

Tactical and Safety Training Review of Evidence



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1. Executive Summary

1.1 Background

In September 2021 the Frontline Safety Improvement Programme (FSIP) tasked the Evidence Based Policing Centre (EBPC) with a review of tactical and safety training. The review takes a broad look at tactical and safety training in the literature and in other jurisdictions; and covers areas such as skills included in the training, learning theories, skill decay and training evaluation.

The purpose of this report was to gather and assess current literature of tactical and safety training in order to inform the new FSIP Tactical Response Model. The review consists of the following chapters:

- Chapter two covers the method for the literature review;
- Chapter three covers models of learning and evaluation;
- Chapter four covers basic training and higher education;
- Chapter five covers technology and learning;
- Chapter six covers tactical training design and skill decay;
- Chapter seven covers key skills for tactical training; and
- Lastly, chapter eight looks at other jurisdictions through case studies and a survey.

The questions asked of this review were broad, and the answers complex. This has resulted in a rather long report that seeks to answer the questions both succinctly and fairly. Because of the length, each chapter has a summary section at the beginning so that readers can choose to read full chapters or just summaries.

Below are the key findings from the report, followed by limitations the review faced.

1.2 Keys Findings

- Adult-learning models and practices could be helpful when training police officers, although the lack of reliable studies in the law enforcement realm when considering some of the approaches (e.g. problem-based learning – PBL) suggests that the use of these methods and practices should be assessed and reassessed frequently (section 3.2)
- The literature assessed suggests that multiple factors could affect training effectiveness such as pre-training motivation, experience and a positive knowledge transfer environment. Thus, training should be provided along with initiatives that foster its transfer to the workplace (section 3.3)
- The Kirkpatrick training evaluation model was reported as the most influential model in the literature, although it has also been reported that it is not uncommon for law enforcement agencies to not assess levels three and four of this model (i.e. behaviour and results). Some authors, when focusing on law enforcement agencies, have also proposed that the Kirkpatrick model should be expanded to include the alignment of training evaluation processes with the staff performance development review process; and assess the contribution of the training to society (section 3.3)
- The core competencies and skills expected after basic police training vary between countries and police forces, although operational (e.g. traffic control), soft (e.g. interactions with others), and problem-solving (e.g. decision-making) competencies and skills have been considered across multiple agencies (section 4.2.1)
- There is a lack of research-based evidence to suggest which competencies and skills should be ultimately defined as the core competencies and skills to have by the end of basic police training. Thus, caution is needed when generalising findings from overseas Constabularies to the New Zealand context (section 4.2.1)

- The literature assessed suggests that it is important to consider field practice; teaching tools and methods used; trainer behaviour; integration between training and practice; and learner preferences when planning and implementing basic police training (section 4.2.2)
- The literature also suggests that it is desirable to implement a stronger collaboration between academy and police practice, both through having a higher degree qualification as one of the pathways to the police officer profession and through the inclusion of scientific and academic knowledge in police training and education (section 4.3)
- Overall, the studies reviewed suggest that virtual training is valid for providing training in complex, collaborative tasks, training which cannot fully be accomplished in reality and providing a safe environment that allows mistakes to be committed without any real consequences. It can also be adopted when there is a need to solve problems related to sensible professional situations and repeating exercises in a limited time and in various command positions (section 5.1)
- Conclusions across all the studies reviewed suggest that VR-based training may be adopted as a complimentary approach to traditional classroom trainings of law enforcement officers across the criminal justice sector (section 5.2)
- For training of law enforcement officers, officers can use VR simulations to experience and react to stressful or dangerous situations without the risk of costly mistakes and loss of life. Equally, a virtual training environment allows trainees to be exposed to scenarios that they are likely to experience while in the field (section 5.2)
- VR-based learning could be a significant barrier to learning in an environment where there is a lack of familiarity with VR-based learning at the decisional level of leadership, and the cost of deploying this technology could be seen as a downside since efforts required to create a realistic and interactive scenario require significant time and resources (section 5.2)
- Results suggest that pre-training in high-fidelity Virtual Environment may lead to increased overall performance levels, specifically for tasks that require search and scanning and for outcome measures (section 5.2)
- For complex tasks that require continuous communication among members of a diverse team, virtual training is as efficient as standard training concerning knowledge acquisition, and even more efficient about knowledge transfer (section 5.2)
- Virtual reality training was found to be more successful than traditional training to prepare law enforcement recruits cognitively, and to accurately respond to life-threatening situations. The results of these studies justify possible investments for the use of interactive technology in the training of law enforcement personnel or even the adult education classroom (section 5.2)
- Building on past VR studies investigating implicit bias reduction, VR also serves as a potential intervention to investigate or mitigate against implicit bias while also showing how VR is turning into a valuable resource for studying prejudice and its reduction through intergroup contact (section 5.4)
- Other learning tools, such as games, simulations or body-worn devices can complement VR technologies and be adopted as new framework for developing low-cost, training systems for training police officers to improve decision-making under stress (section 5.5 and 5.6)
- Experiential learning has been proposed as a key training method for enhancing performance during highrisk situations, focusing on the acquisition of knowledge, skills and abilities through experience, coupled with the analysis of this experience through reflection. However, while it has been recommended that time spent engaged in activity should be 'maximised', there are no recommendations as to precisely what proportion of training time should be dedicated to experiential activity as opposed to instructor-led training (section 6.2)
- Training environments which are representative of the real-world context enable officers to practice and apply key skills under realistic conditions, and have been argued to increase the likelihood that tactical

knowledge, skills and abilities will successfully transfer from the training environment to dynamic, highdemand operational contexts (section 6.2.1). However, it has been suggested that absolute fidelity with the real-world operational context is not necessarily required, provided the training realistically reflects realworld conditions in relation to equipment, sensory and psychological components (section 6.3.1)

- Scenario-based training has been put forward as one of the optimal ways to train officers to perform effectively under high-risk situations, and to promote the transference of skills into real-world operational contexts (section 6.3). Variations in the types of training scenarios encountered has been suggested to be important in helping trainees to develop a wider range of experiences to draw from in order to inform decision-making in high-risk situations, as well as creating a larger and more generalisable repertoire of transferrable skills (section 6.3.1)
- The difficulty level of scenarios used in training should be tailored to the proficiency of the officer, with highly proficient officers benefiting from complex scenarios involving a variety of stressors, while novice trainees may benefit from fewer stressors to ensure that they are not overwhelmed (section 6.3.1)
- A focus on 'worst-case' scenarios during training may provide trainees with a false sense of the prevalence of such situations eventuating, and promote an over-reliance on tactical skills which may not be appropriate in most circumstances. It has been suggested that to maximise officer preparedness for the situations they will experience in the field, scenarios should be developed in such a way as to accurately represent the proportion of situations, conditions and outcomes experienced in the field (section 6.3.3)
- Tailoring training to an individual's capabilities and needs does not appear to be common, with courses often designed as a 'one-size fits all' which require all trainees to carry out the same tactical techniques, regardless of age or body type, and with a lack of opportunity to provide additional training and practice to those who may require it (section 6.4)
- The ordering of training content should be such that basic skills and techniques are first acquired in less realistic, low stress environments, which allow the trainee to focus on skill acquisition without being overwhelmed, with increasing levels of realistic/representative training environments gradually introduced to enable trainees to practice the execution of knowledge and skills in real-world conditions (section 6.4.1)
- The experiences of female officers during tactical training has been little explored, with some evidence to suggest that implicit biases and stereotypes may exist which impact female officers' experiences and learning on these courses (section 6.4.2)
- Skills decay is commonplace when considering skills that are not used frequently, and a consistent finding in the literature is the perception of both officers and trainers that the frequency of tactical training was not sufficient to maintain a high level of proficiency. How content being learned is introduced can influence knowledge retention, and the most highly regarded practices in the literature to aid knowledge retention are spaced practice, interleaved practice, and retrieval practice (section 6.5)
- It is unclear as to whether there is a place for performance evaluation during in-service training, and some researchers have recommended that the focus on tactical training should be on continued skill development through learning and practice, rather than performance and evaluation (section 6.6)
- One of the most consistent observations made in the literature reviewed relates to the paucity of information and empirical studies around tactical and safety training and as such, there remains a lack of concrete, empirically-supported information regarding what techniques should be taught, how they should be taught and for what frequency or duration (section 7.1)
- In addition to the traditional focus on use of force tactics, a range of knowledge, skills and abilities are required to ensure a safe resolution and effective outcomes during high-risk encounters including decisionmaking, awareness of the situation and the self, communication and de-escalation, and stress management (section 7.2)

- There is limited research regarding the efficacy of basic firearms training, and it has been noted that there are no evidence-based standards to evaluate performance or proficiency, and as such, it is difficult to assess the effectiveness of any given firearms training programme (section 7.3.1)
- Despite the inclusion of training content informed by real-world incidents and officer experiences, based on an observation of recruit training researchers have suggested that the basic recruit firearms training conducted by RNZPC only reflected the operational performance environment 'to a limited extent' (section 7.3.1)
- Few studies have examined the content of tactical and safety training focused around self-defence and control tactics, with the few who have generally finding high levels of officer dissatisfaction with the training provided (section 7.3.2)
- A consistent finding across studies which have examined tactical and safety training curriculums is the apparent over-emphasis on the execution of force options during high-risk situations, and the narrow development of these skills and abilities during training over those which enable officers to prevent violence from eventuating during a high-risk situation (section 7.3.3)
- Situational awareness, communication and de-escalation skills, and fast and effective decision-making have been suggested to be the most important skills to enable the effective and safe resolution of high-risk situations (section 7.3.3)
- It is currently unclear to what extent de-escalation training is included in either recruit or in-service officer training (section 7.4.2). It has been noted that when de-escalation training is provided, it is usually separated from self-defence training, however, it has been argued that the integration of use of force and de-escalation training will facilitate the development of flexible decision-making and problem-solving and will enable officers to transition between de-escalation and force options in response to a changing threat context (section 7.4.2.1)
- The dominant focus in the literature on police decision-making has centred-on naturalistic and recognitionprimed decision-making models, which posit that police decision-making in time-pressurised, high-risk situations is characterised by fast, 'intuitive' decisions, made by matching aspects of the current situation to similar previous situations and using mental simulations to imagine and predict the outcome of a given action (section 7.5.2)
- It has been recommended that stress management skills should be incorporated into tactical and safety training to enhance the ability to perform under stressful conditions and provide officers with a repertoire of stress management skills and an opportunity to practice these skills under conditions that approximate the stresses experienced in the operational environment (section 7.6.1)
- While stress inoculation/mental preparedness training has been promoted as an effective stress management approach, the evidence for its efficacy in a police context is limited. In addition, while a range of training programmes have been developed, it is unclear as to what extent these (or other) programmes have been adopted as part of a regular police training curriculum (section 7.6.1.1)
- Continual monitoring, and perhaps conducting a 'future thinking' event may help to better identify the potential pathways ahead for tactical and safety training (section 7.7)
- Overall, information on other jurisdictions online was limited. None had specific information about what their tactical and safety training involved beyond topic names (section 8.1)
- While there were many similarities across the jurisdictions, one of the biggest differences was in the time given for training, which in some cases ranged from hours to days (section 8.1)
- In developing the training, all jurisdictions almost always used police subject matter experts as part of that development. However, there were three cases where the response 'best practice from other police or similar organisations' was higher than 'evidence-based research', as well as cases where they were the same. Unfortunately, for this survey it is impossible to know why a training module was considered 'best practice',

so it is difficult to determine its efficacy. Given that evidence-based research on tactical and safety training is limited, that may be the reason why its use is also limited (section 8.1)

• While survey returns were low, those that did reply indicated that their tactical and safety training had only recently or was in the process of being updated. This shows that New Zealand Police is not alone in understanding the need to update this type of training (section 8.3)

1.3 Limitations

The below list highlights the most common and important limitations to this review. Readers should consider these limitations when reading through the report.

- There was little experimental research on police tactical and safety training.
- Many jurisdictions followed what they considered 'best practice' of others, however it was unclear whether this was actually 'best practice' or 'common practice'.
- Few jurisdictions are open about their training publicly, or are willing to share that information, which limits the depth and understand that could be reached in this report.
- There was a lack of comparability between studies, in terms of constructs, theories, how training was implemented, and how outcomes from these were measured.
- There was a lack of settings for tactical and safety training used by other Constabularies readily available in the literature or internet.
- There was a lack of systematisation of the literature available on basic competencies and skills required in recruit training. There was also a lack of clearly set (and available) learning outcomes in basic police training in different Constabularies.
- There was a lack of available studies focusing on training evaluation in law enforcement contexts, and those which were available and reliable were not generally focused on transfer of the training to the workplace or organisational outcomes from the training.

2. Method

2.1 **Overview**

The Evidence Based Policing Centre was tasked by the Tactical and Safety Training Project 2022, within the Frontline Safety Improvement Programme (FSIP), to conduct a literature review on: 1. (critical) skills and competencies of frontline police officers now and in the future; 2. training models and retention; and 3. tactical training. This short chapter depicts the method used to conduct the literature review which led to the findings presented in chapters 3, 4, 5, 6, and 7. The method for chapter 8, which includes case studies focusing on specific Constabularies and survey answers from overseas jurisdictions regarding their tactical and safety training, is presented in Chapter 8.

2.2 Literature Review

A literature search was conducted by Knowledge and Information Services (KAI) using a range of search engines, databases, key websites and academic journal sites. Search terms included:

(Police OR Law Enforcement) AND (Training OR Skills) AND (Tactical Safety OR Use of Force OR Decision-Making OR De-Escalation OR Critical Incidents) AND (Literature review/s OR Systematic review/s OR Evaluation/s OR Study OR Research OR What works OR Evidence-based)

Abstracts from the KAI search were reviewed and literature relevant to the current Terms of Reference was assessed. Additional searches using Google and Google Scholar were conducted to ensure all relevant documents had been identified, and to source additional literature for areas in the Terms of Reference not well covered. All terms were searched sequentially with each of the terms Police, **OR** (Law **AND** Enforcement), **OR** Military **AND**:

- (Core OR Critical) AND (Competencies OR Skills)
- 'Officer Safety Training'
- (High-Stakes **OR** Critical Environment) **AND** Training
- (Sworn-Officer OR In-Service OR Post-Recruit) AND Training
- Pressure AND Training
- Decision-Making AND Tactical
- Decision-Making AND Pressure
- Scenario AND Training
- Refresher AND Training
- (Novice **OR** Expert) **AND** Training
- Stress AND Training
- Training AND Evaluation AND Model AND Review
- Skill AND Training AND (Decay OR Fade OR Frequency OR Retention)
- (Virtual Reality **OR** VR)
- Emerging Technology AND Training
- Futures AND Police
- Foresight AND Police
- Strategic AND Foresight AND New Zealand

These searches resulted in the collation of 235 documents which were read, and the data collated into a spreadsheet.

3. Learning Models and Training Evaluation Models

3.1 Overview

The current chapter presents findings from a review of literature focusing on learning models and practices; and training evaluation models.

Overall, the literature included in this chapter suggests that adult-learning models and practices could be helpful when training police officers (Birzer, 2003), although the lack of reliable studies in the law enforcement realm when considering some of the approaches (e.g. problem-based learning – PBL) suggests that the use of these methods and practices should be assessed and reassessed frequently (Amey, 2019; McCombs, 2015).

Moreover, the literature assessed suggests that multiple factors could affect training effectiveness such as pretraining motivation, experience and positive transfer environment (Alvarez et al., 2004). Thus, training should be provided along with initiatives that foster its transfer to the workplace.

Finally, the Kirkpatrick training evaluation model was reported as the most influential model in the literature, although it has also been reported that it is not uncommon for law enforcement agencies to not assess levels three and four of this model (i.e. behaviour and results; Belur et al., 2019; Dahiya & Jha, 2011; Gibson, 2012). A couple of authors, when focusing on law enforcement agencies, have also proposed that the Kirkpatrick model should be expanded to include the alignment of training evaluation processes with the staff performance development review process; and assess the contribution of the training to society (Belur et al., 2019; Gibson, 2012).

3.2 Learning Models and Practices

Birzer (2003) points out that when considering the United States, the majority of subjects in the police training environment have been taught traditionally using behavioural approaches which may not be the most effective approach when teaching learnings under the paradigm of community policing. Behavioural approaches equate humans to machines in the sense that they conceive that if you introduce an input (stimulus) into a human being and control how that input is processed (operant conditioning), you will get a predetermined output (response). Multiple authors have discussed that a militaristic and behavioural environment in policing may be effective when teaching technical and procedural skills, arguing that this approach, however, does not promote the acquisition of essential non-technical competencies currently important in the realm of community policing and problem-oriented policing such as problem-solving, judgment, and leadership (Birzer, 2003; Clarke & Armstrong, 2012; White & Escobar, 2008). The paradox is that if police officers act similarly to machines and their learnings are considered mechanical, there is limited scope for decision-making, choice, and discretion, which are integral parts of current police work (Bayley & Bittner, 1984, as cited in Birzer, 2003). Furthermore, Bryan (2021) discusses that using a militaristic approach when training by establishing, for instance, a boot camp-like approach with physical punishments, fosters a negative culture that negatively impacts officers' interactions with members of the community.

According to Birzer (2003), trainers have also relied traditionally on teacher-centred approaches, but students might benefit from a more student-centred instructional format. Likewise, the author argues that the behaviourist approach for learning relies heavily on behavioural objectives; does not consider different individual approaches to learning (e.g. tactile, visual, social, auditory, and repetition); and can create an unnecessary amount of stress in the learning environment which might impact learning negatively. Clarke and Armstrong (2012) discuss that the benefits of using lectures in training include being able to teach large groups of individuals and being efficient in both energy and expenditure of time; but that this method is not appropriate when aiming to modify attitudes or to teach motor skills, for instance. Moreover, information retention using only lecture as a teaching method might be limited (Madore, 2006, as cited in Clarke and Armstrong, 2012). Thus, it is important to consider adult-learning models (i.e. andragogy) when considering police training as it goes hand-in-hand with community policing (Birzer, 2003).

According to Birzer (2003), Knowles (1980) discussed that adults should be taught differently from children as their process of learning is drastically different from that of children. Thus, pedagogy principles, and their focus on the

content being taught instead of on the process to enhance learning, are not effective when training adults (Vodde, 2012). According to Knowles (1980, as cited in Donohue Jr. & Kruis, 2020), pedagogy is a teaching model that should be targeted only at children. Cochran and Brown (2016) acknowledge that adult-learning models have been applied to higher education programmes using both face-to-face and online instruction, although for it to work for online instruction, technology issues need to be addressed first. According to Aragon (2003, as cited in Cochran & Brown, 2016), using games, simulating a radio talk show to include guests, or using multimedia in the online environment have all been successful to enhance student motivation.

In adult-learning models, teachers are merely the facilitators of learning, with learners self-directing their learning (Knowles, 1980, as cited in Birzer, 2003). Adult-learning models also encourage the learner to incorporate their past experiences to learning and to make use of experiential learning activities (Birzer, 2003; Clarke & Armstrong, 2012). Following this model, the training should be as experiential, interactive, and participatory as possible, also including simulation exercises and problem-solving activities. Clarke and Armstrong (2012) also discuss that trainers should try to accommodate different learning strategies in their repertoire so individual learning preferences are catered for. According to the United States Department of Justice (2004, as cited in Clarke & Armstrong, 2012), six learning principles should be incorporated into teaching when considering adult-learning principles:

- Adults learn throughout their lives;
- Adults exhibit diverse learning styles and learn in different ways, at different times, for different purposes;
- Adults prefer learning activities to be problem-centred and to be meaningful to their life situation;
- Adult learners want their learning outcomes to have some immediacy of application;
- The past experiences of adults affect their current learning, sometimes as an enhancement, sometimes a hindrance; and
- Adults exhibit a tendency toward self-directedness in their learning.

According to Vodde (2012), effective learning is not a property of any given instructional method, practice or procedure, being a result of an overarching philosophical approach considering adult learners needs and dispositions.

Birzer (2003) discusses that incorporating adult-learning principles within a police academy might mean having to review the basic police academy training curriculum. Vodde (2012) describes that when subscribing to the adultlearning philosophy and methodology, recruits are provided with a detailed and insightful explanation of the training program's purpose, processes, and rationale, which serve to guide them throughout the training process. According to the author, this would foster a physical and psychological climate that takes into consideration the affective needs of the recruit; which would in turn provide for a healthy, engaging, challenging, and collaborative atmosphere in which recruits can develop a clear understanding and perspective of their role within society. The training program should also be a well-planned and skilfully orchestrated process that thematically integrates different topics in the curriculum to include multi-sensory experiential learning activities that allow recruits to apply their learnings. McCay (2011) identified in their study in the United States including observations, interviews with police recruits, and reflective journaling that the interaction between recruits during the practical application of skills and other handson activities is important for recruits to construct meaning. In a literature review focusing on the use of practical, hands-on training experiences in evaluation course work and training programs, Trevisan (2004) found 18 articles addressing four approaches to providing practical training evaluation: 1. simulation; 2. role-play; 3. single course projects; and 4. practicum experiences. Depending on how these evaluations are structured, they can incorporate adult-learning principles.

Although adult-learning principles have been advocated for in learning, Birzer (2003) acknowledges, however, that some subjects in the police-training curriculum will still require training using behaviourist approach techniques, discussing that these techniques are preferred in situations where new mechanistic skills need to be learned (e.g. defensive tactics, defensive baton, defensive driving technique).

Öztürk (2011), when considering 209 police officers' learning preferences in the United States, observed a strong tendency toward teacher-centred instruction. Jacobsen (2015) observed in Canada that police trainers used both

learner-centred and teacher-centred strategies, although they supported the use of adult-centred learning approaches when teaching. Werth (2009) identified that instructors generally favoured teacher-centred strategies when teaching in police academies in two American states, even when the academy generally used the problem-based learning approach. The study by Donohue Jr. and Kruis (2020) including surveys with police recruits in the United States identified that the adult-learning approach did not increase recruit competence levels more than traditional pedagogy when considering all topics taught.

Overall, based on the literature approached in this section, it is clear that adult-learning principles have an intrinsic connection with the community policing paradigm and help to transmit meaningful competencies and skills to police officers. However, given the evidence provided in this section, it is important to remember to choose the learning approach to be used in trainings in light of the current literature, learner preferences, and the topic being taught, reassessing the approach adopted regularly.

3.2.1 Adult-Learning Models

The problem-based learning (PBL) approach is one of the adult-learning models more heavily used in training (Clarke & Armstrong, 2012). This approach places learners in the role of active problem solvers who are confronted with complex problems similar to those encountered in practice. According to the authors, when properly conducted, this model builds teamwork skills and develops leadership abilities through cooperative work group experiences. Makin (2015) described a meta-analysis by Vernon and Blake (1993) which found that the PBL approach was superior over more traditional approaches in multiple of the outcome measures examined. Colliver (2000, as cited in Makin, 2015) reported that high enthusiasm from staff and students with the PBL approach translated into motivation to demonstrate results and engage in more challenging curricula. According to Jacobsen (2015), the PBL approach was being incorporated into many police academies in Canada. Lettic (2015) reported that police recruits who attended the training including the PBL approach in the United States had significantly higher satisfaction scores for the overall program than those who received training based on traditional learning approaches. McCombs (2015) found in their study that attending in-service training based on the PBL approach was related to less use of force in practice.

On the other hand, Albanese and Mitchell (1993, as cited in McCombs, 2015) described in their meta-analysis that there was not enough research at the time to say that PBL should be fully implemented. Although, a more recent meta-analysis has suggested a dramatic increase in overall academic achievement when the PBL is used (Batdi, 2014, as cited in McCombs, 2015). McCombs (2015) argues, however, that a gap exists in terms of PBL research in other areas than the medical area, where PBL outcome measures have been rarely tested adequately and linkages within the research have been weak. Amey (2019), for instance, discussed that no research comparing recruits who have been through a problem-based learning academy to graduates of programs that use different instructional methods was identified in their literature review.

There is also some criticism towards the PBL revolving around the additional resourcing needed to implement the method as less content is covered in the same amount of time when compared to traditional learning methods (Makin, 2015). Thus, some critics argue that the cost-benefit of using the PBL approach is only marginal. Additionally, there is some criticism regarding the long time it takes for staff and students to master and adapt to this new learning approach (Makin, 2015). Lettic (2015) reported initial frustration from attendees in police courses using the PBL approach, although this frustration seemed to disperse once course aim and process were better understood by attendees. Kooi and Palmer (2014) reported that considering most of the topics approached in the courses they were assessing (except for telephone and radio procedures), there were no statistical differences in perceived problem-solving and critical thinking skills, and satisfaction and belief that the instruction prepared students well to function as a police officer between students who attended a course based on the PBL approach and students who attended a course based on lectures.

Authors have also noted the resistance of some organisations to use the PBL approach and the incongruence between the paramilitary structure in place in some law enforcement organisations and the PBL (Makin, 2015). Thus, given the limitations of the PBL approach and the lack of reliable studies investigating the impact of using the PBL approach in police academies, the PBL should be adopted with caution by law enforcement agencies.

Additionally, Clarke and Armstrong (2012) discuss that the facility requirements of the PBL method are more demanding than those of traditional law enforcement education. When using PBL, facility design must support the learner to understand the information given, see it demonstrated, have opportunities to practice, apply the learning, and be coached on their performance (Oregon DPPST, 2004, as cited in Clarke & Armstrong, 2012). According to Oregon DPPST (2004, as cited in Clarke & Armstrong, 2012), a facility could facilitate the PBL approach by:

- ensuring that the academic building includes both traditional classrooms and smaller break-out rooms to facilitate interactive work sessions;
- including skills centres, firearms ranges, and emergency vehicle operation courses (EVOC) which enable learners to practice skills and problem-solving in controlled and flexible settings; and
- including city street venues, scenario rooms, tactical training facilities, and EVOC courses which support the incorporation of real-life exercises that test proficiency, decision-making, and problem-solving.

According to Clarke and Armstrong (2012), an effective scenario-based facility fosters the four components of the Learning Cycle – experience, reflection, generalisation, and application. White and Escobar (2008) also emphasised in their literature review the importance of implementing training that is practical, scenario-based and realistic.

