as such a continuum (on the following pages) provides a holistic view of the participants’ development which assists in contextualising the individual influencing elements of the simulation experience.
<table>
<thead>
<tr>
<th>Stage of development in perspective</th>
<th>Question</th>
<th>VirTra participant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q.1: “Prior to undertaking training for the NSW Police Force I have been employed as:”</td>
<td>landscaper</td>
</tr>
<tr>
<td></td>
<td>Q.2: “My previous experience/familiarity with firearms has been in the following capacity:” (Previous work)</td>
<td>none</td>
</tr>
<tr>
<td></td>
<td>Q.4: “Following your WTTU training and prior to undertaking the VirTra simulation scenarios, please indicate how confident you now feel with the use of a firearm”.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Q.10: “I consider I am prepared and confident about my performance in the VirTra simulation scenarios”.</td>
<td>5</td>
</tr>
<tr>
<td>Pre-simulation perspective on preparedness and confidence with use of force (firearms)</td>
<td></td>
<td>VP6</td>
</tr>
<tr>
<td></td>
<td>Q.2: “The VirTra simulation environment made me feel as if I were actually at the scene in real time”.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Q.7: “Please describe the emotional reactions you were aware of during the VirTra simulation scenario (e.g., Were you aware of being anxious, nervous, pressured, self-conscious? Were you aware of your heart beating?)”</td>
<td>“I was nervous going into it”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Nervous, considering which option to use if the scenario goes pear shaped”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Self-conscious”</td>
</tr>
<tr>
<td>Post-simulation perspective on level of preparedness and confidence in use of force (firearms)</td>
<td>Q.2: “The VirTra simulation environment made me feel as if I were actually at the scene in real time”.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Q.7: “Please describe the emotional reactions you were aware of during the VirTra simulation scenario (e.g., Were you aware of being anxious, nervous, pressured, self-conscious? Were you aware of your heart beating?)”</td>
<td>“I was nervous going into it”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Nervous, considering which option to use if the scenario goes pear shaped”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Self-conscious”</td>
</tr>
<tr>
<td>Stage of development</td>
<td>Question</td>
<td>VirTra participant</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Post-simulation perspective on level of preparedness and confidence in use of force (firearms) (cont.)</td>
<td>Q.9: “How do you think you performed in the VirTra scenarios? Please explain your response. You may like to refer to specific examples from your participation”.</td>
<td>“Wrong decision should have had gun out, second one was better”</td>
</tr>
<tr>
<td></td>
<td>Q.12(b): “If you fired your weapon during the VirTra scenarios, how did you feel about that? Please put n/a if you did not fire your weapon”.</td>
<td>“I felt okay it was nerve racking, people running out from corners”</td>
</tr>
<tr>
<td></td>
<td>Q.16: “Do you think you would behave and react in the same way next time you participate in a simulated scenario for decision-making? Please explain your answer”.</td>
<td>“Needed more of a debrief to understand how I could perform better do more VirTra”</td>
</tr>
<tr>
<td>Field-based perspective</td>
<td>Q.6(b): “How would you describe your reaction [to drawing your firearm in the field-based incident]?”</td>
<td>“It was a very conscious decision to draw my weapon, it felt instinctive”</td>
</tr>
<tr>
<td></td>
<td>Q.9: “Following your experience in the field in making decisions about the use of your firearm, can you tell me how the simulation training experience affected your decision-making in those incidents?”</td>
<td>“What I did in the real situation was made sure I was very aware of what was going on and all of the possibilities just like in the simulation one”</td>
</tr>
<tr>
<td>Stage of development in perspective</td>
<td>Question</td>
<td>VirTra participant</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------</td>
<td>--------------------</td>
</tr>
<tr>
<td></td>
<td>VP11</td>
<td>VP12</td>
</tr>
<tr>
<td>Pre-simulation perspective on preparedness and confidence with use of force (firearms)</td>
<td>Q.1 “Prior to undertaking training for the NSW Police Force I have been employed as:”</td>
<td>army officer</td>
</tr>
<tr>
<td></td>
<td>Q.2: “My previous experience/familiarity with firearms has been in the following capacity.” (Previous work)</td>
<td>military training</td>
</tr>
<tr>
<td></td>
<td>Q.4: “Following your WTTU training and prior to undertaking the VirTra simulation scenarios, please indicate how confident you now feel with the use of a firearm”.</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Q.10: “I consider I am prepared and confident about my performance in the VirTra simulation scenarios”.</td>
<td>7</td>
</tr>
<tr>
<td>Post-simulation perspective on level of preparedness and confidence in use of force (firearms)</td>
<td>Q.2: “The VirTra simulation environment made me feel as if I were actually at the scene in real time”.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Q.7: “Please describe the emotional reactions you were aware of during the VirTra simulation scenario (e.g., Were you aware of being anxious, nervous, pressured, self-conscious? Were you aware of your heart beating?)”</td>
<td>“Neutral”</td>
</tr>
<tr>
<td>Stage of development</td>
<td>Question</td>
<td>VirTra participant</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Post-simulation perspective on level of preparedness and confidence in use of force (firearms) (cont.)</td>
<td>Q.9: “How do you think you performed in the VirTra scenarios? Please explain your response (you may like to refer to specific examples from your participation)”.</td>
<td>“Satisfactory lack of interactivity hampers training benefit”</td>
</tr>
<tr>
<td></td>
<td>Q.12(b): “If you fired your weapon during the VirTra scenarios, how did you feel about that? Please put n/a if you did not fire your weapon”.</td>
<td>“Fine, according to training, shots on target”</td>
</tr>
<tr>
<td></td>
<td>Q.16: “Do you think you would behave and react in the same way next time you participate in a simulated scenario for decision-making? Please explain your answer”.</td>
<td>no response recorded</td>
</tr>
<tr>
<td>Field-based perspective</td>
<td>Q.6(b): “How would you describe your reaction [to drawing your firearm in the field-based incident]?”</td>
<td>“Very conscious of my own decisions, I had my weapon”</td>
</tr>
<tr>
<td></td>
<td>Q.9: “Following your experience in the field in making decisions about the use of your firearm, can you tell me how the simulation training experience affected your decision-making in those incidents?”</td>
<td>“As I already had experience with firearms was less concerned about firing and more involved in justifications”</td>
</tr>
</tbody>
</table>
7.4.2 Continuum of elements influencing use-of-force decision-making

The second perspective in the continuum is that which presents the learning journey in terms of the elements VirTra participants thought would influence their decision-making in use-of-force situations. Data which indicate the influential elements on the VirTra participants decision-making have been collated from responses: prior to their VirTra simulation experience; on reflection immediately post their VirTra experience; and from reflecting on their real field-based operational experience. Table 7.19 collates the responses detailed in Tables 7.4 and 7.11 from the short-answer questions in which the participants identified the factors which were potential influences and those which in the VirTra exercise did influence their decision-making. These were ranked by level of influence, Rank 1 representing the greatest influence. All factors identified in all three data sets are included in Table 7.19.

Table 7.19 Collation of factors influencing VirTra participants’ decision-making

<table>
<thead>
<tr>
<th>Factors</th>
<th>Pre-simulation</th>
<th>Immediately post-simulation</th>
<th>Field-based reflection (responses from interviews)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rank 1 n=312</td>
<td>Rank 2 n=284</td>
<td>Rank 1 n=272 Rank 2 n=143</td>
</tr>
<tr>
<td>Threat level</td>
<td>49 15%</td>
<td>49 17.3%</td>
<td>54 20.0% 31 21.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15 “my safety and the safety of others, the level of threat caused me to shoot” (P.14)</td>
</tr>
<tr>
<td>Nerves/anxiety</td>
<td>43 13.75</td>
<td>20 7.0%</td>
<td>13 4.7%  6 4.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 “a little stressed” (P.7)</td>
</tr>
<tr>
<td>Justification</td>
<td>41 13.1%</td>
<td>18 6.3%</td>
<td>19 7.0%  7 5.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 “I remembered my justifications ... I would not have been justified in tasering or shooting him” (P.12)</td>
</tr>
<tr>
<td>Armed offender</td>
<td>38 12.4%</td>
<td>19 7.0%</td>
<td>53 19.4% 12 8.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 “We were called to a domestic it wasn’t a priority 2, it got up graded with information there was a man with a knife, upgraded again as we were going there, man with a gun ... so we had our firearms drawn” (P.5)</td>
</tr>
<tr>
<td>Situation</td>
<td>37 12.0%</td>
<td>70 25.0%</td>
<td>37 14.0% 17 12.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 “the situation, late at night, noise … yelling” (P.1)</td>
</tr>
<tr>
<td>Factors</td>
<td>Pre-simulation</td>
<td>Immediately post-simulation</td>
<td>Field-based reflection (responses from interviews)</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------</td>
<td>-----------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Rank 1 n=312</td>
<td>Rank 2 n=284</td>
<td>Not ranked; number of participants who identified this factor; responses</td>
</tr>
<tr>
<td>Confidence</td>
<td>20 6.4%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Training</td>
<td>12 3.85</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Reaction time</td>
<td>11 3.5%</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“it surrounded me and it happens so quickly” (P.9)</td>
</tr>
<tr>
<td>Attitude of POI</td>
<td>3</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Prior knowledge of situation</td>
<td>9 2.8%</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Communication</td>
<td>6 1.9%</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.1%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Level of experience</td>
<td>5</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Assessable learning task</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Partner ability</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fatigue</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Personal beliefs</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Tunnel vision</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Decision-making</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Behaviour of people in scenario</td>
<td>20 7.3%</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11.8%</td>
<td></td>
</tr>
<tr>
<td>Presence of witness and victims</td>
<td>13 4.7%</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.0%</td>
<td></td>
</tr>
<tr>
<td>Unfamiliarity with VirTra</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Non-realism of VirTra</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
7.5 Chapter 7 summary

Chapter 7 has profiled data collected from student police officers participating in the VirTra simulation exercise. Each participants’ perspectives on the factors they consider influence their use-of-force decision-making pre- and post-simulation were captured to understand the influence of the simulation exercise on making use-of-force field-based decisions.

The data for Profile 1: Pre-VirTra simulation participation, suggest 92.1% of participants had a level of confidence in the use of a firearm within a range of some confidence to very confident. This range of confidence was also supported by data which indicated 99.2% of the cohort considered they were prepared and confident about their forthcoming VirTra simulation participation. The data in Table 7.4 suggested that, at the pre-simulation stage, the participants considered six factors as those they anticipate would be the most influential on their decision-making. In order, based on the number of mentions across the top three rankings from Table 7.4 are the following factors:

(1) the physical elements of the situation;
(2) level of threat;
(3) legal justification for use of force;
(4) the level of stress and nerves experienced by the participant;
(5) whether the situation includes people armed with weapons; and
(6) their own confidence level.

The changes which occurred in the ranking of the factors which the participants consider important in their field-based use-of-force decisions post–VirTra simulation indicates the influence of the simulation-based learning experience. To contextualise the changes in the ranking of decision-making influences as presented in section 7.3, Profile 3, it is valuable to note the participants’ experience in the VirTra simulation.

The data in section 7.2, Profile 2: Post–VirTra simulation experience, indicate that participants agreed they were able to apply their use-of-force decision-making process during the VirTra simulation exercise. These data suggested the VirTra participants were engaged in the scenario, with 100% of the participants providing reflective comments on their application of the Tactical Options Model for use-of-force decisions in the VirTra simulation. Of interest in the data for Profile 2 are the factors the
participants considered as having influenced their decisions in the VirTra simulation. There were a number of changes in the level of influence of the factors in decision-making in use-of-force situations from the pre-simulation to the post-simulation stage for the participants. The results displayed in Table 7.20 are drawn from Table 7.4 (pre-simulation) and Table 7.11 (post-simulation).

Table 7.20    Rankings of factors influencing use-of-force decisions pre– & post–VirTra sim.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pre-simulation total number of mentions ranking</th>
<th>Post-simulation total number of mentions ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situation</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Threat level</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Stress/heres/pressure</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Justification for use of force</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Armed persons</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Confidence</td>
<td>6</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Communication</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Training</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Knowledge of situation (prior knowledge)</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Attitude of person of interest in scenario</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Reaction time</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Level of experience</td>
<td>13</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Partner ability</td>
<td>14</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Age of offender</td>
<td>15</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Presence of victims and witnesses</td>
<td>Not mentioned</td>
<td>5</td>
</tr>
<tr>
<td>Being observed by others</td>
<td>Not mentioned</td>
<td>12</td>
</tr>
<tr>
<td>Behaviour of people in scenario</td>
<td>Not mentioned</td>
<td>4</td>
</tr>
<tr>
<td>Unfamiliarity with VirTra</td>
<td>Not mentioned</td>
<td>11s</td>
</tr>
<tr>
<td>Non-reality of VirTra</td>
<td>Not mentioned</td>
<td>12</td>
</tr>
<tr>
<td>Consequences of action</td>
<td>Not mentioned</td>
<td>12</td>
</tr>
</tbody>
</table>
The results in Table 7.20 reflect the participants’ change in focus from influencing factors which are associated with themselves, for example, safety, nervousness, level of confidence, to factors post-simulation which focus on the elements of the situation. The factors included in the focus on the elements of the situation are, for example, knowledge of the situation, whether the offender is armed with a weapon, behaviour of people in the scenario, and the presence of witnesses. Consideration of the participants’ level of confidence as an influencing factor was identified pre-simulation but was not mentioned in their post-simulation reflection. This change in focus to concern with the elements of the situation is reinforced in the data presented in the field-based decision-making Profile 3. The participants were asked to reflect on their VirTra simulation from the vantage point of their field-based experience. The key influencing factors identified from this perspective were the level of threat, the physical environment of the simulated incident (for example, time of day, noise), prior knowledge of the incident, the unpredictability of the simulated incident, their own anxiety and the justification for use of force.

The results in section 7.3 indicated that, on reflection, from their field-based operational experience, the participants identified the following factors as influencing their decision-making. (1) The criticality of the incident, which includes aspects of safety, for example, whether there are persons armed with weapons, was identified as a key influencing factor in decisions associated with use of force in real incidents. (2) The time available to make a use-of-force decision was identified as interrelated with the factor of incident criticality. (3) The factor of safety was identified as seamlessly interwoven with the factors of incident criticality and time available to make a decision. (4) The factor of team support was identified by the participants as an influential factor in their field-based use-of-force decisions. Whilst the factor related to level of confidence was not explicitly articulated by the participants in reflection on their field-based use-of-force experience, the team support factor was identified as indirectly influencing the level of confidence the participants have experienced in their field-based use-of-force decisions. This factor related to partner or team member ability as an influencing factor on use-of-force decisions was identified pre-simulation exercise by three participants as potentially the most influential factor, and three participants ranked this factor as the second potentially most influential factor. Identification of the
influence of other team members in field-based decisions for the participants was associated with their perception of intuition in relation to their use-of-force decisions.

The Profile 3 data did indicate the participants consider their use-of-force decision-making process developing more intuitively as they gain field-based experience. Further, the results suggest the Tactical Options Model is a mental model which the participants increasingly apply through experience intuitively in their decision-making.

The aspects of developing intuitive responses for decision-making in use of force and the role of team members in supporting the participants’ development will be discussed in Chapter 8. The results presented in Chapters 5, 6 and 7 will also be discussed in that chapter, drawing on the theoretical frameworks of Pierre Bourdieu’s *habitus, capital* and *field* and the synergy with Lave and Wenger’s underpinning concepts of communities of practice to develop an understanding of the influence of simulation-based training, specifically the influence of MUDTAS and ITAS on the development of professional identity and the transfer of learning from the classroom via simulation exercises to the field of real-world policing operation.
Chapter 8  Discussion

8.1  Introduction

This chapter presents a discussion which will draw together the theoretical framework through which the research data are viewed (from Chapter 3), what is known about the learning outcomes when simulations are a component of a learning program as identified in associated literature (from Chapter 2), and the experience of the research participants in both ITAS (VirTra) and MUDTAS (ICCS) learning environments (from Chapters 5, 6 and 7).

Bourdieu’s general theory of culture as discussed in Chapter 3, which assists in clarifying the relationship between a person, their habitus, their capital, and their fields (the social fields within which they connect and/or operate), and the underpinning concepts of learning in a community of practice, as espoused by Lave and Wenger (1991), will in this chapter be employed to assist in explaining the influence of the simulation experience for the VirTra and ICCS participants on the development of their professional identities.

Following a process of identifying areas of development pre- and post-simulation exercise for the research participants will aid in identifying the specific characteristics of the simulation exercise which were catalysts for change. This process will also enable the identification of the characteristics of MUDTAS and ITAS exercises which are catalysts for, and/or support or inhibit transfer of, learning from the training environment to the field of real operation. Importantly this process will allow for not only the participants’ knowledge and skill development to be revealed, but also the sociocultural changes which occurred for them in their relationships within their community of practice as a consequence of the simulation exercise experience.

In responding to the research question, “What is the influence of simulation exercises in developing professional identity in policing?”, a discussion progressing from the influence of the simulation experience on the professional identities for the less experienced, novice VirTra participants to the more experienced, expert ICCS participants in the field of policing will be presented in section 8.5. Discussion of the
research data which underpin the response to the research question, “What characteristics of a simulation exercise are required to enable transfer of learning from the training environment to operational policing?”, will be presented in section 8.8. The chapter will then conclude with a discussion of the alignment between the research outcomes and educational concepts and perspectives reported in Chapter 2, sections 2.4 and 2.5.

8.2 VirTra participants

As indicated in Chapters 2 and 3, the VirTra participants in this research commenced as NSW police recruits, having come from diverse educational, work, cultural and social backgrounds. Table 7.1 indicates the range of employment and learning arenas from which the participants brought experiences to their police training. Participant backgrounds included but were not limited to: customer service; hospitality; the health and fitness industries; professional roles, for example, lawyer, nurse; and roles as officers in correctional services and the defence forces. At the time of participating in this research, the NSW police students who were the VirTra participants had approximately twenty-six weeks of formal association with the world of law enforcement through their studies in the ADPP program and were sitting as novice officers on the very cusp of their policing careers. Their limited personal experience (restricted to two weeks of field observation at an operational police station) of the reality of the demands physically and emotionally of an officer’s policing duties situated them, as Lave and Wenger (1991) describe, as LPPs within their community of practice, that is, policing. Bourdieu would explain this as their habitus, the accumulation of their life experiences, learning, beliefs at a given point in time. Further, Bourdieu (1990b) suggested that one’s habitus does further evolve and, in the context of exploring the impact of the VirTra simulation experience for the research participants, it is reasonable to anticipate there will be evidence of change in the participants’ habitus, social capital, place within the field, recognition as LPPs and ultimately their professional identities.