The use of scenarios and simulations has been highly praised in some of the studies assessed in this literature review. Scheer (2014), for instance, found in their study assessing an adaptative expertise skills course for sworn officers in the United States that participants felt enthusiastic about computer simulation training and scenario-based training, although using these was not related to the development of trainee confidence. Atkins and Norris (2012)¹ suggested based on their study with scenarios that training under stressful situations can be used to improve performance in stressful field activities common to the law enforcement profession. The authors argue, however, that performance in their study was not related to a specific heart rate, blood pressure, or cortisol level in trainees, arguing that it was important to measure mental/emotional stress in trainees during high-stress scenarios as these were the measurements related to trainee performance in their study.

The Community Oriented Policing Services (2001) in the United States produced a learning manual for training and evaluating police trainees. The manual describes a 15-week post-academy training program including content and exercises targeted at enhancing problem-solving skills. According to the manual, multiple frameworks can be used to solve problems in practice in the community, with the most common being the SARA² (i.e. scanning, analysis, response, assessment) model, which includes aspects of the PBL learning approach.

Belur et al. (2019) conducted a systematic review of literature to determine how the training of recruits works, under what conditions, and for whom. They found that of the 33 studies considered, 27.3% included aspects from adult-learning models as a learning mechanism, while 15.2% identified PBL as a learning mechanism. Additionally, 27.3% of the studies highlighted the importance of including group or collective reflection as a learning strategy.

Furthermore, findings in Belur et al. (2019) study showed that student-centred teaching approaches promoted critical thinking and problem-solving skills; recruits preferred practical, hands-on training over theoretical lessons; field training had a positive impact on the process of transforming recruits from civilians into police officers; and academic and field training tutors had critical importance in enabling recruits to integrate theoretical learning with practical skills. The studies considered suggested that learning techniques such as group discussions, simulation exercises, hypothetical case scenarios, PBL activities, the use of the case method, and narration of stories about actual experiences enhanced the learning process, although the authors cautioned readers that scenario-based learning should not be confounded with 'war stories', as these are incongruous with community policing. Some of

¹ This study also describes the process of developing scenarios for training. Thus, it includes important tips about how to conduct scenario-based training and performance assessment.

² The SARA model establishes four steps to resolve problems in the community: 1. Identify and prioritise the problem (scanning); 2. Use relevant data to pinpoint root causes of the problem (analysis); 3. Identify and select interventions, also developing and implementing an action plan (response); and 4. Assess the effectiveness of the response (assessment).

the studies considered also emphasised the importance of using prior experiences to build knowledge, emphasising the role of debate and discussion to challenge recruits' prior learning and encourage different perspectives.

Academic and field trainers were seen in the studies as playing the key role of enabling effective learning strategies through effective facilitation and leadership (Belur et al., 2019). Overall, the systematic review of literature suggested that including adult-learning principles and learner-oriented teaching strategies which foster group discussion and reflection on practice at both individual and collective levels is effective when delivering curricula and encouraging the development of critical thinking skills. One limitation to the generalisation of findings from this review is that the majority of the studies included were conducted in the United States (56%).

Reflective practice has also been considered a valuable practice within adult-learning models. According to Vodde (2008) and Rantatalo and Karp (2016), the reflective practice involves thinking about the way things are done, what the impact is, and how it could be done differently for better results. The practice of reflection has been considered in multiple articles from Sweden. Rantatalo and Karp (2016), for instance, conducted an ethnographic study investigating the practice of collective³ reflection among police recruits in a police education programme. The authors found that access to collective experiences can function as an important resource for reflection. However, the incorporation of a wide experience base also added complexity to the collective reflective process, and this complexity hindered extensive social reflection to occur. Bergman and Karp (2016) focused on Swedish police educators and the practice of collective reflection in their profession, finding that by taking a reflexive approach, police educators engaged in personal development as individuals and police officers, also developing greater awareness of the educational task.

Swedish police educators also observed in Bergman et al.'s (2018) study that the opportunity to collectively reflect on police work and police education under safe conditions was important to the meaning-making and professional development of both police educators and police officers. The police educators in this study also described that police officers in the field spontaneously taught each other and developed their skills in informal settings such as during small talk in the patrol car, between tasks, or in breaks in the rest room, discussing that this process can take several days. Some of the educators, however, observed that they had not had the opportunity to think about, reflect on, or articulate their practice before the study. Bergman (2017) argues that it might be time to provide professionals with more frequent opportunities to reconsider what they are doing, inquiring 'the why' both before and after actions. The College of Policing (n.d.) in the United Kingdom has published a manual on reflection practices, which includes different resources and the Gibb's Reflective Cycle⁴ to help the reader reflect on their behaviour.

In this context, it is also important to mention active learning, which is a learning method intrinsically related to adult learning, despite not being an educational model in itself (Donohue Jr. & Kruis, 2020). In active learning, students are actively engaged in the learning process. The method includes the use of participants' backgrounds, problem-solving exercises, and the use of technology to meet the needs of adults (Silberman, 2006, as cited in Donohue Jr. & Kruis, 2020).

Finally, another related method is action learning, which includes learning through actions in a controlled environment (O'Neil & Marsick, 2007, as cited in Stréhli-Klotz, 2017). Action learning is grounded on experience and includes six different stages: problems, group, questions, action, learning, and coach (Marquardt, 2011, as cited in Stréhli-Klotz, 2017). More specifically, action learning focuses on the problem at hand and generally is based on a team finding the solution for a problem together (Stréhli-Klotz, 2017). During action learning it is expected that

³ The authors emphasise that the practice of reflection can vary in a continuum that goes from individualised practice, in which aids are provided to provoke individual reflection, to a more collective practice, which emphasises co-construction of meaning. In their study, collective reflection practices included the group verbalising and assessing their own previous courses of events, individual reflective storytelling impacted by listeners, unstructured sayings and exchanges of views, etc. The reflection practice in this study happened in the context of a PBL course.

⁴ The Gibb's Reflective Cycle is a tool which aids the reader to explore and learn from situations that occur, particularly if the outcome was unexpected or it was a negative experience.

participants will reframe the problem and define the targets again and again, step by step, defining the strategy and measures required only after considering the problem from different perspectives. In this learning method, the action learning coach has the central role of providing feedback to the team regarding the learning being achieved and the problem-solving method.

Overall, the literature summarised in this section suggests that different adult-learning models and methods could be considered in police education. However, it is important to observe that no strong evidence was observed in the literature towards one adult-learning model/ method or the other. Thus, these approaches should be implemented with caution and reassessed periodically.

3.2.2 Instructors, Academic Trainers and Field Training Officers

Birzer (2003) discusses that it is commonplace for police trainers to find themselves in their role without having adequate preparation, although the systematic review by Belur et al. (2019) indicated that the amount of training provided to educators varies. Jacobsen (2015), for instance, found in their study including surveys and interviews with police instructors and key staff members within police training academies in Canada that specialised training was provided to police instructors for them to become effective instructors.

The systematic review of literature by Belur et al. (2019) identified that both academic trainers and field tutors need to be sufficiently trained so they can deliver a student-centred learning model and understand their role in it. In their systematic review of literature, Belur et al. (2019) also found that it is important for recruits to remain with the same field tutor during their training; for field tutors to be motivated individuals with adequate expertise, training, and motivation to teach; and for academics and practitioners to deliver training in partnership. Debriefing⁵ also was highlighted by Belur et al. (2019) as a useful field training technique to encourage the integration of theory and practice. Studies included in Belur et al.'s (2019) review also suggested that encouraging recruits to reflect and improve on their experience with their tutor, who is encouraging, supportive, and friendly (and not overly critical), is important to get recruits used to the cyclical feedback process that is part of problem-solving.

According to Birzer (2003), in adult-learning models, trainers need to stop and reflect on their guiding principles. In this sense, teachers of adults need to possess both technical and interpersonal skills to be effective facilitators of learning, being central to this approach trainer personality characteristics and interpersonal and human relationship skills concerning the adult learner. Birzer (2003) argues that incorporating adult-learning principles to police training would create multiple new trainer positions, including the action-learning facilitator, which would require, for instance, the facilitator to be skilled at problem framing; able to communicate perceptions using observable data while enquiring learners' views of the world; and able to question theirs and the learners' prior views and perceptions of the world.

Basham (2014), however, describes that there has been evidence in the literature that suggests that police instructors are not capable of embracing adult-learning principles as they either do not understand them, have no awareness of them, or are unable to incorporate them into their instructional practices. According to Basham (2014), instructors have also suggested that there is limited time to integrate student-centred approaches to practice. Basham (2014) listed as barriers to implementing true educational practices to the police academy in Australia:

- An ongoing culture that only police know how to educate police and therefore traditional non-police educational approaches are not considered relevant or appropriate;
- An ongoing adherence to the position of instruction that has a greater emphasis on the art and craft of policing;
- Having the Certificate IV in Training and Assessment as the only required educational qualification for instructors;

⁵ Debriefing was described as the discussion of a practical experience by the recruit and tutor in which the recruit is encouraged to first reflect on their practical experience and then is given constructive feedback by the tutor.

- A lack of ongoing professional development that encourages instructional/educational staff to investigate adult learning principles and apply them to their day-to-day educational activities; and
- The policy of a limited time-in-position for sworn police instructional/educational staff.

Finally, field training officer (FTO) behaviours have been shown to impact trainee intent to transfer academy training into practice⁶ (Dulin et al., 2020). More specifically, FTO behaviours were associated with a higher intent to transfer academy training to practice in the United States. FTOs in the study by Amey (2019) also observed that they saw their roles as nurturing recruits, providing them with the space to commit small mistakes and learn. The FTOS in this study, mentioned also that it would be optimal to stop scoring recruits only based on a pass/fail system as this was not helpful for their learning. Moreover, FTOs acknowledged that recruit training should include more ride alongs before career choice; FTOs did not have enough time to develop new officers; FTOs felt burned out from training new officers due to lack of time; and there was a shortage in qualified FTOs in their police force.

Overall, the literature on instructors, academic trainers, and field trainers emphasise their important role in the process of police officer education. The literature also emphasises, however, that there are some barriers to their practice such as lack of professional development, lack of time to reflect on their practice, and lack of time to train police officers.

3.2.3 Organisational Practices and Behaviours

According to Belur et al. (2019), implementation is a vital part of police training. One of the two key areas identified by the authors in their systematic review of literature as having a vital role in training implementation was organisational buy-in (the other area was the trainer/tutor role). Studies in the review identified that police culture can hinder the adoption of new training based on concepts included in less than traditional paradigms such as community policing and problem-based policing. Thus, an appropriate change in police culture is seen by the authors as an essential pre-requisite if training reform is to become embedded. Belur et al. also (2019) observe that the close collaboration between police forces and higher education institutions might enable this shift in conceptual and cultural attitudes towards training, assisting the implementation of new training models.

Additionally, Belur et al. (2019) also emphasise that lack of resourcing (e.g. lack of equipment, lack of resourcing for specific learning activities such as group debate, lack of time for tutors to engage in reflection or debriefing with recruits) can limit the quality of the training provided. Likewise, Jacobsen (2015) observed in Canada that administrators' scrutiny of training budgets was seen as placing extreme pressure on training academies to get the required training completed.

According to studies reviewed by Belur et al. (2019), it is also important that recruits get to be allocated shifts and jobs relevant to their development during field training, and that their development as police officers is not jeopardised by other organisational demands.

Finally, Hoel and Barland (2021) found in a study including interviews with 23 Incident Management police staff in Norway that the concept of experience-based learning was not understood by staff in various police ranks; participants blamed police culture for not learning based on experience; and the process of learning from the prior crisis was a process needed to 'produce a document'. Although this study looked into the organisational level of understanding of experience-based learning, it is a relevant document as it depicts how organisational culture can hinder learning.

Overall, the literature included in this section suggested that it is necessary to anticipate and counteract organisational factors which could hinder the implementation of adult-learning principles in training. In this scenario,

⁶ The following FTO behaviours were considered in the study: 1. goal-setting; 2. criterion of acceptable performance; 3. feedback;

modeling trained behaviours; 5. incorporation of prior mistakes; 6. showing confidence in trainee; 7. discuss training application;
 framing the training intervention; 9. toleration of mistakes; 10. provision of opportunities to use new skills; and 11. demonstration of competence in academy concepts.

the culture within law enforcement agencies seems to have a central role in fostering or hindering the use of adultlearning principles.

3.3 Training Evaluation Models

Training evaluation includes the assessment of the total value of a given training – assessing the cost-benefit, general outcomes which benefit the organisation, and the value of the improved performance of those who have undertaken training (Lewis & Thornhill, 1994, as cited in Dahiya & Jha, 2011). Van Dyk et al. (1997, as cited in Dahiya & Jha, 2011) conceive that the multiple definitions of training evaluation have some common implications:

- Evaluation is an ongoing process. It is not done at the end of course only;
- The evaluation process is directed towards a specific goal and objective;
- Evaluation requires the use of accurate and appropriate measuring instruments to collect information for decision-making;
- Evaluation is a form of quality control; and
- Evaluation is not only concerned with the evaluation of students but with the wider training system as a whole.

Zinovieff and Rotem (2008) describe that the literature generally differentiates goal or objective-based training evaluation models from systems-based training evaluation models. Goal-based models (e.g. Kirkpatrick model) focus on the purpose of the evaluation. However, according to the authors, these models generally fail to define the steps necessary to achieve the purpose of the evaluation and do not address the ways to utilise results to improve training. When using these models, practitioners generally have difficulty in selecting and implementing appropriate evaluation methods (quantitative, qualitative, or mixed) as they are not clearly defined. According to Zinovieff and Rotem (2008), many organisations do not use goal-based models in their entirety, evaluating only reaction to training and learning from training, as measuring other training evaluation levels becomes increasingly difficult.

Systems-based models (e.g. CIPP), on the other hand, are more useful when thinking about the overall context and situation in which the training takes place, but might not provide sufficient granularity as few of these models provide a detailed description of the processes involved in each step of the evaluation (Zinovieff & Rotem, 2008). Additionally, none of these models provides tools to evaluate the training; and systems-based models do not address the collaborative process of evaluation, not depicting the different roles and responsibilities that people play during a training evaluation process.

Multiple goal-based models have been based on the Kirkpatrick model. This model has been the most influential training evaluation framework in the literature (Dahiya & Jha, 2011). Thus, this is the goal-based model described in more depth below.

The Kirkpatrick model encompasses four levels of training evaluation (Kirkpatrick & Kirkpatrick, 2021):

- Reaction This level refers to the extent to which participants assess the training as favourable, engaging and relevant to their jobs;
- Learning This level refers to the extent to which participants acquire the intended knowledge, skills, attitude, confidence and commitment from their participation in the training;
- Behaviour This level refers to the extent to which participants apply what they learned during training on their jobs; and
- Results This level refers to the extent to which targeted outcomes occur as a result of the training and the support and accountability around participants.

Kirkpatrick and Kirkpatrick (2021) observe that it is important to assess training using all four of the levels to reassure that the training is effective, improving the training programme; and to maximise workplace performance and demonstrate program value, establishing training effectiveness.

The reaction and learning levels can be assessed closer in time to when the training is provided through surveys, interviews, focus groups, assessments, and experiments, among other methods (Kirkpatrick & Kirkpatrick, 2021).

However, it gets more challenging to assess the behaviour and results levels of the model. For instance, it could be challenging to measure changes in behaviours on the job targeted at the training if the behaviours are rarely necessary to do the job. Likewise, in the results level, it could be challenging, for instance, to attribute a 'decrease in the number of assaults to police officers' to training and not to other factors which impact these statistics at the organisational level such as learning culture or support to transfer the training. There is also a time difficulty component to measuring the results of the training. Results from the training might not be realised from the training instantaneously, taking time to be observed on the data gathered by the organisation at the organisational level.

Additionally, Dewhurst and Harris (2018) observe that the training provided should be part of a bigger training solution package as training alone does not guarantee that a training participant will perform the vital few critical behaviours on the job. In this sense, it is necessary to have in place also a comprehensive performance support and accountability package after training that facilitates further on-the-job learning and reinforces and rewards the performance of those critical behaviours on the job. Rao (n.d.) discusses that for training to promote behaviour change, processes and systems that reinforce, monitor, encourage and reward the performance of critical behaviours on the job have to be in place.

The Jack Phillips Return on Investment (ROI) model added a 5th level to the Kirkpatrick model by including the return on investment and organisational impact of the training (Zinovieff & Rotem, 2008). This model goes beyond measuring the effect of the training on the trainee by also measuring the cost-effectiveness of the training.

The literature has, however, also observed limitations of the Kirkpatrick model. Zinovieff and Rotem (2008) described that this model has been criticised for implying a hierarchy of levels, with a higher value assigned to the results level and an implied relationship between levels of the model (e.g. reaction and learning) which is not always observed in the literature. The model has also been criticised for implying that performance during training is a prediction of post-training performance and ignoring organisational level variables that affect training transfer. Despite its limitations, the Kirkpatrick model has been extensively used in practice, even when considering training evaluation in law enforcement agencies (Belur et al., 2019).

When considering systems-based training evaluation models, The CIPP is one of the best-known models. Thus, it is described below. However, it is important to acknowledge that other systems-based models have also been described in the literature (e.g. IPO, TVS).

The CIPP (Context, Input, Process, product) training evaluation model was developed by Stufflebeam in 1971 and includes four types of evaluation (Zinovieff & Rotem, 2008):

- Context evaluation which enables planning and developing objectives;
- Input evaluation which enables to determine the training design by examining capability, resources, and different strategies;
- Process evaluation which enables to control the training implementation by providing on-going feedback; and
- Product evaluation which identifies outputs and outcomes from training.

Alvarez et al. (2004) differentiated training evaluation from training effectiveness. They conceive training evaluation as a methodological approach for measuring learning outcomes. On the other hand, they conceive training effectiveness as a theoretical approach for understanding those outcomes (i.e. establishing the variables that are likely to influence training outcomes before, during and after the training). According to the authors, three sets of characteristics have been described in the literature to impact training effectiveness:

- Individual characteristics which include individuals' characteristics before the training (e.g. personality traits, attitudes, abilities, demographics, experience, and expectations) and attitudinal constructs manipulated during training (e.g. self-efficacy, goal orientation, and motivation);
- Organisational and situational characteristics which include organization's climate for learning, history, policies, trainee selection technique, and trainee notification; and

• Aspects of the training – which include aspects of the training program such as instructional style, practice, and feedback.

Alvarez et al.'s (2004) review of literature found that among these characteristics, ten were likely to affect training effectiveness: pre-training self-efficacy, pre-training motivation, experience, post-training mastery orientation, cognitive ability, age, learning principles, post-training interventions, high difficulty, and positive transfer environment. Based on this literature review including ten years of training effectiveness research and four prior training evaluation models (including the Kirkpatrick model), Alvarez et al. (2004) proposed a framework considering both training evaluation and training effectiveness – the IMTEE. Alvarez et al. (2004) literature review and model suggest that when assessing a training, it is extremely important to also consider external variables impacting training transfer⁷ and outcomes (i.e. training effectiveness). Other more recent reviews of literature have examined factors affecting both training transfer and training effectiveness (Burke-Smalley & Hutchins, 2007; Punia & Kant, 2013; Tonhäuser & Büker, 2016).

A key aim of the evaluation of officer training is to ensure that the course is fit for purpose of ensuring officers are proficient in the skills required in the field. As such, common recommendations and practices are to utilise feedback from officers in the field and incident/use of force reports completed after violent police-public interactions (Buttle, 2007; Cushion, 2018; Henriksen & Kruke, 2021; Kaminski & Martin, 2000). By utilising such information from officers' real-world experiences, training programmes can be developed and revised to ensure that the curriculum trained provides skills and tactics which are most effective in an operational context (Kaminski & Martin, 2000). However, it has been noted that while collecting feedback from expert, highly-experienced and skilled officers may be of benefit to guide the provision of subsequent training, often the feedback being provided is from less than highly-skilled officers (Buttle, 2007). Additionally, if officers are only trained on techniques that are the simplest to learn and execute in the field, then techniques that are safer and more effective, but more difficult to learn, may be lost from the curriculum (Buttle, 2007; Cushion, 2018). As such, when officer feedback is used in the evaluation and revision of officer training, care needs to be made to ensure that the curriculum is not solely based on officer preferences, but rather, is the result of a thorough and informed analysis of training needs (Cushion, 2018).

Some studies have also considered characteristics affecting training perception and training effectiveness in the law enforcement context. In a study focusing on criminal investigative techniques in the United States, Northup (2019) investigated which practices, outside of the classroom, aided crime scene investigators to improve investigative skills and transfer what they learned to the field. By conducting document reviews and interviews, the author found that support (i.e. peer support, formal and informal mentoring partnerships, communities of practice, and organisational supports); experience (i.e. use of the skills acquired in the job); reflection on the skills and competencies used; and motivation to improve their skill were perceived as improving investigative skills and supporting the transfer of what was learned to the field.

In another study including interviews with police graduates from a university in the United Kingdom, Norman and Williams (2017) found that the practical application of the knowledge gained in the course depended on whether an officer's immediate and senior management were receptive to embrace learning.

Wolfe et al. (2019) observed in their study with patrol officers in the United States that officers with greater selfefficacy regarding citizen interactions had more training satisfaction; officers with higher evaluations of organisational justice perceived greater skill acquisition; and officers with an internal locus of control had more training motivation.

Simpkins (2015) found in a study including first responders who attended traditional instructor-led training (ILT) or web-based training (WBT) that training transfer was unaffected by the training delivery method (ILT versus WBT).

⁷ According to Alliger et al. (1995, as cited in Arthur Jr. et al., 2002), learning researchers and industrial/organisational psychologists have conceived training transfer differently. Psychologists have conceived training transfer as the generalisation of training performance from the training environment to the work environment or a given task, while learning researchers have often conceptualised it as the generalisation of learning from one task to another.

Thus, it could be the case that well-implemented web-based training could be effectively used to train police officers.

Belur et al. (2019) suggest that to verify whether police recruit training is working or not, it is important to adopt a theory of change or a well-articulated logic model. The authors discuss, however, that this is currently missing from existing training evaluation literature. Furthermore, their review of literature suggested that when considering Kirkpatrick's training evaluation model, evaluations of recruit training have been restricted to trainee reaction evaluation and learning outcomes evaluation; and that none of the studies considered had evaluated the effect of training on behaviour modification, and whether they improved policing outcomes in the medium or long term. The authors suggest that future training evaluations should incorporate Kirkpatrick's four levels of training evaluation, also incorporating a fifth level of training evaluation measuring contribution to society.

Gibson (2012) suggested that there is increasing pressure in the United Kingdom to measure performance and meet new challenges, which might explain the increasing importance attributed to training evaluation. The author also discusses that training evaluation has not been deeply researched in the police service and that the Home Office has recommended police forces in the United Kingdom to use the Kirkpatrick model when evaluating training. When assessing training evaluation in two different police forces in the United Kingdom, Gibson (2012) identified challenges for the police, specifically at levels three (i.e. behaviour) and four (i.e. results) of the Kirkpatrick model, due to some reasons including the lack of clearly defined performance measures. Moreover, the researcher proposed an enhanced evaluation model including the alignment of training evaluation processes with the staff performance development review process.

Boldovici et al. (2002) described how to evaluate training in the military using field trials, focusing also on elementary rules for analysis and interpretation of data from these. Field trials are experiments carried outside of laboratory settings. They are acknowledged in the literature as one of the most reliable study designs to investigate the impact of different conditions (e.g. training versus no training) on a given outcome (e.g. performance). They are also more applicable to the real world than pure experiments as they are conducted in the field. When designing training evaluation field trials it is important to consider the teachings in this document (i.e. Boldovici et al., 2002).

According to Salas et al. (2003), Haccoun and Hamtiaux (1994) proposed using the Internal Referencing Strategy (IRS) when it is not possible to implement a rigorous field trial with a control group (i.e. a group which does not receive the training). The IRS incorporates both relevant and nonrelevant (untrained) material into the pre-test (i.e. measurement before the training) and post-test (i.e. measurement after the training). The changes between pre and post-test on both types of materials are compared, and training is considered to be effective when changes on the trained material are greater than on the untrained material.

Dahiya and Jha (2011) describe that it is generally difficult to evaluate trainings, explaining that experimental issues (e.g. lack of control group) are common when assessing trainings. However, according to the authors, some barriers to training evaluation can be overcome with good planning, while others are more difficult to overcome. For instance, sometimes evaluators are not trained in the principles and techniques of evaluation; and evaluators do not assess training as an integrated system. Considering these issues beforehand enables training evaluation to be more effective.

This section focused on training evaluation models, defining that training behaviours and results can be impacted by multiple individual, situational, organisational, and training characteristics. It is important to observe that training evaluation is only one of the phases of training development. A systematic model of training development should include: the needs assessment phase; the training phase; and the evaluation phase (Dahiya & Jha, 2011). Both the training phase and the evaluation phase have been covered in this document. Thus, we focus briefly here on the needs assessment phase. According to Erasmus et al. (2000, as cited in Dahiya & Jha, 2011), the needs assessment phase is generally undertaken to define the nature of performance problems to establish the underlying causes of these problems and the way how training (if any) can address them. Alvarez et al. (2004) discuss that a thorough needs assessment considers the individual differences of trainees, the organisational climate and objectives, and the

characteristics of the task(s) to be learned. Thus, the needs assessment phase is fundamental for defining whether a specific training is needed (as performance issues might be caused by other factors than lack of skills) and what should be focused on the training.

4. Basic Police Training and the Role of Higher Education in Law Enforcement

4.1 Overview

The current chapter presents findings from a review of literature focusing on basic police training; and the role of higher education in law enforcement.

Overall, the literature included in this chapter suggests that the core competencies and skills expected after basic police training vary between countries and police forces, although operational (e.g. traffic control), soft (e.g. interactions with others), and problem-solving (e.g. decision-making) competencies and skills have been considered across multiple agencies (Bergman & Karp, 2021; Blumberg et al., 2019; Cheung, 2012; Colover et al., 2016; Cox, 2011; Dekanoidze & Khelashvili, 2018).

It is important to keep in mind, however, that there is a lack of research-based evidence to suggest which competencies and skills should be ultimately defined as the core competencies and skills to have by the end of basic police training (Belur et al., 2019). Thus, caution is needed when generalising findings from overseas Constabularies to the New Zealand context.

Moreover, the literature assessed suggests that it is important to consider field practice; teaching tools and methods used; trainer behaviour; integration between training and practice; and learner preferences when planning and implementing basic police training (Belur et al., 2019; Lauritz et al., 2012; McGinley et al., 2019; Staller et al., 2021b).

Finally, the literature summarised in this chapter highlighted the relevance of a stronger collaboration between academy and police practice, both through having a higher degree qualification as one of the pathways to the police officer profession and through the inclusion of scientific and academic knowledge in police training and education (Clough et al., 2017; Fernie et al., 2019; Stanko, 2017; Tong, 2017; White & Escobar, 2008).

4.2 Basic Police Training

Different reports depicted important competencies and skills in police officers after basic training and also expected learning outcomes from the basic training provided in different police academies around the world. Some reports also depicted how the police basic training is and should be provided in different agencies. These reports depicted, for instance, how field training was provided, important aspects to consider when providing police basic training, and how theory and practice were aligned in basic training. Of note, is the review by Belur et al. (2019). The authors conducted a systematic review of literature to determine how recruit training works, under what conditions, and for whom, to inform the development of a graduate-level police training programme in England and Wales. Findings from this review are provided in the subsections below.

4.2.1 Basic Core Competencies and Skills

Overall, 42% of the 33 studies included in Belur et al.'s (2019) systematic review did not provide any detail regarding training aims or intended outcomes of recruit training. While some authors provided a list of topics that were seen as important (e.g. police integrity), others suggested the main aim of academies was for recruits to pass formal examinations, becoming police officers, without specifying what knowledge and behavioural skills were required. The aims of specific parts of the training (e.g. field training) were ambiguous. Some of the programmes described as aims, however, to increase specific skills or qualities (e.g. increase in knowledge of the code of ethics). Academies that incorporated community policing strategies aimed to produce officers capable of developing rapport and building trust with local communities, having a strong officer presence, and being decisive and assertive. Outcomes from training were underreported (given the lack of training aims in studies) and not always positive.

Vincent (2017) stated that the Organization for Security and Co-operation in Europe (OSCE) is not generally responsible for police training, but promotes good practices, guidance and principles on the way to better conduct

training dedicated to cadets and new police officers. According to the author, and based on his experience at OSCE, basic recruit training generally includes basic police competencies such as values and ethics at the core of democratic policing; ability to exercise judgement in different practical settings based on these values and ethics; policing skills; baseline requirements like the use of equipment; communication and self-management skills; the proper use of firearms; patrolling; and criminal investigation and procedure.

According to Xu and Fu (2017), the Zhejiang Police College in China offers 11 undergraduate major subjects for recruits. These include criminal investigation; forensic science; public order management; traffic control; law, computer science and technology; investigation of economic crimes; international police cooperation; police command and tactics; law enforcement on internet security, etc.

Blumberg et al. (2019), in a literature review focusing on the American law enforcement context, described as important competencies and skills to have as a police officer high moral/ethical standards; an unbiased and understanding sense of diversity; service orientation; team orientation; good oral communication and listening skills; good written communication skills; high levels of motivation; strong decision-making and problem-solving skills; good human relations skills, self-control and discipline; good planning and organisation skills; and a performance-driven attitude.

Cox (2011), in an opinion piece focusing on how the Australian police training and education system could be structured, established topics which should be approached and developed in recruits during the basic police academy curriculum: Informed analysis; Awareness of social issues; Constructive critical thinking; Flexibility in problem solving; Understanding about values and beliefs beyond one's own experience; Better decision-making; and Ethical behaviours.

Cheung (2012) described that the Hong Kong police force identified as a gap in their 2005-2008 strategic plan the need to improve human interaction skills, implementing training to enhance eight specific psychological skills in recruits: Stress management; Emotional regulation; Conflict management; Counselling skills as a supervisor or colleague; Interpersonal communication skills; Healthy lifestyles; Victim psychology; and Psychological skills in interviewing suspects.

Bergman and Karp (2021) observed that police educators in Sweden defined a good police officer as someone who has humility and is self-conscious, broadminded, judicious, and ethical. The police educators in this study also discussed that the police occupation currently is heterogeneous and requires diverse skills and competencies. Polishögskolan (2014, as cited in Bergman et al., 2018) described that the general goals in the national syllabus for Swedish police education state that a police officer after basic training should be able to make independent and critical judgments; independently identify, formulate and solve problems; meet changes in working life; seek and evaluate scientific knowledge in the policing field; and stay up to date with the development of knowledge in the policing field.

When considering police forces in the United States, Canada, Latvia, Estonia, Austria, Netherlands, Germany, Poland, Croatia and Montenegro, Dekanoidze and Khelashvili (2018) found that the most common modules taught to recruits focused on policing laws; traffic control; policing activities and tactics; public order defence; offences and misdemeanour cases; crime prevention; and crime control.

Colover et al. (2016) piloted and evaluated competence assessments for Police Constables (PCs) in seven police forces in the United Kingdom as part of a College of Policing programme known as Defining and Assessing Competence (DAC). In their document, they depicted the required personal qualities for the rank of Police Constable:

Decision-making – Gathers, verifies and assesses all appropriate and available information to gain an
accurate understanding of situations; considers a range of possible options before making clear, timely,
justifiable decisions; reviews decisions in the light of new information and changing circumstances; balances
risks, costs and benefits, thinking about the wider impact of decisions; exercises discretion and applies
professional judgement, ensuring actions and decisions are proportionate and in the public interest.

- Openness to change Positive about change, adapting rapidly to different ways of working and putting
 effort into making them work; flexible and open to alternative approaches to solving problems; finds better,
 more cost-effective ways to do things, making suggestions for change and putting forward ideas for
 improvement; takes an innovative and creative approach to solving problems.
- Professionalism Acts with integrity; takes ownership for resolving problems; acts on own initiative to address issues; upholds professional standards; asks for and acts on feedback; remains calm and professional under pressure.
- Service delivery Understands the organisation's objectives and priorities and how own work fits into these; plans and organises tasks effectively, taking a structured and methodical approach to achieving outcomes; manages multiple tasks effectively by thinking things through in advance, prioritising and managing time well; focuses on the outcomes to be achieved, working quickly and accurately and seeking guidance when appropriate.
- Serving the public Demonstrates a real belief in public service, focusing on what matters to the public and will best serve their interests; understands the expectations, changing needs and concerns of different communities and strives to address them; builds public confidence by talking with people in local communities to explore their viewpoints and break down barriers between them and the police; understands the impact and benefits of policing for different communities and identifies the best way to deliver services to them; works in partnership with other agencies to deliver the best possible overall service to the public.
- Working with others Works cooperatively with others to get things done, willingly giving help and support to colleagues; is approachable, developing positive working relationships; explains things well, focusing on the key points and talking to people using language they understand; listens carefully and asks questions to clarify understanding, expressing own views positively and constructively; persuades people by stressing the benefits of a particular approach, keeps them informed of progress and manages their expectations; is courteous, polite and considerate, showing empathy and compassion; deals with people as individuals and addresses their specific needs and concerns.

The document produced by Colover et al. (2016) also depicted core skills required for being a Police Constable in the United Kingdom. Constables should be able to:

- Provide initial support to victims and witnesses;
- Gather and submit information to support law enforcement objectives;
- Provide an initial response to incidents;
- Arrest, detain or report individuals;
- Conduct priority and volume investigations;
- Interview victims and witnesses in relation to priority and volume investigations;
- Interview suspects in relation to priority and volume investigations;
- Searching people in a policing context;
- Search vehicles, premises and open spaces.

Advanced threshold criteria for Police Constables in the United Kingdom included (Colover et al., 2016):

- Works with minimal supervision and can be trusted and relied upon to get work completed without being prompted by supervisor;
- Takes initiative to generate own workload and does not wait to be asked;
- Has developed breadth and depth of understanding of law, knowledge, evidence-based policing and understanding of complete role;
- Takes an active interest in changes in law and evidenced-based policing, consistently identifying gaps in knowledge and rectifying this;
- Willingness to make decisions independently, escalating when appropriate;

- Reasoned decision-making based on evidence of what works in delivering outcomes, consideration of the National Decision Model, and thinking ahead;
- When making pressurised decisions does not focus on any potential negative impact or repercussions on oneself;
- Trusted to take control, take the lead, and can be relied upon to take over when required from supervision;
- Confidently and competently challenges and expresses opinions with peers and supervisory officers using constructive language;
- Confidently and effectively communicates with colleagues, members of the public or external agencies on what needs to happen and the reason why;
- Actively develops colleagues in terms of developmental or performance needs;
- Is highly thought of and respected by colleagues for their knowledge, skills and experience. Being considered as a role model who colleagues to seek advice from;
- Retains knowledge (organisational, law, or evidence-based policing) to share with colleagues (including knowledge transfer that others benefit from);
- Consistently copes with the demands of peaks in workload, balancing workload efficiently, without having an impact on the quality of work;
- Shows commitment to professional development which is demonstrated through frequent self-initiated learning, further education or skill enhancement; and
- Builds relationships with partner agencies (e.g. local authorities, community leaders, or internal departments), bringing people together to tackle and resolve community issues.

Blumberg et al. (2019) emphasised based on a literature review that recruits need to be trained to control the intensity of their emotions when in the field and to develop skills to control acute anxiety and mitigate chronic distress levels. To the authors, being competent at these skills is as important as being competent at other operational skills. Additionally, the authors emphasised the importance of trainings targeted at social skills and integrity, discussing that practicing skills connected to these areas since the beginning of police academy training is essential. Cheung (2012) also emphasised the importance of introducing the importance of the concept of integrity in recruit training in a case study focusing on the Hong Kong police force.

The literature included in this section suggests that the core competencies and skills expected after basic police training vary between countries and police forces, although operational (e.g. traffic control), soft (e.g. interactions with others), and problem-solving (e.g. decision-making) competencies and skills have been considered across multiple agencies. It is important to keep in mind, however, that there is a lack of research-based evidence to suggest which competencies and skills should be ultimately defined as the core competencies and skills to have by the end of basic police training. Thus, caution is needed when generalising findings from this section to the New Zealand context.

4.2.2 Recruit Training

McGinley et al. (2019) reviewed the literature on recruit training, finding 109 relevant studies. The studies mainly focused on:

- Examining academic and/or field training (n = 36) which included studies investigating a new learning model/ curriculum, the relevance and effectiveness of training, comparing different training/ recruit requirements, the role of higher education, and field training;
- Examining a specific aspect of the training programme (n = 36) which included studies investigating cultural diversity training, stress/coping mechanisms training, mental health training, communication skills training, firearms and use of force training, fitness training, or other training;
- How recruits learn (n =14);
- Recruit attitudes (n = 13); and
- New learning/ teaching tools (n = 8).

McGinley et al. (2019) also reported that most of the studies (61%) included in their review was based in the United States; and the quality of the studies was generally poor, which led to the strength of the evidence gathered being fragile. However, among other findings, the authors suggested based on existing literature that:

- positive effectiveness in developing recruits was somewhat reported in relation to the use of communityfocused and/or problem-based approaches during training in comparison to traditional training;
- the satisfaction of the recruit with field training was related to positive interactions between recruits and field training officers;
- there was at times a lack of coherence between academy-based classroom material and subsequent field training;
- there was a variety of viable entry routes to the police service, including models in which trainees pay for their education;
- recruits need to have access to adequate training facilities to develop the skills and competencies required to be a police officer;
- successful training mechanisms or suggestions for improvements in specific training on diversity revolved around community placements, interactions with people from diverse groups, and more sustained and integrated diversity training throughout academy curriculum;
- learning was hindered if the training environment in the academy was at odds with the demands of operational field conditions;
- specific tools that facilitated learning were virtual learning environments (VLEs), simulation-based training, and use of journals; and
- tools aiding training must be user-friendly, realistic, and correctly implemented for the best results.

Moreover, Belur et al. (2019) found in their systematic review of literature that most of the recruit training programmes (74% of the 23 studies that mentioned training structure) were delivered in standalone blocks of academic and field training components. However, programmes described in five of the studies were structured with interspersed periods of academic and field training components. Belur et al. (2019) emphasise that when combining academic and practical components of the course, an interspersed structure provides more opportunities for recruits to apply what they have learned in practice, and to reflect on what they have experienced operationally, to facilitate the integration of theory and practice. However, it is important to remember that recruits should have first enough understanding of the theory and context to be able to learn from observation and practice. Field training also appeared to be longer in the United States than in the United Kingdom. Blumberg et al. (2019) suggested based on a review of literature that combining lectures and theoretical classroom discussions with the practical application of theoretical knowledge into a simulated training environment is efficient in improving learning, health promotion, job performance and officers' capacity to translate theoretical knowledge into practice.

Dekanoidze and Khelashvili (2018) described that when considering the countries assessed in their study, most institutions in Europe providing police basic training included a practical period (internship/field practice) as part of basic training, while institutions in the United States, Canada and Croatia provided field training following basic training. The share of practical activities in the curricula also varied from 5% in Montenegro up to 30% in Latvia. The most common teaching methods used by institutions during basic training were lecturing, discussion, group work, case studies, role-playing, and scenarios. Most of the institutions also included simulator training when providing basic training. At the time, online courses were not a commonplace in the different institutions.⁸ The most common

⁸ Although online learning and blended learning (i.e. courses including both classroom sessions and online modules) could be more common in other law enforcement training or more recent basic trainings. Glasgow and Lepatski (2012), for instance, described an investigative skills programme in Canada including both classroom sessions and online content. Chapparo (2017) described a case study in France in which police cadets took part in e-learning, emphasising important aspects to consider when incorporating e-learning to courses.

assessment methods used in the institutions were written exams (theory assessments) and practical exams (skills assessment through role-plays, case studies, scenarios, etc.).⁹

Huey (2018) tried to conduct a systematic review of literature including recently published research (2000-2015) investigating 'what works' in the field of in-service police training. However, the review had to be abandoned due to an insufficient number of studies on any topic or training technique. The author urged researchers to conduct more research on the matter.

Connelly et al. (2019) observed that the length of recruit training programmes in the United States varies across Constabularies. According to the authors, video-based simulators and role-play scenarios are used in conjunction with recruit training with increased realism and are essential to testing recruits performance. Likewise, Dekanoidze and Khelashvili (2018) discussed that the duration of basic police education/training programs varies across countries, observing a variation from six months in Poland up to 30 months in Germany.

Staller et al. (2021a) suggested based in their study including interviews with 13 recruits of a German police force that recruit training should broaden conflict resolution training to include the use of communication and deescalation techniques; and that training should mimic better reality, also incorporating activities in which recruits can find adaptable and flexible solutions to existing problems. Based on a related study including interviews with 27 recruits of a German police force, Staller et al. (2021b) suggested that de-contextualised practice and static repetitions are demotivating factors when considering training; and it was important for trainers to be competent in what they taught, to deliver effectively the training content, and to consider the individuality of learners so training is well-received. Lauritz et al. (2012) found among Swedish recruits that hands-on learning activities were preferred in training when compared to reflective activities. The authors argue that a case could be made for either adhering to recruits' preferences by incorporating more hands-on learning activities into the training; or for developing recruits' preferences and competencies by incorporating more reflective activities into training.

Finally, Betts and Farmer (2019) suggested, based on a study including workshops with 244 officers and members of police staff in the United Kingdom, that it is also important to attract and retain recruits with the attributes necessary to cope with the situations they would have to face within frontline policing.¹⁰ In this sense, both effective training and recruiting would be important tools to enable the police force to be more effective, incorporating fully the community policing paradigm.

This section summarised the literature by enlisting how basic police training has been approached in different Constabularies. Overall, findings suggest that it is important to consider field practice; teaching tools and methods used; trainer behaviour; integration between training and practice; and learner preferences when planning and implementing basic police training.

4.3 The Role of Higher Education and Research in Law Enforcement

White and Escobar (2008) discussed that there are both arguments in favour and against college degree requirements for police officers. According to the authors, the main arguments against requiring a college degree include that:

- this requirement unnecessarily limits an already limited applicant pool by excluding otherwise qualified applicants;
- this requirement has a disproportionate negative impact on minorities as they have unequal opportunities for secondary education;
- this requirement assumes that a college education provides the skills needed to perform the job, which is not the case as those skills come exclusively from experience on the job; and

⁹ Please see Dekanoidze and Khelashvili (2018) for comparisons between countries regarding specialised training.

¹⁰ This study included the views of officers and staff members regarding multiple topics such as training, recruiting, career development, and leadership skills. Thus, it might be relevant when considering or modifying different practices and policies within police.

• findings from research examining the impact of a college education on officer performance are mixed.

On the other hand, arguments in favour of a college degree requirement include that (White & Escobar, 2008):

- in such a complex profession as that of a police officer, skills and knowledge necessary to do the job successfully can be learned as well in a classroom setting (and not solely through on-the-job training);
- police must keep pace with the larger public, who is increasingly educated;
- college-educated applicants will be older, more mature, and more well-rounded;
- applicants are likely to interact with others who look and act differently, and who adhere to different belief systems in college, and this interaction leads to greater tolerance and understanding when working in the community; and
- studying different courses at college, such as criminal justice and communications, bring relevant in-depth knowledge applicable to the police officer position and to problem-oriented policing.

White and Escobar (2008) argue that in spite of both con and pro arguments toward college degree requirements, they believe that the future of policing will include implementing a college degree requirement for the profession. Although incorporating this requirement would look differently in different countries. In the United States, for instance, this requirement would translate into a college degree requirement, while in other countries it could be translated into the creation of police colleges providing multiple years of training and education including both academy and field training. To the authors, when implementing this requirement, it would be important to bring the reality of police work into the academy, with adult-learning models being emphasised as an approach which could serve this purpose.

According to Dekanoidze and Khelashvili (2018), some countries have already excluded the need of entrance exams and shorten police academy training if a candidate has higher education (Dekanoidze & Khelashvili, 2018).

Tong (2017) reported that the police service was one of the last public services in the United Kingdom to go through a professionalisation and comprehensive higher education accreditation process. The argument to implement graduate entry requirements for police recruits gained traction in the United Kingdom only in 1999. According to Tong (2017), since then partnerships between universities and police services have grown steadily and down to local arrangements rather than any national coordination until relatively recently with the new policing education qualifications framework (PEQF). It is important to emphasise that the current PEQF does not include a graduate only entry requirement, as it accepts recruits without a degree, but allows these recruits to achieve a degree as they go through their training (i.e. through apprenticeship).

According to the College of Policing (2020c), feedback to the new routes of entry has suggested a positive overall experience. Recruits using the new graduate routes are educated to level 6 (degree level), being well-equipped to apply transferable skills, problem-solving strategies, and personal judgment to various contexts (College of Policing, 2020c). New topics added to training to tackle the realities of modern policing include counterterrorism, digital policing, vulnerability, crime prevention, and criminology. Also, the new PEQF is being implemented using a structure that allows for continual and collective review of policy, process and guidance (College of Policing, 2020c). Tong (2017) argues that universities can support the police service in developing research and designing curriculum to sustain professionalisation.

Fernie, Khalil, and Hartley (2019) conducted a systematic review of literature with the goal of establishing learnings from other professions which moved from a craft base to an academic-knowledge base, providing evidence to inform the police service in England and Wales as they approach a similar professionalisation process. The authors found that the establishment of a service-specific professional body of knowledge led profession members to acquire in-depth knowledge, skills, ethics and values which were associated with a high level of service delivery. The authors also observed that the literature suggested that after structuring and academic-knowledge base, professions were able to attract higher calibre applicants who were willing to defer gratification until they had gone through further study. Furthermore, these applicants were more likely to become autonomous practitioners, competent in applying evidence-based practice in their duties, and applying 'what works' depending on the context considered.

However, Fernie et al. (2019) also emphasised risks associated to professionalisation, including the under-emphasis on practical skills, with a resulting knowledge gap between theory and practice. Another risk identified by the authors referred to the marginalisation of some of the recruits, with tensions between those who had entered the profession through traditional pathways and those who had entered the force through degree entry pathways. The authors pointed out, however, that the literature suggested that this conflict disappeared over time. Taking the evidence together, the authors concluded that the police service in England and Wales had much to gain in establishing and embedding its own professional body of knowledge.

Perez (2017) reported that in Spain the Secretary of State for Security had signed cooperation agreements with many universities, as many of them had implemented degrees and post-graduate study courses focusing on public security. At the time of publication, eight new master's degrees focusing on public security had also been announced.

Differently, Kovács (2017) described the role of the National University of Public Service (NUPS) in Hungary. This university is state-controlled and is responsible for training future military, law enforcement and public service staff members to bachelor's, master's, and PhD level. Likewise, Xu and Fu (2017) reported that in China there are two types of institutions responsible for police education and training: police universities or colleges providing a degree education; and police training schools or centres for in-service officers. Police colleges and universities in China are either under the direct control of the Ministry of Public Security or local provincial governments.

The case studies described above illustrate that the relationship between academy and state/law enforcement organisations is structured in different ways across countries. It can either include a more fluid collaboration between universities and law enforcement agencies or the state/law enforcement agencies taking ownership of the academic education available to the current or future staff members.

Belur et al. (2019) observed in their systematic review of literature including 33 studies that recruit training was most commonly provided by a training academy, and often in partnership with a university or a college. Additionally, whereas recruit training occurred in the United Kingdom postemployment, the United States had both pre-join and post-join models. Only one comparative study in the systematic review suggested recruits with higher education backgrounds performed better in cognitively oriented tasks than those without a degree (Deverge, 2016, as cited in Belur et al., 2019).

den Boer (2017) emphasised the important role of providing research-based training and fostering cooperation between law enforcement agencies in different countries concerning higher police education. According to the author, this cooperation would: support law enforcement officers to become better equipped with linguistic, cultural, diplomatic, legal and leadership skills; facilitate the development of a useful and sustainable international professional network; and enable law enforcement professionals to be trained and educated according to transnationally agreed qualification criteria, sharing standardised levels of knowledge and competence. den Boer (2017) discusses that such partnership can already be observed between China and numerous European Union higher education programmes. di Gregorio (2017) argues that cooperation between countries in education programmes can also lead to more cooperation between countries in combating global crime as bonds are forged between attendees from different countries attending the same course. The author also discusses that an international learning community requires a broader and closer relationship between police training institutions and the scientific and academic environment.

When fostering cooperation between police education programmes in different countries, it is important to keep the quality consistent between the programmes. de Kimpe (2017) discussed that more pedagogical research and expertise in the police education and training system guidelines and standards of the European quality assurance system should be incorporated into police education in Europe. This would enable police education across Europe to retain high-quality standards. The author proposes the creation of a European quality assurance system aimed at police education in Europe.

Some authors have also discussed the role of evidence-based research in policing. Cordner (2017), when discussing the law enforcement context in the United States, described that there has been more focus on the use of effective teaching and learning methods in the training environment, but this has not translated into including only training content that has been supported by the best available scientific evidence.

On the other hand, Clough, Adams and Halford (2017) reported a promising case study in the United Kingdom including 'evidence cafés' and 'practitioner cafés'. Evidence cafés were sponsored by the Centre for Policing Research and Learning, taking place at a host police force. They were targeted at police officers, although other staff and community representatives could attend depending on the topic. Evidence cafés focused on topics related to policing and policing research and the discussions during the session revolved around police practice and the translation between research and practice. Practitioner cafés used a similar format to that of evidence cafés, although they were less formal and structured. Preliminary findings have suggested that evidence cafés are a meaningful way to engage practitioners with evidence-based research.

Stanko (2017) reported on the experience of incorporating research evidence into a course aiming to put victim vulnerability at the heart of sexual liaison police officer training so trainees make decisions informed by victim need. The author argued that it is a challenge to shift police training to incorporate science-informed practice rather than craft-based practice; and academic language and practitioner language are very different, what hinders the communication between research and practice. Thus, it is important to translate evidence into a language applicable to practice and this can be fostered by enlisting the help of both academics with subject matter expertise and expert operational practitioners (Stanko, 2017).

Solomun (2017) described the establishment of a Police Research Centre as part of the Police Academy in Croatia. According to the author, the centre aimed to include police and criminal experts from Croatia and other European countries. Among other goals, the centre had the goal of updating the available training to police staff and enabling the development of teaching staff, integrating police practice with higher education, scientific work, research, and evidence-based practice.

Hartley et al. (2017) reported on the Centre for Policing Research and Learning (CPRL), which is a collaboration between The Open University (a university with a presence across the whole of the United Kingdom) and 18 United Kingdom police forces. The CPRL aims to achieve outcomes in three different areas: education, including continuing professional development; practice-informed problem-solving research; and knowledge exchange. The authors report that the CPRL has been assessed positively so far, with high police satisfaction in an evaluation analysis, a growing number of academics getting involved, an increasing number of publications, and the use of informal and formal learning resources. The authors argue that the CPRL model aids collaboration between academics and practitioners, advocating for its use.

Finally, when presenting a destination map for police learning and development in 2025 developed collaboratively between academics and police practitioners from a variety of disciplines, Harding et al. (n.d.) argued that learning and development should be based on the best available evidence of practice and theory. The authors also emphasised multiple supporting structures that should be in place in order for learning and development to exist and function properly, including buy-in from executive, middle management, and frontline officers of the value of learning and development activities.

Overall, the literature summarised in this section points towards the relevance of a stronger collaboration between academy and police practice, both through the possibility of having a higher degree qualification as one of the pathways to the police officer profession and through the inclusion of scientific and academic knowledge in police training and education.

5. Technology and Learning Development

5.1 Overview

This section presents a review to understand how different technologies, with emphasis on virtual reality (VR) technologies, enhanced police training across different countries.

There were four main parts to the review in this section. Part one presents a review of virtual reality technology adopted in the training and development of Police and other personnel across various countries. Part two presents a review of simulated approach to learning and training development. Part three presents how virtual reality technologies have been used to understand implicit bias among Police and other personnel. Part four presents a review of various experimental design that investigated a game-based approach to training. Finally, the reviews centred on the main conclusions from these studies and seek to inform the approach to tactical and safety training for New Zealand Police.

Overall, there were thirty-eight studies reviewed to understand how different technologies, with emphasis on virtual reality (VR) technologies, enhanced police training across different countries with a democratic approach to law enforcement. Primarily, the reviews centred on the main conclusions from these studies and seek to inform tactical and safety training in New Zealand. Conclusions across all the studies reviewed suggest that VR-based trainings may be adopted as a complimentary approach to traditional classroom trainings of law enforcement officers across the criminal justice (Ticknor & Tillinghast., 2011); virtual reality can provide interactive Stress Management Training to decrease levels of perceived stress and negative effect on personnel (Pallavicini et al., 2016); VR-based exercise can also allow an organization to test its emergency response plans to assess their effectiveness, and in turn, identify gaps and areas for improvement (Hsu et al., 2013); virtual reality trained group performed better on accuracy than that of the traditionally trained group and the virtual reality group performed faster as compared to the time of the traditionally trained group (Wright, 2013).