The data have indicated that a key role here of the VirTra simulation exercise is the affordance in practical terms of the opportunity for participants to experience applying theory and skills in practice. Further, the data have indicated the simulation exercise offered the opportunity for the participants to draw together their recruit training and
experience and learn from their own physical and emotional reaction to the decision to fire a gun at a person, albeit a virtual human.

Collation of the data from the VirTra participants’ experience revealed key indicators which provide the fundamental premise on which a response to the overarching research question focusing on the influence of simulation exercises on professional identity has been developed.

First, participation in the ITAS VirTra simulation enabled the development of a sense of confidence for the participant in their knowledge and competence in the justification and cognitive processes involved in drawing and firing a weapon in the real world of their policing activities. The simulation provided an opportunity for the participants to acknowledge their personal sense of fear and anxiety in threatening situations.

Secondly, the participants demonstrated confidence and competence in the ability to rely either consciously or subconsciously on the NSWPF Tactical Options Model of response when responding to situations involving a potential threat to life.

Thirdly, through the development of self-awareness of their ability in this core decision-making arena, participants identified a sense of empowerment to move forward into the operational field of policing so that they could confidently take their place on an operational policing team. Importantly, demonstration of this measure of confidence ultimately brings a related measure of acceptance (often unspoken) of capability by peers – a pivotal focus for the inexperienced police recruit officer.

The following discussion will focus on the sociocultural developments which occurred to the professional identity of the VirTra participants as a consequence of their simulation experience. In order to present this logically, the following sections will discuss the relationship between the major influencing factors identified pre- and post-simulation and, in turn, their relationship to the participants’ experience in the field and subsequent development as police officers.

### 8.2.1 VirTra participants’ habitus, capital accumulation and place on the field

Understanding the influence participation in a VirTra simulation exercise has on the development of a recruit police officer’s professional identity is aided by identifying the
influence such participation may have on their sociocultural make-up. Bourdieu’s concepts of *habitus*, *capital* and *field* provide the framework for such exploration. Extending this to identify how these changes synergise with where recruit officers are placed within their community of practice contributes to understanding the influence of the simulation experience on the VirTra participants’ professional identity.

The data reported in the pre- and post-simulation, and field-based, profiles for the VirTra participants in Chapter 5 identify a journey of professional and personal development beyond demonstrating core use-of-force decision-making skills. Section 7.4 refers to two distinct aspects of development revealed in the data. First, changes in confidence and level of preparedness and, secondly, changes in the factors that the recruit police officers consider will be, and ultimately are, important in decision-making related to use of force. The following discussion centres on these two themes, beginning with changes in factors influencing decision-making.

### 8.3 Development 1: VirTra and factors influencing decision-making

#### 8.3.1 Safety

What is interesting here are the factors which relate to the level of personal safety and safety of others: the threat level retained a strong level of influence pre– and post–VirTra experience, increasing from 15% to 20% of participants ranking this as the most influential factor in their decision-making in the VirTra scenario. Similarly, the presence of an armed offender retained prominence as an influencing factor, moving from a ranking of number one by 12.2% of participants to 19.4% of participants ranking this as the number one influence post-exercise.

This issue of the criticality of an incident being the key influence for decisions made in relation to use of force, and specifically the use of a firearm, resonates with responses from the field-based interviews with the research participants. Section 7.3.6 provides an in-depth presentation of these responses, which indicated that the immediate level of threat was an important influence on the decision-making considerations. The following comments support the participants’ realised relationship between the criticality – level of threat – of a situation and potential use of force:
When we approached him he picked up an axe … at that stage all three of us had our hands on our firearms. (P.11)

... We spoke to the victim he said he saw the man with a pistol in his hand so … I had my gun out … definitely the situation was life threatening because the victim had seen a gun in the POI’s hand. (P.12)

Whilst the factor identified as behaviour of people in the scenario was separately identified from the threat factor after the simulation exercise, it lends support to the prominence of the threat or safety factor. The suggestion is the behaviour of the people contributes to the potential threat and it is the unpredictable behaviour of people which contributes to the unpredictable nature of potentially life-threatening situations.

8.3.2 Involvement of other people in police incidents

Separately, the issue presented by other people being present within the scenario was not identified in the pre-simulation responses; however, it was identified post-exercise as being of influence, specifically the presence of witnesses, potentially innocent parties. As discussed in section 4.3.4, the pivotal focus of the VirTra simulation is to provide an opportunity for participants to engage in simulated conflict situations which enable them to draw together their learning from the ADPP and apply this in situations which may require the use of a firearm. It is therefore conceivable that the participants’ focus on potential threat and the consideration of innocent bystanders and witnesses, as opposed to offenders, is not identified prior to the simulation exercise as a factor for consideration. In the post-simulation responses, 4.7% of the participants ranked this factor at number one, whilst 9.0% ranked this factor as the second most influential factor. Here there is a reflected advantage of the VirTra simulation exercise in that it places the participant in a situation reflective of real life, where both innocent victims and bystanders take centre stage, with potential offenders requiring the student officer to contextualise their decision-making skills.

8.3.3 Situational conditions

Further support for the importance placed on the characteristics of the situation and how these have the potential to influence decision-making is identified in Table 8.1 (on p. 300) in the category, ‘situation’. Here there is a consistent acknowledgement of how the environmental aspects of a situation influence the response from an officer. Prior to
the simulation, 11.8% of participants ranked this number one and 24.% ranked this as number two. In the post-simulation ranking, 13.6% ranked this number one and 11.8% ranked this aspect as number two. In the interview responses, Participant 1 related the environmental aspects to the safety factor in commenting:

... late at night, tired and it is dark.

Similarly, Participant 9 commented:

... it was pretty unknown because they had turned the lights off ... I had been told to have my firearm drawn, it gave me a sense of protection.

This aspect of the simulation, which exposes the participant to unexpected factors of a situation which a responding police officer needs to manage, was strongly articulated in the responses from the field. It is evident that the participants applied this aspect of their learning experience from the simulation to their real life situations:

... What I did in the real situation was made sure I was very aware of what was going on and all of the possibilities, just like in the simulation. (P.1)

... In my field job I was going into the unexpected, just like the man on the mobile phone in the simulation, it made me continue to be aware of expecting the unexpected. (P.6)

8.3.4 Tactical Options Model, and justification

The factor identified as justification (see Table 7.5 for the attributes of this factor) retained a level of prominence through the pre- and post-simulation surveys. A pre-simulation ranking of one was given by 13.4% of participants, with 6.3% attributing a ranking of number two for this factor. In the subsequent, post-simulation rankings, 80.43% of participants (Table 7.10) agreed they were aware of the decision-making process they followed. From this position of reflection, 6.98% gave a number one ranking with 4.8% identifying a number two ranking for the influence of considering their justifications for the use of a firearm. Three participants specifically mentioned the issue of justification for using a firearm in the field-based reflection on their VirTra experience.

The justification for use of a firearm by a NSW police officer, as has been discussed in Chapter 4, is embedded within the legislation upon which officers draw their authority to use a weapon, and this translates operationally to the NSWPF Tactical Options
Model – the decision-making process employed to determine the level of force to be used in a police–citizen interaction.

The evidence that would conceivably suggest this factor takes a less dominant position when the VirTra exercise is considered from a post-simulation position must be considered in the context of the interview responses from the participants based on their real-time experiences in the field. These responses reveal two major themes:

- The first theme suggests that, in the heat of the moment, the participants intuitively work through the Tactical Options Model as a process for determining the most appropriate response, with comments which included -

  ... I think this was intuitive, you are not really aware of going through all of the steps it just happens. (P.1)

  ... happened so quickly made it second nature ... it becomes routine. (P.3)

  ... I would say that it was instinctive, I was on edge the whole time. (P.4)

- The second theme suggests that for some there is a conscious action in following through the Tactical Options Model to assist decision-making -

  ... I was very aware of making a conscious decision to draw my gun. (P.1)

  ... I was very conscious of my own decisions. (P.11)

  ... I think I went through the normal motions at this stage, what was the threat to life, what was the next step, like if he comes towards me, fire on the person. (P.11)

The conclusion drawn from the evidence in relation to the influence on a VirTra simulation participant’s decision-making process supports Findings 1 and 2 for this research.

**Finding 1:**
ITAS VirTra simulation scenarios provide a learning environment which enables contextualisation of use-of-force theory and application.
Finding 2:
Participation in an ITAS VirTra simulation exercise for novice police students has the capacity through contextualisation of police–citizen conflict interactions to support a participant’s adoption of a use-of-force decision-making process as a mental model to aid intuitive decision-making for field-based incidents.

8.4 Development 2: VirTra participants’ confidence

Tables 7.18(a) and (b) presented a developmental continuum in terms of confidence in use-of-force decisions for the participants. To place this into perspective it is worthy to note, as indicated in section 7.1.2, that 60% of the participants in the VirTra case study had no firearm experience prior to commencing as a police student. The lack of exposure to firearm experience was also identified in Table 7.3, in which 44.4% of the participants indicated a range in level of confidence from ‘some confidence’ to ‘very confident’, with handling and firing a firearm prior to their formal weapons and tactics training as a part of the ADPP police training program. Following participation in the ADPP formal firearms training (weapon handling, dry fire and live fire range firing) the range of confidence in the use of a firearm was reflected at 91.91% of the participants feeling a level of some confidence to very confident.

Interestingly, no VirTra research participants either pre-, mid- or post-simulation exercise indicated directly that accuracy with the use of a firearm was a factor which has the potential to influence their decision-making in situations where there is a level of threat, risk of injury or death to themselves or others – simulated or real.

These data suggest that a participant’s commencing experience with firearms influences the learning outcomes they experience with the VirTra simulation exercise. In referring to Table 7.18(b), Participant 11 from a military background indicated they were comfortable and confident in the use of firearms prior to commencing as a policing student. Participant 11 further suggested the VirTra exercise had limited impact on their use-of-force decision-making and the cognitive and emotional response to firing a gun at a person. The data in Tables 7.18(a) and (b) suggest that the level of influence of the VirTra simulation experience was more apparent for the participants who commenced with limited or nil experience with firearms.
In the pre-simulation rankings, 6.4% of participants identified confidence as their number one consideration and 8.0% ranked this at number two. However, in the post-simulation rankings, confidence was not identified by any participant and, further, in the field-based reflection on what factors influence decisions made in the simulation, confidence did not rate a mention as a factor which influences their decision-making in use of force. However, whilst there was no articulation of confidence, it is important to consider this in parallel with the factors of nerves/anxiety. In the pre-simulation ranking, 13.7% of participants suggested this was a number one influential factor, with 7.0% ranking this at number two. In the post-simulation rankings, 4.7% ranked this at number one and 4.1% gave a number two ranking to this factor. The field-based reflection drew comments from three participants and these did not carry emphasising descriptors, which would suggest high levels of nerves and anxiety; for example, “a little stressed” (P.7).

Indications here are twofold: that the aspect of nerves/anxiety becomes less dominant as others take precedence and that at the time of the field-based incidents, these novice officers had developed a level of confidence that allowed them to concentrate on other dynamics of a situation. This suggestion is supported in the field-based responses, the participants acknowledging they were aware of their heightened senses and, for one, their apprehension. Further, the participant responses suggested that in these potentially life-threatening situations the aspects of the situation took precedence, for example, the rapid rate at which the situations unfold and the subsequent limited time in which decisions need to be made. Participant 1 suggested:

... I was very aware of my heightened senses, my heart was beating faster, not actually anxious because you don’t have time more the sense of being fully aware of everything around you, sound, sight.

Participant 13 suggested a similar experience:

... I was not nervous, more all my senses were heightened and I was trying to be prepared.

Similarly, Participant 9 remarked:

... my heart was going through my chest.
And for Participant 3, recognition of feeling nervous and apprehensive was evident in the following comment:

... it was an individual decision I was definitely nervous and apprehensive.

The evidence suggests here that participation in the simulation exercise develops an inexperienced officer’s confidence and in parallel supports the officer’s capacity for the transfer of learning associated with decision-making from the ADPP studies and the VirTra simulation environment to operational police response situations. This evidence underpins Findings 3, 4 and 5:

**Finding 3:**
Participation in an ITAS VirTra simulation aids development of a participants’ confidence in the justification and cognitive process for use of force decision-making for real-world application.

**Finding 4:**
Participation in an ITAS VirTra simulation which contextualises police–citizen threat-to-life incidents provides a conduit for participants to develop self-awareness centred on their emotional and physical reaction in use of deadly force.

**Finding 5:**
Participation in an ITAS VirTra simulation for novice police officers has the capacity to reduce the level of anxiety for participants in responding to police–citizen field-based threat-to-life incidents.

8.5 **VirTra participants and their professional identity**

As Bourdieu (1990b) suggested, a person’s *habitus* may evolve through the influence of education and life experience, and this is evidenced in the VirTra participants’ experiences and their subsequent performance in their field-based operations. In the beginning they considered the potential influencing factors on the decisions they would make in conflict situations to be dominated by the level of threat and safety, their own nerves and anxiety in such situations, and consideration of their Tactical Options Model and justification for use of force. The results from the field-based reflections by participants suggest that, as a consequence of learning experienced through exposure to
realistic VirTra police incident scenarios, the level of threat remains a dominant influence on use-of-force decisions. Consideration of the justification for use of force in conjunction with the application of the Tactical Options Model are increasingly developed as intuitive through experience. Feelings of apprehension are considered influential in decision-making though supporting heightened senses and ultimately keen awareness of the dynamics in unpredictable conflictual police–citizen interactions.

Apart from developing confidence with decision-making in use-of-force situations for early career police officers assigned to field operations, the data suggest assignment experience also provides them with recognition and acknowledgement with their peers. Such recognition and acknowledgement contributed to the VirTra participants’ accumulation of *capital*, as described by Bourdieu. Here *capital* refers to *social capital* (goodwill, camaraderie, cooperation), *cultural capital* (knowledge, skills and experience). *Symbolic capital* (reputation amongst peers), as described by Thompson (1991) and Fowler (1997), is at the centre of the officers’ focus on accumulation of *capital*. The research data are suggestive that, in the policing domain, the forms of *capital* described above are influenced by the VirTra experience and contribute to the unwritten acceptance into the team by peers and senior officers. The comments of Participant 9 offer contextualisation of this and are cited as an example of this suggestion:

... I was working with a female officer that night ... I offered to go [into the building] first, we just had to look out for each other, cover each other’s backs ... she was only 6 months senior to me.

Interestingly the sense of unspoken acknowledgement and acceptance for the knowledge and skills a novice recruit brings to the real world of policing were evidenced through comments as modelled by Participants 1 and 8:

... we didn’t discuss drawing our weapons, we basically both did it at the same time as we went into the building it just seemed the most appropriate and reasonable move in the circumstances. (P.1)

... I had one the other week where a guy had a knife in a caravan park, we drew our firearms as soon as we got out of the car ... I had a Probationary Constable from the last graduating class and a Constable of 5 years [service] I think we didn’t have any discussion about what we were going to do, we just drew our firearms it seemed to come naturally. (P.8)
Chapter 3 referred to the suggestion by Bourdieu that a person’s *habitus* is partly a subconscious act which will continue to be shaped and defined by a person’s experiences:

... the schemes of the *habitus*, the primary forms of classification, owe their specific efficacy to the fact that they function below the level of consciousness and language, beyond the reach of introspective scrutiny or control by the will. (1984, p. 466)

Interestingly, the manner in which there is an unconscious development of the level of confidence in use-of-force decision-making, contributed to by VirTra participation reflects this notion of the shaping of one’s *habitus* as a partly subconscious act. This shaping of a novice police officer’s level of confidence in use-of-force decision-making simultaneously builds their *capital* and place within the *field*. Bourdieu proffered the notion that the combination of one’s *habitus* and *capital* would manifest in a place within the respective *field*. A novice police officer’s place on the field is initially established through the formal rank structure within the NSWPF. The accumulation of operational experience and demonstration of operational competence have the potential to enable the novice officer to move around within the *field* and to influence where they are positioned within it. By inference, the acceptance of the novice officer by other team members, who themselves are players in the *field*, influences their position on the *field*. The experience of the VirTra participants is suggestive of exemplifying this sociocultural process. Further, it is the development of the VirTra participants’ *habitus*, *capital* and place in the *field* which synergises with the concepts attributed by Lave and Wenger to the sociocultural elements within a community of practice.

### 8.5.1 VirTra participants and their community of practice

As discussed in Chapter 3, Lave and Wenger (1991) suggested learning to be both situated in practice and a pivotal component of practice, and an evolving form of membership within a community of practice. Bourdieu proffered the notion that learning is part of one’s evolving *habitus* and by association modifies one’s *capital* and place on the *field*. As evidenced in the data for this research, the VirTra simulation exercises had a demonstrable effect on the novice officers’ learning, subsequent application of this learning to their operational duties and, by association, their personal and professional development. It is worthy of note that it is this position for the VirTra
participants, having commenced their learning journey and situated on the brink of their operational policing career which in part identifies them as LPPs in their community of practice.

8.5.2 Legitimacy

The demonstrated application of learning underpins the VirTra participants’ legitimacy as LPPs within a community of practice. Such legitimacy, Lave and Wenger (1991) assert, is sanctioned by the community when the member commences and continues to demonstrate knowledge and understanding of the practice. Implicit in acquiring legitimacy is a demonstrated understanding and use of a shared repertoire, mutual engagement in the practices of the community and commitment to the community’s joint enterprise. The shared repertoire develops as officers participate collegially in their work practices and embrace the gestures, symbols, language and ways of doing things which are the norms for their community of practice. This concept of a shared repertoire, a shared way of doing and knowing what to do is reflected in the comment by Participant 4 (Table 7.17) in recalling a life-threatening experience in the field when attending a policing incident with a policing partner:

... We were in a hallway which was pretty narrow and we pretty much just had to run ... when we got outside we looked at each other and went – did that really just happen?