Furthermore, when blended with other technologies, virtual realities can also be adopted as a potential intervention tool to either investigate or mitigate implicit bias among law enforcement officials (Banakou et al., 2016; Doan et al., 2021; Hasler et al., 2017; Seitz, Good & Peck., 2020; Thériault et al., 2021) and can be tailored to specific users based on their resources and hazard vulnerability analysis. Other learning tools, such as games, simulations (Adams et al., 2019; Barnett, 2012; Coull et al., 2017; Marler et al., 2020), or body-worn devices (Phelps, 2018), can complement VR technologies and be adopted as new framework for developing low-cost, training systems for training police officers to improve decision-making under stress.

Overall, the studies reviewed suggest that virtual training is valid for providing training in complex, collaborative tasks, training which cannot fully be accomplished in reality and providing a safe environment that allows mistakes to be committed without any real consequences. It can also be adopted when there is a need to solving problems related to sensible professional situations and repeating exercises in a limited time and in various command positions.

5.2 Virtual Reality Technology and Personnel Training Development

A meta-analysis of controlled experimental studies by Howard et al. (2021) which tests the effectiveness of Virtual Reality (VR) training programmes for training employees in the United States suggests that no combination of VR technologies should be seen as the most appropriate. Instead, VR training should be seen as a complementary approach that can be utilised appropriately to maximise task technology fit, as researchers have done in prior studies and practical applications. Equally, Howard et al. (2021) also indicated that VR training programmes may be a signal to employees that the development of their skills is valued, thereby improving employee engagement and commitment. Likewise, these programmes may improve the organisation's public image, and shareholders may have improved perceptions of the organization.

An experimental control design by Ticknor and Tillinghast (2011) strongly supports the use of VR for the training of United States law enforcement officers and argued that VR can be easily integrated into various programmes within the criminal justice system. For training of law enforcement officers, officers can use VR simulations to experience and react to stressful or dangerous situations without the risk of costly mistakes and loss of life. Equally, a virtual training environment allows trainees to be exposed to scenarios that they are likely to experience while in the field (Ticknor & Tillinghast., 2011).

In keeping with the needs of an expanding requirement to train personnel in crisis management and deal with complex scenarios in the European Union using an experimental design (Pandora system), Bacon and MacKinnon (2012) indicated that a training system integrated with modern VR and games technologies offers a blended learning and a fully virtual experience.

A systematic literature review by McGinley et al. (2019) centres on specific tools that facilitated learning or teaching during recruit training. This included the use of information technology (IT) or virtual learning environments (VLEs), simulation-based training and the use of journals (McGinley et al., 2019). The studies examining the impact of incorporating IT/VLE in police training found that the use of IT aided enhancements of the tested training area; however, areas for improvement included the importance of making these technologies user-friendly, realistic, and correctly implemented for the best results (McGinley et al., 2019).

The main observation drawn from a systemic review of military personnel training indicates that virtual reality can provide interactive Stress Management Training to decrease levels of perceived stress and negative effect on military personnel (Pallavicini et al., 2016). This technological approach to training appears to be a promising tool for assessing individual resilience to stress and for identifying the impact that stress can have on physiological reactivity and performance. Similarly, a systematic literature review by McGinley et al. (2019) also found that simulations can be a highly effective learning tool for police recruits, although adequate training and the appropriateness of assessment techniques were stressed.

In a comparative review between VR-based training and traditional modalities of disaster management training programmes in the United States, VR-based training holds major advantages over conventional training and enable study design to be tailored to specific users based on their resources and hazard vulnerability analysis (Hsu et al., 2013). In addition, a VR-based exercise can also allow an organization to test its emergency response plans to assess their effectiveness, and in turn, identify gaps and areas for improvement. Furthermore, VR-based applications can also facilitate consistent and repeated training over geographical and organizational divides. However, VR-based learning could be a significant barrier to learning in an environment where there is a lack of familiarity with VR-based learning at the decisional level of leadership and the cost of deploying this technology could be seen as a downside since efforts required to create a realistic and interactive scenario require significant time and resources (Hsu et al., 2013).

An implementation report on the current application of VR in the training of Cyprian police suggests that it is vital for virtual characters' emotions to be synthesised as realistically as possible, given that trainees will use the information provided to try and interpret the suspects' emotions and subsequently take the required action (Himona et al., 2011). Equally, formal user experience and usability testing are necessary for verifying that the overall system fulfils the targeted training goal of police officers (Himona et al., 2011).

A quasi-experimental design was used to conduct a transfer of training study that examined the question of whether pre-training of United States military personnel in low and/or high fidelity Virtual Environment (shoothouse) can lead to time savings and improved performance in live training environments (Champney, 2017). Overall, the result suggests that pre-training in high fidelity Virtual Environment may lead to increased overall performance levels, specifically for tasks that require search and scanning and for outcome measures (Champney, 2017).

Using an experimental design approach, a field study compared three training conditions (virtual, standard and control) for the training of German police officers (Moskaliuk et al., 2013). Overall, the results indicate that virtual training is valid for providing training in complex, collaborative tasks, training which cannot fully be accomplished in

reality (Moskaliuk et al., 2013). For complex tasks that require continuous communication among members of a diverse team, virtual training is as efficient as standard training concerning knowledge acquisition, and even more efficient about knowledge transfer. The results demonstrate how important it is to examine the impact of virtual training and to directly compare different training methods, not only to measure transfer from virtual training to real situations (Moskaliuk et al., 2013).

A literature review by Gawlik-Kobylińska et al. (2020) analyses factors affecting the effectiveness of VR in the context of training military personnel. They constitute three categories concerning the learner (motivation, individual learning style, preferences for technology use, individual traits), the teacher (communication and support), as well as tools and content (space, sound, animation, event, object, narrative, character, course design; Gawlik-Kobylińska et al., 2020). Predictors such as motivation (which accounts for an individual's intensity, direction, and persistence of efforts toward attaining goals), individual learning style (specific preferences in organising the process of acquiring and transferring knowledge and skills), individual traits (gender, intelligence, including emotional intelligence, special abilities, cognitive style, interests, level of aspiration, attitudes and views) and individual preferences for technology use (related to computer skills, age and even perception organs efficiency) are part of the factors that influence training effectiveness (Gawlik-Kobylińska et al., 2020).

One study adopted a co-creation approach to gain insights into the complex world of police work and training, and to facilitate a collaborative environment that can alleviate potential power imbalances that can exist in hierarchical and highly specialised structures like police organisations (Nguyen et al., 2021). In the investigation of how the training experience of first responders can be improved, the study reveals that the use of stress cues could be especially beneficial in VR training because it provides various interaction possibilities for trainers (Nguyen et al., 2021). The study views this approach as part of a future interaction design approach, as it aims to combine human experiences, interactions, and behaviour with several human senses such as sight, hearing, but also smell, and touch (Nguyen et al., 2021).

A systematic literature review of virtual reality/augmented reality/mixed reality (VR/AR/MR) learning systems, platforms and environments notes that evaluation of the quality of VR/AR/MR platforms/environments should be based on (a) applying both expert-centred (top-down) and user-centred (bottom-up) quality evaluation methods, and (b) separating 'internal quality' criteria, and 'quality in use' criteria in the set of quality criteria (model; Kurilovas, 2016). Personalisation of VR/AR/MR platforms/environments should be based on learners' models/profiles using students' learning styles, intelligent technologies, and Semantic Web applications (Kurilovas, 2016). The VR/AR/MR learning system/environment should include personalisation capabilities, for example, and should be flexible enough to be easily adaptable to different learners' needs (Kurilovas, 2016).

Richards et al. (2005) proposed the development of a virtual environment where someone can experience potential risks so that they may learn how to recognise and handle that situation without the learning task risking their lives. The proposed project uses virtual experience to address: Social and risk-based dilemmas rather than military problems; Achieving pedagogical goals rather than purely providing entertainment; Social skills and tacit knowledge rather than physical skills and codified knowledge; The reasoning and language skills exhibited by the agent rather than graphical features such as those provided by a flight simulator, allowing the learner to explore their environment rather than providing a narrow set of well-defined answers which was offered in early tutoring systems, training simulations that can be easily created by the trainer rather than a computer specialist (Richards et al., 2005).

An experimental study of police training in the United States by Muñoz et al. (2020) provides insights from shooters who were interacting in a VR-based training simulator designed to elicit psychophysiological changes under easy, moderate, and frustrating difficulties. Overall, the results of this experimental study reveal that specific frontal areas of the brain elicited different responses during resting states when compared with active shooting in the VR simulator (Muñoz et al., 2020). Assessment of the results from the Simulator Sickness Questionnaire showed that the experience was generally well tolerated (Muñoz et al., 2020). Further development and refinement of the VR
simulation capability (including ergonomic improvements to the headset) are suggested to mitigate unintended effects of simulation stimuli on users of such systems (Muñoz et al., 2020).

Using an experimental design approach, Wright (2013) investigated the effects of virtual reality training on the development of cognitive memory and handgun accuracy by law enforcement recruits in the United States. The results indicate that the virtual reality trained group performed better on accuracy than that of the traditionally trained group and the virtual reality group performed faster as compared to the time of the traditionally trained group (Wright, 2013). Equally, the virtual reality training was more successful than the traditional training to prepare the law enforcement recruits cognitively and to accurately respond to life-threatening situations (Wright, 2013). The results of these studies justify possible investments for the use of interactive technology in the training of law enforcement personnel or even the adult education classroom.

An experimental design by Wu (2018) hypothesised presence as the construct by which immersive virtual environment usage influences time perception and situation awareness. Participants were tasked with a scavenger hunt in both monitor and virtual reality conditions, and reported their perception of how much time had passed as well as probe questions testing their situation awareness (Wu, 2018). The results of this experimental study found that manipulating the level of immersion did not significantly affect the presence between conditions (Wu, 2018). Presence was not found to have a positive relationship with situation awareness and time perception as predicted, but higher levels of immersion were found to increase situation awareness and lengthen subjective experience of time (Wu, 2018). Presence does not appear to be the construct responsible for changes in situation awareness and time perception awareness awareness awareness awareness awareness awareness awareness awareness awar

A review by Green (2017) which centres on the use of technology in Learning and Development practice and strategy, provides a summary of the barriers and supporting factors that influence technology update, providing critical questions for practitioners about their future learning strategies and a framework through which to appraise technology. These principles of learning are not novel; practitioners should implement technology that supports the right processes if they want to encourage learning. Before investing in technology, however, practitioners should be clear about what they hope to achieve with the tool. If technology is being implemented purely for practical reasons (access to learning, online networking, knowledge management through file-sharing, for example), practitioners should be clear on the purpose of technology and facilitate other learning experiences elsewhere (Green, 2017).

Finally, a review by Kukulska-Hulme et al. (2021) explores new forms of teaching, learning and assessment for an interactive world to guide teachers and policymakers in productive innovation. A list of new educational concepts, terms, theories, and practices was proposed and then pared down to the potential to provoke major shifts in educational practice (Kukulska-Hulme et al., 2021). Part of this proposal, according to Kukulska-Hulme et al. (2021) include:

- The need to enrich reality with the use of technology and several types of reality can be blended.
- When learners cannot be in the same place at the same time, augmented reality (AR) and virtual reality (VR) can be used to make some exciting and memorable shared experiences possible.
- When an AR application is used, it overlays information on our surroundings or objects around us, while VR provides a three-dimensional environment with which learners can interact.

5.3 Simulations and Training

In an experiment designed to measure the effectiveness of the simulation-based training of German police using applied objective and subjective training success measures, Beinicke and Muff (2019) found that the results confirmed the effectiveness of simulation-based learning. Combined with traditional classroom training, such simulation-based training can improve factual and applied knowledge, trainees' satisfaction, their perception of the training's usefulness, and their self-efficacy. These effects are even evident in the long term (Beinicke & Muff, 2019).

In an experiment designed to test whether virtual reality technology increases a trainee's experience of presence and whether this simulation teaches the use of force policies in the United States police environment, the evidence collected supports the hypotheses that virtual reality hardware increased a subject's subjective and objective

indicators of presence (Garcia, Ware & Baker, 2019). Two measures of performance increased as subjects repeated the simulation in this study.

In an evaluation survey of simulation-based training used in the Norwegian police education and learning outcomes, results indicated that Body-worn video (BWV) in combination with systematic interviews may enhance reflection during simulation-based training (Phelps, 2018).

A study using qualitative analysis (Survey & Interview) to discover how participants perceive the results of using virtual or augmented simulation methods for training of emergency response personnel found that participants believe virtual simulation training experiences provide opportunities for increased skill acquisition and knowledge retention as compared with other training modalities (Redford, 2021).

A review of the training of law enforcement officers in France found that by providing a safe environment that allows mistakes to be committed without any real consequences as well as solving problems related to sensible professional situations and repeating exercises in a limited time and various command positions — simulators and 'serious games' not only enable trainees to acquire basic skills at the beginning of their training but also strengthen and develop their competencies throughout the training course (Chapparo, 2017).

In the context of Canadian police training, Krätzig et al. (2012) found that driving simulators can be used in filling training gaps that could not be previously addressed (e.g. EVRIC, emergency vehicle response intersection clearing), and provide an effective teaching environment. The driving simulators, in combination with the radio communications sessions, resolved several training issues with the PDU programme (Krätzig et al., 2012). Formative and summative evaluations of the training programme also suggest that these sessions appear to be effective in improving cadets' overall performance in patrol driving and emergency response. In addition, the driving simulators have significantly reduced the amount of downtime cadets' experience as they wait to take their turn during the patrol drive in-vehicle sessions (Krätzig et al., 2012). Another benefit realised through the introduction of the driving simulators into the PDU (Police Driving Unit) programme that is the number of instructors required for the in-vehicle sessions decreased by approximately 30%, and the number of police vehicles involved in these sessions dropped from 11 to 8 (Krätzig et al., 2012). The driving simulators also facilitate the delivery of training in closing the distance and night driving which could not be offered previously due to several safety concerns (i.e., the inability to practice closing the distance on a public highway) and logistical barriers (i.e., scheduling night drives in the summer due to the extended daylight hours (Krätzig et al., 2012).

A review of the training of Aviation crew in the United States indicates that end-to-end virtualisation will become a normal part of future training environments (Jenab, 2016). However, it is noteworthy that providing a virtualisation training layer cannot guarantee effective training in certain contexts such as for maintenance crew and pilots (Jenab, 2016).

5.4 Virtual Reality and Bias

The preliminary results of an experiment designed to determine the existence of shooter bias by United States police in a VR environment suggest that shooter bias is evident in VR, however, more data is needed to make stronger conclusions (Seitz et al., 2020). VR is an important tool in broadening and deepening our understanding of how shooter bias functions, and therefore provides an important area of continued research. Building on past VR studies investigating implicit bias reduction, VR also serves as a potential intervention to mitigate shooter bias (Seitz et al., 2020).

An experiment designed to evaluate the effectiveness of a realistic and adaptive VR system as a tool for studying bias in United State policing found that a system that transcribes, categorises, and codes human input in real-time is feasible, generates codes that generally matched human intuitions about deference and respect, and can be successfully deployed in the field (Doan et al., 2021).

Using a Randomised Controlled Trial (RCT) approach, Thériault et al. (2021) study collected measures of empathy and race bias from 90 participants, split into one of three perspective-taking groups: embodied perspective-taking, mental perspective-taking, and a control group, and drew on virtual-reality technology alongside a Black confederate across

all conditions. The findings suggest that perspective-taking interventions, based on imagination or illusions of an embodiment of an outgroup member, unreliably affect conscious and automatic race bias (Thériault et al., 2021). At the same time, perspective-taking interventions based on the illusory embodiment of an outgroup member can increase some components of empathy (empathic concern, personal distress, and peripheral responsivity) and make one feel considerably closer to a specific outgroup member (Thériault et al., 2021). Despite its limitations, the intervention based on virtual reality shows the potential to improve intergroup relations.

An experimental study by Banakou et al. (2016) addressed the question as to whether there is any sustained reduction in implicit racial bias— in particular that lasts at least 1 week after the embodiment of White participants in a Black body, and also whether the effect is influenced by the number of exposures. The evidence from the study suggests that embodiment in the Black body results in a reduction of implicit racial bias, even one week after the end of the experiment and also supports the conclusion that the Embodied Black condition does reduce implicit bias irrespective of the number of exposures (Banakou et al., 2016). There was also some evidence of a general decrease in bias independently of body type for which possible explanations are put forward (Banakou et al., 2016).

An experimental study by Hasler et al. (2017) used multisensory integration to achieve embodiment of White participants with a Black body, where an overall and significant reduction in implicit bias has consistently resulted from the embodiment, and participants were immersed in the VR environment, embodied either in a White or Black virtual body according to their experimental condition. The results of this experimental study show that dyads with the same virtual body skin colour expressed greater mimicry than those of different colour and this effect occurred depending on the virtual body's race, not participants' actual racial group (Hasler et al., 2017).

A systemic review by Tassinari et al. (2021) shows that VR is not a social vacuum, but in a virtual environment enabling co-creation and modification of social reality. The review thus clearly indicates that features of prejudice in situated social environments persist also in VR, while also showing how VR is turning into a valuable resource for studying prejudice and its reduction through intergroup contact (Tassinari et al., 2021).

5.5 Game-Based Approach to Training

Adams et al. (2019) used a Randomised Controlled Trial (RCT) approach to evaluate a game-based learning system for training police officers in child interviewing in the United Kingdom, and found that there is a statistically significant increase in police understanding with a game-supported approach to learning and also allowed for a detailed breakdown of how the system supported this understanding. This breakdown is also of scientific interest since the process identified how tacit knowledge in particular was supported by the game, in a way that the existing face-to-face training did not (Adams et al., 2019).

A systemic design of police training in the United States provided a framework for developing low-cost, game-based training systems for training police officers to improve decision-making under stress (Marler et al., 2020). A key aspect of this framework is the ability to derive virtual content from real-world training goals and ensure the metrics for performance assessment tie back to these goals. Virtual Reality and Game-Based Training can provide multiple advantages, including adaptability, accessibility, and affordability (Marler et al., 2020). Consequently, it offers a flexible platform for both training operations and research:

- to allow officers to practice skills in high-risk scenarios under varying conditions before engaging in such situations on the job, and,
- for research to investigate how best to train critical skills in law enforcement, particularly for scenarios requiring de-escalation.

A review that centred on global trends in law enforcement training and education indicates that participants of gamesbased training responded positively about their experience of using the game and its potential for providing training in cybercrime response (Coull et al., 2017). Games are an effective tool for getting people to participate in activities and providing users with an opportunity to interact with an environment that can replicate the real world. Games also help to drive intrinsic motivation and encourage behaviours that result in internal rewards like enjoyment, positive feelings, and happiness (Coull et al., 2017). Barnett (2012) conducted an experiment involving teams of two participants with no prior military training who were trained in military hostage rescue procedures. One group was trained using the wearable interface and the Gamebased Distributed Interactive Simulation (GDIS) dismounted infantry simulation, a second group received the same training using a desktop interface with GDIS, while the third, a control group, was trained in a live physical room in an office building using replica weapons and military equipment (Barnett, 2012). The result indicates the control condition, which trained using live rooms, performed significantly better on the test scenarios than either of the simulator conditions. However, there were no significant differences in performance between the wearable or desktop simulation conditions (Barnett, 2012). The number of corrective actions taken in the test sessions by both simulator conditions was statistically equivalent and slightly lower than the control condition (Barnett, 2012).

BinSubaih et al. (2009) conducted an experiment with 56 police officers to analyse how learning objects are affected by the instructional principles of police training in the UAE, which indicates effectiveness of a training programme can be assessed based on the success of achieving the learning objectives and based on the results of the interactions between the different principles i.e., increasing accessibility to the serious game reduced fidelity when the multiplayer capability was removed in favour of a single-player game (BinSubaih et al., 2009).

With an array of trend reports singing the praises of mobile, collaborative and game-based learning, there is a danger that tools based on these theories are implemented to keep up with trends, but will not see the effects hoped for because they are a superficial form of the technologies (Green, 2017). For example, game-based learning elements such as leader boards contain elements of games, but they do not provide the immersive, true-to-life environment that motivates and allows the transfer of learning that a serious game does (Green, 2017).

5.6 Other Forms of Technology

Sjöberg and Karp (2012) conducted an experiment using different surveys (two pre-surveys and two main surveys), to explore the relationship between video-supported debriefing and student police officers' performance in realistic scenarios training. Two groups conducted two weapon-scenario sessions; one group (video group) used video-based debriefing in addition to the regular debriefing and the other group did not (non-video group; Sjöberg & Karp, 2012). The results of this experiment indicate that through the video-based debriefing, the students in the video group increased their motivation for training technical skills during the period between the first and second scenario session (Sjöberg & Karp, 2012). From this, the study concludes that the video clips of the students' performance helped them to identify their shortcomings, and what they had to improve and thereby motivated them to train in a way that did not occur in the group where the students did not have the opportunity to see their performance (Sjöberg & Karp, 2012). Equally, video-based debriefing helped the students to see flaws in their performance and lack of skills more clearly, improved their reflection on possible solutions to the scenario and made them more motivated to train the skills needed to solve the task (Sjöberg & Karp, 2012).

Mobile technology, for example, is hoped to break downtime and access barriers, but mobile learning is only as effective as the content it serves and cannot solve fundamental issues such as lack of time (Green, 2017). If the only issue with the learning content is that an already effective learning course is not scalable or easily accessible, recreating this in an identical (or near to) environment will likely allow more flexibility and good outcomes (especially if the digital learning environment contains more engaging elements; Green, 2017). By identical, this means that the material possesses the same learning characteristics, such as interactivity, practice, feedback, and ability to transfer in context (Green, 2017).

6. Tactical Training: Core Design Considerations

6.1 Overview

The current chapter presents findings from a review of the literature focusing on tactical and safety training curriculum design and content, outlining the key considerations regarding the development and implementation of effective training.

Overall, the literature has highlighted the need for training to follow the principles of adult-learning theory, which promotes the involvement of the learner in their own instruction, drawing on their experiences, and becoming an active, rather than passive participant in the learning process (Bennell et al., 2021; Jenkins et al., 2021; Mugford et al., 2013). As such, the importance of experiential learning, designed to maximise the realistic/representative nature of the training in relation to the real-world operational context, has been highlighted (Bennell et al., 2021; Koerner & Staller, 2021). Such training has been argued to enable officers to practice and apply key skills under realistic conditions, and to increase the likelihood that tactical knowledge, skills and abilities will successfully transfer from the training environment to dynamic, high-demand operational situations (Cushion, 2018; Helsen & Stakes, 1999; Jenkins et al., 2021; Staller et al., 2020). However, despite the importance placed on this type of training, there is some evidence that this is not always achieved (Cushion, 2018; Staller et al., 2021c). Additionally, while the literature emphasises the need for experiential and realistic/representative training, currently there is little empirical research to guide the development of effective training programmes in relation to the quantity of experiential learning required, what realistic/representative conditions are most important to replicate, or how similar to the real-world environment this learning has to be.

Scenario-based training has been put forward as one of the key methods for providing realistic/representative, experiential learning, enabling a safe environment in which trainees can develop, practice and hone their knowledge, skills and abilities across a range of simulated situations of varying complexity which require different actions to achieve appropriate outcomes (Hine et al., 2018; Jenkins et al., 2021). Important elements of scenario training design include the inclusion of stressful, dynamic scenarios; the inclusion of a range of diverse scenarios; the inclusion of the entire event from dispatch to resolution; and that the complexity of the scenarios are gradually increased from novice to expert (Bennell et al., 2021; Jenkins et al., 2021; Mugford et al., 2013).

It is important to design the training so as to not overwhelm novice learners, providing a staged progression which gradually increases the difficulty of the training situation, the stressors included, while simultaneously gradually reducing the input from the instructor to enable trainees to be self-reflective learners (Bennell et al., 2007; Mugford et al., 2013). However, it has been suggested that while the practice of use of force, and the experience of encountering 'worst-case' scenarios is an important aspect of tactical and safety training, the types of scenarios utilised in training should proportionally reflect the range of every-day events and experiences found in the field (Dayley, 2016; Jenkins et al., 2021). Additionally, the experiences of female officers, and the presence of any potential biases in training which could impede their learning, need to be considered and addressed (Cushion, 2018).

Any training implementation needs to also consider the issue of skills decay, which is commonplace when considering skills that are not used frequently (Arthur Jr. et al., 2002). However, there are practices that can aid skill retention. The most highly regarded practices in the literature are spaced practice, interleaved practice, and retrieval practice (Roediger et al., 2019).

6.2 Experiential Learning

To effectively train officers in the acquisition and mastery of tactical and safety skills, and ensure their successful execution in real-life high-risk situations, consideration of 'how to teach' is equally as important as consideration of 'what to teach' (Cushion, 2018). Training based on sound learning principles can not only enhance skill acquisition, retention, and transferability to the practical work environment, but can improve efficiency of delivery, allowing training to be delivered in a time effective manner (Staller & Zaiser, 2015).

An 'instructor-centric' training approach is one in which the trainer provides learning opportunities, through the sharing of the instructors' accumulated wisdom from experience, demonstration (often without repetition) of a range of tactical techniques, and provision of corrective feedback via debriefs (Cushion, 2018). Via this form of training, trainees are often able to demonstrate some immediate short-term performance gains (Cushion, 2018; Staller & Zaiser, 2015). Such gains may fast-track progression and have positive impacts on trainee motivation, and as such, may appeal to trainers and trainees (Staller & Zaiser, 2015). However, it has been argued that these gains are often not maintained in the longer-term, and such training does not promote the transfer of skills into a real-world context, especially under stressful conditions (Cushion, 2018; Staller & Zaiser, 2015; Staller et al., 2021c).

As discussed in the 'Adult-Learning Models' section, it has been argued that effective police training should be based on the principles of adult-centred learning (andragogy), which focuses on training strategies which promote active, rather than passive, learning, and which are primarily centred on the student rather than the instructor (Bennell et al., 2021; Jenkins et al., 2021; Mugford et al., 2013). As such, experiential learning has been posited to be a key training method for enhancing performance during high-risk situations, focusing on the acquisition of knowledge, skills and abilities through experience, coupled with the analysis of this experience through reflection (Cushion, 2018; Henriksen & Kruke, 2021). The key features of learning involve an 'experiential learning cycle', in which the current experience provides a basis for an individual to analyse and reflect upon their performance and its outcomes, with the subsequent conclusions assimilated into existing knowledge to advance learning, and which can then be further applied to new contexts (Henriksen & Kruke, 2021).