The VirTra participants exemplified this adoption of the shared repertoire, commitment to the mutual engagement and the joint enterprise of the community of practice as they moved on a learning pathway from student officer to acquiring and demonstrating confidence with decision-making involving use of force. Table 7.17 offered VirTra participant responses which underpin the suggestion that the VirTra experience aids development of their adoption and demonstration of these three key interrelated characteristics of a practice. Participating in the VirTra simulation exercises simultaneously offered: (1) contextualisation of the breadth of complexities which exist in the reality of operational policing; and (2) an expanded shared repertoire between the novice and expert officers. It is through participation within the VirTra simulations that the novice officer begins to develop their library of experiences, particularly related to use-of-force decisions. As the data revealed, it is the first time for the majority of the recruit officers that they experienced shooting at a person, simulated or real.
The VirTra participants were observed by the researcher immediately post their simulation experience, and the aforementioned shooting, at which time they were sharing their reflections on their performance with their fellow participants and more senior weapons and tactics instructors. The suggestion is that, for the majority of VirTra participants, it is sharing the VirTra experience which commences the development of their shared repertoire. The experience of Participant 4 is indicative of the expansion of the shared repertoire and the adoption and demonstration of the commitment to the mutual engagement and the joint enterprise of the community of practice demonstrated by the VirTra participants:

... at the time he [Person of Interest] was threatening to shoot his head off and shoot everyone else ... I thought I am not going to get shot and not going to let anyone else get shot ... it didn’t bother me, they are my friends and I want them to be safe.

Lave and Wenger (1991) suggested that participation within the community of practice and adoption and demonstration of the learning embraced as a consequence of membership of the community contributes to the legitimacy of membership. Recognition of legitimacy is inextricably interwoven with the potential learning trajectory for the novice police officer.

8.5.3 Trajectories

The VirTra participants themselves acknowledged the influence of the learning experienced through their participation in the VirTra simulation exercise on their behaviour in real-time operational situations. Tables 7.15 and 7.16 offer evidence confirming this acknowledgement by the participants. The acknowledged value and importance the participants place on developing appropriate confidence and competence in use of force decision making aligns with the value placed on these abilities by the policing profession. Developing these abilities enables the recruit officer to build on their identity within the profession, hat is their professional identity. The acknowledgement of the value of the learning from the VirTra experience and the contribution this provides towards developing the participants professional practice is also a key link with Lave and Wenger's (1991) notion that identity is continually evolving. Further, Lave and Wenger predicate that establishing an identity coexists with developing a trajectory within and across the community of practice. For the
VirTra participants the transfer of their learning from the simulation to the real world, and the recognition this affords them, places them on an inbound trajectory within the community of practice. This trajectory has the capacity to offer them the pathway to full membership of the community, moving from the position of an LPP, on the periphery, to that of a CP – knowledgeable and experienced, with mastery of the community’s practices. The VirTra simulation exercises provided an opportunity for the LPP to experience the breadth of knowledge and skills required in progressing on an inbound learning trajectory to mastery of the craft of policing.

8.5.4 LPPs, CPs and brokering

In general, as early-career police officers, the VirTra participants would by the intrinsic nature of the career they have chosen have a focus on developing mastery of their profession, progressing through promotion to more senior ranks within the hierarchy of their police organisation. Lave and Wenger (1991) referred to those who have achieved mastery within their community of practice as the CPs as discussed in Chapter 3. There is no suggestion that, having reached a measure of mastery, learning is complete; the means to maintaining a place as a CP lies in the ability to continue to evolve such mastery. For the novice police officer, the officers who are in a position as educator, supervisor, and experienced officer are understandably perceived as masters of the knowledge and skills for policing and, by definition, CPs in the community of practice.

For the VirTra participants, the large size of the NSWPF organisation dictates that there are many potential groups of senior officers with whom they would attribute mastery of the profession and for the community of practice to acknowledge as CPs. As police recruit officers there are two professional groups in the initial phase of their career with whom they have contact. Group 1 are the NSWPF Academy instructors and supervisors and Group 2 are the officers who are their future work colleagues within the employ of the NSWPF. Identification of these two groups becomes important when considered in the context of the VirTra participants’ simulation exercise experience.

As indicated in Chapter 4, each VirTra participant is provided with an individual debrief at the conclusion of a simulation exercise participation. Herein lies a point at which there is the opportunity to maximise, or inhibit, the learning value of the VirTra
simulation exercise and to contribute to the development of a participant’s professional identity.

An area in which the VirTra simulation instruction officers have potential for influence on both the learning and the professional development of simulation participants commences at the time of the VirTra simulation exercise briefing and extends to the debriefing session. During the pre-exercise briefing the participants are advised that the debrief is important to their learning and an opportunity for them to ask questions and reflect on their performance and Tactical Options decisions. The participants are also advised that this is not an assessable process that will impact on their progress in the ADPP course, and that it is an opportunity to 'have a go'.

The researcher observed debriefing sessions provided to the VirTra participants, which were conducted in an open area adjacent to a room in which participants were waiting their turn. The range of questions observed as being used in the debriefs were:

- How do you think you went?
- Why did you shoot?
- Okay, what did you think?
- How did you go?

The time provided for the individual debrief ranged from 1 minute 50 seconds to 3 minutes 46 seconds. Following their individual debrief the participants then went into a room allocated to complete the post-simulation questionnaires. At this time the participants were observed as keen to verbalise to both the researcher and other participants in the room three common reflective considerations:

1. how they felt emotionally and physically
2. how realistic they thought the simulation exercise appeared
3. how they felt about shooting at a person as opposed to a target on a firing range.

When the participants discussed their debriefing session with both the researcher and other participants, comments such as exemplified in the following were offered:

... I was so hyped up after the exercise I didn’t think to ask questions to help me.

... I just wanted to know if I had done the right thing.
... When I was having my debrief I cannot even tell you what he asked me or what I said I was still reeling from my go in the simulation. I could feel my heart beating it was so real.

... I wanted more from the debrief, I don’t think he realised how emotional I feel, it’s the first time I have shot someone.

The issue of relevance here is that it is to the senior NSWPF Academy weapons and tactics instructors to whom the VirTra participants turn for guidance and confirmation of their performance within the simulation exercise. Irrespective of the advice to the participants that the exercise is not formally assessed, the inherent nature of training environments brings with it the notion of passing or failing. With the nature of the core learning here, decision-making for use of force, the participants indicated they were keen to receive feedback on their performance and acknowledgement that they had ‘passed’. Receiving affirmation from these acknowledged experts for the VirTra participants adds to their repertoire of confidence and the unwritten acknowledgement that they are on a learning trajectory which will aid in facilitating the VirTra participants’ (LPPs’) entry and acceptance into the wider community of practice for policing. The role, therefore, that the NSWPF Academy weapons instructors have by default is that of brokers in the community of practice through their capacity to facilitate entry into the community for VirTra participants. For VirTra participants, receiving assistance for such entry into the community of practice through the CPs’ brokering also provides opportunity to positively influence the development of their professional identity within the community of practice. The noteworthy point here is the influence the instructors as CP’s can exert on development of the VirTra participants’ professional identity. The role of briefing and debriefing will be further discussed later in this chapter in connection with educational perspectives and outcomes for simulation exercises.

The second group of CPs who have the capacity to influence the LPPs’ professional identity and facilitate their entry into the community of practice and progress their learning trajectories comprises the experienced officers in the field with whom the LPPs have contact. Here, similar to the NSWPF Academy instructors, experienced field officers have accumulated knowledge, skills and mastery within their profession. As junior, inexperienced officers, the LPPs turn to these CPs as role models and for guidance and support in their endeavours to develop their mastery of policing practices. The LPPs’ comments provided in section 8.2 indicate an ability to demonstrate the
transfer of learning from the simulation to field-based situations whilst remaining cognisant of the role of the more experienced officers in either leading by example or in confirming action taken by an LPP. LPP comments previously presented in section 8.2 are evidence of this outcome.

Demonstration of the development of the LPPs’ professional identity and support for their legitimisation into the community of practice is evidenced through adopting and using the cultural norms and repertoire attributed to the community of practice. Here also the two groups of CPs are influential in providing a nexus between the structured learning undertaken through the police education program and the reality of the policing domain. Through the adoption and participation in the shared repertoire, the LPPs further establish themselves on an inbound trajectory into the community. As referred to in section 8.5.2, the VirTra simulation exercise opens a door for the participants through which to experience a replication of the reality of police–citizen conflict situations and contributes to the opportunity for the sharing of experiences which can include firing a gun at an offender. The sharing of experiences extends to the sharing of experience-based knowledge, such as the speed at which decisions are required and the numerous considerations to be undertaken in making rapid life-threatening decisions. Lave and Wenger (1991) suggested that the ability to share not only the language of the community but also experiences and stories provides a firm threshold on which to establish legitimacy and an inbound learning trajectory within a community of practice.

The evidence and discussion presented establishes Findings 6, 7 and 8 from this research.

**Finding 6:**
Participation in an ITAS VirTra simulation offers novice police officers experiences which have the capacity to contribute to the development of their professional identity.

**Finding 7:**
Participation in an ITAS VirTra simulation offers novice police officers experiences which have the capacity to contribute to the acknowledgement, recognition and acceptance by members of their community of practice.
Finding 8:
The maximisation of transfer of learning from an ITAS VirTra simulation to the field of operation for the novice police officers is influenced by the role of ITAS VirTra instructional staff at the exercise debrief stage.

8.5.5 Summary

The findings from the VirTra data presented in the preceding discussion have been arrived at as a result of utilising a combination of the theoretical frameworks offered through the work of Bourdieu, and Lave and Wenger. Before progressing to a discussion of the characteristics of the simulation exercise which aided or inhibited the development of the LPPs’ professional identity, and identifying the associated findings, it is appropriate, first, to consider the outcomes from the MUDTAS ICCS simulations, specifically the role that participating in a MUDTAS ICCS Hydra/Minerva–based simulation has in developing the professional identity of experienced police officers, the CPs of a community of practice.

8.6 Centripetal participants (CPs)

Lave and Wenger (1991) referred to the characteristics of CPs, in a community of practice, as demonstrating mastery of the rituals, cultural norms and language attributed to the community. Further, CPs actively engage in the shared repertoire, joint enterprise and mutual engagement of the community of practice. Maintaining a position as a CP necessitates continuing active renewal of mastery. NSWPF senior police officers are offered the opportunity to undertake the ICCS course (with the embedded ICCS simulation exercise) due to the recognition within their professional community that is given for demonstrated mastery of skills and knowledge, capacity to lead, and commitment to learning, and for the development of their own personal skill base and to help in their mentoring of their fellow officers.

At the time of participating in the ICCS simulation exercise, in Bourdieuan terms a CP’s individual *habitus, capital* and place in the *field* is substantially different from those of the more junior officers, the LPPs, in part as a consequence of the depth and length of their experience as police officers. This is also due in part to their familiarity with police practice as it relates to the use of models of procedure and process. The CPs (with an
average of 28.4 years’ service in ICCS Case One and an average of 27.0 years’ service in ICCS Case Two) participate in the ICCS simulation exercise from a basis of considerable insight into, and personal experience in, the reality of policing practice and the process and procedures which aid their operational undertakings. As Bourdieu suggested, the amount of accumulated capital – social, economic and cultural – predicates one’s place on the field and collectively defines one’s practice. For the ICCS participants, their seniority within the NSWPF recognises their individual habitus which they bring to their policing roles and their commitment to continue to evolve their habitus through learning. In addition, their seniority indicates a measure of accumulated capital, social, economic and cultural. It is also both the connotation and denotation of seniority which resonates with Calhoun et al.’s (1993) concept of symbolic capital. It is this accumulated capital which aids in defining senior officers’ professional identity within the community of practice. Establishing this identity is of equal importance to senior police as it is for their less experienced colleagues, the LPPs. The ICCS simulation exercise process reveals the importance placed on professional identity from several perspectives whilst concurrently providing a conduit through which to enhance their professional identity as discussed in the following section 8.6.1.

8.6.1 ICCS simulation exercise and influence on CPs’ professional identity

Three key areas in which the ICCS simulation exercise influenced the development of the CPs’ professional identity are as follows.

First, Assistant Commissioner Clark, as sponsor of the ICCS course, articulates at the commencement of the course the value the NSWPF organisation places on successful completion of the ICCS course. This value is recognised by the subsequent opportunity that is afforded officers for them to be appointed as Police Commander when public order incidents – for example, environmental disasters, and riots – occur, or for when planning for major public events is required. Appointment as a Police Commander in such situations brings with it due respect and recognition by officers within the NSWPF organisation. From this perspective, the NSWPF organisation is verifying the participant’s legitimacy as a CP within the community of practice.
Secondly, there is the respect and regard afforded officers by those whom they supervise and/or lead as a Police Commander. This is the unwritten acknowledgement of their mastery by the members of the community of practice. Interestingly, this is not considered an automatic accolade, by virtue of promotion to the position: the respect and recognition is to be earned, as indicated by ICCS Participant 4:

there is nothing worse from the troops on the ground point of view to give the impression that the Commander does not have a clue about the situation or what to do.

Thirdly, there is the ICCS participants’ self-awareness of their strengths and weaknesses as they learn to transfer their skills and knowledge from the classroom to the simulation exercise and ultimately to their real-time operations. The sense of accomplishment and confidence they gain from the ICCS simulation exercise which they utilise as they move forward to implement the ICCS model of public order management in police operations contributes to the enhancement of their professional identity. Synchronously, this also contributes to confirming their place as CPs within the community of practice.

A pivotal aspect here is expressed succinctly by Participant 4:

... you don’t want to be deficient in front of your peers.

It is this notion of how one is perceived by their fellow officers to command and lead that the ICCS participants agreed is influenced by the learning they take away from their simulation exercise experience. The evidence indicates that these participants gained confidence in their understanding and application of the ICCS decision-making model as a result of their participation in the ICCS simulation exercise. Further, the evidence suggests that, prior to participating in the ICCS simulation, the value and role of a NSWPF Commander’s staff was not identified as a current or potentially dominant influencing factor for decision-making. This changed quite dramatically in the post-simulation survey (section 6.4.1) and field-based reflection (sections 6.4.1.1, 6.4.2.3 and 6.4.3.1) outcomes. Here the evidence suggests a consistent theme indicating that a key influence on decision-making is the recognition and appreciation of the skills and attributes of the staff on whom a NSWPF Commander will depend. Conversely, the perception of the NSWPF Commander by their staff is identified as important in the context of supporting and sustaining a Commander’s decisions. It is in this context that the influence of the ICCS simulation demonstrated a capacity to develop and affirm the
professional identity of these senior police officers, potential NSWPF Commanders and the CPs in the policing community of practice. As Participant 25 suggested: for the officers reporting to a NSWPF Commander:

... the leadership of their supervisors is very important, they have faith that their supervisor is not going to put them in a position that would compromise, and they rely on their supervisors not to put them in an inappropriate situation.

This aspect of confidence is a theme which reverberated throughout the field-based reflections on the ICCS simulation experience in conjunction with the ICCS participants’ field-based decision-making experiences. As indicated in section 6.4.4, the participants acknowledged that the learning experience through application of the ICCS model in the simulation exercise transferred to their field of practice in the form of developing their preparedness and confidence for managing major public order incidents. Here it is valuable to refer to Table 6.1, which presented the ICCS participants’ commencing level of confidence, with general police related decision-making as ranging from ‘confident’ to ‘very confident’. This personal and professional growth, Bourdieu (1991) would suggest, aligns with evolving one’s habitus, which is underpinned by growth in social, economic and cultural capital. Calhoun et al.’s (1993) notion of symbolic capital has a clear nexus in this context influenced by NSWPF’s being a hierarchical organisation.

The development in professional confidence and competence which participation in the ICCS simulation demonstrates a potential to enhance, also aids in continuing the affirmation of these officers as CPs within their community of practice. In line with the concepts espoused by Lave and Wenger (1991), the conduit of this growth, active learning, suggests they are also established on continuing inbound learning trajectories, seeking to further evolve their mastery. These officers, who have stepped forward to learn and refine their knowledge and skills for implementing the ICCS model, demonstrate through this action their commitment to the community’s joint enterprise, mutual engagement and shared repertoire. The identification and focus by these senior officers on key factors in decision-making which include involvement of other members of their staff/team, consulting widely, leading by example, demonstrates an active commitment to the practice of the community and to its LPP and CP members. The following findings represent the key notions revealed by analysis of these data.
Finding 9:
Participation in a MUDTAS ICCS Tactical Hydra simulation offers senior police officers experiences which have the capacity to contribute to the development and recognition of their professional identity within their community of practice.

Finding 10:
Participation in a MUDTAS ICCS Tactical Hydra simulation for senior police officers demonstrates a capacity for supporting a participant’s adoption of a mental model for the Incident Command and Control decision-making process as an intuitive process for field-based incidents.

8.6.2 CPs, LPPs and brokering

Interestingly, it is the CPs, the senior police officers, who in this research project were in Command positions either during the simulation exercise and/or in Command positions in their field-based policing roles who demonstrated a commitment to the role of brokering as defined by Lave and Wenger (1991) within their community of practice. As discussed in Chapter 6, section 6.4, when the ICCS participants reflected on their decision-making process from a field-based perspective, the overwhelming influential factor was the reliance on their team. These senior officers identified in reflection on their experience within the simulation exercise that knowing the capabilities of the team one is working with has a dominant impact on the quality and timeliness of the decisions made by the Commander of a major public order incident. The suggestion, as proffered in section 6.4.1.1, is that it was the experience in the simulation exercise of working in a team with whom one was not familiar that highlighted the considerable reliance that exists on knowing and understanding team member capabilities. It was further suggested in section 6.4.1.1 that this issue was not articulated as it is recognised within the repertoire of experienced police officers in Command positions as an assumed prerequisite for decision-making. A premise for this suggestion is that the majority of the factors the officers indicated would influence their decision-making prior to the simulation experience were all reliant on team member capabilities, for example, the gathering of information. Gathering information requires reliance on the capability of the officers providing this response; similarly with the other factors identified at this point, that is, cost, community expectations, context, the impact of a
decision, time constraints, resources, NSWPF policy, knowledge of a subject, risk, the outcome required/organisation goals – these all rely on input from team member knowledge and, by association, team member capabilities.

Furthermore, section 6.4.3.1 presented the data which identified the valuable learning outcome from the simulation experience as it relates to collegiality and team work. The implication as revealed through the field-based interviews was the recognition by the senior officers of the importance of valuing the team members, their roles, and their influence in decision-making for Police Commanders. Importantly a further factor which became more prominent as the ICCS participants reflected on their decision-making post-simulation was their role in developing and valuing their team members. This aligns with Lave and Wenger’s (1991) concept of brokering within a community of practice, which would support the notion that CPs within a community of practice have the potential to provide access and support for LPPs to move forward on their learning trajectories and, in parallel, to develop their level of mastery and to connect with other communities within the wider community of practice of policing. The unvoiced influential factor here is the contribution this has in developing a team member’s confidence and competence, with recognition and support from senior officers. Interestingly, Participant 4 commented in the field-based interviews that, as a Commander, valuing and supporting team members is not difficult and the benefit of it is realised when it comes to relying on those members in times of major policing incidents. Finding 11 consolidates the recognition by the senior police participating in the ICCS simulation of the responsibility they have towards recognising the value of their staff and supporting development strategies for their team members.

Finding 11:

Participation in a MUDTAS ICCS Tactical Hydra simulation for senior police officers identifies the pivotal role of command support staff in field-based decision-making incidents.

The evidence suggests that both the ITAS, here the VirTra simulation, and the MUDTAS, here the ICCS Tactical Hydra simulation, aids the development of participants’ confidence and transfer of learning, which transposes to enhancing their professional identities within their community of practice. For this to be of value to the educational domain beyond the policing environ it is important to understand what
characteristics of the simulation are particularly influential in aiding the transfer of learning from the simulation environment to application in the real world.

### 8.7 Transfer of learning

A premise on which this research was undertaken was to build on the body of knowledge in relation to what characteristics of a simulation exercise are required to enable transfer of learning from the training environment to operational policing. The specific focus was to understand the field-based post-simulation perspective by looking back through the training environment window from the field of operation. It is therefore appropriate to first establish how the VirTra and ICCS participants identified that transfer of learning occurred.

#### 8.7.1 VirTra and outcome for transfer of learning

For the VirTra participants, the simulation exercise is designed to provide an opportunity to apply the Tactical Options Model for use-of-force situations. Detterman and Sternberg (1993) suggested that the more similar the original learning situation and the new situation, the more likely near transfer will occur; whilst Billett (1996) suggested there is an intersect between problem-solving and the development of expertise and the transfer of learning. Arguably, as suggested in Chapter 2, section 2.5.1, no two real-time policing incidents are the same and, for this reason, there will be both opportunities for near transfer to take place, that is, where the real-time situation is similar to that experienced in the simulation, and for far transfer to occur, where the real-world policing incident is less similar and potentially more complex than the simulation exercise scenario. It is, however, conceivable that, in the policing domain, irrespective of how dissimilar incidents are, there will be core similarities, such as problem/s to be resolved, management of threat to people’s safety. For police, problem-solving is a cornerstone of their work and this includes incidents of potentially high risk, requiring judgement in use of force. Consideration of these transfer of learning concepts in the context of the VirTra participants’ experience substantiates whether for these participants the simulation experience has aided the transfer of knowledge and skills in the application of the Tactical Options Model. As indicated in Table 7.16, a number of the participants made direct connections between the simulation exercise they
completed and policing incidents they subsequently attended in their field-based operations. Here the participants identified beyond similarities between the characteristics of the simulation and the field-based incident, for example, how quickly situations can escalate. They referred to the specific aspects of their learning which they were consciously aware of transferring from the simulation experience to their field-based situations, for example:

... continuing to be aware of expecting the unexpected. (P.6)

... I do remember when we entered the building thinking about what we did at the college. (P.9)

An important consideration which permeates the discussion of the VirTra participants’ experience in the simulation, their transfer of learning and their perspectives on the reality of the simulation scenario and environment is that these novice learners have a limited repertoire of similar experiences as reference points to which to turn when confronted with real situations. Their experience in the simulation exercise provided them a point of reference. As their policing career extends, the library of situations in which they have applied the Tactical Options Model will expand and provide further guidance and reference to aid them at each new situation. The suggested learning outcomes here support the underpinning concept suggested by Crego that simulations have the capacity to expose novices to experiences which are impossible to create in the training environment. Furthermore, the suggestion by Crego that simulations provide a significant “experiential element enriching the stock of experience” (1996, p. 84) to aid in recognition-primed decision-making (Crego, 1996; Flin & Arbuthnot, 2002; Flin & Slaven, 1996) resonates with the learning experience articulated by the VirTra participants in this research. These outcomes contribute to the articulation of the following findings from this research:

Finding 12:
The ITAS VirTra simulation provides a conduit for novice police officers to achieve transfer of learning from the classroom to the field of operation.

Finding 13:
The ITAS VirTra simulation provides a reference point for novice officers when making field-based use-of-force decisions.
8.7.2 ICCS and outcome for transfer of learning

Following a similar process in consideration of the transfer of knowledge and skills in the use of the ICCS model for decision-making for the ICCS participants suggests the participants are cognisant of and purposefully seek such transference. The comments from ICCS Participants 4, 13 and 16 as reported in section 6.4.4.1 are an example of this conscious transfer of learning and articulate similar themes. As reported in section 6.4.4.1, a number of participants commented that they use the ICCS model in their everyday policing and the characteristics of each policing incident will influence modification of the application of the model. The data suggest that participating in the ICCS simulation provides for the less experienced officers a first-hand experience in application of the model to use as a reference point in the field. The data further suggest that participating in the ICCS simulation provides valuable insight into the important considerations when applying the ICCS model to real-time operations.

An example of this insight and transference is evidenced in the issue relating to the importance of knowing the people one works with. As discussed in section 6.4.1.1, this was not mentioned as a high priority or influential factor pre-simulation; however, it began to emerge in the post-simulation data at section 6.3.5.3 and in the field-based interview comments (section 6.4.1.1) as a factor of prominent influence in the decision-making process. There was affirmation from ICCS participants who had prior experience in managing major public order incidents in the field that the simulation experience was a catalyst for transferring learning to the field. In particular, Participant 11, who had experience as a Commander in the field, identified that there were tasks in the simulation not completed and they would remember this when operating in the field. This outcome culminates in the identification of the following finding:

**Finding 14:**

The MUDTAS ICCS Tactical Hydra contextualises the application of the key concepts of the ICCS decision-making process which aids the transfer of learning to the field of operation.

The preceding discussion centred on establishing whether the VirTra and ICCS simulations played a role in enabling transfer of learning. The evidence presented in Chapter 6 (ICCS simulation results) and Chapter 7 (VirTra simulation results) and discussed here confirms that for the participants in both the VirTra/ITAS and
ICC/MUDTAS exercises, transfer of learning to the field was underpinned by their simulation exercise experience. In this confirming data there is also indication of the characteristics of the simulation scenarios which combine to create an influential learning experience. The following sections are devoted to a discussion of the simulation characteristics and their influence in aiding the transfer of learning.

8.8 VirTra, ICCS and authentic and situated learning environments

The VirTra and ICCS participant field-based responses which provide insight into the influence of the simulation experience on their capacity to transfer learning from the simulation environment similarly offer insight into which aspects of the simulation in particular are influential in achieving learning outcomes and the associated transfer of learning.

A pivotal issue here is that of the level of realism the participants associated with influencing their learning outcomes. As Eiseman (2001) advocated, situating learning in relevant contexts will heighten learning outcomes required for professional practice. Similarly, as discussed in Chapter 2, Brown et al. (1989), Lebow and Wager (1994), Knowles (1990) and A. Herrington et al. (2003) have promoted the notion that to achieve meaningful learning requires situating the learning experience in the social and physical context in which it will be used. The data presented in Chapter 5, section 5.3, indicates that, of the VirTra participants, 71.5% (n=372) identified in the post-simulation questionnaire that they considered the simulation environment to be realistic. Similarly, the ICCS participants as indicated in Chapter 5, section 5.2.1, 99.8% (n=21) agreed the simulation was reflective of real-world police situations.

8.8.1 Fidelity and transfer of learning

In seeking to attribute a value to the level of realism in simulation environments, Hays and Singer (1988) suggested employing the categories of simulation fidelity, that is, the degree of similarity between the training situation and real-world operational situations. In Chapter 2, the work of Hays and Singer (1988) which proffered two categories of fidelity, the physical or engineered, and the psychological or functional, was discussed. The identification by VirTra and ICCS participants, at post-simulation and from the
field-based interviews, of common factors which enhanced the realism of technology-assisted simulations suggests that the level of physical and psychological fidelity required within the simulation environment appears to vary in relation to the level of experience the learner has with the real-world field of their operation.

8.8.1.1 VirTra, fidelity and transfer of learning

For the VirTra participants in this study, the data suggest a high level of psychological and physical fidelity is required, driven in part by (1) the participants’ limited personal experience of real-time police incidents and (2) the limited exposure in the training environment for learning opportunities which enable the drawing together and contextualisation of the various areas of police education in simulated policing scenarios. The key elements of the VirTra simulation which the participants indicated as being the dominant contributors to the realism were: the sound effects, the surround screens, the language, the timing, the behaviour of the people, the situation and the visual effects. These factors align with those identified by the participants when reflecting on their field experience and comparing this with the simulation. Participants 1 and 3, for example, commented on the sight, sound, timing, and the fact that there were threats similar to those faced in the field.

Of interest is the issue related to elements associated with the sense of touch and smell in the simulation environment. There were no elements attached to the VirTra simulation which would allow opportunity to touch or smell elements embedded in a field-based incident as a police officer would be able to do in the real world of their policing operations. Whilst Malo et al. (2004) in their work with military simulations suggested that the ideal simulated training environment activates all of the human senses, they refined this to suggesting that the goal for simulations should be to have the same impact in terms of replicating the environment, for example, the chaos and fear which exists in real war. As the VirTra participants indicated, they did experience the nervousness, anxiety, pressure of time, the intensity of the emotional behaviour of the people in the simulation scenario and their own emotional reaction to choosing to fire a weapon to stop the threat in the scenario. Despite the lack of tactile elements the data confirm the participants considered the VirTra simulation reflective of real policing incidents and as an enabler for learning transfer to occur.
The VirTra participant data suggest that the important aspects required for the learning in relation to the Tactical Options Model and use of force are those which present relevant and realistic policing tasks. The inherent nature of these tasks brings common physical factors reflective of real life – that is, the rapid pace at which a scenario plays out, creating a sense of urgency; the heightened aggression displayed by the people; their voices; and the everyday sounds of such an incident – combined to create an atmosphere of tension and potential criticality. The data further suggest that, for these novice learners in the skills of policing, with limited experience with real police incidents, transfer of learning can take place when the simulation enables the learner to experience similar heightened senses, anxiety and tension to that which they may face in their field-based operations. Maximisation of learning transfer occurs when the learner is able to refer to the simulation experience for guidance as they recognise the similarity in characteristics with those presented in a real-life scenario. Here near transfer occurs (Detterman & Sternberg, 1993). This suggestion is supported by Gott et al. (1993), who advocated that situated learning develops the capacity for learners to refer to mental models acquired in the contextualised environment and to apply them in new circumstances. As suggested in the VirTra data, the participants developed their decision-making profiles and associated levels of confidence and competence pre- and post-simulation, and their preparedness for decision-making in the real world, as a result of their simulation learning experience. This, by the intrinsic nature of their limited field experience, would suggest an initial reliance on the situated learning environment of the simulation as the reference point for accessing a mental model, that is, in their case, the Tactical Options use-of-force decision-making model. The following finding encompasses the data analysis presented here.

**Finding 15:**

The ITAS VirTra simulation provides an authentic situated learning environment for contextualisation of the application of key use-of-force decision-making concepts for novice police officers.

The relevance of the task in a simulation exercise, the physical attributes of the environment, and the level of physical and psychological fidelity, appears to influence the level of immersion and presence experienced by the participant and the subsequent level of learning transfer.
The level of immersion and presence is also impacted by, yet contributes to, the capacity of the simulation exercise to be the axial educational conduit for experiential learning. This is discussed further in section 8.8.1.2.

### 8.8.1.2 VirTra, immersion and presence

As discussed in Chapter 2, Gorini et al. (2011) and Witmer and Singer (1998) distinguished the concept of presence in simulation environments as the illusion of being present in one place, the simulated environment, whilst in reality being present in another physical location. Immersion, as Witmer and Singer (1998), Dede (2009) and Sadowski and Stanney (2002) suggested, occurs when the participant is able to suspend the belief that the simulated environment is not real and allow their sensory, actional and symbolic perceptions to embrace the characteristics of the simulated environment. On the basis of these prescriptions, a finely woven combination of the task-focused characteristics of the simulation exercise and the physical characteristics of the environment would be the key ingredients required to support learning.

For the VirTra participants, the data in Table 5.7 indicate that 76.3% \((n=367)\) of the cohort agreed they felt immersed in and focused on the simulation exercise. Supporting this outcome is the emphasis on the emotional responses the participants identified they felt during the exercise, including anxiousness and nervousness. As reported in Chapter 4, the VirTra participants had prior knowledge that the premise on which the simulation scenario was built is to provide opportunity for application of knowledge and skills related to use of force. This prior knowledge predicates the likelihood of tasks the nature of which require action in potentially volatile and chaotic simulated conditions. The design of the simulation environment, that is, with 300-degree floor-to-ceiling surround screens, was identified as a contributor to the feeling of total immersion. This design, coupled with the rapid rate at which the scenario progresses, the intensity of the sounds associated with the scenario, and the emotion – aggression, fear and anxiety – behind the voices of the scenario contributed to drawing the VirTra participants into the world of the simulated environment. The characteristics required to create a sense of immersion and presence for simulation participants corresponding to their level of experience are presented as follows:
Finding 16:
Novice learners are assisted in their learning when they experience psychological and physical fidelity within an ITAS environment.

Finding 17:
Novice learners experience a high level of realism, immersion and presence when ITAS exercises contain physical fidelity which includes the sounds, dialogue and environmental representation of a real-world policing incident sequenced in real time.

Finding 18:
Novice learners participating in an ITAS exercise which includes the sounds, dialogue, environmental representation of a real-world policing incident sequenced in real time do not require the elements of touch and smell for realism, immersion and presence to be achieved.

Importantly, there are key factors associated with ITAS environments which have the capacity to either, or both, distract the learner and negate the potential for advancing learning. The data presented in section 5.3.5 report 15% (n=365) of the VirTra participants identified factors which for them were detractors to full immersion and sense of presence with the simulation exercise. Similar and additional factors were identified in:

1) Question 11 post-simulation, and collated in Table 7.11, in relation to factors which impacted on decision-making in the scenario

2) Question 17 post-simulation, and collated in Table 7.12, for which 23 participants (6.1%, n=372) identified the VirTra simulation would have no value or benefit to add to their policing in the field.

Three categories of characteristics emerged from these data and whilst they do not reflect on the task-based characteristic of the simulation exercise, they do provide insight into the shortcomings of the physical simulation environment, of familiarity with an ITAS environment, and of the technical factors associated with presenting an ITAS exercise:
Category 1, technical characteristics:

(a) a misalignment in the timing of the pre-programmed communication cues from the onscreen characters;
(b) pre-programmed communication responses which are inappropriate, even distorting reality;
(c) blurred and/or distorted audiovisual elements; and
(d) split screens whereby the scene plays out on two or more screens out of synchronisation with each other.

Category 2, physical characteristics:

(e) allowing other members of the VirTra participant cohort into the simulation room to watch created unease and self-consciousness for the person undergoing the VirTra simulation; and
(f) video game association: a high level of familiarity with video gaming in the world outside their education environment resulted in participants seeing the VirTra as a video game.

Category 3, preparation for VirTra environment:

(g) lack of familiarity with an ITAS environment, not prepared for how the simulation exercise physically operates; and
(h) lack of information in respect of learning expectations.

The following finding articulates the requisite activity the ITAS participants said would aid the immediacy of immersion and therefore maximisation of their learning from participation. Articulation of key findings in relation to the influence of sequencing and timing within simulation environments have been incorporated in section 8.8.1.4.

**Finding 19:**

Inclusion of either (1) comprehensive briefing and/or (2) a demonstration of the simulation environment aids immediacy of immersion for participants.

With the exception of characteristic (f), the remainder fall under operational and technical aspects for which resolution is conceivably achievable. Category (f), however, is associated with pedagogical issues associated with the use of simulation exercise environments. There is an avenue here to explore the association between formal
assessment and the level of immersion and presence this may elicit. In the VirTra simulation exercises for this research, the relaxed informal expectations (discussed in section 8.8.1.2) relayed by the VirTra exercise instructors to the participants may have affected the perception of the group who considered the exercise was in the same category as a video game, with no expectations or requirement for achieving prescribed learning outcomes. This point is extrapolated further in the following discussion of practice-based education and experiential learning in the context of the VirTra simulation.

8.8.1.3 ICCS, fidelity and transfer of learning

In section 8.8.1.2, it was suggested that the novice learners, here the VirTra participants, due to their limited exposure to the real world of policing, have the potential to acquire enhanced levels of learning transfer from simulations which have high levels of physical and psychological fidelity. For these novice learners the simulation is the first environment which collectively presents fidelity factors which replicate as closely as possible the real world of operational policing. Indeed it becomes their first known situated learning reference point for future application of the transfer of learning to real-time situations.

Interestingly, the work of Thomas (2004), Maran and Glavin (2003), and Dahlstrom et al. (2009), as referred to in Chapter 2, section 2.5.2, suggests that high levels of fidelity are not necessarily required to achieve high levels of learning transfer and may contribute to distraction from the pivotal focus of the simulation exercise. This correlates with the data collected in relation to the ICCS participants’ MUDTAS experience. Here the point of reference is substantially different from that of the novice VirTra learners. Here the ICCS participants have extensive repertoires of real-world operational policing experience, they know what the field looks and feels like, they are experts in this field of learning. There is therefore potential for the balance of physical and psychological fidelity to be less evenly weighted. Reflected in the data presented in Table 5.2, Elements influencing realism of ICCS simulation, is the dominant theme that, irrespective of the relevant real-world experience of simulation participants, it remains a pivotal design factor to balance the physical and psychological fidelity appropriately to present an environment which is deemed reflective of a real-time situation.
An important point of difference which may influence the level of physical fidelity required by ICCS and VirTra participants relates to the participants' experience with the real-world context on which the simulation exercises are premised. The novice learners for example, may have limited or no conscious or subconscious memory or experience to access in order to contextualise and situate the task or psychological fidelity of the simulation. For the expert learners, in this study, the ICCs participants with operational experience in policing are more readily able to contextualise the tasking of psychological fidelity associated with the simulation. The data presented in Tables 5.2 and 5.3, in which participants indicated their sense of immersion and presence within the simulation environment, support this notion (the level of immersion and presence experienced by the ICCS participants was also presented in section 5.2). It is interesting to note that, in the field-based interviews, when participants were able to reflect on the realism of the simulation from a field-based perspective, they endorsed the realism of the ICCS simulation exercise. Greeno et al. (1993) suggested that a fundamental requirement for transfer of learning is an emphasis on the structure of the activity within the learning environment. The ICCS participants’ comments as presented in Table 5.2 demonstrate recognition of the simulation activity’s reflecting reality, one participant recognising the activity as one they had been involved with in their real-time field of operation (P.23). The structure of the activity in the ICCS simulation was recognised as reflective of potential field-based situations; such recognition was a catalyst for participants to be actively engaged immediately the simulation exercise commenced. As indicated earlier, this was not the case for those novice learners who were distracted by the unfamiliarity with the technological environment and/or the unfamiliar confrontational environment presented by the VirTra simulation. Here it would be reasonable to conclude that the participant with a repertoire of experience in the field represented in the simulation environment is more readily able to engage with the activity.