Time spent on task is an important factor in experiential learning, and for training to be optimised, time spent engaged in activity and subject-matter related tasks, as opposed to passive listening and instruction, should be maximised (Cushion, 2018). However, prior studies have found that use of force training often continues to be predominantly 'instructor-centric' in its delivery, with a large proportion of trainee time engaged in passive activity (Cushion, 2018; Staller et al., 2021c). In a study of annual frontline officer safety training in the United Kingdom, Cushion (2018) found that the largest percentage of time (averaging 54% across the courses observed) was spent with trainees observing demonstrations, and receiving briefings and feedback, with the latter always instructor-led and with the officers as passive recipients. Similarly, in a study of use of force recruit training in Germany, Staller et al. (2021c) observed that of the 30 hours of training, only 4 hours was spent with officers participating as the active role player reproducing and practicing techniques and tactics. As such, while experiential learning methods are currently being incorporated into tactical and safety training across jurisdictions, the amount of time trainees spend engaging in practical activity is not the main training activity type. However, while studies such as Cushion (2018) have recommended that time spent engaged in activity and subject-matter related tasks should be 'maximised', there are no recommendations as to precisely what proportion of training time should be dedicated to experiential activity, and the optimal balance between experiential-based and instructor-led training.

6.2.1 Realistic/Representative Training Environments

Tactical and safety training has traditionally been primarily taught in a 'classroom' setting, where trainees are demonstrated a technique by the instructor which is then practiced by the trainee in a low-stress, static, low-fidelity (less realistic) training environment (Staller et al., 2021c; Wilkes, 2016). This form of experiential learning has the advantage of successfully developing and accelerating the acquisition of specific, isolated tactical skills and abilities, and research has suggested that initial training of basic knowledge and skills should be delivered in this type of training environment (Bennell et al., 2021). However, such learning environments do not align well with the high-stress environmental contexts which exemplify real-world high-risk situations (Staller et al., 2021c).

Several studies have suggested that there is a discrepancy between performance during tactical training and its application in real-world high-risk situations (Di Nota et al., 2021; Jenkins et al., 2021; Renden et al., 2015; Staller & Zaiser, 2015). In a study of firearms marksmanship training in the United States, Charles and Copay (2003) found that following training, shooting accuracy (as measured by the number of bullets hitting a target), improved from 54% pre-training to 95% post-training, however, a study of police marksmanship skills in real-life use of force incidents found a bullet-level hit rate of only 35% (Donner et al., 2019). Renden et al. (2015) conducted a survey examining the perceptions of Dutch police officers in relation to the arrest and self-defence training they received, and found that

officers reported that their application of the techniques taught was generally different in real-world conflict situations compared to training. Similarly, Kaminski and Martin (2000) found that only 24% of officers surveyed in a large United States police agency felt that the unarmed defensive tactics they were taught in training were easy to apply when they were being assaulted in the field.

It has been argued that the discrepancy between training performance and operational performance is the consequence (at least in part) of a disconnect between the training and operational environments (Di Nota et al., 2021; Jenkins et al., 2021). In order to advance and further develop an officer's tactical and safety skills, and promote the transference of skills between training and operational contexts, once the basic skills have been acquired, training must gradually evolve to introduce training environments which more accurately reflect real-world contexts, and which mimic the physical and psychological demands which are likely to be encountered (Bennell et al., 2021; Koerner & Staller, 2021). Training which is more representative of the real-world context enables officers to practice and apply key skills under realistic conditions, and increases the likelihood that tactical knowledge, skills and abilities will successfully transfer from the training environment to dynamic, high-demand operational situations (Cushion, 2018; Helsen & Stakes, 1999; Jenkins et al., 2021; Staller et al., 2020). Such training also provides officers with experience of the successful execution of skills in such encounters, which may enhance officer self-confidence in their ability to perform in high-risk situations (Adang, 2012). Additionally, realistic training environments may be used to provide officers with experience in the execution of activities and duties which may follow dangerous or deadly encounters, and which may be impacted by the physiological and psychological effects experienced at the time, such as providing verbal/written statements or reports (Hope, 2016).

Realistic or reality-based training is often described in regard to the design of the learning and/or testing environment, and is generally characterised by the creation of immersive real-world atmospherics, including sights, sounds and smells, as well as actors role-playing realistic behaviours, generally in a scenario-based training situation (Preddy, 2018; Staller, 2016; also see section 'Scenario Training'). However, it has been suggested that skill transfer can be facilitated by many different types of training activities and does not necessarily require only scenario-based training (Staller, 2016). Instead, Staller (2016) suggests that what is important is the representativeness of the task, rather than the realism per se, and highlights the importance of: 1. the functionality of the task, which refers to the degree to which the physical, perceptual-cognitive, and affective context and constraints the trainee must act within and upon reflect the operational environment; and 2. action fidelity, which refers to the degree to which the trainee is able to complete a response that is the same as would be carried out in the same situational context in the field. For example, Staller (2016) describes that within a use of force training context:

The physical design refers to components that mainly influence the intensity of attacks and attacker behaviour, which the defender has to cope with (functionality). This is connected to the intensity of executed motor skills of the defender (action fidelity). Perceptual-cognitive components impact the difficulty of decisions, which skill to perform and how to perform it (functionality). Therefore, such constraints mainly put load on the perception, decision-making, and problem solving abilities of the performer (action fidelity). Finally, affective components influence the emotional state, under which the defender has to perform (functionality). This allows the performer to experience the emotions associated with the task and how this impacted their thoughts and actions. Performers are able to learn (learning environment) or test (testing environment) their coping skills with these emotional demands (action fidelity). (Staller, 2016, p.84).

Studies which have examined trainee/officer experiences of training which simulate realistic/representative contexts have found perceptions of strong fidelity between the training and real-life contexts (Broome, 2011; O'Hare & Beer, 2020). In a study examining perceptions of a situational awareness training course for law enforcement, military and private security in the United States, O'Hare and Beer (2020) found that participants described the training as 'immersive' and felt the training was realistic in relation to its ability to simulate real-life threat and stress. Broome (2011) examined the detailed perceptions of a small sample of United States police officers who had undergone reality-based use of force training, designed to give officers practice in decision-making, action and coping during a simulated deadly shooting incident. Broome (2001) found that trainees reported experiences of anxiety, emotional shock, vulnerability, perceptual distortions, and changes in their psychomotor abilities similar to those reported by

individuals who had experienced real-life lethal force encounters. Additionally, there is evidence that officers may recognise experiences from training in real-life confrontational experiences. In a study examining the experiences of Norwegian officers who had experienced the use of firearms in the line of duty, it was found that officers reported recognising parts of the incident from their training, with one officer reporting that the memories and images from training provided them with the experience of having engaged in the situation before, meaning that the real-life situation did not feel entirely unknown (Henriksen & Kruke, 2020).

However, studies examining tactical and safety training have commonly described a lack of sufficiently realistic/representative training (Charles & Copay, 2003; Cushion, 2018; Henriksen & Kruke, 2021; Rajakaruna et al., 2017; Staller et al., 2021c). In an examination of annual officer safety training in the United Kingdom, Cushion (2018) described the observed training as lacking realism, taking place under low-pressure conditions and predictable circumstances, leading to a lack of connection and transference of skills across the scenarios trained, and an absence of reinforcement of learning across the different components of the course. Additionally, officers on the safety training course who were interviewed reported that they believed that they would feel less anxious and more confident during violent confrontations in the field, and would demonstrate improved performance in these situations if the training they received was more reality-based. Similarly, when interviewed about their perceptions of use of force training provided by their police academy, police officers in Western Australian reported that they believed that the Taser and firearms training received did not reflect the conditions experienced in the field, such as the use of accoutrements while in action or under stress, and believed more realistic training would aid the transfer of skills from training into the field (Rajakaruna et al., 2017). The lack of a realistic/representative training environment in firearms training has also been noted for jurisdictions including New Zealand and Norway (Henriksen & Kruke, 2021), as well as the United States (Charles & Copay, 2003; also see section 'Firearms Training').

In a study examining the structure of recruit use of force training in Germany, Staller et al. (2021c) noted not only that the design of the training led to a lack of representativeness, but also that the recruits' performance varied between activities which involved the isolated training of tactical skills, which recruits appeared to perform quite well, and those which were more representative and which required the integration of information and action, during which recruits struggled to apply the trained techniques. Researchers have noted that real-world calls for service require officers to implement a variety of knowledge, skills and abilities flexibly and concurrently, and as such, have argued that an essential component of realism/representativeness is the focus on training on skill integration (Jenkins et al., 2021). However, it is important to note that while the development and integrative application of higher-order knowledge, skills and abilities is a key aim of training, it is important to graduate the learning trajectory, building up realism/representativeness and complexity, so as not to overwhelm novice learners and prevent meaningful learning from taking place (Adang, 2012; Bennell et al., 2021). As such, it has been recommended that the initial acquisition of knowledge and skills should occur via low-fidelity, less realistic/representative training methods, with realism/representativeness gradually increased to enhance the development of more advanced knowledge and skills, and their flexible application and integration in real-world high-risk situations (Bennell et al., 2021).

6.3 Scenario Training

While tactical and safety knowledge, skills and abilities can be trained via a range of practical training activities, scenario-based training has been put forward as one of the optimal ways to train officers to perform effectively under high-risk situations, and to promote the transference of skills into real-world operational contexts (Armstrong et al., 2014; Cushion, 2018; Jenkins et al., 2021). The key aim of scenario training is to create a realistic/representative learning environment which provides a controlled and safe setting to allow trainees to practice a range of tactical skills within the physical, physiological, and psychological contexts experienced in the real-world operational environment, and allowing for errors and feedback in situations which may have serious consequences if they were to occur in real life (Armstrong et al., 2014; Comiskey et al., 2021).

Scenario training builds on adult learning principles and experiential learning and reflective practices, enabling trainees to gain experience performing in simulated high-risk situations, exploring a range of alternative actions to the same situation, and reflecting on each action and its outcomes to assimilate this learning so that it can be

transferred and applied in future experiences involving high-risk situations (Comiskey et al., 2021; Cushion, 2018). The training enables trainees to practice the integration of a range of tactical skills and abilities; experience the physiological and psychological impacts of high-stress environments and practice the execution of skills under these conditions; train stress management skills; and build a repertoire of a range of varied experiences that will facilitate the generalisation of skills to other situations (Di Nota & Huhta, 2019). In addition, the simulation of real-world operational situations via scenario-based training has been argued to be the best (if not the only) way to effectively evaluate the ability of an officer to execute the technical and tactical knowledge, skills and abilities required under the high-stress, high-pressure conditions experienced in the field (Cushion, 2018; Staller, 2016).

Jenkins et al. (2021) propose six key steps in the development of effective tactical and safety training scenarios:

- 1. Identification of the knowledge, skills and abilities required in the operational context which will become the foundation of the scenario development process, that is, the core learning objectives;
- 2. Development of the scenarios, with careful consideration given to the trigger events, that is, components of the scenario that elicit or provide trainees with the opportunity to demonstrate a given skill;
- 3. Development of performance criteria and measures specific to the scenario (as opposed to a universal performance measure);
- 4. Assessment of the trainee performance by the trainer, with performance measures developed in step (3) used to assist in the identification of performance issues, and facilitate the provision of actionable feedback;
- 5. Tracking of the trainee performance over time to identify any gaps in the training scenario which need to be adapted and/or improved; and
- 6. Redesign of training objectives and scenario based on the identified training gaps and needs identified in step (5).

As such, scenario development may be viewed as a continuing process, where each scenario is regularly evaluated for applicability and efficacy in producing the desired learning outcomes, and updated as needed.

6.3.1 Characteristics of Effective Scenario Training

When considering the characteristics of the scenarios, researchers have highlighted that effective scenario-based training simulates the complex and high-stress nature of real-world situations, are fully immersive, and utilise real and constructed environments, props, sounds and lighting to create realistic environments in which trainees can engage in the practice of a range of tactics and skills (Di Nota & Huhta, 2019). However, Staller and Zaiser (2015) suggest that absolute fidelity with the real-world operational context is not necessarily required, but instead, it is more important to incorporate components that enable the students to attend to critical cues, demonstrate situational awareness and decision-making skills, and respond with well-executed and appropriate actions. As such, it may not be completely necessary to precisely mimic real-world environments, provided the training realistically reflects real-world conditions in relation to equipment, and sensory and psychological components (Staller & Zaiser, 2015).

A range of different training scenario situations have been used across jurisdictions, aimed at assessing trainee performance across variable situations requiring different tactical options, and varying in the degree of (simulated) risk, complexity, and sensory environments. Scenarios were designed to represent the range of situations which officers may typically encounter within their agency/jurisdiction, and included situations such as vehicle stop, building search, domestic disturbance, robbery/break-and-enter in progress, warrant/bail breach, and mental health crisis (including suicide; Armstrong et al., 2014; Di Nota et al., 2021; McCraty & Atkinson, 2012). Importantly, it has been proposed by a number of researchers that in order to maximise learning, and the ability to transfer tactical knowledge, skills and abilities flexibly from the training environment to dynamic, real-world operational contexts, it is essential to use a variety of diverse training scenarios, rather than (or in addition to) the practice of variants of similar ones (Bennell et al., 2007, 2021; Boulton & Cole, 2016; Hine et al., 2018; Jenkins et al., 2021; Mugford et al., 2013). Variations in the types of training scenarios encountered has been suggested to be important in helping trainees to develop a wider range of experiences to draw from in order to inform decision-making in high-risk

situations (Hine et al., 2018; also see section 'Tactical Decision-Making'), as well as creating a larger and more generalisable repertoire of transferrable skills (Bennell et al., 2007).

In addition to experiencing a range of scenarios, it has also been argued that to facilitate the development of decision-making and the practice of the full range of knowledge, skills and abilities required in dynamic, high-risk situations, it is important to develop scenarios which include the entire duration of the event, from dispatch to resolution (Adang, 2012; Jenkins et al., 2021; Rajakaruna et al., 2017). Adang (2012) noted that in a prior study of dangerous police encounters in the Netherlands, they observed that prior to arrival at the scene, only 18% of officers formulated a goal in advance, only 10% made a plan of how they would proceed, and only 13% used the opportunity to gather additional information prior to arrival at the scene. As such, Adang (2012) and others have stressed the importance of including and stressing the importance of the preliminary stages of high-risk situations, enabling trainees to practice important skills including information gathering, initial goal setting, planning and preparation, assessment of the potential risks which may be encountered, and recognition and processing of the emotions involved. It was noted by Jenkins et al. (2021) that often the information provided to officers prior to arrival at a scene may be incomplete or inaccurate. Thus, such information should also be included in the scenarios to enable trainees to practice dealing with incorrect information and being able to conduct quick assessments and reassessments of the situation upon arrival at the scene. In addition, Jenkins et al. (2021) also noted that evidence suggested that officers were also less proficient in their ability to control the scene, the subject and witnesses, and to communicate with dispatch following the immediate resolution of an incident. The authors discussed that not only do scenarios often start too late in the event (that is, they fail to include dispatch), but they also end too early (that is, after the application of force, but prior to securing the subject or scene), recommending scenarios to include these situations in order to enable skill development and retention.

One final component of effective tactical and safety training scenarios has been argued to be the inclusion of scenarios which adequately simulate the high-stress environment associated with (potentially) dangerous encounters (Andersen et al., 2016; Anderson et al., 2019; Di Nota & Huhta, 2019; Hope, 2016; Jenkins et al., 2021; Kent et al., 2018; Nieuwenhuys & Oudejans, 2011). The emotions experienced during high-risk situations, alongside the physiological stress response associated with the 'fight or flight' response can have a detrimental impact on decision-making, physical dexterity, cognitive functioning, and can lead to perceptual distortions (such as tunnel vision or auditory exclusion; Andersen et al., 2016). As such, it has been recommended that officers should train using scenarios which evoke a similar stress response to enable officers to experience and understand the potential consequences of these physiological and psychological impacts on performance, as well as the practice of stress management techniques (Andersen et al., 2016; also see section 'Stress Management'). There is also evidence to suggest that training under high-stress conditions can enable officers to learn to perform more effectively in these situations. Nieuwenhuys and Oudejans, (2011) examined the impact of stressors on officer firearms training in the Netherlands, comparing officers who practiced shooting with the presence of a stressor (i.e. an opponent who shot back with coloured soap cartridges), and those who did not (i.e. an opponent who did not shoot back), and comparing subsequent shooting performance under high and low-stress conditions. They found that prior to training, both groups showed a negative effect of stress on shooting performance, however, following training, the group which practiced in the presence of a stressor no longer demonstrated a deterioration in shooting performance.

In order to increase the stress associated with a scenario, Jenkins et al. (2021) identified a number of different potential stressors which may be included to vary the level of stress experienced, including:

time pressure (e.g. a countdown in which the subject indicated they would harm themselves), task load (e.g. interruptions from another individual), threat of pain (e.g. a shock being delivered to the officer if they are shot), ambiguity (e.g. officers given unreliable dispatch information), novelty (e.g. the subject drawing a firearm after a knife had been discarded), role conflict (e.g. enforcing the laws. being concerned for the mental health of the subject), noise (e.g. loud music playing), performance pressure (e.g. video recording of the scenarios), distance (e.g. confined space), coordination (e.g. responding with other officers to an active shooter), and role

ambiguity (e.g. confusion about who is responsible for what in a multiple officer response). (Jenkins et al., 2021, p. 440).

Jenkins et al. (2021) note that the difficulty level of the scenarios should be tailored to the proficiency of the officer, with highly proficient officers benefiting from complex scenarios involving a variety of stressors, while novice trainees may benefit from fewer stressors to ensure that they are not overwhelmed. As such, they suggest that the same scenario scripts may be modified with the inclusion or exclusion of the different types of stressors to ensure officers are exposed to the range of stressors which may be encountered in real life, in a graduated manner appropriate to their level of ability. It has been noted that there is some misconceptions that scenario training cannot create a sufficiently stressful environment to elicit a stress response similar to that seen in an operational, real-world context, however, there is a growing body of evidence suggesting that well-designed scenarios can induce a physiological stress response similar to that found with officers in the field (Andersen et al., 2016). In addition, it has been shown that such training can induce feelings and anxiety and distress, as well as cognitive and perceptual distortions similar to those reported in real-world dangerous encounters (Broome, 2011).

6.3.2 The Role of Feedback and Self-Reflection

A crucial component of the learning process in scenario-based training is the use of sound and constructive feedback on the trainees performance (Armstrong et al., 2014; Bennell et al., 2021; Di Nota et al., 2021; Jenkins et al., 2021; Lynch, 2005; Rajakaruna et al., 2017; Rantatalo et al., 2019). When instructor feedback is provided, it has been suggested that feedback will be most effective if it focuses on the task rather than the trainee themselves; describes the "what, how and why" of a problem rather than just identifying incorrect actions; is specific and clear regarding current performance as compared to goal performance; and is presented in an unbiased and objective way, and in manageable chunks which do not overload the learner (Bennell et al., 2021).

It is important that the instructor-provided feedback not only imparts a constructive critique of the trainee's performance, but that it also provides probes for the trainee to understand the knowledge, skills and abilities being taught (Armstrong et al., 2014; Jenkins et al., 2021; Staller & Zaiser, 2015). In line with adult-learning principles, it is important to include the trainees as active participants in the learning process, and as such, it is recommended that the feedback process should be an interactive exchange which includes the trainees in the reflection of their performance, and discussion around what can be improved and how (Jenkins et al., 2021). During such exchanges, trainees can reflect on their performance, talk through their decision-making process, and receive constructive feedback from the instructor which will enable trainees to adapt their behaviours to improve future performance (Jenkins et al., 2021). In addition, fellow trainees who have observed the scenario or taken part (playing the role of subject, victim or witness) may also provide useful feedback and insights (Rantatalo et al., 2019). It has been suggested that feedback from those who took part in the scenario may be particularly valued by the trainees, as it is perceived to have originated from first-hand experience (Rantatalo et al., 2019). It has been recommended that the level of feedback is tailored to the proficiency of the trainee, such that, as officers gain increasing proficiency, the amount of instructor-provided feedback is decreased to enable trainees to develop their capability to self-assess their performance, and identify areas for improvement and potential solutions on their own (Jenkins et al., 2021). Furthermore, it has been suggested that in order to promote and facilitate self-reflection, trainees may benefit from the completion of self-reflection journals. During a training programme designed to further decision-making in frontline officers, Johnsen et al. (2016) required trainees to complete a handbook dedicated to self-reflection, in which officers focused on their personal strengths and areas self-identified as needing improvement, with the aim of increasing trainee engagement and reinforcing learning.

Regarding the timing of delivery of feedback, recommendations have been mixed. Some have recommended that scenarios are 'frozen' or paused to enable trainees to examine their situational awareness and decision-making processes at different points within the scenario, providing an opportunity to discuss the planned course of action prior to an incorrect decision being made (Di Nota et al., 2021). However, others have argued for restrictions on when and how often scenarios are paused for instructor feedback to facilitate trainees' development in their own ability to reflect upon their performance, and identify and work through any issues (Bennell et al., 2021; Jenkins et al., 2021). In addition, Jenkins et al. (2021) also recommend that trainees may benefit if there is a delay between the

immediate completion of the scenario and the delivery of the feedback. Such a delay would allow the trainees to process and reflect on their performance and the knowledge gained on their own first, which could promote deeper understanding and learning, and would also allow trainees' stress levels to return to baseline, ensuring that physiological and psychological factors do not interfere with the intake of information (Jenkins et al., 2021).

6.3.3 Additional Considerations

Scenario-based training has been argued to be one of the most effective training methodologies to promote officers' training and preparation to engage in high-risk, (potentially) dangerous encounters (Preddy, 2018). Such training has been argued to be particularly important for use of force encounters, given the low rate such events occur in real life, and allow trainees to make mistakes and learn in a safe environment, and reflect upon their performance (Bennell et al., 2021; Hine et al., 2018). Although rare events, frontline officers must be prepared to deal with situations in which the 'worst-case scenario' does eventuate, and relatively regular police activities, such as vehicle stops and domestic disputes, may escalate into a dangerous situation at any moment (Zimmerman, 2006).

However, some researchers have noted criticism in the way many scenarios, particularly those involving use of force, have been developed. For example, in a study of use of force scenario training in the United States, Bengtson (2017) noted that during the scenarios, officers were not provided an opportunity to de-escalate the situations, and were also not armed with the full range of tactical options that they would normally have in the field (OC spray or Taser). Jenkins et al. (2021) noted the importance of creating scenarios that were not too restrictive or pre-determined in their outcomes. They suggested that to promote the development of high-level decision-making, scenarios should allow for multiple potential solutions and outcomes, emphasising that in many complex situations there is not necessarily a single 'correct' response.

Additionally, it has been noted that the focus on 'worst-case' scenarios may provide trainees with a false sense of the prevalence of such situations eventuating, and promote an over-reliance on tactical skills which may not be appropriate in most circumstances (Anderson et al., 2019; Dayley, 2016; Emsing et al., 2020; Koerner & Staller, 2021; Zaiser & Staller, 2015). In a study of officer perceptions of conflict management training in Sweden, Emsing et al. (2020) found that there appeared to be an 'over-exaggerated' focus on worst-case scenarios, and noted that officers reported the need for more practical training in the more mundane, everyday situations. It has been suggested that the pre-occupation with the threat of violence and subsequent use of force may shape officers' perceptions such that they come to view all police-public encounters as potentially dangerous ones, and that this perception of the public as a threat may lead officers to interact with citizens in a way that promotes mutual apprehension, and possible escalation (Zaiser & Staller, 2015). As such, some have argued that to maximise officer preparedness for the situations they will experience in the field, scenarios should be developed in such a way as to accurately represent the proportion of situations, conditions and outcomes experienced in that jurisdiction (Dayley, 2016; Jenkins et al., 2021). Jenkins et al. (2021) suggest that, presuming the data is available, efforts should be made to determine most frequent event types, situational factors (e.g. time of day, indoor/outdoor environment), subject characteristics (e.g. intoxicated), and outcomes (e.g. use of empty-hand tactics, OC spray, taser), so that scenarios may be developed which accurately reflect the range of events and situational factors which officers experience, and in a way that is approximately proportional to the real-world operational context.

6.4 Tailored Training

One aspect which has received little attention in the tactical and safety training literature is the issue of tailoring training to the individual. It has been noted that individuals may differ in their physical and cognitive abilities, as well as prior knowledge and experience which provides complications with attempting to prescribe a 'universal' training programme (Di Nota & Huhta, 2019; Staller et al., 2021c). It has been noted that tactical and safety training courses are often designed as a 'one-size fits all', with all trainees expected to carry out the same tactical techniques, regardless of age or body type, and with a lack of opportunity to provide additional training and practice to those who may require it (Cushion, 2018; Staller et al., 2021c). As such, training tailored to an individual's capabilities and needs does not appear to be common, however, given time and resource constraints, this may be a challenge (Di Nota & Huhta, 2019).

6.4.1 Novice to Expert

One area which has received some attention regarding variation in training design and requirements is the development of novices to experts. One of the first and most common recommendations regarding the development of training from novice to expert is the need to provide content and training methods that include a graduated progression of learning (Bennell et al., 2007, 2021; Mugford et al., 2013; Wilkes, 2016). Training needs to be developed such that the learning trajectory is carefully progressed, with the level of complexity and difficulty presenting an appropriate challenge to the learner, but not to the extent that they are overwhelmed or become frustrated (Wilkes, 2016).

Each stage in the learning process needs to be more challenging than the last, adding increased levels of complexity, stress, and the integrated build-up of knowledge, skills and abilities (Wilkes, 2016). As mentioned previously, the ordering of training content should be such that, basic skills and techniques are first acquired in less realistic, low-stress environments, which allow the trainee to focus on skill acquisition without being overwhelmed, with increasing levels of realistic/representative training environments gradually introduced to enable trainees to practice the execution of knowledge and skills in real-world conditions, and to develop high-order decision-making and more advanced tactical techniques (Bennell et al., 2021). Additionally, in order to reduce the amount of information being presented and simplify the task requirements, it has been suggested that more complex tasks may be segmented into their constituent parts, which can then be presented to the learner in a sequential manner, enabling novice learners to gain mastery of a particular skill (Anderson et al., 2019; Bennell et al., 2007; Mugford et al., 2013). However, eventually, once trainees have developed a level of proficiency, the isolated skills need to be integrated and flexibly executed during increasing complex and variable training situations (Bennell et al., 2007; Jenkins et al., 2021).

One framework which has been proposed to provide tangible, empirically-driven training strategies which incorporates learning practices from novice to expert is that of cognitive load theory (CLT; Bennell et al., 2007; Mugford et al., 2013). According to CLT, a learner's level of expertise can impact the level of cognitive demand placed on the individual, and consequently the amount of information that is stored in short-term and long-term memory (Mugford et al. 2013). It also stresses that in addition to novice learners becoming overloaded with overwhelming amounts of complex information in training contexts suited for experts, the reverse may also be true – the knowledge and skill acquisition of expert learners may be hampered if instructional techniques suited for novices are used. Mugford et al. (2013) suggest that CLT provides a number of practical techniques to ensure that the learning environment and methods of delivery optimally accommodate the cognitive limitations of trainees at different stages of their learning.

Bennell et al. (2007) and Mugford et al. (2013) describe a range of CLT-aligned training strategies which can facilitate learning and development from novice to expert, namely worked examples, completion examples, and mental rehearsal. One instructional method which has been argued to be well-supported for enhancing learning for novices is the use of worked examples, in which an instructor demonstrates the solution to the problem in a step-by-step manner. Such training delivery limits the cognitive load in the trainees as it does not require the learner to focus on the identification of the best solution to the problem. Learners are presented, instead, with the key relevant problem-solving information which is then modelled by the instructor. However, it is important to note that while this technique may be beneficial to novice learners, such a strategy may not be optimal for use with more expert learners, as the information provided by the instructor may be redundant if the information and skills have already been acquired.

Completion examples provide a middle-step between conventional problem-solving practice and a worked example, providing the learner with portions of the problem in a step-by-step format, and requiring the learner to complete the solution (Bennell et al., 2007; Mugford et al., 2013). Similar to worked examples, completion examples reduce a learner's cognitive load by focusing their attention on the key information in the completed component of the task and promoting a deeper level of understanding as the learner works through the unfinished component of the task. To further enhance learning, it has been suggested by Bennell et al. (2007) that trainees should be encouraged to use 'self-explanation', in which they explain their decision-making process as the training scenario unfolds.

Importantly, Bennell et al. (2007) note that use of force scenarios are often more variable and dynamic than traditional tasks faced by CLT learners, and emphasise the importance of ensuring that the worked and completion examples used do not promote the acquisition of rigid decision-making processes. To facilitate this, they recommend exposing the learner to a diverse range of varied scenarios during training to ensure that learning is generalisable and transferrable across the range of situations likely to be encountered in the field.

In contrast to worked and completion examples, which are better suited to novice learners, mental rehearsal has been suggested as a strategy to promote learning in more advanced trainees, once they have reached the level of expertise to engage in complete scenarios, especially in situations where the complexity of the information being acquired is high (Bennell et al., 2007; Mugford et al., 2013). The use of mental imagery has been suggested to enable learners to more effectively monitor their understanding, and to identify those aspects of the learning they have a strong understanding of and those which require more practice and learning. Mental rehearsal also enables learners to 'practice' and consolidate learning outside of the scenario training environment. As mental rehearsal requires a foundation of knowledge in which to generate the mental imagery of the execution of actions and their outcomes, it is generally not appropriate for novice learners, who may not have the knowledge or experience needed in order to do this.

6.4.2 The Issue of Gender in Tactical Training

One issue which has received little attention in the tactical training literature is the experiences of female officers during training. In an observation of annual frontline officer safety training in the United Kingdom, Cushion (2018) identified a 'hidden curriculum' which positioned female officers as "different, inferior, and objectified". Cushion (2018) noted that the small group of female officers in the three courses observed ended up forming their own groups for the practice of exercises, working together throughout without any rotation, and not gaining practice with anyone other than female officers, becoming referred to as the 'lady's group'. It was noted that trainers across the courses did not attempt to address this division which served to demarcate the female officers as different from their male counterparts, and that the female officers received less (and sometimes no) individual attention and input from the trainers. Cushion (2018) concluded that this division resulted in an inequality, and a reinforcement of the stereotype regarding the 'masculine' nature of the job for which female officers are unfit. As a consequence, the female officers reported feeling less confident in their abilities following the training course, and as willing to avoid violent situations in the field in the future.

This study by Cushion (2018) highlights some of the issues that female officers may face during tactical and safety training, which may directly impact the efficacy of their learning of these key skills, and which may further exacerbate gender stereotypes which may be present. However, this study remains one of the only studies to identify and raise the issue of the experiences of female officers in these courses. As such, it is currently unclear to what extent female officers across jurisdictions may encounter similar training conditions and experiences.

6.5 Skills Decay

It has been noted that high-risk situations requiring the use of tactical options are relatively low frequency situations. In a study examining use of force incidents for departments across the United States, Lee et al. (2010) found that 77% of police-public encounters were resolved peacefully, while for those which did require the use of force, empty-hand tactics were sufficient to subdue arrestees in 21% of incidents, and a weapon of any type was only used in 2% of cases. As such, officers may not have the opportunity to practice the execution of tactical options regularly in the field. However, it has been noted that many of the tactical techniques trained to physically control a high-risk individual require frequent practice and sufficient repletion, otherwise skill decay/loss can occur (Lynch, 2005). The frequency of police tactical and safety 'refresher' training has been found to show some variability across jurisdictions and/or tactical roles, often provided on an annual or semi-annual basis (Buttle, 2007; Charles & Copay, 2003; Cushion, 2018; Phillips & Jarvis, 2017). However, a consistent finding in the literature is the perception of both officers and trainers that the frequency of tactical training was not sufficient to maintain a high level of proficiency (Buttle, 2007; Preddy, 2018; Rajakaruna et al., 2017).

According to Arthur Jr. et al. (2002), skill loss is characterised by the loss of trained or acquired skills (or knowledge) after periods of non-use, discussing that this is particularly problematic when considering training for specific skills individuals might not use for extended periods. The authors describe that the terms "skill loss", "retention", and "decay" have been used in the literature as synonyms. Arthur Jr. et al. (2002) discuss as a limitation of the literature in the area the lack of consensus on the criteria to determine the point at which skill acquisition should cease and the retention interval should begin. Thus, methods and findings from different studies are not highly comparable.

Moreover, according to Arthur et al. (2002), two methods of measuring skill acquisition have been used in the extant literature: the amount of content trained in a specific time; and the time taken to train a specific amount of material. The authors also summarise based on the literature that individual difference characteristics could impact complex task acquisition and performance; and that prior research had not focused on skill retention and re-acquisition.

Arthur Jr. et al. (2002) also report findings from a meta-analysis that depicted the relationship between skill retention and the length of the non-practice interval as a negatively accelerated curvilinear relationship (Arthur Jr., Bennett, Stanush, & McNelly, in press). More specifically, skill retention decreased as the length of the non-practice interval increased, but not linearly. The same meta-analysis identified factors that impacted the relationship between skill retention and length of the non-practice interval: degree of overlearning; task characteristics; methods of testing conditions of retrieval; lab/applied tasks; and evaluation criteria. Atkins and Norris (2012) also observed that attention levels and motivation impact information retention. To the authors, motivation is a critical component of learning, being both value-based and emotion-based. In this sense, if students see value in the information to be learned, they will be motivated. Likewise, if training is highly enjoyable or stressful, information will be more likely to be embedded in memory.

Arthur Jr. et al. (2007) discuss that there is a core set of factors that influence the retention of trained skills over extended periods of these skills not being used. They have been categorised in the literature as task-related¹¹ and methodological¹² factors (Arthur et al., 1998, as cited in Arthur Jr. et al., 2007). The authors also point out that prior research has observed a robust relationship between training and job performance mediated by knowledge acquisition (Hunter, 1983, 1986 as cited in Arthur Jr. et al., 2007; Schmidt & Hunter, 1993, as cited in Arthur Jr. et al., 2007). More specifically, research has shown that acquiring more knowledge leads to increased performance.

Kim et al. (2013) discussed that the knowledge necessary to perform a job can be declarative, including factual information about a task such as knowing where the letters on a keyboard are located; procedural, including procedural knowledge of a task such as knowing how to type using a computer keyboard; or a mixture of both. Both declarative and procedural knowledge are generally required to successfully perform a task. The authors theorise based on prior research that the process of learning new tasks includes three stages: 1. Acquiring declarative and procedural knowledge; 2. Consolidating the acquired knowledge; and 3. Tuning the knowledge towards overlearning. According to the authors, once a task is learned and reaches the third stage, the rate of skills decay is smaller. Thus, it is important that learners go through the stages of learning in order to prevent skills decay. Furthermore, training can target these specific stages differently and external aids such as automated learning modules can aid skills to be developed based on which stage of mastery they are in (i.e. skills not yet known or in the first and second learning stages can be targeted and moved to the third stage). It is also important, according to Kim et al. (2013), to proceduralise knowledge, as declarative knowledge decays more easily. However, the authors discuss that little has been researched on long-term retention and decay of procedural skills, asserting that decay mechanisms of procedural skills need to be proposed if they exist. Finally, Kim et al. (2013) observe that the benefits of overlearning (i.e. immediate continuation of learning after the learner achieves mastery over a task) seem to be contradictory

¹¹ These factors include inherent characteristics of the task that are generally not amenable by the trainer such as a task being cognitive (and not physical).

¹² These factors include characteristics which can be modified in the training or learning context to enhance retention such as degree of overlearning.

according to the literature, with some research suggesting it reduces skills decay only in the short-term and others suggesting that overlearning might be beneficial in some instances (see also Krätzig, 2016).

Roediger et al. (2019) described three central strategies used by SEAL trainers when training, which also have been commonly incorporated into training in the military, sports, and education. These central strategies are spaced practice¹³, interleaved practice¹⁴, and retrieval practice¹⁵. The authors also argue that skills to be learned should be trained in the same way they will be deployed in the field, especially in later stages of training.

Wiseheart et al. (n.d.) emphasised in their systematic review of literature that how the content being learned is introduced can influence knowledge retention, advocating for the use of distributed practice (and not massed practice) when learning, although performance improvement may vary depending on the content being learned (e.g. motor skills versus social skills). The authors discussed that although this finding is a commonplace in the literature, this strategy is not used by most learners. Wiseheart et al. (n.d.) observed that cramming content (i.e. massed practice) might be an effective strategy when having to retrieve knowledge from memory in the short-term (e.g. for a test happening in a day), but not in the longer-term. Weekly review quizzes and/or cumulative tests and textbooks which include opportunities for distributed practice can be used to increase knowledge retention in the long run. Students can also be stimulated to change their study practices and use phone or computer applications that facilitate distributed practice.

Likewise, Arthur Jr. et al. (2007) found that distributed practice had a positive effect on skill retention and postobservational rehearsal had a positive effect on skills transfer in university students. Schmidt and Björk (1992, as cited in Arthur Jr. et al., 2007) discussed that if distributed practice is not available due to organisational constraints, then randomised practice (instead of blocked practice) of different skills in a given amount of training time might be a viable option for inducing a distributed practice effect.

It is worth mentioning the meta-analytic review by Hattie (2015). This review included 1,200 meta-analyses, which encompassed more than 65,000 studies. The studies considered in this review related to the influence of programmes, policies, or innovation practices on academic achievement in an education setting (early childhood, and elementary, high, and tertiary education). One of the factors considered in the review was spaced practice which was related positively to student achievement.

Regarding training protocols, Atkins and Norris (2012) described that when delivering training it is important for trainers to keep the chunk of information limited (i.e. not feeding too much information to trainees at once) and to make sure the most important information is presented at the beginning of the session. The authors also observed that when teaching motor skill topics, trainers should consider that retention of a skill can be improved through repetition, and skills are better retained if the practice is spaced.

¹³ This strategy refers to the evidence that repeating study sessions spaced out over time results in better learning than repeated study sessions completed back to back. Massed practice is the opposite of spaced practice, including the study or practice of a skill or piece of information repeatedly with no time between repetitions. The literature on spacing has revealed that there is no one spacing interval that always works, and that the spacing effect might depend on many factors such as retention interval (Roediger et al., 2019).

¹⁴ This strategy refers to the evidence that interleaving examples (i.e. mixing many different types of examples) is far more effective for long-term learning than grouping (or blocking) together similar examples. More specifically, using interleaved practice leads to a higher transfer of content, as its test almost always requires students to identify what type of challenge they are facing; and promotes better long-term retention for motor skill learning (Roediger et al., 2019).

¹⁵ This strategy includes retrieving (instead of just being exposed to the information repeatedly) the information learned through quizzes, practice in a realistic situation in which a specific skill needs to be retrieved, the use of flash cards, etc. Retrieval practice has been acknowledged in the literature for numerous benefits including skill retention; leading to greater flexibility of knowledge use; improving students' abilities to answer inference questions on assessment tests; guarding trainees against deleterious effects of stressful situations on memory; and improving learners' own judgments of their learning (Roediger et al., 2019). Feedback describing the correct answer to the learner can enhance the benefits of retrieval practice (Roediger et al., 2019).

Arthur Jr. et al. (2002) compared the AIM-dyad training protocol to a standard individual protocol regarding the acquisition of a complex skill using a computer simulation game. More specifically, they investigated whether using the active interlocked modeling (AIM) protocol was more efficient in fostering complex skill acquisition in a sample of university students. In this protocol, trainees perform each half of a task alternately with a partner who performs the other half. The goal is for each trainee to learn both parts of the task by hands-on practice on alternate trials and to learn the connection between parts by modeling the actions and reactions of their partner. According to the authors, this protocol enables two trainees to achieve the same performance as one trainee using the same amount of resourcing. This characteristic would make the AIM training protocol more efficient than the standard individual training protocol. Findings from the study showed that despite half as much hands-on practice, the performance of dyadic trainees did not differ from that of individuals on tests of skill acquisition, loss, and re-acquisition. Moreover, the individual's prior level of psychomotor ability and visual attention strongly predicted performance.

Finally, Kim et al. (2013) suggested that it would be helpful to establish a cognitive architecture based on a unified theory of cognition which enabled an automated system to be designed to predict learners' future cognitive states, determining their future rate of skills decay. According to the authors, this system would reduce the cost of determining this rate through recurring studies. Toubman et al. (n.d.) reported on the initial steps for such an automated system. The authors aimed to develop a predictive retention model for skills in pilots. At the time of their report, results for the model were not yet available.

Overall, the literature depicted in this section suggests that skills decay is a commonplace when considering skills that are not used frequently, but that there are practices that can aid skill retention. The most highly regarded practices in the literature are spaced practice, interleaved practice, and retrieval practice.

6.6 Assessment of Officer Performance

Tactical performance can be differentiated into specific operational behaviours as well as a range of cognitive competencies (Di Nota et al., 2021). Di Nota et al. (2021) note that while some tactical and safety behaviours can be objectively measured (e.g. tactical option selected, shot accuracy), many skills (e.g. situational awareness) require more subjective evaluation by the trainers/examiners (Di Nota et al., 2021). In addition, they note that many tactical and safety skills are complex and involve a range of conceptually overlapping or dependent skills (e.g. situational awareness and decision-making), further complicating the evaluation of these inter-dependent skills.

Objective measures, based on direct observation and/or consideration of trainee explanations, are easier to operationalise, making them less subjective or ambiguous, and as such, less prone to evaluator bias or differences between evaluators (Di Nota et al., 2021). Objective measures are often easier to score, and as such, are useful in time-limited contexts to score the performance of officers on behaviours which are directly observable and unambiguous (Di Nota et al., 2021).

In contrast, subjective measures, which are often scored on relatively simple rating scales (e.g. ranging from 'deficient' to 'exceptional'), can provide a more fine-grained picture of performance, and can better enable officers to understand their current level of skill, and where their strengths and weaknesses may lie (Di Nota et al., 2021). However, subjective measures are at greater risk of evaluator bias, which may be impacted by a range of factors, including the evaluator's own skill level and experience, their observational capabilities and/or levels of fatigue, the amount of inference required, or interpersonal experiences with, and perceptions made of, trainees during the pre-evaluation component of the course (Di Nota et al., 2021). The reliability of subjective measures can be improved by the provision of detailed criteria which precisely outline the expected behaviours or skills at each point along the measurement scale (e.g. what does 'deficient' performance look like, what does 'exceptional' performance look like; Di Nota et al., 2021).

Di Nota et al. (2021) argue that different conclusions about a trainee's competency may be drawn if only a single method of evaluation is utilised to indicate overall proficiency, and recommend that a variety of subjective and objective measures should be utilised to assess an officer's tactical capability and level of skill to provide a complete profile of officer competence at all levels of tactical and safety training, from recruit to in-service training. It has also been noted that in order to evaluate an officer's ability to implement the knowledge, skills and abilities trained in

real-world high-risk situations, it is important to assess those skills in contexts which attempt to recreate the same stressors that may be found in an operational context (Bertilsson et al., 2020). As such, Bertilsson et al. (2020) have recommended that in addition to expert evaluation, physiological markers of stress and stress management (such as heart rate), are included in the evaluation. Atkins and Norris (2012) have suggested, however, based on their study with scenarios, that performance in their study was not related to a specific heart rate, blood pressure, or cortisol level in trainees, arguing that it is important to measure mental/emotional stress in trainees during high-stress scenarios as these were the measurements related to trainee performance in their study.

While an assessment of officer competency is integral to the successful graduation from a recruit to a frontline officer, it is unclear as to whether there is a place for performance evaluation during in-service training. When assessment is included, it is often focused on firearms proficiency requalification (Boulton & Cole, 2016; Charles & Copay, 2003), or ensuring that officers are capable of physically engaging in the training, such as pass/fail fitness assessments (Cushion, 2018). As noted, the use of a detailed subjective evaluation can be valuable, providing officers with a fine-grained picture of their performance (Di Nota et al., 2021). However, in a survey of officer perception of tactical and safety training in Western Australia, officers felt that the pressures of assessment hindered learning and confidence (Rajakaruna et al., 2017). As such, Rajakaruna et al. (2017) have recommended that the focus on tactical training should not be on performance and evaluation, but rather, on continued skill development through learning and practice.

7. Tactical Training: Key Skill Domains

7.1 Overview

The current chapter presents findings from a review of the literature focusing on tactical and safety training curriculum design and content, covering what is currently known in relation to use of force, de-escalation and communication, decision-making and stress management training. Moreover, the chapter investigates what is known about the future of tactical and safety training.

Overall, in addition to the traditional focus on use of force tactics, a range of knowledge, skills and abilities are required to ensure a safe resolution and effective outcomes during (potentially) dangerous encounters, including decision-making, awareness of the situation and the self, communication and de-escalation and stress management and the ability to perform under pressure (Rajakaruna et al., 2017). However, it has been commonly identified in the literature that there is an apparent over-emphasis on the execution of force options during high-risk situations, with a focus on the narrow development of these skills and abilities during training (Bengtson, 2017; Dayley, 2016; Rajakaruna et al., 2017).

Studies which have examined the content and/or efficacy of use of force tactical training are limited. There is some evidence that firearms training may improve marksmanship scores in a training environment (Charles & Copay, 2003), or officer's confidence in the use of firearms (Davies, 2017). However, it has been suggested that firearms qualification tests need to include a wider focus to incorporate the full range of skills and abilities required to safely and effectively use a firearm in a high-risk encounter in the field (Morrison & Garner, 2011). In addition, it has been noted that training has not always reflected real-world operational contexts sufficiently (Henriksen & Kruke, 2021).

Few studies have examined the content of tactical and safety training focused around self-defence and control tactics. Those that have examined this area have generally focused on police instructor and trainee perceptions regarding the efficacy of the training they have received. Such studies have generally found high levels of officer dissatisfaction with the training provided (Cushion, 2018; Kaminski & Martin, 2000).

Researchers have recommended that strategies which avoid conflict, such as communication and de-escalation skills, should be focused during tactical and safety training, emphasising that trainees need to be provided with the opportunity to learn and practice these skills alongside physical self-defence and control techniques (Dryer-Beers et al., 2020; Staller et al., 2020). While recommendations for the adoption of de-escalation training have been widely promoted and supported by policy makers and the public, it is important to note that high-quality evidence for the efficacy of de-escalation training, in policing and other contexts, is limited (Engel et al., 2020b; Leach et al., 2019). It is also currently unclear to what extent de-escalation training is included in either recruit or in-service officer training. The few quality studies which have examined the impacts of de-escalation training and its incorporation with other tactical options have found some initial evidence suggesting an ability to reduce use of force, as well as officer and civilian injuries (Engel et al., 2020a).

In addition to the execution of tactical options, it is also important to consider officers' decision-making in terms of what actions or tactical options are appropriate to ensure a successful resolution of high-risk situations. In order to facilitate tactical decision-making, a number of tactical option decision-making models have been developed and utilised across jurisdictions (Preddy, 2018). However, there appears to be little evidence regarding the utility of these models in the field or how models may be effectively adapted to facilitate their use in operational contexts. Rather than focusing on the examination of police tactical option decision models, the dominant focus in the literature on police decision-making has centred-on naturalistic and recognition-primed decision-making models, which posit that police decision-making during time-pressured, high-risk situations is characterised by a 'intuitive' decision-making style, which is automatic, fast and effortless in nature (Staller, 2016).

According to these models, officers are enabled to make fast, 'intuitive' decisions by matching aspects of the current situation to similar previous situations and by using mental simulations to imagine and predict the outcome of a

given action (Di Nota & Huhta, 2019; Hine et al., 2018; Staller, 2016). Consequently, decision-makers rely on their prior knowledge and experience to enable the quick identification and execution of appropriate actions. As such, it has been argued that the development of effective tactical decision-making skills needs to be facilitated through active involvement in challenging environments similar to those experienced in the field, via scenario-based training (Hine et al., 2018; Staller & Zaiser, 2015). Important for a recognition-primed decision process are situational awareness skills and the ability to accurately perceive and understand key salient components of a given environment (Henriksen & Kruke, 2020; O' Hare & Beer, 2020). However, while situational awareness skills may be developed during training, particularly during complex scenario-based training, there is a paucity in the literature regarding exactly how these skills should be developed.

It has been commonly highlighted that one of the key factors which may influence the quality of police tactical decision-making and the execution of chosen actions in high-risk situations are the impacts of stress and/or emotion (Andersen & Gustafsberg, 2016; O' Hare, A., & Beer, 2020; Ta et al., 2021). The experience of heighted stress and arousal can result in a wide range of consequences, including physiological changes (such as increased heart rate), negative emotional responses (such as fear and anxiety) and cognitive deficits (such as narrowing of attention), and crucially, these consequences can have adverse impacts on officer performance during high-risk situations, increasing the chances of a detrimental outcome (Jenkins et al., 2021). While police receive extensive training in the theoretical and technical skills required to perform successfully during high-risk situations, little training time is often dedicated to training officers to cope with the immediate and/or long-term impacts of their stress response (McCraty & Atkinson, 2012). While stress inoculation/mental preparedness training has been promoted as an effective stress management approach which can provide tools which may improve stress coping skills both during and after a high-risk situation and promote resilience which may positively affect longer-term impacts of stress, the evidence for its efficacy in a police context is limited. In addition, while a range of training programmes have been developed, it is unclear as to what extent these (or other) programmes have been adopted as part of a regular police training curriculum.

One of the most consistent observations made in the literature reviewed relates to the paucity of information and empirical studies around tactical and safety training and what the future holds for tactical and safety training (Bennell et al., 2021; Morrison & Garner, 2011; Staller et al., 2020). Researchers have noted that there is a lack of systematic high-quality research, leading to a lack of insights regarding what distinguishes superior from inferior curricula, or how different training techniques may impact police and public safety in the field (Dryer-Beers et al., 2020; Morrison & Garner, 2011). As such, there remains a lack of concrete, empirically-supported information regarding what techniques should be taught, how they should be taught, and for what frequency or duration (Dryer-Beers et al., 2020; Mugford et al., 2013).

The lack of empirical research on which to base sound and effective training practices and curriculum has resulted in training programmes which are founded in tradition or common practice (Staller et al., 2021c). However, as noted by Di Nota and Huhta (2019), "common practice should not be confused with best practice or evidence-based practice" (p. 15). It has been suggested by these authors that due to the sensitive nature of the training content, organisations across jurisdictions have kept details of police tactical and safety training out of the public domain in order to ensure safety (by not revealing specific tactical plans or manoeuvres). However, they argue that this has also fostered a 'culture of unwillingness' between organisations in the sharing of practices and knowledge, creating further barriers to the identification of 'best practice' in training.

7.2 Core Tactical Skills

A range of core knowledge, skills and abilities have been identified as necessary for the successful management and resolution of (potentially) dangerous situations. Following interviews with an international panel of self-defence expert coaches, Staller et al. (2020) identified a number of key attributes associated with expert performance during (potentially) violent encounters. Prior to a potentially violent encounter occurring, experts remained calm, were situationally aware, and prepared themselves for escalation, meanwhile engaging in de-escalating behaviours that attempted to prevent the violent encounter before it happened. In the event of a violent encounter occurring, experts acted swiftly, efficiently and effectively, and with a decisive mindset.

Similarly, Rajakaruna et al. (2017) found that officers in Western Australia identified the importance of awareness (of themselves, their partners, and the current context); the ability to assess the situation as it unfolded during the course of the encounter; adapting their behaviour according to the situation and forming a strategy which was appropriate and proportionate to the threat presented; executing their actions confidently and automatically under pressure; and appraising their performance both during and following the encounter. Thus, in addition to the traditional focus on use of force tactics, it is apparent that a range of knowledge, skills and abilities are required to ensure a safe resolution and effective outcomes during (potentially) dangerous encounters including decision-making, awareness of the situation and the self, communication and de-escalation, and stress management and the ability to perform under pressure (Rajakaruna et al., 2017).

7.3 Use of Force Training

Although situations requiring an officer to use force are noted to reflect only a small proportion of police encounters with the public, it is fundamental to police and public safety that frontline officers are prepared to deal with situations in which violence does eventuate; and relatively regular police activities, such as vehicle stops and domestic disputes, which could escalate into dangerous situations at any moment (Zimmerman, 2006). The execution of use of force relies heavily on an officer's accurate appraisal of the situation, and an effectively executed response which is proportionate and justified based on the situation and the perceived level of threat. Additionally, the language of use of force legislations across many jurisdictions include a degree of subjective perspective in when, and at what degree, force may be required (Broome, 2011). Studies have also found that officers who are competent in the use of force use less force than unskilled officers, who are more likely to use excessive force (Andersen & Gustafsberg, 2016). As such, training which provides officers with the physical and psychological skills necessary to accurately appraise a threat and effectively apply the appropriate level of force is of fundamental importance.