There is evidence, as presented in section 6.3.5 and Table 6.6, which indicates the ICCS participants considered participation in the simulation to have developed their capacity to apply the ICCS model in future real-world field-based operations. Importantly this transfer of learning was evidenced during the subsequent field-based interviews. Section 6.4.4.1 presented evidence of specific field-based circumstances in which participants had consciously drawn on their learning from the ICCS course and simulation experience to aid their application of the ICCS model to manage and resolve field-based
situations. The diverse range of contexts in which the ICCS participants have employed this learning is testament to the notion of far transfer of learning, as proffered by Detterman and Sternberg. Detterman and Sternberg suggested that far transfer is enabled when the original and new situations are less alike. This is the crux of the ICCS course, seeking to provide a decision-making model for application and adaptation to aid NSW Police response to diverse and unpredictable situations. The ICCS simulation is the avenue through which the participants are able to practise such application. The conclusion drawn from this analysis is presented in the following finding:

**Finding 20:**
The ICCS simulation exercise provides an authentic situated learning environment which contextualises and supports near and far transfer of learning to the field of operation.

There are further elements which influence the transfer of learning through simulation exercises to real-world operations. The previous discussion, which centred on situated and authentic learning, is not complete without consideration of the concepts of immersion and presence and how the learner engages with these in the MUDTAS environment as represented by the ICCS exercise.

**8.8.1.4 ICCS, immersion and presence**
The ICCS participants commented, as reported in Table 5.3, they felt immersed in the simulation exercise from the moment the exercise commenced. The comments indicate this was due in part to understanding the expectations of the exercise, their role in the simulation and the familiarity with the elements of the simulation exercise. Inclusive in the elements identified by the participants were the sound of the police radio, the telephone ringing, the verbal interaction of team members and the demands of the task. The sense of presence experienced by the ICCS participants aligns with the technology-induced illusion of being present in a simulated environment whilst being physically present elsewhere, as espoused by Gorini et. al. The data suggest that the participants were not distracted from the central task of the simulation exercise. This lack of distraction, Slater et al. (1996) suggested, is an indication of being highly present in the simulated environment. A sense of presence, coupled with the active engagement with the demands of the simulation exercise, is the prescription proffered by Dede (2009) for
immersion in a simulation environment. The data suggest the ICCS simulation exercise design, which the participants confirmed was reflective of real-world policing situations, created an environment in which participants felt both present and immersed. Presenting a simulation environment which enabled participants to feel a sense of presence and immersion, combined with the authenticity of the learning environment were factors pivotal in supporting the learning and subsequent learning transfer experienced by the ICCS participants.

A further element for consideration in establishing the key factors which led to the level of learning transfer experienced by the VirTra and ICCS simulation participants is the role of the simulation exercise in providing an experiential learning environment. Prior to progressing to a discussion of the relationship between the simulation characteristics, the following finding is presented as reflecting the analysis of the fidelity requirements of the MUDTAS ICCS participants.

**Finding 21:**

Learners experienced in the field for which a MUDTAS exercise is situated require only moderate physical and psychological fidelity characteristics. The influencing characteristic on realism for the MUDTAS exercise is for the task and related information feeds to be sequenced in real time.

**8.9 Practice-based education and experiential learning**

A consistent theme from the literature presented in Chapter 2 is the suggestion that simulations are an able tool for providing a conduit through which learners may practise the application of their developing knowledge and skills. Further, providing simulations which are recognised as reflective of the respective real-world environment and scenario supports optimal learning transfer. With general agreement within the policing domain that practising is desirable (Bayley & Bittner, 1984; Bennell et al., 2007; Forsythe, 2004), this is prefaced with recognition of the often impractical, unsafe and untenable nature of such practice in the real world of operational policing. In this situation the education community turns to the simulation environment to accommodate this learning delivery challenge. The focal point of consideration here is the contextualisation of the simulation within an educational design which promotes maximisation of learning opportunities. Such contextualisation also allows optimal
advantage to be gained from the level of physical and psychological fidelity presented by the simulation. As suggested in Chapter 2, ITAS and MUDTAS exercises have the capacity to allow opportunity for experiential learning and through this design paradigm allow practice in the application of knowledge and skills. The following sections report on the findings from the data in relation to situating the ITAS (VirTra) and MUDTAS (ICCS) simulations within Kolb’s (1984) experiential learning cycle, which reflects Edgar Dale’s (1969) notion of a cone of learning, that is, learners retain 90% of what they learn when actively engaged in their learning and retain 10% of what they learn through reading. As indicated in section 2.4.1, Kolb’s adult experiential learning cycle is structured as:

1. active experience;
2. reflection on experience;
3. interpreting the experience;
4. modifying or adjusting understanding; and
5. reapplication of the learning.

8.9.1 ITAS/VirTra

The data collected from the VirTra participants and the VirTra simulation instructors, and from the field observations in this project, suggest that there are areas of suboptimal application of pedagogical practice which impact on the degree to which the simulation exercises support learning transfer for participants.

This begins with the initial briefing of participants for the simulation exercise. As referred to previously, the research noted during field observation of the pre-exercise briefing to participants the core information relayed related to the use of, and safety guidelines for, gas-fired Glock pistols. During each pre-exercise briefing, participants were advised it was an opportunity to ‘have a go’. No formal learning outcomes were articulated and agreed between the VirTra simulation instructors and the participants.

For the participants, the lack of familiarity with the VirTra environment, which at the time of the pre-exercise briefing was not recognised as a potentially negative factor in relation to learning opportunities, became evident in post-simulation data. In particular, as noted in Section 7.2, VirTra participants identified a lack of familiarity with the simulation environment impacted negatively on their performance and their perception
of the reality of the scenario. Whilst Question 14 in the post–VirTra simulation questionnaire asked participants to comment on their level of preparedness for the VirTra scenario, 18.8% (n=372) specifically mentioned their lack of preparedness for the simulation environment, as opposed to preparedness in terms of their use-of-force decision-making training and use of a firearm. This is illustrated by the comment from Participant 45913:

... No information on what to expect, no briefing, no information on how it worked or how it would respond. Being better informed would improve performance.

Participant 46583 suggested:

... No, a better briefing would have helped, hard initially to get used to the 360 [300] degree set up when we have been only trained on a firing line type environment.

Participant 46177 commented:

... Yes, I was well prepared in terms of my weapon justification and knowing what to use, more experience with and understanding of the VirTra would have helped.

A further theme was revealed in the responses to Question 14, which expands on the suggestion that a lack of familiarity with the VirTra environment has a potential impact on optimising learning. The suggestion that regular VirTra scenarios be incorporated into the overall training program was mentioned by 19% (n=372) of participants as an avenue for maximising learning opportunities. The responses suggest incorporating the VirTra simulation exercises within the pedagogical design of the ADPP program for police education would aid contextualisation of learning.

Table 8.1 on the following page presents a pedagogical design which situates the VirTra scenario exercises at the centre of an experiential learning cycle. The information in the table seeks to align the current process, the proposed process, and the key conceptual stages within an experiential learning construct premised on the concepts advocated by Kolb (1984).
**Table 8.1  VirTra scenario exercises in an experiential learning design construct**

<table>
<thead>
<tr>
<th>Proposed Process</th>
<th>Current situation as identified by the VirTra data presented in Chaps. 5 and 6 and the VirTra simulation process in Chap. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-exercise briefing</strong></td>
<td><strong>Pre-exercise briefing</strong></td>
</tr>
<tr>
<td>Developing, articulating and agreeing on key learning outcomes would provide</td>
<td>During the VirTra simulation exercises within this research project, there were,</td>
</tr>
<tr>
<td><em>for the learner:</em></td>
<td><em>for the learner:</em></td>
</tr>
<tr>
<td>• predetermined goals for the exercise</td>
<td>• no pre-exercise demonstration of the VirTra simulation and environment</td>
</tr>
<tr>
<td>• reference points against which to determine strengths, weaknesses and learning progress;</td>
<td>• no predetermined learning outcomes</td>
</tr>
<tr>
<td>• a common reference point for debriefing sessions;</td>
<td>• no predetermined performance measurements</td>
</tr>
<tr>
<td>• a demonstration of the VirTra simulation process and environment</td>
<td><em>For the VirTra simulation instructor:</em></td>
</tr>
<tr>
<td><em>For the VirTra simulation instructor:</em></td>
<td>• no prior training in debriefing methods</td>
</tr>
<tr>
<td>• predetermined clear goals for the exercise and key indicators to be observed during the exercise</td>
<td>• no standardised pre-exercise briefing information given to participants with the exception of safety rules and regulations</td>
</tr>
<tr>
<td>• reference points against which to determine the strengths, weaknesses and learning progress of the participant</td>
<td>• no predetermined learning outcomes provided to instructors to establish an agreed set of goals for the exercise</td>
</tr>
<tr>
<td>• standardised debriefing guide aligned to learning outcomes</td>
<td>• no predetermined performance measurements provided to instructors to assist in debriefing participants</td>
</tr>
</tbody>
</table>

| Step 1: Active experience Experience the simulation                               | Step 1  
Experience the simulation |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Step 2: Reflecting on the experience Structured individualised debrief on the basis of predetermined performance measures and learning outcomes | Step 2  
Non-structured, potentially hurried and incomplete, non-standardised individual debrief provided, no agreed performance standards to guide reflection |
| Step 3: Interpret experience and reflection Step 3 is an extension of Step 2 and is aided by guided reflective practice | Step 3  
Limited guidance for reflective practice provided |
| Step 4 Undertake additional VirTra simulation exercise for application of learning from Step 3 Modification of performance based on debrief in Step 3 | Step 4  
This step does not occur in the current model of delivery for the VirTra simulations at the NSW Police Academy (participants are restricted to undertaking one VirTra scenario exercise) |
| Step 5 Structured individualised debrief on the basis of predetermined performance measures and learning outcomes and recommended modified behaviour as discussed at Step 3 | Step 5  
This step is not provided for in the pedagogical design for the simulation delivery |
The articulated experience of the VirTra participants supports situating the VirTra simulation exercise within a structured pedagogical approach which embraces the core underpinning concepts of experiential learning. It is suggested such a design paradigm has the potential to maximise the learning outcomes for the participants and ultimately their level of preparedness for the dynamic, complex, volatile demands of the policing profession. The following findings reflect the analysis of the data concerning the relationship between ITAS exercises and the pedagogical construct in which they are embedded.

**Finding 22:**
ITAS exercises which include a comprehensive briefing of the simulation environment and/or a demonstration support immediacy of immersion for learners.

**Finding 23:**
The potential for learning transfer for ITAS participants may be enhanced when ITAS exercises are embedded within an experiential educational construct inclusive of:

- (a) defined learning outcomes;
- (b) comprehensive ITAS exercise briefing and/or demonstration;
- (c) learner participation in ITAS exercise;
- (d) comprehensive debrief based on learning outcomes;
- (e) reapplication of modified learning (additional simulation participation); and
- (f) comprehensive debrief based on learning outcomes.

**Finding 24:**
Individual learning from an ITAS exercise has potential to be enhanced when individual comprehensive performance debriefing is embedded in the simulation exercise.

**8.9.2 MUDTAS/ICC**

In the words of ICCS Participant 16:

... as soon as we started, the radio started blaring, we were working on the maps, making decisions it felt like we were there ...
This comment reveals a very important aspect associated with the underpinning pedagogical construct in which this simulation exercise has been situated.

As with the VirTra simulation, an articulated purpose for the ICCS simulation is to provide opportunity for participants to practise the application of their knowledge and skills and to develop a repertoire of experience to which to refer in transferring learning from the classroom to the field of operation. Creating a learning experience which presents a seamless synergy between acquisition and demonstration of knowledge and skills, Kolb (1984) suggested is achieved in an experiential learning environment. The alignment between the placement and utilisation of the ICCS simulation with experiential learning concepts is presented here, in Table 8.2.

Table 8.2  **ICCS scenario exercises in an experiential learning design construct**

<table>
<thead>
<tr>
<th>Proposed process</th>
<th>Current situation as identified by the ICCS data presented in Chapter 5 and 6 and the ICCS simulation process in Chapter 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-exercise briefing</strong></td>
<td>Pre-exercise briefing</td>
</tr>
<tr>
<td>Developing, articulating and agreeing on key learning outcomes would provide for the learner:</td>
<td>Developing, articulating and agreeing on key learning outcomes occurs during the pre-simulation briefing and includes for the learner:</td>
</tr>
<tr>
<td>• predetermined goals for the exercise</td>
<td>• predetermined goals for the exercise</td>
</tr>
<tr>
<td>• reference points against which to determine strengths, weaknesses and learning progress</td>
<td>• reference points against which to determine strengths, weaknesses and learning progress</td>
</tr>
<tr>
<td>• a common reference point for debriefing sessions</td>
<td>• a common reference point for debriefing sessions</td>
</tr>
<tr>
<td>• a demonstration of the ICCS simulation process and environment</td>
<td>• a demonstration of the ICCS simulation process and environment</td>
</tr>
<tr>
<td><strong>For the ICCS simulation instructor:</strong></td>
<td><strong>For the ICCS simulation instructor:</strong></td>
</tr>
<tr>
<td>• predetermined goals for the exercise and key indicators to be observed during the exercise</td>
<td>• predetermined goals for the exercise and key indicators to be observed during the exercise</td>
</tr>
<tr>
<td>• reference points against which to determine the strengths, weaknesses and learning progress of the participant</td>
<td>• reference points against which to determine the strengths, weaknesses and learning progress of the participant</td>
</tr>
<tr>
<td>• standardised debriefing guide aligned to learning outcomes</td>
<td>• standardised debriefing guide aligned to learning outcomes</td>
</tr>
<tr>
<td>Proposed process</td>
<td>Current situation as identified by the ICCS data presented in Chapter 5 and 6 and the ICCS simulation process in Chapter 4</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Step 1: Active experience</td>
<td>Step 1 Experience the simulation</td>
</tr>
<tr>
<td>Experience the simulation</td>
<td></td>
</tr>
<tr>
<td>Step 2: Reflecting on the experience</td>
<td>Step 2 The ICCS simulation design provides for a ‘hot debrief’ between changeover of command within the scenario. The ‘hot debriefs’ are designed for handover of the roles and by default allow for minimal reflection on the simulation experience at this point in the exercise</td>
</tr>
<tr>
<td>Structured individualised debrief on the basis of predetermined performance measures and learning outcomes</td>
<td></td>
</tr>
<tr>
<td>Step 3: Interpret experience and reflection</td>
<td>Step 3 As for Step 2, limited opportunity to reflect on the ICCS simulation experience and application of knowledge and skills at this stage in the scenario</td>
</tr>
<tr>
<td>Step 3 is an extension of Step 2 and is aided by guided reflective practice</td>
<td></td>
</tr>
<tr>
<td>Step 4</td>
<td>Step 4 This step occurs in the ICCS simulation design and allows for participants to modify their application of knowledge and skills</td>
</tr>
<tr>
<td>Undertake additional ICCS simulation exercise for application of learning from Step 3</td>
<td></td>
</tr>
<tr>
<td>Modification of performance based on debrief in Step 3</td>
<td></td>
</tr>
<tr>
<td>Step 5</td>
<td>Step 5 A whole-of-group debrief occurs and is allocated 1/3 of the overall time for the delivery of the ICCS simulation exercise. The structured debrief is based on the predetermined performance measures and learning outcomes</td>
</tr>
<tr>
<td>Structured individualised debrief on the basis of predetermined performance measures and learning outcomes and recommended modified behaviour as discussed at Step 3</td>
<td></td>
</tr>
</tbody>
</table>

* It is important to note that the NSWPF operational procedures include the conduct of a debrief following operational incidents.

The content of Table 8.2 confirms that the delivery design of the ICCS simulation seeks to embrace the core concepts for experiential learning opportunities. There are further factors which are revealed through the comments of the participants which are valuable in understanding the strengths and shortcomings of the current design paradigm for the ICCS simulation.
A point of difference between the delivery designs of the VirTra and ICCS simulations occurs in the participant preparation stage. As indicated in the comments of Participant 16 here, and in those presented in Tables 5.2 and 5.3, the ICCS participants were not distracted or unprepared for the simulation. The benefit of a comprehensive briefing and the participants’ extensive policing experience enabled the ICCS participants to understand their roles and the task (the physical and psychological fidelity factors) immediately upon commencement of the simulation exercise. The ICCS participants receive an initial briefing for the simulation exercise with defined learning expectations and outcomes on Day 4 of the ICCS course. On Day 5 of the ICCS course the participants receive a further briefing to (1) establish the context for the content of the simulation exercise and (2) review the exercise learning expectations and outcomes.

There is a point of similarity in the shortcomings identified by the VirTra and ICCS participants with the simulation exercise debrief design (Step 5). As with the VirTra participants, the ICCS participants voiced their expectation and preference for comprehensive individual performance debrief. Table 6.6 reported that 52.4% \((n=11)\) of participants agreed the debrief was adequate, but the remainder, 47.6% \((n=10)\), of the participants reported the debrief did not meet their expectations. The participants who were not satisfied with the debrief process qualified their expectation by saying that they expected and would value a personalised performance assessment. There is a clear connection here with the discussion in relation to professional identity and position within the community of practice. As discussed in section 8.6.1, the ICCS participants are advised that their performance on the ICCS course and in the simulation contributes towards their opportunity to be recognised by the NSWPF senior executive for future command of major public order incidents. The suggestion (see data presented in section 6.3.5) is that an individualised performance debrief would aid in maximising the learning from the simulation exercise, guiding modification of action for future application of the ICCS model in operational duties.