7.3.1 Firearms Training

The literature on firearms training has generally focused on recruit training, with little clear description or distinction regarding how this training may differ from in-service (refresher) training being provided. Basic firearms training across jurisdictions has consistently covered a range of different training components including basic firearms handling [including stance, sight alignment, trigger control, safe administrative (non-combat), tactical loading and unloading of a weapon, and clearing malfunctions], tactical firearms use, cover and concealment, use under night-time or reduced lighting conditions, as well as qualification practice and tests (Charles & Copay, 2003; Morrison & Garner, 2011).

The literature available suggests that the number of hours dedicated to firearms training varies across jurisdictions, as well as the proportion of use of force training which is dedicated to it. Within the United States, Bengtson (2017) noted that, nationally, the majority of use of force training concerned firearms skills, and included 71 hours of recruit training (as opposed to 16 hours of less than lethal weapons training). Within New Zealand, recruit firearms training at the Royal New Zealand Police College (RNZPC) currently involves a total of 42 hours of live firearms training, while Norwegian recruits receive 94 hours of training over a period of one year (Henriksen & Kruke, 2021).

In one study which did examine post-recruit in-service training, involving the training of police patrol in using rifles in the United States, Phillips and Jarvis (2017) noted that training hours showed 'spikes' that appeared to correspond with the available hours in a workday, and suggested that the amount of training received by officers in some agencies/jurisdictions appeared to be an issue of convenience rather than based on training needs. Phillips and Jarvis (2017) argued that "convenience ... should not set a standard for training" (p. 77).

The qualifications required for firearms training instructors were generally not described in the literature. However, Charles and Copay (2003) noted that firearms training at a United States police training academy in Illinois was carried out by instructors who were Master Firearms Instructors, and who had been required to undergo four weeks of specialised training including a firearms instructor course, police strategy and tactics course, tactical firearms course, and a one-week apprenticeship, with instructors annually assessed in relation to their knowledge and shooting capabilities.

Regarding evidence for the efficacy of basic firearms training, there is limited research. Charles and Copay (2003) found that, following training, recruits demonstrated improved marksmanship scores, improved speed to load, unload, and clear malfunctions, while Davies (2017) found that 68% of recruits were 'confident' or 'very confident' in their use of a firearm. However, Charles and Copay (2003) noted that there were no evidence-based standards to evaluate performance or proficiency, with standards usually established via some norm or criterion. As such, they argue that it is difficult to assess the effectiveness of any given firearms training programme. Morrison and Garner (2011) suggest that real-world data from officer-involved shootings should form the basis for the evaluation of any firearms training programme. Additionally, they note that firearms qualification tests are primarily based on marksmanship and gun handling exercises, and suggest that the qualification process needs to be reconceptualised to incorporate the full range of skills and abilities required to use a firearm safely and effectively in a high-risk encounter in the field.

7.3.1.1 The New Zealand and Norwegian Training Contexts

Henriksen and Kruke (2021) completed a study which provided a detailed description and comparison of basic recruit firearms training in New Zealand and Norway, jurisdictions which both continue to deploy routinely unarmed police. They noted many similarities between the training delivered in New Zealand and Norway, including the emphasis on safety, and the firearms handling and marksmanship skills that recruits were required to pass their qualification tests.

Both jurisdictions focused on training using a static target. For Norwegian recruits, training targets consisted of a white cardboard rectangle coupled with a smaller square on top and a circle in the centre, while New Zealand recruits trained by shooting targets which included a photograph of a masked subject pointing a firearm forward.

Training content was also very similar between the New Zealand and Norwegian training contexts, with recruits in both countries receiving regular training on firearms handling, including loading and unloading of weapons, detailed instructions in shooting techniques, and shooting practice performed at various distance and positions. It was also noted that both jurisdictions had a general focus on the qualification test, with training closely aligned to exercises to be performed, although some additional exercises (such as low-light shooting) were also included.

One contrast between New Zealand and Norwegian recruit training was the increased reference made to the use of firearms in real-life incidents by New Zealand instructors. Henriksen and Kruke (2021) noted that this was facilitated by the New Zealand Police Tactical Options Report (TOR) database, which provided details of all firearm incidents encountered by frontline officers, while in contrast, instructors stated that they did not have access to documented experiences from real-life incidents in Norway. New Zealand instructors also noted that the TOR database, along with feedback from Districts and qualified recruits, was utilised in the development of training content. According to the authors, qualified recruits were encouraged to send e-mails to instructors following their first armed experience in the field.

However, despite the inclusion of training content informed by real-world incidents and officer experiences, Henriksen and Kruke (2021) concluded that the basic recruit firearms training conducted by both New Zealand and Norway only reflected the operational performance environment "to a limited extent". In both countries, live firearms training was implemented without recruits making shoot/don't shoot decisions, with shooting aimed at a stationary target and no external stressors triggering the physiological and psychological impacts of a high-risk dangerous encounter. The researchers noted that training in both jurisdictions focused on 'how' to shoot, rather than 'when' and 'where' to shoot, discussing that Norwegian instructors reported that they were unsure about how the training provided prepared recruits to handle real-word armed confrontations.

7.3.2 Self-Defence and Control Tactics

Few studies have examined the content of the tactical and safety training focused on self-defence and control tactics. Those that have examined this area have generally focused on police instructor and trainee perceptions regarding the efficacy of the training they have received.

Kaminski and Martin (2000) examined the perception of officers from a large United States police agency in relation to the self-defence and control tactical training they received and the use of the tactics taught in the field, finding an overall high level of dissatisfaction with the training provided. Officers reported that while most officers (72%) found the arrest and control tactics trained easy to learn, only 31% agreed that they were easy to apply to resistive subjects. Likewise, while 59% of the officers felt unarmed defensive tactics were easy to learn, only 24% reported that they were easy to apply during an assault. In addition, for officers who reported being violently assaulted on the job, 58% felt that they had not been adequately prepared for the confrontation. Kaminski and Martin (2000) also noted that officers were interested in receiving more training time dedicated to takedown techniques (79%), gun retention (83%), wrestling (84%), punching (88%) and kicking (89%) techniques, as well as defence against multiple assailants (88%). More recently, Preddy (2018) found that use of force training experts generally felt that officers were not adequately prepared for violent encounters, with 48% describing the training provided to prepare officers for violent encounters as slightly to extremely inadequate, while 70% somewhat to strongly disagreed that they were satisfied with the range of skills taught to protect officers against harm.

Studies have also found failings in the annual officer safety training taught in the United Kingdom (Buttle, 2007; Cushion 2018). Cushion (2018) noted that one of the key focuses of the training by the trainers appeared to be in getting officers through the training uninjured, rather than ensuring a high level of tactical skill, suggesting that this overly cautious approach may result in the deskilling of officers, particularly in relation to the development and application of more complex skills. This risk-aversive approach occurred despite evidence that injuries during such training were relatively uncommon, with one study estimating approximately 4 injuries per 1,000 participants per year (Andrew et al., 2009). Buttle (2007) noted that the training appeared to have the opposite effect to what was intended, and officers who underwent the annual training lacked confidence in the use of more intricate defensive techniques which helped to ensure lower levels of force were used during an encounter (suggested to be partly due to the lack of frequency in training and practicing these advanced techniques). Instead, officers were trained to a level where they were confident to effectively apply one or two easy-to-use, gross-motor techniques to gain compliance, but in the absence of the wider skill-base required to enable officers to use force in an effectively defensive manner. Indeed, in their study of United States police officers, Kaminski and Martin (2000) found that 51% of the officers surveyed had sought additional training in wrestling, boxing or martial arts outside of the departmental training context, and utilised these techniques during self-defence situations, including those prohibited by the department's official defensive tactics curriculum.

7.3.3 The Emphasis on Force in Tactical Training

A key and consistent finding across studies which have examined tactical and safety training curricula is the apparent over-emphasis on the execution of force options during high-risk situations, and the narrow development of these skills and abilities during training (Bengtson, 2017; Dayley, 2016; Rajakaruna et al., 2017; Staller et al., 2020, 2021). However, several studies have emphasised the need to focus training on the development of officers' skills to gain control of a high-risk situation through preventative actions (Rajakaruna et al., 2017; Staller et al., 2020, 2021). In a study examining the views of international self-defence specialists and trainers in relation to the key skills and abilities required, Staller et al. (2020) found that situational awareness was ranked as the most important skill, communication and de-escalation skills were ranked second, and fast and effective decision-making was ranked third. In contrast, training in defence techniques was ranked eighth. As such, there was a consensus by the experts that skills that reduced the likelihood of conflict occurring were of primary importance. Staller et al. (2020) recommended that greater emphasis should be placed on developing skills and abilities which enable officers to prevent violence from eventuating during a high-risk situation.

In a study examining the perceptions of frontline officers in Western Australia regarding the skills required to effectively manage high-risk situations, Rajakaruna et al. (2017) found that the officers interviewed emphasised the importance of communication, but felt that the development of these skills was severely lacking during training. The officers reported that they believed there was too great an emphasis on the implementation of force options, and felt that tactical and safety training should place more focus and time on the development of communication and de-escalation skills. A lack of communication and de-escalation training was also observed in a study examining a use

of force training provided to recruits in Germany (Staller et al., 2021c). The study noted the emphasis of the curriculum on the management of high-risk situations by use of force, with only one brief simulation including the resolution of a conflict situation by means of communication across five days of training (Staller et al., 2021c). A similar disproportion of force over de-escalation techniques was found by Dayley (2016), who found an 8.9 to 1 ratio of training hours in favour of use of force techniques in training programmes across the United States.

Additionally, researchers have noted that in a real-world operational context, due to the dynamic and complex nature of high-risk situations, self-defence and control techniques are never performed in isolation, but require a range of integrated skills, such as situational awareness, including the recognition and anticipation of potential threat, as well as decision-making and problem-solving (Adang, 2012; Rajakaruna et al., 2017; Renden et al., 2017). It has been suggested that training which focuses on isolated physical defence skills may lead to the training of skills and actions which are not representative of actions executed during high-risk situations in the field (Renden et al., 2017). Questions have also been raised as to whether current tactical and safety training curricula, which focus on the deployment of force options, adequately prepare officers to be able to problem-solve during high-risk situations (Staller et al., 2020).

7.4 De-Escalation and Communication Training

It has been recommended by a number of researchers that tactical and safety training should not focus on the end point of applying force, but should focus more widely on management of high-risk situations in their entirety (Rajakaruna et al., 2017). While situations will always arise when the use of force is required in order to ensure the safety of those involved, there is an expectation that when possible, officers should attempt to use non-violent means in order to gain control in a situation (Dryer-Beers et al., 2020). Indeed, the focus on the resolution of high-risk situations via non-force-related means has been found to differentiate experts from novices in their decision-making and approach to high-risk situations. Mangels et al. (2020) examined the tactical decision-making of expert United States police officers (i.e. experienced officers identified as such by their commanders) and novices (i.e. recruits with no operational experience). They found that compared to novices, expert officers were more likely to emphasise verbal de-escalation and force mitigation opportunities, while novices were more likely to emphasise physical control.

Researchers have recommended that strategies which avoid conflict, such as communication and de-escalation skills, should be focused during tactical and safety training, emphasising that trainees need to be provided with the opportunity to learn and practice these skills alongside physical self-defence and control techniques (Dryer-Beers et al., 2020; Staller et al., 2020). There is currently no universally accepted definition for what constitutes 'de-escalation skills', and as such, this term has become a catch-all term for a range of non-force-related tactics, depicting tactics used to prevent conflict, and which symbolise a more progressive approach to the resolution of high-risk situations (Engel et al., 2020b; White et al. 2021). However, one definition which has been commonly adopted in the research literature has come from the (US) National Consensus Policy on Use of Force (IACP, 2020). According to this definition, de-escalation includes:

Taking action or communicating verbally or non-verbally during a potential force encounter in an attempt to stabilize the situation and reduce the immediacy of the threat so that more time, options, and resources can be called upon to resolve the situation without the use of force or with a reduction in the force necessary. Deescalation may include the use of such techniques as command presence, advisements, warnings, verbal persuasion, and tactical repositioning. (IACP, 2020, p. 2).

Recommendations for the adoption of de-escalation training have been widely promoted and supported by policy makers and the public (Engel et al., 2020a). Those in support of their inclusion in tactical and safety training have posited that such training provide officers with advanced skills to resolve conflicts in high-risk situations without the need for force, enhancing both officers and civilian safety (Engel et al., 2020a,b). However, some critics have suggested that de-escalation training promotes the adoption of techniques which are counter to traditional operational responses, and which may put officers at risk of greater harm (Engel et al., 2020a,b; White et al., 2021). De-escalation techniques generally promote a slowing of response from officers in highly dynamic and fast-moving

situations, emphasising the consideration of a range of non-force options before taking appropriate action, which is in contrast to traditional tactical training, which emphasises quick and decisive action (Engel et al., 2020a,b; White et al., 2021).

Despite criticisms, many groups continue to advocate for the adoption of de-escalation training with the aim of providing officers with the skills necessary to resolve an incident before force is required (Dryer-Beers et al., 2020; Engel et al., 2020b). However, it is important to note that high-quality evidence for the efficacy of de-escalation training, in policing and other contexts, is limited (Engel et al., 2020b; Leach et al., 2019). In a systematic review of de-escalation training across a range of professions (with a predominance of those from the field of nursing and psychiatry), Engel et al. (2020b) found that 93% of the studies reviewed fell within the Maryland Scientific Methods Scale (SMS)¹⁶ Level 2, noting that a minimum of Level 3 (involving the measurement of before and after outcomes, and with a comparable control group) was required for any conclusions to be made in relation to 'what works'. This lack of high-quality evidence limits our understanding of what aspects of de-escalation training may work, and how they may be optimally incorporated into police tactical and safety training.

7.4.1 Effective Communication Techniques

De-escalation training often focuses on the development of active listening skills, which include a range of skills designed to build rapport and facilitate effective communication (PERF, 2016; Zaiser & Staller, 2015). Zaiser and Staller (2015) have proposed the 'communication toolbox' for frontline officers, which outlines a range of key active listening techniques, including the incorporation and use of:

- minimal encouragers, which includes verbal and non-verbal cues that show that the person is being listened to;
- open-ended questions, to encourage the person to provide a descriptive and informative answer;
- mirroring, which involves the repetition of a person's final few words to ensure correct following of the conversation;
- emotional labelling, which involves the naming of the person's emotions to demonstrate empathy and understanding;
- paraphrasing, which involves rephrasing a person's statement to demonstrate a motivation for genuine understanding;
- 'I' messages, which include the framing of communication in the first-person to build rapport through personal disclosure;
- effective pauses, which include the use of deliberate silences before and after meaningful comments to increase reflection; and
- summarising, which includes the summarising of emotions and information to reassure understanding and prevent misunderstanding.

The Integrating Communications, Assessment and Tactics (ICAT) programme (PREF, 2016; see section 'Integration of De-Escalation and Force Options') also note a range of other verbal skills to facilitate de-escalation, including the establishment of rapport by making introductions; asking questions or making requests clearly, and one at a time; encouraging conversation but not dominating it; providing options; and ensuring that when multiple officers are present, one officer takes the lead in communication to avoid potential confusion or mixed messages.

7.4.2 De-Escalation Training in a Police Context

It is currently unclear to what extent de-escalation training is included in either recruit or in-service officer training (also see section 'The Emphasis of Force in Tactical Training'). Bengtson (2017) examined the tactical and safety training curriculum taught to officers in Minnesota (United of Sates), and found that while de-escalation topics appeared to be scattered throughout the training, it was unclear whether officers were provided with the opportunity to practice any techniques taught, and de-escalation was not incorporated to recruit scenario-based

¹⁶ Rates quality of scientific evidence, ranging from 1 (less robust evidence which may show what is promising) to 5 (robust evidence involving RCTs which clearly demonstrate 'what works'). See chapter 10 (*Reducing Crime*) in Ratcliffe (2019).

training. Deveau (2021) noted that while training in use of force techniques, such as empty-hand tactics, baton strikes, OC spray and firearms are all mandated in officer training in Ontario (Canada), there was no mandated training hours for conflict resolution and de-escalation. The author raised questions as to whether officers were properly equipped with the skills required to de-escalate a high-risk situation when required.

De-escalation training is most commonly discussed within a policing context in relation to the Crisis Intervention Team (CIT), a mental health response model implemented throughout the United States (Cross et al., 2014; Thomas & Watson, 2017). The CIT provides intensive in-service training, over one 40-hour week, aimed at producing changes in officer' attitudes, skills and knowledge, and subsequently, changes in their response during encounters involving individuals with mental illness. It has been noted that one key component of the CIT training is the development of de-escalation skills to be used in crisis situations (Thomas & Watson, 2017). However, evidence of the efficacy of the CIT training is currently limited, and it is unclear as to whether any changes in officer performance are the result of the de-escalation component of the training or other aspects of the programme.

7.4.2.1 Integration of De-Escalation and Force Options

It has been noted that when de-escalation training is provided, it is usually separated from self-defence training, however, it has been argued that this does not reflect operational reality, and de-escalation/communication and force are complementary options along a tactical continuum (Koerner & Staller, 2021). It has been suggested that the integration of use of force and de-escalation training will facilitate the development of flexible decision-making and problem-solving, and will enable officers to transition between de-escalation and force options in response to a changing threat context (Jenkins et al., 2021).

One training programme which focuses on the integration of de-escalation and force options which has recently been developed for police, and which is being increasingly adopted across jurisdictions in the United States, is the 'Integrating Communications, Assessment and Tactics' (ICAT) programme, developed by the Police Executive Research Forum (PERF) with input from policing professionals across the United States (Engel et al., 2020a; PERF, n.d.). The ICAT integrates critical thinking, crisis intervention, communication skills, and tactical skills to train officers to defuse high-risk situations involving individuals who do not possess a firearm, particularly those who may be experiencing a crisis or be behaving erratically, such as those in mental health crisis, under the influence of a substance, or experiencing extreme situational stress (Engel et al., 2020a). Similar to the CIT in its focus on identification of people in potential crisis and emphasis on communication and de-escalation skills, the ICAT goes beyond the focus of communication alone, and focuses on the integration of communication/de-escalation skills with tactical force options (PERF, 2016). Key training goals include the provision of patrol officers with "the skills, knowledge, and confidence they need to assess and manage threats, influence behavioural change, and gain voluntary compliance whenever possible in dynamic and dangerous situations", and to "provide patrol officers with key communications skills needed to safely engage with, de-escalate, and gain compliance from subjects who are in crisis and/or non-compliant" (PERF, 2016, p. 13).

A core component of the ICAT programme is its foundations in the critical decision-making model, which enables officers to assess situations, make safe and effective decisions, and to continually learn from the outcomes of their actions as a situation progresses (PERF, n.d.). This decision-making model promotes a circular thought process in the evaluation of their options in a high-risk situation, involving: 1. collection of information; 2. assessment of the situation, threats and risk; 3. consideration of police powers and organisational policy; 4. identification of options and determination of the best course of action; and 5. action, review and reassessment (Engel et al., 2020a). With this model as a foundation, the ICAT trains officers in critical pre-response, response and post-response tactics to incidents, and emphasises concepts such as the 'tactical pause', which encourages officers to use distance and cover to create time to continue communication, de-escalated emotional responses, and enable additional resources to arrive at the scene (PERF, 2016). The programme includes six training modules: 1. Introduction; 2. Critical-decision-making model; 3. Crisis recognition and response; 4. Tactical communications; 5. Operational safety tactics; and 6. Integration and practice (Engel et al., 2020a; PERF, 2016). Those wishing to obtain further information about the specific curriculum covered in each module are directed to the PERF (2016, n.d.) online resources.

In a study examining the implementation of the ICAT programme in the Louisville Metro Police Department, Engel et al. (2020a) conducted a stepped wedge randomised controlled trial (RCT) to examine the impact of the training on officer behaviours and outcomes of police-public interactions. The study found positive effects of the training, with statistically significant declines in use of force (28% reduction), citizen injuries (26% reduction), and officer injuries (36% reduction). In an examination of officer perceptions after the training, there were significant increases in officer agreement that they had the ability to control the nature of police-public interactions in order to produce positive outcomes, and that officers could be trained to improve their ability to de-escalate encounters. Over 60% of the officers reported using the ICAT skills trained in the two months following the training. In addition, officer surveys demonstrated that 80% of officers found the training useful and would recommend it to other officers, although this endorsement dropped somewhat after a period following training, with 63% of officers reporting the training. Engel et al. (2020a) noted that the findings from the officer perception survey emphasised the need for continual reinforcement of the training, with 40% of officers agreeing that they would benefit from refresher training.

7.5 Tactical Decision-Making

Decision-making in high-risk situations is characterised by time pressure, potentially lethal consequences, uncertainty and unpredictability, high-stress, and rapidly-changing contexts and goals (Henriksen & Kruke, 2020; Preddy, 2018). During such high-risk situations, officers must possess the skillset to rapidly assess a situation, draw conclusions about the potential threat, and when a threat is identified, must decide upon an effective course of action, which will both bring about the desired outcome and be aligned with organisational policy and procedures (Preddy, 2018). In addition, officers must be able to flexibly adapt their existing knowledge and skills to uncertain and/or novel situations where there may be a range of potentially appropriate responses, or for which the appropriate response may change over time as the situation evolves (Harman et al., 2019; Preddy, 2018).

It has been noted that tactical decision-making is not a singular process, and instead, the choice of action is based upon a series of decisions and outcomes, with each subsequent decision contingent on those made previously (Harman et al., 2019; Helsen & Stakes, 1999; Hine et al., 2018). As such, officers in high-risk situations must make a series of appropriate decisions, and in order to resolve the situation successfully and decrease the chances that force may be required, officers need to make decisions that sequentially decrease the probability of the use of force (Helsen & Stakes, 1999). Not all decisions, then, are necessarily made in order to resolve the situation, but may be made in order to influence the situation or conditions to facilitate a positive outcome or create a tactical advantage (Zimmerman, 2006).

7.5.1 Models of Police Tactical Decision-Making

Preddy (2018) noted that in order to facilitate tactical decision-making, a number of tactical option decision-making models have been developed and utilised across jurisdictions. These include:

- Observe, orient, decide, and act (OODA) cyclical model This model highlights action-reaction responses and
 proposes that successful resolution is dependent on an officer's ability to quickly identify a threat, assess the
 threat and its potential impacts, decide what force options are required to defuse the threat, and act on the
 decision to stop or mitigate the threat;
- Force continuum model This model involves a spectrum of tactical options, from officer body language and communication, weaponless physical control and less than lethal measures, to lethal force. It is rooted in the foundations that officers should begin at the lowest level of force necessary to enable an effective conflict resolution. Models have evolved to move away from a linear conceptualisation of the continuum to encompass more circular models which promote a less rigid and hierarchal thinking style, and a decision-making process which is adaptive, responsive and devoid of a linear progression among available force options; and
- National decision model/critical-decision model These five-stage models were designed to help officers think through and identify appropriate options. Stages include 1. define the situation, and collect available evidence, 2. assess the threat, and develop a working strategy to mitigate risks while maximising

opportunities, 3. consider power and policy considerations, 4. identify suitable courses of action which are proportionate, lawful, authorised, necessary, and ethical, and 5. select action, act upon it, and reassess.

While some form of these tactical decision models has been adopted across jurisdictions, there appears to be little evidence regarding their utility in the field or how they may be effectively trained to facilitate their use in operational contexts. Engel et al. (2020a) examined officers' perceptions of the critical-decision making model, incorporated into the ICAT training programme (also see section 'Integration of de-escalation and force options'). The study found that survey scores showed increasingly negative changes in perceptions from post-training to follow-up, suggesting that officers found the model less useful to implement in the field over time.

7.5.2 Naturalistic and Recognition-Primed Decision Models

Rather than focusing on the examination of police tactical option decision models, the dominant focus in the literature on police decision-making has centred-on naturalistic decision-making models which provide an account of decision-making processes in uncertain, time-pressured and dynamic environments, and which may be of greatest applicability and utility in relation to police tactical decision-making (Hine et al., 2018; Preddy, 2018; Staller & Zaiser, 2015; Zimmerman, 2006). This model differs from more 'deliberate' decision-making models, in that the model promotes a decision process which occurs rapidly using 'intuition', and which is not focused on the optimal outcome, but rather the execution of fast decisions and actions which may lead to acceptable outcomes or create a tactical advantage (Preddy, 2018).

According to the naturalistic decision-making model, there are two processing systems which are used to make decisions depending on the situation and requirements. The first system describes a decision-making process which is 'intuitive', automatic, fast, and effortless, while the second system describes a process which is 'analytical', controlled and effortful (Henriksen & Kruke, 2020; Staller, 2016). Analytical decision-making is described as a conscious, time-consuming and effortful process, which involves the identification and weighing-up of all available options to choose the optimal solution (Hine et al., 2018). However, while analytical decision-making is considered to lead to the selection of optimum choices, it may be a hinderance when rapid decision-making is required (Hine et al., 2018; Zimmerman, 2006). As a consequences of the dynamic, rapidly-evolving nature of high-risk situations, it has been suggested that there should be a focus on decision-making processes which require less deliberation, relying more on 'intuition' generated from experience, in order to increase the probability that such encounters will resolve

successfully with minimal harm (Preddy, 2018). During high-risk situations, officers may not have the opportunity to make slow, considered analytical decisions, which assess and weigh-up all possible solutions. An intuitive decision-making approach has been argued to be automatic, fast and effortless in nature, which is most efficient in relation to mental resources and time needed to solve a problem and identify solutions (Staller, 2016). 'Intuition' is based on a range of cues, perceptual processes, situational recognition, and action choices, and decisions made using this process are often difficult to describe or explain as to their thought processing, leading to the 'intuitive' label (Di Nota & Huhta, 2019).

Intuitive decision-making in the naturalistic decision-making model is underpinned by the recognition-primed decision model, in which decision-making is based on knowledge gained from past experiences rather than a comprehensive analysis of future-oriented options (Dayley, 2016). The recognition-primed decision model has been proposed to explain how appropriate and effective decisions can be made rapidly without the need to analytically compare all options to identify the solution to be actioned. The model posits that decisions are made by matching aspects of the current situation to similar previous situations, and using mental simulations to imagine and predict the outcome of a given action (Di Nota & Huhta, 2019; Hine et al., 2018; Staller, 2016). During dynamic, time-pressured, and rapidly-evolving high-risk situations, experienced individuals are able to assess and recognise a situation as similar or typical based on the identification of key cues or elements which match previous experiences (Henriksen & Kruke, 2020). This recognition facilitates the development of a plan of action which prior experience has demonstrated to be effective (Di Nota & Huhta, 2019). As such, decision-makers rely on their prior knowledge and experience to enable the quick identification and execution of appropriate actions.