It is noteworthy that four of the ICCS participants also acknowledged that there are factors which negatively impact on the opportunity for such individual debriefs immediately following their simulation performance. Chief amongst these is the limited time available during and at the conclusion of the ICCS simulation exercise. Interestingly, seven of the participants suggested they would value a written individualised performance debrief to aid their reflective practice and guide their
evolving professional development in this senior policing domain. The findings below reflect the key aspects identified through analysis of the pedagogical construct of the ICCS Tactical Hydra simulation and the participants’ identified learning experiences.

**Finding 25:**
Experienced learners in MUDTAS may achieve immersion and presence when only limited audio and environmental visual representations are present.

**Finding 26:**
The ICCS Tactical Hydra simulation designed and conducted by the NSWPF Simulation Operations Unit embeds a comprehensive simulation briefing which is a catalyst for immediacy of immersion and presence in the simulation scenario for learners.

**Finding 27:**
The potential for learning transfer for MUDTAS participants may be enhanced when MUDTAS exercises are embedded within an experiential educational construct inclusive of:

(a) defined learning outcomes;
(b) comprehensive MUDTAS exercise briefing and/or demonstration;
(c) learner participation in a MUDTAS exercise;
(d) comprehensive debrief based on learning outcomes;
(e) reapplication of modified learning (additional simulation participation); and
(f) comprehensive debrief based on learning outcomes.

**Finding 28:**
The MUDTAS NSWPF ICCS Tactical Hydra simulation generic design procedures represent best-practice experiential learning concepts.

**Finding 29:**
Individual learning from a MUDTAS exercise has potential to be enhanced when individual comprehensive performance debriefing is embedded in the simulation exercise.
8.10 Chapter 8 summary

Chapter 8 has examined the learning journeys of the VirTra and ICCS simulation exercise participants and the influence of the simulation experience on the development of their professional identities. The chapter has examined the data drawn from the VirTra and ICCS participant experiences to identify the influence of the simulation exercise in aiding or inhibiting the transfer of learning for the participant from the training environment to the real world of policing. The conduit for this examination was the study of the developmental progression of knowledge and skills acquisition for the application of a decision-making model in operational policing paradigms. Importantly, the examination included the field-based reflections of participants to confirm the role of the simulation characteristics which were influential as catalysts for, or supportive of, the transfer of learning. Twenty-nine key findings have been identified through the examination of the data for this research and Chapter 9 discusses the relevance of these findings for both the NSWPF and the wider education and simulation communities.
Chapter 9  Conclusion

9.1  Introduction

This research project was designed to explore the influence on learning through simulation participation and in particular the influence of simulation participation on developing the professional identity of police officers. Further, the research project sought to identify the characteristics of a simulation exercise which influence the transfer of learning from the simulation environment to operational policing. This chapter discusses the findings from the research and their implications for their inclusivity in educational design and the implications for design of ITAS and MUDTAS environments. A focus of the discussion is the common and diverse psychological and physical fidelity characteristics of simulations which support novice and experienced learners to achieve optimal learning transfer. The limitations of this research and potential areas for future research in this field are discussed in concluding the chapter.

9.2  Significance of research

Whilst the key findings from this research are central to the VirTra and ICCS simulation exercises conducted by the NSWPF, the implications inform the wider educational community designing and implementing ITAS- and MUDTAS-styled simulation exercises. Importantly the findings are informed by data which have captured the field-based reflections and perspectives of the participants on the transfer of learning from simulation participation to application in the real world. As discussed in Chapter 2, there is limited published work which has explored the field-based perspective on the influence of simulation characteristics which enable learning transfer.

This research builds on the body of knowledge in three key areas:

(1) The research gives voice to the unspoken, unwritten change which occurs to a police officer’s professional identity as a consequence of participating in simulations which afford opportunity for decision-making in high-risk situations.
(2) The research identifies a number of common and diverse simulation characteristics which support learning experiences for both novice and experienced learners.

(3) The research proposes a pedagogical construct for achieving optimal learning transfer from ITAS and MUDTAS environments to real-world application.

To contextualise the findings, implications and recommendations emerging from this research, it is appropriate briefly to revisit the content of the chapters which, taken together, validate the findings and recommendations.

9.2.1 Revisiting the thesis

Chapter 1 provided an introduction to the research by defining the research purpose and intent. An overview of the structure of the thesis was presented and included a brief description of the focus for each chapter. As stated in Chapter 1, the research aimed to answer the following questions:

(1) **What is the influence of simulation exercises in developing professional identity in policing?**

(2) **What characteristics of a simulation exercise are required to enable transfer of learning from the training environment to operational policing?**

Chapter 2 presented an historical background of the development of simulation technology and the subsequent relationship with educational endeavours in the military, aviation, medical, and law enforcement domains. The literature review presented in the chapter included discussion of research endeavours in the field of ITAS and MUDTAS exercises. The chapter discussed the limited published literature which has explored the influence of simulation exercises by reflecting from a field-based real-world operational perspective.

Chapter 3 was devoted to a discussion of the theoretical framework of Bourdieu’s sociocultural view of how a person engages with their social and educational environment, and the influence this may have on their practice and identity. The chapter included a discussion of the synergy between Bourdieu’s theoretical framework and the
concepts underpinning Lave and Wenger’s ‘community of practice’ and how this may apply to novice and experienced police officers.

Chapter 4 justified the methodological approach employed in this research through the inclusion of a rationale for the data sources selected for the research and a comprehensive description of the cases studied.

Chapter 5 reported on the data collected in relation to the study of the simulation characteristics offered in the ITAS and MUDTAS environments. The focus of the chapter included developing and understanding of the individual simulation characteristics which collectively provide authentic situated learning experiences.

Chapter 6 constructed pre- and post-simulation, and field-based, decision-making profiles for the experienced police officers. The profiles were developed from the data collected through pre- and post-simulation questionnaires and field-based interviews for the MUDTAS ICCS Tactical Hydra simulation conducted by the NSWPF Simulation Operations Unit.

Chapter 7 constructed pre- and post-simulation, and field-based, decision-making profiles for the novice police officers. The profiles were developed from the pre- and post-simulation questionnaires and field-based interviews for the ITAS VirTra simulation for novice police officers.

Chapter 8 drew together the data presented in Chapters 5, 6 and 7 to present and discuss the findings revealed through the research. The discussion in Chapter 8 focused on two aspects of the research: (1) the relationship between participation in the simulation exercises and the influence on the participants’ professional identity; and (2) the common and diverse characteristics which influence the transfer of learning from the simulation environment to the real world of operation for the novice and experienced police officers.

9.2.2 Research Question 1: Findings, implications and recommendations

The following findings have been grouped on the basis of how they each relate directly to Research Question 1:
What is the influence of simulation exercises in developing professional identity in policing?

Findings 1–7 are interdependent as the VirTra participants’ experiences and learning outcomes identify the simulation experience: (1) enables contextualisation of theory, knowledge and skills in an authentic situated learning environment; and (2) supports development of their confidence in use-of-force decision-making. It followed that this level of confidence manifested in developing their professional identity within the policing domain.

Finding 1:
ITAS VirTra simulation scenarios provide a learning environment which enables contextualisation of use-of-force theory and application.

Finding 2:
Participation in an ITAS VirTra simulation exercise for novice police students has the capacity through contextualisation of police–citizen conflict interactions to support a participant’s adoption of a use-of-force decision-making process as a mental model to aid intuitive decision-making for field-based incidents.

Finding 3:
Participation in an ITAS VirTra simulation aids development of participants’ confidence in the justification and cognitive process for use-of-force decision-making for real-world application.

Finding 4:
Participation in an ITAS VirTra simulation which contextualises police–citizen threat-to-life incidents provides a conduit for participants to develop self-awareness centred on their emotional and physical reaction in use of deadly force.

Finding 5:
Participation in an ITAS VirTra simulation for novice police officers has the capacity to reduce the level of anxiety for participants in responding to police–citizen field-based threat-to-life incidents.
Finding 6: Participation in an ITAS VirTra simulation offers novice police officers experiences which have the capacity to contribute to the development of their professional identity.

Finding 7: Participation in an ITAS VirTra simulation offers novice police officers experiences which have the capacity to contribute to the acknowledgement, recognition and acceptance by members of their community of practice.

The findings in this research address a gap in the previously published research. The significant influence of participating in a use-of-force simulation which contextualises the theoretical underpinnings of police work and affords opportunity for novice police officers to apply their understanding of use-of-force decision-making models cannot be underestimated. The point of significance here is the underlying sense of confidence and empowerment such contextualisation and application provides for the novice officer before they are expected to step forward and make similar decisions in their field of operation. Importantly, it: (1) lessens the anxiety for the novice police officer as they are confronted with use-of-force decisions in the real world of their policing environment; (2) establishes the use-of-force decision-making model, the Tactical Options Model for NSWPF officers as an intuitive response; and (3) provides a reference point for use-of-force decision-making for officers who have had no prior experience in the domain.

The influence of the ITAS VirTra simulation experience in developing confidence and operational preparedness of the novice officers, whilst difficult to quantify, has been revealed through this research as contributing to establishing their professional identity within the wider policing operational community. The level of confidence and preparedness is not only an advantage for the individual officers but it has wider implications for the team of police officers with whom they work as probationary constables on first entering employment as a NSWPF officer.

In a similar manner to the collation of findings for the VirTra participant experiences, Findings 9, 10, 11 and 14, which relate to the simulation experience for the MUDTAS ICCS Tactical Hydra, are interdependent. These findings collectively indicate that participation in the MUDTAS ICCS Tactical Hydra contributes to the
acknowledgement and recognition NSWPF members have for those who have completed the ICCS course and simulation exercise. This participation contributes to the participants’ self-awareness of their capabilities and builds their self-confidence and, by association, their professional identity in this field of endeavour.

**Finding 9:**
Participation in a MUDTAS ICCS Tactical Hydra simulation offers senior police officers experiences which have the capacity to contribute to the development and recognition of their professional identity within their community of practice.

**Finding 10:**
Participation in a MUDTAS ICCS Tactical Hydra simulation for senior police officers demonstrates a capacity for supporting a participant’s adoption of a mental model for the Incident Command and Control decision-making process as an intuitive process for field-based incidents.

**Finding 11:**
Participation in a MUDTAS ICCS Tactical Hydra simulation for senior police officers identifies the pivotal role of command support staff in field-based decision-making incidents.

**Finding 14:**
The MUDTAS ICCS Tactical Hydra contextualises the application of the key concepts of the ICCS decision-making process which aids the transfer of learning to the field of operation.

It is reasonable to suggest that similar experiences occur in professions which educate for high-risk situations, for example, the military, medical, and aviation domains. In these professional fields, as discussed in Chapter 2, the literature has concentrated on the competency-based outcomes achieved through training in simulations. The notion suggested in the current research is that providing learning environments which allow for contextualisation of concepts, and application and demonstration of knowledge and skills, has an underlying influence on a participant’s professional identity. The evidence from this research suggests that this underlying influence is present for both novice and experienced operatives within their professional field.
9.2.3 Research Question 2: Findings, implications and recommendations

The findings from this research which contribute to responding to Research Question 2 are grouped in accordance with their direct relationship with the VirTra and ICCS simulations conducted by the NSWPF. Research Question 2 asked:

What characteristics of a simulation exercise are required to enable transfer of learning from the training environment to operational policing?

9.2.3.1 ITAS VirTra simulation fidelity and novice learners

The first area of consideration relates to the characteristics required by novice learners for simulations to afford authentic situated learning environments which enable contextualisation of learning and transference of learning to the field of operation.

Findings 12, 13, 15, 16, 17, and 18 collectively contribute to the conclusion that novice learners, due to their lack of exposure and experience in their field of operation, require ITAS exercises to be inclusive of the environmental sounds, dialogue and visual environmental representations reflective of the real world. Further, the novice learner requires the simulation scenarios to be inclusive of psychological fidelity characteristics which sequence the task/problem in real time.

Finding 12:
The ITAS VirTra simulation provides a conduit for novice police officers to achieve transfer of learning from the classroom to the field of operation.

Finding 13:
The ITAS VirTra simulation provides a reference point for novice officers when making field-based use-of-force decisions.

Finding 15:
The ITAS VirTra simulation provides an authentic situated learning environment for contextualisation of the application of key use-of-force decision-making concepts for novice police officers.
**Finding 16:**
Novice learners are assisted in their learning when they experience psychological and physical fidelity within an ITAS environment.

**Finding 17:**
Novice learners experience a high level of realism, immersion and presence when ITAS exercises contain physical fidelity which includes the sounds, dialogue and environmental representation of a real-world policing incident sequenced in real time.

**Finding 18:**
Novice learners participating in an ITAS exercise which includes the sounds, dialogue and environmental representation of a real-world policing incident do not require the elements of touch and smell for realism, immersion and presence to be achieved.

### 9.3 Recommendations

The findings from this research lead to a series of recommendations for optimising learning outcomes with simulation-based learning designs. The recommendations support the endeavours of the NSWPF to provide authentic situated learning experiences to progress professional and educational staff development. The interests of the wider educational community and the simulation technology development community are addressed in the following recommendations.

**Recommendation 1:**
To maximise immersion and presence for novice learners, an ITAS exercise’s requisite characteristics include the environmental sound effects, character dialogue, and visual environmental representation attributable to their real-world counterparts.

**Recommendation 2:**
To maximise immersion and presence for novice learners in an ITAS exercise, the task/problem requires real-world relevance and sequencing.
**Recommendation 3:**

ITAS exercises which include the physical fidelity of sound, dialogue, and visual environmental representation combined with the psychological fidelity of the task/problem sequenced in real time for novice learners do not require additional tactile elements, that is, touch, smell and taste to achieve learning transfer.

### 9.3.1 VirTra, pedagogical design and novice learners

In combination with the fidelity characteristics of the ITAS exercise, an equally important area of consideration is the pedagogical construct in which the simulation is situated.

It is important to note that the following recommendations are based on the fact that this research was conducted at a time when the implementation of the VirTra simulation training complex was in its infancy within the NSWPF. In parallel, NSWPF weapons and tactics instructional staff were in a continuous process of familiarisation with the VirTra simulation scenario technology. A period of over three years has passed since the conduct of the VirTra pre- and post-simulation questionnaires and, appreciatively, aspects within the recommendations may have been addressed during this period.

Findings 8, 19, 22, 23, 24 and 25 are centred on providing a learning design in which to situate the ITAS exercise so that it may achieve optimal learning outcomes. Importantly, following an experiential learning cycle as prescribed by Kolb (1984) embraces strengths and weaknesses identified in the VirTra simulation as experienced by the participants in this research. Providing a formal learning design inclusive of prescribed learning objectives and outcomes affords both instructional staff and participants the basis for comprehensive relevant pre- and post-exercise briefings. The important aspect here is to optimise the learning by providing comprehensive briefing and a demonstration of the simulation environment (utilising a scenario which will not be used for participants) to encourage immediacy of immersion and presence for the learner. Participants indicated an expectation to receive an indication of their level of performance in the simulation exercises. Employing a process which provides agreed learning objectives and outcomes for participation in the simulation exercise contributes to participant self-assessment and provision of common basis points for debriefing sessions.
Finding 15, which indicates the ITAS VirTra simulation environment presents an authentic situated learning environment, suggests the potential for ITAS VirTra simulations to be utilised for authentic assessment within a learning paradigm. However, it is important to note this research project did not include exploring the role of the simulation exercises as an authentic assessment.

Finding 8:
The maximisation for transfer of learning from an ITAS VirTra simulation to the field of operation for the novice police officers is influenced by the role of ITAS VirTra instructional staff at the exercise debrief stage.

Finding 19:
Inclusion of either (a) comprehensive briefing and/or (b) a demonstration of the simulation environment aids immediacy of immersion for participants.

Finding 22:
ITAS exercises which include a comprehensive briefing of the simulation environment and/or a demonstration support immediacy of immersion for learners.

Finding 23:
The potential for learning transfer for ITAS participants may be enhanced when ITAS exercises are embedded within an experiential educational construct inclusive of:

(a) defined learning outcomes;
(b) comprehensive ITAS exercise briefing and/or demonstration;
(c) learner participation in ITAS exercise;
(d) comprehensive debrief based on learning outcomes;
(e) reapplication of modified learning (additional simulation participation); and
(f) comprehensive debrief based on learning outcomes.

Finding 24:
Individual learning from an ITAS exercise has potential to be enhanced when individual comprehensive performance debriefing is embedded in the simulation exercise.
**Recommendation 4:**
To maximise immediacy of immersion and presence in an ITAS exercise requires inclusion of (a) comprehensive briefing or (b) a demonstration of the simulation environment, or both (a) and (b).

**Recommendation 5:**
Maximisation of transfer of learning from an ITAS exercise may be enhanced when situating the exercise in an experiential learning construct which includes:
(a) defined learning outcomes;
(b) comprehensive ITAS exercise briefing and/or demonstration;
(c) learner participation in an ITAS exercise;
(d) comprehensive debrief based on learning outcomes;
(e) reapplication of modified learning (additional simulation participation); and
(f) comprehensive debrief based on learning outcomes.

To achieve Recommendations 5 and 6 would require recognition of the value of appropriate and comprehensive staff development initiatives to appreciate the role of briefing and debriefing in line with learning objectives and outcomes for ITAS exercises.

**Recommendation 6:**
Implementation of staff development initiatives which focus on the development of briefing and debriefing skills for ITAS VirTra instructional staff aligned to prescribed simulation exercise learning outcomes.

**Recommendation 7:**
Development of a formal prescribed set of learning objectives and learning outcomes for the ITAS VirTra simulation exercise.

**Recommendation 8:**
ITAS exercises be accompanied by a formal performance debrief record as a future reference for participants when making field-based use-of-force decisions.
9.3.2 MUDTAS/ICCS fidelity and experienced learners

The findings which relate to the fidelity characteristics of a MUDTAS exercise which aid transfer of learning to the field of operation for experienced learners are grouped together here to align with the resultant recommendations.

Worthy of note is that the MUDTAS ICCS simulation exercise as designed and delivered by the NSWPF Simulations Operations Unit replicates a best-practice learning design for simulations. The process for the MUDTAS ICCS simulation progresses in line with Kolb’s (1984) experiential learning cycle with the inclusion of a comprehensive simulation environment pre-exercise briefing.

**Finding 21:**
Learners experienced in the field for which a MUDTAS exercise is situated require only moderate physical and psychological fidelity characteristics. The influencing characteristic on realism for the MUDTAS exercise is for the task and related information feeds to be sequenced in real time.

**Finding 25:**
Experienced learners in MUDTAS may achieve immersion and presence when only limited audio and environmental visual representations are present.

**Finding 26:**
The ICCS Tactical Hydra simulation designed and conducted by the NSWPF Simulation Operations Unit embeds a comprehensive simulation briefing which is a catalyst for immediacy of immersion and presence in the simulation scenario for learners.

**Finding 27:**
The potential for learning transfer for MUDTAS participants may be enhanced when MUDTAS exercises are embedded within an experiential educational construct inclusive of:

- (a) defined learning outcomes;
- (b) comprehensive MUDTAS exercise briefing and/or demonstration;
- (c) learner participation in a MUDTAS exercise;
- (d) comprehensive debrief based on learning outcomes;
- (e) reapplication of modified learning (additional simulation participation); and
Finding 28:
The MUDTAS NSWPF ICCS Tactical Hydra simulation generic design procedures represent best practice experiential learning concepts.

As indicated by Findings 21, 25, 26, 27 and 28, the MUDTAS ICCS simulation is influential in aiding the transfer of learning to the field of operation. The following recommendation is offered:

Recommendation 9:
The design and delivery of a MUDTAS exercise requires embedding within an experiential learning construct which includes:

(a) defined learning outcomes;
(b) comprehensive MUDTAS exercise briefing and/or demonstration;
(c) learner participation in a MUDTAS exercise;
(d) comprehensive debrief based on learning outcomes;
(e) reapplication of modified learning (additional simulation participation); and
(f) comprehensive debrief based on learning outcomes.

The data also suggest that such learning transfer would be enhanced through providing individualised debriefing sessions at the conclusion of the simulation exercise. Admittedly, this is complex, as there are considerations of the availability of additional suitably qualified staff, and time to conduct individual briefings, and the development of formalised learning outcomes as a basis for performance debrief sessions.

Finding 29:
Individual learning from a MUDTAS exercise has potential to be enhanced when individual comprehensive performance debriefing is embedded in the simulation exercise.

Recommendation 10:
The NSWPF consider implementing a pilot program with the ICCS simulation exercise which includes provision of individual performance debriefing for key simulation exercise roles. Potential design options for embedding individual performance debriefing include:
(a) assignment of an expert observer to key participants to monitor participants’ performances and provide individualised performance debriefing at the conclusion of the simulation exercise; and
(b) assignment of an expert observer to a pod and the collation of a record of performances against learning outcomes for key participants as they rotate through the pod, with the records collated from each pod for the key participants and an individual performance debriefing to be provided to the participants at the conclusion of the simulation exercise.

**Recommendation 11:**
A text-based record of individual performance be provided as a reference point for participants during future application of the ICCS decision-making model.

**Recommendation 12:**
The NSWPF SOU consider preparation of formal prescribed learning outcomes as a basis for piloting individual performance debriefing sessions for lead participants in the ICCS Tactical Hydra simulation.

### 9.4 Research limitations

The NSWPF Education and Training Command supported this research project through providing participation to the researcher at the ICCS course with the participants in Cases Two and Three. Further, support was provided through provision of observational access to the ICCS Course Tactical Hydra simulation exercise on two additional occasions at the NSWPF Simulations Operations Unit. Similarly, unconditional access was provided to the researcher at the NSWPF Academy for interviewing the weapons and tactics instructional staff responsible for conducting the VirTra simulation exercises. Access to the student police officer cohort, the participants in this research, was supported and provided by the NSW Police Force Education and Training Command.

Whilst this access was provided, the intrinsic nature of policing resulted in the following limitations being identified with this research:

1. Inability within the time frame of the research to interview a female senior officer from Case Two or Case Three. The ratio of female officers to male
officers in Case Two was 2:14; Case Three, 1:16. Each of these female officers indicated a willingness to participate in the interviews and although a number of attempts were made to conduct the interviews, on each occasion the demands of their policing responsibilities prevented interviews from being conducted. (In relation to Case One, the VirTra simulation, seven of the fifteen participants interviewed were female).

(2) The time frame in which the research was conducted included a maximum period of five months between simulation participation and the field-based interviews. This did not therefore allow for exploration of the longer term influence of the simulation experience on learning transfer.

(3) The inclusion of questions in the pre- and post-simulation questionnaires and the field-based interviews which focused on the participants’ preferred learning style may have been valuable when considering the influence of the simulation experience and subsequent level of learning transfer.

9.5 Implications for future research

There is a range of future research endeavours the catalyst for which are embedded within this research project. Worthy of note is that the method applied in this research enables the project to be replicated in other educational contexts. Extending the contribution this research project provides to the body of knowledge centred on the educational implications of simulation-based learning experiences could include, but not be limited to, the following:

(1) implementing Recommendations 5, 6 and 7 for the VirTra simulation exercise program and exploring the subsequent influence on the transfer of learning for the participants to their real world of police operations

(2) implementing Recommendations 9, 10 an 11 as a pilot for the ICCS simulation exercise program and exploring the subsequent influence on the participants’ transfer of learning to the real world of police operations

(3) replicating components of this research project to explore the influence of participation in ITAS and MUDTAS exercises on the longer term application of mental models for decision-making

(4) exploring the influence on the psychological aspects of decision-making in high-risk situations from participation in ITAS and MUDTAS exercises which replicate relevant real-world environments
(5) exploring the influence on transfer of learning from participation in an ITAS and/or a MUDTAS exercise when formal assessment is embedded in the educational construct.

The current (2013) climate of public debate which is centred on the use of Taser Guns by NSWPF officers indicates adapting the VirTra Taser gun simulation capabilities in recruit officer training may be timely. In parallel research endeavours evaluating the influence of the VirTra Taser gun simulation based training has the potential to contribute to the body of knowledge focused on simulation based learning.

9.6 Final comment

This thesis contributes to two rapidly increasing bodies of literature and has far-reaching implications for simulation-based learning endeavours, specifically in the medical, defence and aviation professions. The research contributes to the body of knowledge which focuses on the influence of simulation-based learning for the transfer of theory into real-world application. Further, it contributes to the evolving literature on the influence of simulation-based learning for the development of legitimate peripheral and centripetal participant professional identity within a community of practice.

The findings from this research indicate the NSWPF demonstrate through the utilization of the Hydra/Minerva and VirTra simulation technology a commitment to embracing the affordances of innovative technology to provide contextualization of learning in police education. Further, the research findings suggest the adoption of simulation based training by the NSWPF aids in moving a step closer to creating a seamless journey from the classroom to the operational field.
10 Reference list


Balatinez, P. (2010). The appreciation process. [Lecture notes, ICCS course, NSW Police Force, Sydney, Australia].


Murphy, K., Farr, J. L., & Lovisicky, G. (2007). *Study to quantify the benefits and costs of simulated versus live-fire training at USMC ranges*. 

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Appendix A

Interview Questions

VirTra Instructors, Pre-Simulation

Question 1

(a) Please can you tell me if you have participated in the VirTra weapons simulation scenario exercises?

(b) Are you able to identify from your experience the factors which will impact on the participant performance?

Question 2

Can you tell me what preparation is provided to the participants prior to firing a weapon in training?

Question 3

Please can you describe the VirTra system, the simulation exercises and how the students are expected to interact with the system?

Question 4

(a) What do you understand is the purpose of the VirTra simulation firearms exercise/s?

(b) What learning outcomes for participants are you hoping to achieve through the simulation exercise?

Question 5

Please explain what performance indicators you will be looking for in the participants’ performance.

Question 6

What personal attributes do you anticipate will influence a participant’s performance?

Question 7

Please can you tell me what factors you expect to influence the participants’ decision-making in the simulation scenario?

Question 8

Please can you explain how the progress of the participants is monitored during the exercise?
Question 9

Please can you tell me how you record and provide feedback on a participant’s performance during the exercise?

Question 10

Please could you explain what aspects of the simulation exercise you consider are the most important in terms of value for the learning of the participants, that is, realism of the scenario, timing, and why?

Question 11

Do you consider there are limitations with this simulation system in providing learning for participants? Please explain your answer.
Appendix B

NSW Police Weapons Tactical Training Unit

VirTra 2010

Trainers’ Post-Simulation Exercise Interview

Name of Researcher: Amanda Davies

Date:

........................................

Trainer: ..........................

Question 1

Please can you describe what happened in the VirTra scenarios?

Question 2

Please can you tell me how the students performed generally in the VirTra scenarios? Were the learning outcomes met? Please explain.

Question 3

Please describe the types of reactions you saw displayed by the students (That is, were they anxious? nervous? Did they appear to react emotionally vs professionally?).

Question 4

Were there reactions to the immersion created by the scenarios that you had not expected? Please explain.

Question 5

How evident was the decision-making process the students followed in the scenarios? How was this evident? Please explain.

Question 6

(a) What personal attributes do you anticipate will influence a participant’s performance?
(b) What personal attributes do you anticipate will inhibit a participant's performance?

**Question 7**

Please can you tell me what factors you consider appeared to have impacted on the participants' performance?

**Question 8**

Please can you explain how the progress of the participants is monitored during the exercise?

**Question 9**

Please can you tell me how you record and provide feedback on a participant’s performance during the exercise?

**Question 10**

Please could you explain what aspects of the simulation exercise you consider are the most important in terms of value for the learning of the participants, that is, realism of the scenario, timing, and why?

**Question 11**

Do you consider there are limitations with this simulation system in providing learning for participants? Please explain your answer.
Appendix C

Trainer Interview Questions

ICCS Tactical Hydra Pre-Simulation

Question 1

Please could you explain to me the purpose of the ICCS course?

(The learning experience that these officers are hopefully going to undertake … From your perspective what learning experience do you hope that the simulation will set up for them?)

Question 2

Please could you describe what skills and knowledge you would expect participants to bring to the course? Are there selection criteria?

Question 3

The ICCS course is designed to assist the officers in their decision-making around the command of incidents. What do you consider are factors which influence the development of decision-making skills for police officers?

- Courses
- Observation of decision-making by peers
- Trial and error
- Education prior to joining the police
- General work experience in the police

Question 4

What factors do you consider have the greatest influence on developing decision-making skills for a police officer?

Question 5

What personal attributes do you consider are important for decision-making?
Question 6

When making decisions in your police work, what factors do you take into consideration?

Question 7

In the policing context, what factors do you consider have the potential to produce poor decision-making?

Question 8

Do you think there is an identifiable difference in the way a novice /less experienced officer approaches decision-making in comparison to a more experienced officer? Please could you explain how you have observed those differences?

Are less experienced officers more likely to take a more collegiate approach and seek many opinions, and more experienced officers more likely to be individually decisive?

Question 9

What aspects of the simulation exercise will have the greatest influence on the decision-making in the exercise?

- You might like to think about the realism, the timing, the number of elements introduced. Is it the fact that they have not had to manage such an exercise, or even the fact that we are watching them?

Question 10

What aspects of the simulation do you think are the most important?

Question 11

How do you assess the success of the simulation exercise? Do you, for example, assess achieved outcomes against pre-set learning outcomes?
Appendix D

NSW Police Leadership Development

ICCS Post-Simulation

Trainer Interview

Question 1

Please can you tell me about the simulation exercise – what happened? – if you could describe this from the beginning of the exercise?

Question 2

During the pre-simulation interview, you discussed the expectations for this exercise. Please can you explain whether these expectations were achieved or not, and why this occurred?

Question 3

In the pre-simulation interview, you described the learning outcomes for this exercise. Do you consider these were achieved? Please explain. You might like to provide examples to assist your response.

Question 4

Did the participants respond to the introduced elements in the simulation exercise as you had predicted? Please provide examples to support your response. Do you have a reason and rationale behind why you introduce specific elements?

Question 5

Please could you explain the process that was followed for providing feedback on participant performance?

Question 6

Please could you explain if participants receive individualised feedback on their performance, and how this is performed?
Question 7

Implementation of the ICCS model is a focus of this exercise. Please describe your observation of the application of these skills during the exercise.
Appendix E

NSW Police Weapons and Tactics Training Unit

VirTra (2) 2010

Participant Pre-Simulation Questionnaire

Name of Researcher: Amanda Davies

Student No: ........................................... Age: ............

Part A Pre-Simulation Firearms Experience

Q.1 Prior to undertaking training for the NSW Police Force I have been employed as:

....................................................................................................................................................
....................................................................................................................................................

Q.2 My previous experience/familiarity with firearms has been in the following capacity:

Please tick one or more.

Previous work:

Military □

Security Guard □

Hunting □

Amusement park □

Former police officer □

None □

Other. Please list: .................................................................
Q.3

How would you rate your level of confidence with handling and firing a firearm prior to your WTTU training? Please tick one.

- Not very confident (little or no experience) □
- Some confidence (held and fired a firearm) □
- Confident (held and used a firearm a number of times) □
- Very confident (held and used a firearm reasonably often, consistently over a long period of time) □

Comment: ..................................................

Q.4

Following your WTTU training and prior to undertaking the VirTra simulation scenarios, please indicate how confident you now feel with the use of a firearm.

- Not very confident (little or no experience) □
- Some confidence (held and fired a firearm) □
- Confident (held and used a firearm a number of times) □
- Very confident (held and used a firearm reasonably often, consistently over a long period of time) □

Comment: ..................................................

Q.5

What do you understand is the purpose of the VirTra simulation firearms exercise/s?

____________________________________________________________________________________
__________________________________________________________________________________

Part B Decision-Making

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Q.6

What areas of study in the ADPP do you consider have prepared you for the VirTra simulation scenarios? Please explain why you have identified these areas.

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Q.7

What factors do you expect will impact on your decision making in the scenarios? Please rank them on a scale of impact from 1–10, 1 representing the most impact.

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□

Q.8

In the policing context, which factors do you consider have the potential to produce poor decision-making? Please list these and rank them in order of greatest impact on a scale of 1–10, 1 representing the most impact.

_____________________________________________________________________________________

□
**Part C Simulation Familiarity and Expectations**

### Q.9
I have previously experienced participation in a simulation exercise in which I felt physically immersed in the environment. This occurred through:

- Not applicable (no experience) □
- Previous training environment, e.g. military □
- At an amusement park or similar □
- Other □

Please briefly explain the experience:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

**Instructions: Please tick your response to each item on the 7-point scale**

Very Strongly Agree = 7, Strongly Agree = 6, Agree = 5, Undecided = 4, Disagree = 3, Strongly Disagree = 2, Very Strongly Disagree = 1.

<table>
<thead>
<tr>
<th></th>
<th>VSA</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
<th>VSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.10</td>
<td>I consider I am prepared and confident about my performance in the VirTra simulation scenarios.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Q.11</td>
<td>I anticipate being continually engaged by the VirTra simulation scenario/s.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Q.12</td>
<td>I expect to have my decision-making skills tested in the VirTra simulation scenario/s.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Q.13</td>
<td>I expect to have my learning from the ADPP tested in the VirTra simulation scenario/s.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Q.14</td>
<td>I expect to have my firearms training tested in the VirTra simulation scenario/s.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
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</tbody>
</table>
Q.15

What benefits do you expect to gain from the simulation exercise?

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Q.16

How do you expect participating in the VirTra simulation scenarios will influence your future policing practice in the field?

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Appendix F

NSW Police Weapons and Tactics Training Unit

VirTra 2010

Participant Post-Simulation Questionnaire

Name of Researcher: Amanda Davies

Student Number: ........................................................... Age: .............

<table>
<thead>
<tr>
<th>Part A Simulation experience</th>
</tr>
</thead>
</table>

| Q.1 | The VirTra simulation environment met my expectations. | O | O | O | O | O | O | O | O |
| Q.2 | The VirTra simulation environment made me feel as if I were actually at the scene in real time. | O | O | O | O | O | O | O | O |
| Q.3 | I felt completely immersed and focused on the VirTra simulation scenarios. | O | O | O | O | O | O | O | O |
| Q.4 | The VirTra simulation scenarios provided an opportunity for me to apply my decision making skills. | O | O | O | O | O | O | O | O |
| Q.5 | The VirTra simulation scenarios provided an opportunity for me to apply the Tactical Options Model. | O | O | O | O | O | O | O | O |
Q.6

Please identify the elements of the VirTra simulation which you consider assisted in providing a realistic scenario:

Sound effects  Timing (reflective of real time)

Surround screens  Language

Other. Please list:

Please list the elements of the VirTra simulation which you consider detracted from the realism of the scenarios. Please provide a brief explanation.

____________________________________________________________________

____________________________________________________________________

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Q.7

Please describe the emotional reactions you were aware of during the VirTra simulation scenarios (e.g. Were you aware of being anxious, nervous, pressured, self-conscious? Were you aware of your heart beating?)

____________________________________________________________________

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Q. 9

How do you think you performed in the VirTra scenarios? Please explain your response. You may like to refer to specific examples from your participation.

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Q.10

During your performance in the VirTra scenarios, were you aware of your decision-making process? (E.g., Did you make a conscious decision to follow the Tactical Options Model?) Please explain.

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Q.11

What factors impacted on your decision-making in the scenarios? Please rank them on a scale of 1–10, 1 representing the greatest impact.

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\[12\] Originally, when this survey was typed, no question was numbered 8 and, for administrative reasons, it was decided not to request that the survey form be corrected. Therefore no Q.8 appears here.
Q.12 (a)

If you drew your weapon during the VirTra scenarios, how did you feel about that? Please put n/a if you did not draw your weapon.

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Q.12 (b)

If you fired your weapon during the VirTra scenarios, how did you feel about that? Please put n/a if you did not fire your weapon.

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Q.13

If you were shot during the VirTra scenarios, how did you feel about that? What lesson do you think this has taught you for the future? ( If you were not shot, please put n/a.)

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_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
Q.14

On reflection of your performance in the VirTra scenarios, do you consider you were well prepared for the exercise? Please explain. Please make any suggestions you consider would have assisted your performance.

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____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Q.15

How do you consider writing down the rationale/justification for your decisions following the VirTra scenario would assist your learning and reflection on your performance?

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____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Q.16

Do you think you would behave and react in the same way next time you participate in a simulated scenario for decision-making? Please explain your answer.

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____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
Q.17

What value/benefit do you consider the VirTra simulation experience will add to your policing in the field?

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__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Q.18

On reflection, what areas of study in the ADPP do you consider most impacted on your preparation for the VirTra scenarios? Please explain why you have identified these areas.

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__________________________________________________________________________
__________________________________________________________________________

Thank you very much for your participation. Your responses are valuable to the research.
Appendix G

NSW Police Weapons and Tactics Training Unit

VirTra 2010

Participant Post-Simulation Interview

Name of Researcher: Amanda Davies

Participant Code: ……………… Age: ……………

Q.1
Do you recall the VirTra simulation scenarios you participated in during your WTTU training at the college? Was this a valuable learning experience for you? Please explain.

Q.2
During your probationary period of approximately 3 months, have you had occasion to make a decision as to whether you draw your firearm or not? Please could you describe the incident?

Q.3
At the time of the incident, were you aware of making a conscious decision to follow the Tactical Options Model from your weapons training at the college? Please could you describe this?

Q.4
At the time of the field incident, were you aware of your emotional response? Please explain.

Q.5
During your firearms training at the college, you are taught that to draw your weapon you are prepared to fire. Did you recall making this decision during the incident? Can you tell me about that decision-making process?
Q.6

How would you describe your reaction? Can you tell me about your instinctive response in the incident?

Q.7

At the time of making your decision in the field incident, were you aware of areas of learning from your training at the college which impacted on your decision? Please explain.

Q.8

Please can you tell me the role of other officers in the incident? Were they senior to you? Did they give a direction to you? Or did you make the decision independently? Please explain.

Q.9

Following your experience in the field in making decisions about the use of your firearm, can you tell me how the simulation training experience affected your decision-making in those incidents?

Q.10

Were you aware at the time of the incident in the field of reflecting on your experience in the simulation unit? How did this impact on your decision? Please explain.

Q.11

When you now reflect on your experience in the VirTra simulation exercises, how realistic do you think they were? Please explain.

Q.12

What factors do you think impacted on your decision-making in the scenario? Please explain.
Appendix H

NSW Police Leadership Development Simulation Training Exercise

ICCS 2010

Participant Pre-Simulation Questionnaire

Name of Researcher: Amanda Davies

Participant No.: ………………

Years of Service with NSW Police: ………………

Part A: Pre-Course Experience

Q.1 The following have influenced the development of my decision-making skills:

Please tick one or more.

(a) participation in leadership development courses previously □
with NSW Police

(b) participation in non NSW Police leadership and management courses □

(c) observation of decision-making skills of my peers in the NSW Police □

(d) observation of decision-making skills of my superiors in the NSW Police □

(e) trial and error with decisions I have made in a management capacity □
with NSW Police

(f) my education experience prior to joining the NSW Police □

(g) my work experiences prior to joining the NSW Police □

(h) combining day-to-day policing with my life experiences □

(i) other: please list ………………………………………………………………………..
Q.2

What factors do you consider have had the greatest influences on developing your decision-making skills with NSW Police?

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

Q.3

Please list the personal attributes you consider are important for decision making. Please indicate which you use.

_______________________________________________________________ □
_______________________________________________________________ □
_______________________________________________________________ □
_______________________________________________________________ □
_______________________________________________________________ □
_______________________________________________________________ □
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_______________________________________________________________ □

Q.4

Describe how you make decisions in your workplace.

______________________________________________________________________
______________________________________________________________________
___________________________________________ ___________________________
Q.5

When making decisions in your police work, what factors do you take into consideration? Please list these and rank them in order of importance on a scale of 1–10, 1 representing the most important.

_______________________________________________________________ □

_______________________________________________________________ □

_______________________________________________________________ □

_______________________________________________________________ □

_______________________________________________________________ □

_______________________________________________________________ □

Q.6

In the policing context, which factors do you consider have the potential to produce poor decision-making? Please list these and rank them in order of greatest impact on a scale of 1–10, 1 representing the most impact.

_______________________________________________________________ □

_______________________________________________________________ □

_______________________________________________________________ □

_______________________________________________________________ □

_______________________________________________________________ □

_______________________________________________________________ □
**Instructions:** Please tick your response to each item on the 7-point scale.

Very Strongly Agree = 7, Strongly Agree = 6, Agree = 5, Undecided = 4, Disagree = 3, Strongly Disagree = 2, and Very Strongly Disagree = 1. Where an item does not apply to you, please mark Not Applicable = 0.

<table>
<thead>
<tr>
<th></th>
<th>VSA</th>
<th>SA</th>
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<th>D</th>
<th>SD</th>
<th>VSD</th>
<th>NA</th>
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</thead>
<tbody>
<tr>
<td>Q.7</td>
<td>As a police officer I feel confident in my decision-making skills.</td>
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<td>Q.8</td>
<td>I consider I am perceived by my peers as competent and reliable in my decision-making.</td>
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<tr>
<td>Q.9</td>
<td>I consider I am perceived by my supervisors as competent and confident in my decision-making.</td>
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### Part B: Simulation Familiarity and Expectations

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<thead>
<tr>
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<th>SD</th>
<th>VSD</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.1</td>
<td>I have previously participated in Minerva or Hydra simulation exercises with NSW Police.</td>
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<tr>
<td>Q.2</td>
<td>I have participated in immersive simulation exercises similar to Minerva and Hydra external to the NSW Police.</td>
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<tr>
<td>Q.3</td>
<td>I understood the instructions for the ICCS simulation exercise.</td>
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<tr>
<td>Q.4</td>
<td>I consider I have received appropriate preparation for the ICCS simulation exercise.</td>
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<td>Q.5</td>
<td>I anticipate being continually engaged by the simulation exercise.</td>
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<tr>
<td>Q.6</td>
<td>I expect to have my decision-making skills tested in the simulation exercise.</td>
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<tr>
<td>Q.7</td>
<td>I expect to have an opportunity to apply my learning from the ICCS course in the simulation exercise.</td>
<td></td>
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</table>
Q. 8.
What benefits do you expect to gain from the simulation exercise?
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Q. 9.
How do you expect to receive feedback on your performance in the exercise?
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Q. 10
How would you prefer to receive feedback on your performance in the exercise?
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
## Appendix I

**NSW Police Leadership Development Simulation Training Exercise**

**ICCS 2010**

**Participant Post-Simulation Questionnaire**

**Name of Researcher:** Amanda Davies  
**Participant:** ……………

### Instructions

Please tick your response to each item on the 7-point scale.  

- **Very Strongly Agree** = 7, **Strongly Agree** = 6, **Agree** = 5, **Undecided** = 4, **Disagree** = 3, **Strongly Disagree** = 2, and **Very Strongly Disagree** = 1. Where an item does not apply to you, please mark **Not Applicable** = 0.

| Q.1 I consider the overall experience of the simulation exercise matched the documented learning outcomes. |
| Q.2 I consider the scenario depicted in the simulation was reflective of real situations. |
| Q.3 I consider I was continuously engaged/immersed in the simulation exercise. |
| Q.4 I was able to employ key decision-making skills from the preceding ICCS course. |
| Q.5 I learnt about my strengths and weaknesses by participating in this simulation exercise. |
| Q.6 During the simulation exercise I utilised decision-making strategies I had not previously applied in my professional practice. |
| Q.7 I was able to actively contribute to the team work in the simulation exercise. |
| Q.8 The simulation exercise provided an opportunity for me to apply decision-making skills which I expect to transfer to my future policing practice. |
Q.9.

How did participating in the simulation exercise meet your expectations? If your expectations were not met, please discuss why you think this occurred.

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Q. 10.

Please comment on the sense of realism you experienced with the simulation exercise.

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Q.11.

During the exercise, were you aware of your own decision-making process? How would you describe your decision-making process at the time?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
Q.12.

Do you consider you had adequate opportunity to apply and test your understanding of the ICCS model? Please explain.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

Q.13(a)

How did you expect to receive feedback on your performance in the simulation?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

(b)

How did you receive feedback on your performance in the simulation? Did this meet your expectations and needs? Please explain.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

Q.14.

What were the most valuable aspects for your future policing practice gained from participating in the simulation exercise for you? Please provide the rationale for your answer. You may use examples.
Q.15

What do you consider will be the impact on your future policing practice of participating in this simulation exercise?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

Thank you very much for taking the time to complete this questionnaire. Your contribution is valuable to this research project.
Appendix J

NSW Police Leadership Development Simulation Exercise

ICCS 2010

Participants’ Post-Simulation Exercise Interview

Name of Researcher: Amanda Davies

Date:........................................

Participant: ........................................................................

Q.1

(a) Please describe your experience in the simulation exercise – what actually happened.

(b) What was it like for you?

(c) How did you feel about your participation? How did you feel about your performance?

Q.2

Did you feel at the time that the simulation exercise created an atmosphere reflective of real time? You might like to comment on the extent to which you felt immersed in, and focused on, the exercise.

Q.3

Do you feel your expectations of the exercise were met? Please could you explain? You may like to give examples to assist your response.

Q.4

(a) The simulation exercise is designed to provide opportunity for participants to apply their decision-making skills in a public order incident. Please can you tell me about your decision-making process in the exercise?
(b) Were there specific elements which had a greater influence on your ability to make decisions?

(c) During the exercise, how did you know if you had made the most appropriate decision?

(c) On reflection, are there decisions you would revise?

Q.5

In your policing, when you make decisions, are you aware of how you make those decisions? Do you think you do this intuitively, based on past experience? Or do you consciously work through a process? Please can you explain?

Q.6

What do you think are the influences on your decision-making? Stakeholders, policy, politics, public, past experience?

Q.7

A period of approximately three months has elapsed since you participated in the ICCS simulation exercise. Can you tell me how your experience in the exercise has influenced your decision-making in the field? Please could you give some examples?

Q.8

Are you aware of reflecting on the simulation experience and lessons learnt, and applying that knowledge in your decision-making?

Q.9

Please can you tell me what you consider are the valuable learning aspects of the ICCS simulation exercise for you?

Q.10

Please explain how you received feedback on your performance?

Please can you tell me about the debriefing sessions?

How did this meet your expectations?
Q.11

Do you have any recommendations for changes to the ICCS simulation exercise?
Appendix K

INFORMATION STATEMENT FOR RESEARCH PARTICIPANTS

Name of Research Project: Evaluation of the impact of simulation exercises in future application of NSW Police Force officers’ strategic decision-making skills in their policing practice.

My name is Amanda Davies, I am a PhD student (and a lecturer in Policing Studies) at Charles Sturt University and I am conducting a research project into the impact of simulation exercises on strategic decision-making skills for NSW Police Officers in the conduct of their professional practice. This research project has the support of NSW Police Assistant Commissioner Mr Michael Corboy, but you are under no obligation to participate in this research project.

This project involves evaluating the impact of undertaking an immersive simulation exercise in the HYDRA unit at the NSW Police Education and Training Command for developing strategic decision-making skills. The objectives are to conduct an evaluation of the impact of the experience of participating in a HYDRA decision-making exercise by means of:

- pre- and post-evaluation surveys and interviews with participants and trainers
- field observation notes taken during a HYDRA exercise.

You have been invited to participate in the research as you are a senior NSW Police Force officer undertaking the Leadership Development Program or because you are a trainer for that program. You will be asked to complete Survey 1 in relation to your previous knowledge and experience with the subject matter, your previous experience and attitude towards the use of simulation exercises in the training environment. On completion of the exercise you will be asked to complete Survey 2 reflecting on the experience of undertaking the simulation exercise. It is expected that the surveys will take you 15 minutes each to complete. Three months after the exercise you will be invited to participate in an interview reflecting on the impact of the simulation exercise on your daily policing practice. The interview is expected to take 20-30 minutes and no more than 60 minutes.

Your name will not appear on any of the reports arising out of the data collected. Your confidentiality will be protected by the use of a code chosen by you. While all efforts will be made to ensure that your participation in this project remains anonymous, 100% anonymity cannot be guaranteed given the small number of participants overall. There is no obligation on you to participate in this research and, if you do decide to participate, you may withdraw at any time without penalty or discrimination, and any data provided by you will be destroyed.

NOTE: The School of Policing Studies Ethics in Human Research Committee (HREC) has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Chair:

Chair, Dr Anna Corbo Crehan
School of Policing Studies HREC
Charles Sturt University, Locked Bag 2005, GOULBURN NSW 2580
PH: 02 4824 2523 acorbocrehan@csu.edu.au

Any issues you raise will be treated in confidence and investigated fully and you will be informed of the outcome.

Please keep this information sheet for future reference.

Amanda Davies, School of Policing Studies, PH: 02 4828 8600 e/n 24600
# Appendix L

## CONSENT FORM FOR RESEARCH PARTICIPANTS

<table>
<thead>
<tr>
<th>Name of Research Project</th>
<th>Evaluation of the impact of simulation exercises in future application of NSW Police Force officers’ strategic decision-making skills in their policing practice.</th>
</tr>
</thead>
</table>
| Name, Address and Phone No. of Principal Investigator | Amanda Davies, School of Policing, NSW Police College, Goulburn NSW 2580  
PH: 02 4828 8600  adavies@csu.edu.au  
And PhD student |
| Principal PhD Student Supervisor | Associate Professor Barney Dalgarno, Faculty of Education, Charles Sturt University  
Wagga Wagga NSW Australia 2678  
PH: 02 6933 2305  bdalgarno@csu.edu.au |

1. I understand that I am free to withdraw my participation in the research at any time, and that if I do I will not be subjected to any penalty or discriminatory treatment, and any data associated with me will be withdrawn from the research project.

2. The purpose of the research has been explained to me and I have been given the opportunity to ask questions about the research and received satisfactory answers. In addition an information sheet has been given to me.

3. I understand that any information or personal details gathered in the course of this research about me are confidential and that neither my name nor any other identifying information will be used or published without my written permission.

4. I also understand, however, that due to the small number of participants in this research project 100% anonymity may not be possible.

5. I understand that I will not be subject to any discrimination if I choose not to participate in this research project.

6. I understand that if I have any complaints or concerns about this research I can contact the person named in the following note:

```markdown
### NOTE:

The School of Policing Studies Ethics in Human Research Committee (HREC) has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Chair:

Chair, Dr Anna Corbo Crehan  
School of Policing Studies HREC  
Charles Sturt University, Locked Bag 2005, GOULBURN NSW 2580  
PH: 02 4824 2523  acorbocrehan@csu.edu.au

Any issues you raise will be treated in confidence and investigated fully and you will be informed of the outcome.
```

Signed by (insert name): ..........................................................

Signature: ...................................................................................... Date ..........................................................
My name is Amanda Davies, I am a PhD student (and a lecturer in Policing Studies) at Charles Sturt University and I am conducting a research project into the impact of simulation exercises on strategic decision-making skills for NSW Police Officers in the conduct of their professional practice. This research project has the support of NSW Police Assistant Commissioner Mr Michael Corboy, but you are under no obligation to participate in this research project.

This project involves evaluating the impact of undertaking weapons training, a component of which is immersive simulation exercises (VirTra). The objectives are to conduct an evaluation of the impact of the experience of participating in VirTra simulation exercises by means of:

- pre- and post-evaluation questionnaires and interviews with participants and trainers
- field observation notes taken during the VirTra simulation exercises.

You have been invited to participate in the research as you are a Session Two Associate Degree in Policing (ADPP) student undertaking the weapons training component of the course or because you are a trainer for that program. You will be asked to complete:

- a survey in relation to your previous knowledge and experience with the subject matter, your previous experience and attitude towards the use of simulation exercises in the training environment, and (on completion of the exercise)
- a questionnaire reflecting on the experience of undertaking the VirTra simulation exercises.

It is expected that the surveys will take you 15 minutes each to complete. No more than 30 minutes.

Three months after the exercise you will be invited to participate in an interview reflecting on the impact of the simulation exercise on your daily policing practice. The interview is expected to take 20-30 minutes and no more than 60 minutes.

Your name will not appear on any of the reports arising out of the data collected. Your confidentiality will be protected by the use of a code chosen by you.

There is no obligation on you to participate in this research and, if you do decide to participate, you may withdraw at any time without penalty or discrimination, and any data provided by you will be destroyed.

Your decision to participate or not will have no bearing on your training or employment with the NSW Police Force or your status and progression with Charles Sturt University through the Associate Degree in Policing Practice.

NOTE: The School of Policing Studies Ethics in Human Research Committee (HREC) has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Chair:

Chair, Dr Anna Corbo Crehan
School of Policing Studies HREC
Charles Sturt University, Locked Bag 2005, GOULBURN NSW 2580
PH: 02 4824 2523 acorbocrehan@csu.edu.au

Any issues you raise will be treated in confidence and investigated fully and you will be informed of the outcome.

Please keep this information sheet for future reference.

Amanda Davies, School of Policing Studies, PH: 02 4824 2559 e/n 24958

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Appendix N

CONSENT FORM FOR RESEARCH PARTICIPANTS

Name of Research Project

Taking it to the streets: The role of simulation environments in the transfer of decision-making skills for police officers from the classroom to their professional practice

Name, Address and Phone No. of Principal Investigator

Amanda Davies, School of Policing, NSW Police College, Goulburn NSW 2580
PH: 02 4828 8600 adavies@csu.edu.au
And PhD student

Principal PhD Student Supervisor

Associate Professor Barney Dalgarno, Faculty of Education, Charles Sturt University
Wagga Wagga NSW Australia 2678
PH: 02 6933 2305 bdalgarno@csu.edu.au

1. I understand that I am free to withdraw my participation in the research at any time, and that if I do I will not be subjected to any penalty or discriminatory treatment and any data associated with me will be withdrawn from the research project.

2. The purpose of the research has been explained to me and I have been given the opportunity to ask questions about the research and received satisfactory answers. In addition an information sheet has been given to me.

3. I understand that any information or personal details gathered in the course of this research about me are confidential and that neither my name nor any other identifying information will be used or published without my written permission.

4. I understand that I will not be subject to any discrimination if I choose not to participate in this research project.

5. I understand that there is no obligation on me to participate in this research and, if I decide to participate, I may withdraw at any time without penalty or discrimination, and any data provided by me will be destroyed.

6. I understand that my decision to participate or not will have no bearing on my training or employment with the NSW Police Force or my status and progression with Charles Sturt University through the Associate Degree in Policing Practice.

7. I understand that if I have any complaints or concerns about this research I can contact the person named in the following note:

NOTE: The School of Policing Studies Ethics in Human Research Committee (HREC) has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Chair:

Chair, Dr Anna Corbo Crehan
School of Policing Studies HREC
Charles Sturt University, Locked Bag 2005, Goulburn NSW 2580
PH: 02 4824 2523 acorbocrehan@csu.edu.au

Any issues you raise will be treated in confidence and investigated fully and you will be informed of the outcome.

Name: .................................................... Signature: ..........................................................
Date: ..........................................................