One key aspect of the recognition-primed decision model which enables decisions to be made swiftly in timepressured situations is the argument that experts make decisions without considering all possible options, quickly evaluating one option and mentally visualising its implementation to assess the potential success of the action identified (Alpert & Rojek, 2011; Hine et al., 2018; Zimmerman, 2006). It has been argued that in dynamic and timepressured high-risk situations, an analytical comparison through all potential options to find the optimal solution may not be possible or result in detrimental outcomes, and the evolving context may mean that the optimal solution changes as the situation unfolds (Zimmerman, 2006). Instead, a decision-making process which quickly leads to the identification and execution of actions may be more effective in dynamic situations (Hine et al., 2018; Zimmerman, 2006). Such decision processes are not focused on necessarily identifying the course of action which will result in the optimal outcome, identifying instead a course of action which is sufficient in providing a satisfactory outcome given the circumstances (sometimes referred to as 'satisficing'; Zimmerman, 2006).

Studies examining the nature of police tactical decision-making in high-risk encounters have provided some evidence to indicate that decision-making during such encounters is characterised by a more 'intuitive' approach, and which aligns with the naturalistic and recognition-primed decision models (Hine et al., 2018; Zimmerman, 2006). In a study examining characteristics of tactical decision-making for police recruits in Australia, Hine et al. (2018) found that, during the completion of use of force scenarios, recruits tended to focus on the consideration of only a few alternative options, with 51% of recruits considering one potential option (from a possible eight), 30% two options, and 19% three options. In addition, Hine et al. (2018) found that recruits described matching the current scenario to previous scenarios taught during training, as well as using mental simulation to envisage predicted outcomes. The use of mental simulation was also identified by Zimmerman (2006) in a study of novice and expert officers in the United States, with experts describing the use of mental models developed from experience to perform mental simulations to predict how a situation may unfold.

In relation to implications for training, given that recognition-primed decision-making relies heavily on an officer's past experiences, it has been argued that the development of effective tactical decision-making skills needs to be facilitated through active involvement in challenging environments similar to those experienced in the field, via scenario-based training (Hine et al., 2018; Staller & Zaiser, 2015). However, it has been noted that if such experiences gained during training are dominated by the execution of force, officers will naturally settle on force solutions (Dayley, 2016). Thus, it is necessary to include a range of potential tactical options across the force continuum during training (Dayley, 2016).

7.5.3 Situational Awareness Training

An important skill in the successful execution of recognition-primed decision-making is situational awareness, which enables officers to quickly identify key elements of the situation in order to match these to previous experiences and generate action options (Di Nota & Huhta, 2019; Staller, 2016). Situational awareness refers to the cognitive and perceptual processes involved in perceiving and understanding key salient components of a given environment, and the prediction and projection of their status into the near future in order to inform subsequent action (Alpert & Rojek, 2011; Henriksen & Kruke, 2020; O' Hare & Beer, 2020; Saus et al., 2006). Situational awareness has been suggested to be one of the most important characteristics of successful performers (Staller et al., 2020). It has been argued that when incorrect or inadequate decisions are made during high-risk situations, this is usually the result of poor situational awareness and an inadequate assessment of rapidly-evolving changes in the situation, rather than a poor action choice (Zimmerman, 2006).

While situational awareness skills may be developed during training, particularly during complex scenario-based training, there is a paucity in the literature regarding exactly how these skills are being developed. However, several studies have attempted to examine the perceptions and efficacy of training programmes which have been developed to explicitly train situational awareness skills, although these may not be incorporated into standard training or be specifically targeted at police (Andersen & Gustafsberg, 2016; Jha et al., 2015; O'Hare & Beer, 2020; Saus et al., 2006). Saus et al. (2006) examined a situational awareness training aimed at improving officer shoot/don't shoot decision-making using the 'freeze technique', during which a scenario is stopped at key points in time and trainees are questioned concerning the three components of situational awareness, namely: 1. Perception

of cues and elements in the environment; 2. Understanding the meaning of the elements identified; and 3. Projection of the status of these elements in the future. Saus et al. (2006) found that compared to a control group which received skill training, those who received situational awareness training had higher objective and subjective ratings of situational awareness, had a higher number of hits on the target, and showed less mental workload.

O'Hare and Beer (2020) examined the perceptions of previous participants who had completed a situational awareness course developed for police, military and private security, and which focused on training skills including visual perception, sensory acuity, state management, pattern recognition, information processing and decisionmaking, and stress inoculation via immersive, dynamic scenario training. Exercises integrated into the scenario training included expanding the field of view and useful field of view, identifying and regulating physiological states, decision-making under stress, and enhancement of memory for events. O'Hare and Beer (2020) found that participants described experiencing enhanced awareness of themselves and the environment while under stress, including a variety of forms of awareness, such as peripheral vision, situational awareness, general awareness, and awareness of their own internal responses, with an ingrained automaticity to the skills developed. Additionally, participants felt that the training had improved their ability to manage their emotional state during high-stress or threat-to-life situations. This ability to manage emotional, physiological and psychological states to enable successful situational awareness (and decision-making) is an idea which has been proposed by a number of researchers, and additional training programmes have been developed which do not place the primary focus on the improvement of situational awareness skills per se, but rather on the enhancement of physiological control and stress management (Andersen & Gustafsberg, 2016; Jha et al., 2015; also see section 'Stress Management Training'). The rationale behind such 'situational awareness' training is based on the fact that sensory awareness capabilities necessary for situational awareness may be impacted by extreme physiological arousal, and as such, if arousal can be moderated during high-stress situations, then the ability for officers to maintain optimal sensory awareness will be improved (Andersen & Gustafsberg, 2016).

7.5.4 The Impact of Emotion on Decision-Making

It has been commonly highlighted that one of the key factors which may influence the quality of police decisionmaking in high-risk situations is the impact of stress and/or emotion (Andersen & Gustafsberg, 2016; Brown & Daus, 2015; Harman et al., 2019; O' Hare, A., & Beer, 2020; Ta et al., 2021). It has been noted that emotions may powerfully and pervasively influence decision-making, influencing not only what decision-makers think (i.e. content), but also how they think (i.e. through processing), biasing and overriding decision-making (Ta et al., 2021). Emotional experience can create perceptual biases in decision-making, and for effective situational awareness and decisionmaking to occur, it has been argued that officers must have a self-awareness and ability to manage their own psychological and physiological state (O'Hare & Beer, 2020). In a study examining the influence of emotion on use of force decision-making between novice and expert officers, Ta et al. (2021) found that the ability to assess a situation calmly, with an increased sense of control of themselves and the situation, and with less negative emotion was associated with the effective and efficient decision-making associated with expert officers. Ta et al. (2021) suggest that it may be beneficial to include greater emphasis in training on the reduction of arousal, such as training emotion regulation techniques, to help officers to learn how to control their emotional reactivity and subsequent actions in a way that these are in line with expert decision-making and performance.

7.6 Stress Management

High-risk situations are associated with high levels of stress with a range of physiological and psychological impacts which may affect an officer's ability to perform effectively. During a physiological stress response, the sympathetic nervous system (SNS) is activated, with the strength of this activation impacted by the individual's perception of threat, as well as psychological factors such as the perceived degree of control over the situation (Anderson et al., 2019). Some degree of SNS arousal is adaptive and may result in improved performance during high-risk situations, including improved alertness and focused attention and enhancement in sensory perceptions. However, during periods of acute or extreme stress, the SNS response and its impact on these abilities can become maladaptive, leading to a deterioration in performance (Anderson et al., 2019). The experience of heightened stress and arousal can result in a wide range of consequences, including physiological changes (e.g. increased heart rate), negative

emotional responses (e.g. fear and anxiety) and cognitive deficits (e.g. narrowing of attention; Jenkins et al., 2021). Crucially, these consequences can have adverse impacts on officer performance during high-risk situations, increasing the chances of detrimental outcomes (Jenkins et al., 2021).

There are three main areas which are impacted by the stress response, namely perceptual, cognitive, and physiological (Andersen & Gustafsberg, 2016; Di Nota & Huhta, 2019; Hine et al., 2018; Minjina, 2014). Perceptually, visual processes may be compromised, including a reduction in peripheral vision (tunnel vision), reduced depth perception, impaired vision for objects up close, and a loss of control of the dominant eye (necessary for precision shooting; Andersen & Gustafsberg, 2016). In addition, there is a narrowing of focus on the perceived threat, which may come at the expense of the perception of other objects in the environment, including other potential life-threatening cues (Andersen & Gustafsberg, 2016; Hine et al., 2018). Additional perceptual disturbances may include auditory changes where sounds may be amplified or not heard, and distortions of time which can include a perception of a slowing down of the situation (Hine et al., 2018). Such perceptual disturbances can influence how an officer perceives a situation, impacting situational awareness, and the ability to use the information from the environment to make appropriate tactical decisions (Hine et al., 2018).

Cognitive impairments can include memory impairments which may impact an officer's ability to encode, store or retrieve information, affecting how the officer retrieves knowledge regarding trained techniques and tactics, or prior experiences, which may be used to inform decision-making (Hine et al., 2018). Physiological impairments can affect motor control, and while increases in heart rate and respiration can improve gross motor function (such as running, or punching/striking), there can be a decrease in fine motor performance, which may compromise hand/eye coordination and precision movements (Andersen & Gustafsberg, 2016; Hine et al., 2018).

Additionally, high-stress situations can create a range of intense negative emotions including fear, anxiety and/or anger, and can lead to cognitive overload, which may result in a deterioration of performance in situations when accurate performance is crucial, and/or a move towards reflexive 'fight or flight' instincts is necessary (Preddy, 2018). It has been argued that the physiological and psychological impacts of the stress response need to be considered and integrated into tactical and safety training to decrease the chances that these impacts may lead to devastating outcomes during high-risk situations (Di Nota & Huhta, 2019).

In addition to the physiological and psychological impacts which can influence performance during high-stress situations, cumulative exposure to stress and the physiological stress response over time can have a long-term negative impact on officers' physical and mental health (Andersen et al., 2015a). Repeated or prolonged stress experiences do not only have adverse consequences on an individual at the time of the event, but may have prolonged, potentially life-threatening physical and psychological impacts. These impacts include increased risk of coronary and cardiovascular disease, cancer, anxiety, depression, and post-traumatic stress disorder (PTSD), as well as other impacts such as job dissatisfaction and burnout, emotional exhaustion and a loss of emotional control (including hyper-aggressiveness, isolation and alienation, and increased or problematic drug/alcohol use), absenteeism and increased sick days, and early retirement (Andersen et al., 2015a; McCraty & Atkinson, 2012; Rosmith, 2013).

If officers are not prepared for the psychological and physiological impacts associated with stress, being equipped with the skills to control these impacts, the stress associated with a given situation could override cognitive processing and skilled action performance, potentially leading to adverse consequences (Preddy, 2018). Studies have consistently found that the stress-response has a negative impact on officer performance. In a study which examined officers' shooting performance under pressure, Nieuwenhuys et al. (2011) observed that compared to a low-anxiety shooting environment, a high-anxiety shooting environment (involving an opponent occasionally firing back) had a negative impact on shooting accuracy. In addition, in a study which examined the physiological stress response of officers while completing simulated scenarios, James et al. (2021) found that the physiological stress response was associated with poorer scenario performance. As such, it is of critical importance that training officers understand and manage their stress response during high-risk situations to ensure the wellbeing of the officers and public involved, and to facilitate successful resolutions (James et al., 2021).

7.6.1 Stress Management Training

It has been noted that while police receive extensive training in the theoretical and technical skills required to perform successfully during high-risk situations, little training time is often dedicated to training officers to cope with the immediate and/or long-term impacts of their stress response (McCraty & Atkinson, 2012). It has been recommended that stress management skills should be incorporated into tactical and safety training to enhance the ability to perform under stressful conditions, training individuals to understand how stress may impact their physical, cognitive and emotional response and negatively impact performance (Robson & Manacapilli, 2014). Training focusing on stress management skills should provide officers with a repertoire of stress management skills and an opportunity to practice these skills under conditions that approximate the stresses experienced in the operational environment (Robson & Manacapilli, 2014).

7.6.1.1 Stress Inoculation/Mental Preparedness Training

A number of stress management training strategies have been developed with the aim of training professionals who commonly experience high-risk situations (such as police and the military) to understand and identify their stress response, recognise maladaptive physiological and psychological effects and promote the execution of adaptive coping responses aimed at mitigating these effects (O'Hare & Beer, 2020). Such training aims to prepare individuals to be able to maintain high levels of cognitive and physical performance in high-stress operational environments and foster resilience by providing them with a range of stress management tools which can be applied to any situation encountered in the field (Andersen et al., 2015a; Jenkins et al., 2021).

These training programmes have alternately been referred to as 'stress inoculation' or 'mental preparedness' training, presenting commonalities in goals and programme design. Stress inoculation/mental preparedness training generally involves three main components: 1. Psychoeducation around the stress response, its psychological and psychological impacts and potential detrimental effects on performance; 2. Training of skills required to control the stress response and perform effectively under stress; and 3. Application and practice of the skills taught in an environment which mimics the real-world stress encountered in the operational environment (Andersen et al., 2015c; Jenkins et al., 2021; Robson & Manacapilli, 2014; Rosmith, 2013). As such, rather than being a prescribed programme, stress inoculation and mental preparedness provide a set of general principles aimed at incorporating a flexible approach to dealing with a range of stressors (Robson & Manacapilli, 2014). While the nature and specific curriculum of different programmes may vary, there are psychological (such as awareness of mental state, the ability to recognise physiological arousal and to attend and focus on the task at hand) and physiological (such as enhanced control over the physiological stress response) features common across training programmes (Andersen et al., 2015a).

It has been recommended that in order to fully engage trainees in the training process, initial stages of stress inoculation/mental preparedness training should emphasise the importance and necessity of such training, potentially via case studies of performance failures which have resulted from increased stress, or the inclusion of the performance of tasks under varying levels of stress to provide trainees with direct experience of the impacts of stress on performance (Robson & Manacapilli, 2014). During the stress management training stage, techniques taught are practiced in a series of training scenarios which are realistic and representative of the stressors experienced during real-world high-risk situations. Given that the stress response can impact the ability to encode and maintain information, stress inoculation/mental preparedness training programmes promote a phased approach that involves lower levels of stress at the initial stages of training, which are gradually increased until they are commensurate to those which may be experienced in high-risk situations in the field (Jenkins et al., 2021). A range of stress management techniques have been utilised in stress inoculation/mental preparedness training, including cognitive control strategies (aimed at increasing attention and concentration, and minimising distractions), physiological control strategies (including controlled breathing and muscle relaxation), overlearning (which emphasises repetition to a point beyond proficiency to promote automaticity), and mental rehearsal (recommended for tasks which require a high cognitive load; Robson & Manacapilli, 2014).

Regarding the nature of the stress intervention techniques trained, a range of different techniques have been proposed and examined across studies. Some programmes have focused specifically on enhancing physiological

control (Andersen et al., 2018; McCraty & Atkinson, 2012). McCraty and Atkinson (2012) provided officers with a 'heart focused breaking' technique, aimed at reducing both acute and chronic stress, which required individuals to focus on their chest while engaging in a controlled breathing exercise (five-second inhale, five-second exhale). The study found that compared to a control group of officers awaiting the training, officers in the training group reported improved recognition and self-regulation of stress response, increased positive emotion and vitality, decreased negative emotions and depressive symptoms and enhanced communication both at work and at home. In addition, during scenario exercises, the training group demonstrated an improved ability to maintain focus, make appropriate decisions, communicate clearly during debriefing and regain composure after the scenario, although differences with the control group were small (McCraty & Atkinson, 2012). Using a biofeedback technique, aimed to regulate and synchronise breathing and heart rate, Andersen et al. (2018) also found reduced shoot/don't shoot decision-making errors, although baseline error rates were relatively low prior to training.

Arnetz et al. (2009) and Andersen et al. (2015b) examined the efficacy of a training programme designed to improve resilience and stress management during high-risk encounters, which involved a combination of physiological control and mental imagery. During the training, officers were presented with audio recordings of stressful critical incidents, and were instructed to visualise the stressors and their response during the situation, while engaging in a relaxation breathing exercise. Arnetz et al. (2009) found that following training, officers reported less negative mood, demonstrated less heart rate reactivity and performed better during a high-risk training scenario. Andersen et al. (2015b) found a similar impact on the physiology of a group of Finnish special forces police officers, who showed an improved ability to reduce their average heart rate and control respiration during simulated high-risk situations.

The International Performance Resilience and Efficacy Programme (iPREP), was designed to improve officer tactical decision-making during high-risk situations (Andersen & Gustafsberg, 2016). The iPREP training programme utilised techniques commonly used to promote performance in elite athletes including visualisation, mental rehearsal, focused attention, and controlled breathing. In a randomised controlled trial examining the efficacy of iPREP on officer use of force decisions, Andersen and Gustafsberg (2016) found that, compared to a control group which received training-as-usual activities, the iPREP training group demonstrated better physiological control as evidenced by a lower maximum heart rate and quicker recovery times, improved situational awareness, and overall performance making a greater number of correct use of force decisions.

While stress inoculation/mental preparedness training has been promoted as an effective stress management approach which can provide tools which may improve stress coping skills both during and after a high-risk situation and promote resilience which may positively effect longer-term impacts of stress, the evidence for its efficacy in a police context is limited. In addition, while a range of training programmes have been developed, it is unclear as to what extent these (or other) programmes have been adopted as part of a regular police training curriculum.

7.6.1.2 Other Psychological Intervention Strategies

In addition to stress inoculation/mental preparedness training, a number of other methodologies have been posited in relation to their potential to improve resiliency and physical and mental health in individuals who experience high-stress situations.

Mindfulness training has been promoted to enhance resilience and stress management for police and the military, with the aim of improving an individual's ability to remain in the present moment, focus on the task at hand, and pay attention to and act with full awareness on bodily sensations, perceptions, thoughts and emotions (Johnson et al., 2014; Jha et al., 2015). Essential to the stress management response is the ability of an individual to recognise and be aware of their internal physiological state, recognising bodily sensations and having an awareness of their emotional state, referred to as interoception (Johnson et al., 2014). It has been proposed that improved interoceptive capabilities may be achieved through mindfulness training.

Johnson et al. (2014) examined the effects of a mindfulness training programme on the resilience of active-duty United States marines preparing for deployment. The mindfulness training focused on developing skills in interoceptive awareness, attentional control, and tolerance of present-moment experiences. Compared to a control group which received training-as-usual, the mindfulness training group presented greater reactivity and recovery (as measured by heart rate) during and after a stressful combat training session (Johnson et al., 2014). Johnson et al. (2014) noted that the findings of a greater response to stress followed by a quicker recovery is consistent with good cardiorespiratory fitness. Additionally, in a study which examined the impact of a mindfulness training programme on the attentional performance of a cohort of United States military officers, Jha et al. (2015) found fewer performance lapses in participants when compared to a group of military officers who did not receive the training.

A new psychological intervention recently developed in the United Kingdom to promote officer mental health in the face of traumatic experiences is the Trauma Impact Prevention Techniques (TIPT) programme (Miller et al., 2020; Police Care UK, 2019). According to Police Care UK (2019), TIPT is not an intervention or therapy, but rather aims to provide officers with trauma processing techniques in order to help them to learn to make sense of traumatic or difficult incidents. During the programme, officers are taught and encouraged to use simple paper-based techniques such as producing incident timelines and maps designed to stimulate areas of the brain which process trauma. Miller et al. (2020) conducted a study examining the ability to teach officers these techniques were able to be taught within an operational environment and had a positive impact on officers feelings of ease in relation to difficult or traumatic incidents, as well as improving the recall of events, mitigating the impacts of trauma exposure on memory. Miller et al. (2020) noted that officers reported that the techniques were usable and operationally relevant to trauma management and officer resilience. However, as stressed by Police Care UK (2019), it is important to emphasise that the TIPT techniques are only designed to help officers to develop skills to 'make sense' of difficult experiences and the programme does not involve processing the psychological, emotional or traumatic impact of an experience.

7.7 Future of Tactical Training

Very little was available on what the future may offer for officer tactical and safety training. Some aspects of tactical and safety training practiced overseas are not currently available in New Zealand, such as training in 'edged weapons' (Kent Police, n.d.) and 'corrosive substances' (College of Policing 2020a), however these are specific to certain types of crimes – knife crime and acid attacks. New Zealand is fortunate enough not to experience enough of these types of crimes to make it necessary to warrant a specific training module.

The College of Policing (England and Wales) have also made it a requirement for Chief Constables to issue needlestick and slash-resistant gloves to all frontline sworn officers, as well as the non-sworn staff who may be dealing with potential offenders (College of Policing 2020a). This is to reduce injury from needles and knives while searching a person, vehicle, or property. The need for protective gloves came out of the Police Officer and Staff Safety Review (College of Policing, 2020a), where the risk of contracting a serious disease, and weeks of medical testing needed until they had medical clearance were considered problematic.

The Officer and Staff Safety Review (College of Policing, 2020a) also examined the use of 'personal safety shields' (PSS), while little empirical information exists in this area – they have been trialled by the Metropolitan Police over 2018/2019. The PSS is smaller than a riot shield, is round, and it is meant to protect the officer from a knife attack.



Figure 7.1: Police Safety Shield (College of Policing, 2020, pg70)

Unfortunately, there is nothing available on the Metropolitan Police and the College of Policing websites that could be described as an evaluation of this tool; therefore its efficacy is unknown.

We were also able to identify two ongoing programmes currently running in the United Kingdom regarding technological advancements for policing.

The first is a market assessment of 'cutting-edge solutions and concepts' that could transform policing over the next 10-20 years (Home Office, 2020a), (See: <u>https://www.gov.uk/government/news/market-exploration-future-policing</u>). The market exploration is run through the Defence and Security Accelerator (DASA), and the Defence Science and Technology Laboratory (DSTL). The webpage was published in October 2020, and so far, there appears to be no updates to this programme.

In addition, DASA and DSTL have launched a competition to advance less than lethal weapons. The competition was for organisations to produce a weapon capable of incapacitating a person within a certain distance, that would be able to be easily carried by a police officer. Again, no results of this competition are currently available, and the webpage was last updated in September 2020.

Many law enforcement jurisdictions across the globe either have implemented or are trialling body-worn cameras. A previous report by EBPC (Cloutman et al., 2021) goes into substantial depth about both the use of and efficacy of body-worn cameras. In addition the report details the steps needed to be taken for the trial of body-worn cameras in New Zealand.

Overall, considering the literature assessed, there was little outstanding in the way other jurisdictions conducted their tactical and safety training, or the tools they use for TST that could be directly applicable to New Zealand Police. Therefore we decided to focus instead on futures thinking. Futures thinking is a form of forecasting, where you attempt to understand the current trends to interpret what might happen in the future (DSTL, 2021). Because there is so much data to look at, weak signals of change can be difficult to identify. Similarly, the volume of interacting variables means that there are multiple ways in which the future can play out (DSTL, 2021).

The following table pulls together some futures reports concerning global outcomes, as well as those more specific to policing. From these, we will attempt to extrapolate how future changes may impact tactical and safety training in the 10-20 years ahead.

In 2020, the UK's College of Policing published 'Policing in England and Wales: Future Operating Environment 2040'. The purpose of which was to consider how the business should act and invest with 'long term strategic intent' (College of Policing, 2020d). The European Commission has also created a foresight document (European Commission, 2021), however, it is not specific to policing.

Closer to home, ANZPAA (Australia and New Zealand Policing Advisory Agency; 2021b) produced a foresight document examining the short, medium, and long-term societal trends that may impact policing. This is in addition to its regular Environment Scans (ANZPAA, 2021a). Overall, these ANZPAA documents are more Australian heavy, however, no similar document could be found for New Zealand Police, or the New Zealand Government.

There is still a lot to be learnt from international foresight that can be applied to New Zealand, as the world is and is becoming increasingly more global. However, we will miss the nuanced trends specific to the New Zealand circumstance. It is important again to note that the forecasting presented here is just an example of what is possible; as we have seen with the COVID-19 pandemic, one event can create a lot of change.

In the short-term tactical and safety concerns may focus on public order events. For example, there is a possibility that the introduction of vaccine passports could lead to protest at the perceived infringement on civil liberties (ANZPAA, 2021a,b). Medium to long-term trends are described in the table below. While change may be afoot – there is little way of knowing how it will impact New Zealand, and therefore how it will impact New Zealand Police. Continual monitoring and perhaps conducting a 'future thinking' event may help to better identify the potential pathways ahead for tactical and safety training. Information on how to conduct future thinking events can be found on the Department of the Prime Minister and Cabinet¹⁷ portal.

¹⁷ See: <u>https://dpmc.govt.nz/our-programmes/policy-project/policy-methods-toolbox/futures-thinking</u>

Table 7.1: Futures trends and applications to tactical and safety training (TST)

Trend	Looks like	Potential Impact on training
Social cohesion	In the United Kingdom the trend is towards economic inequality (rich vs. poor), as well as societal fragmentation (left vs. right). More unequal societies tend to be more violent and may be marred by protest and resistance (College of Policing, 2020d). Social polarisation is also possible, as conspiracy theorists meet extremists. The risk is a breakdown in social cohesion which could lead to an increase in conflict (ANPAA, 2021b).	TST team will have to continue scanning for evidence-based options to respond appropriately to violence.
Information space	Misinformation, disinformation, and other online offending may lead to some form of violence in some countries. Staff may also become victims of these crimes (College of Policing, 2020d).	TST team will have to continue scanning for evidence-based options to respond appropriately to violence.
	Misinformation may cause people to follow conspiracy theories or join other misinformed groups (ANZPAA, 2021b).	The concept of tactical safety and keeping our staff safe may have to expand beyond the physical.
	Disinformation 'could threaten our democracies, polarise debates, and put health, security and the environment at risk' (European Commission 2021).	TST may need to prepare officers for specific de-escalation language specifically for such groups.
Technological change	If more crime moves online there is the potential that some crime in the physical world reduces (such as burglary) as it becomes less lucrative (College of Policing, 2020d). There is a risk from the 3D printing of weapons. In particular the printing of components parts of handguns that can be used with metal parts and create untraceable weapons (ANZPAA, 2021a).	Police officers may have to specialise in technical know-how. Fewer officers may be needed to be trained in TST. VR technology may become cheaper and more realistic, making it an effective alternative to in-person TST. TST may need to adapt to a risk of weapons that is not easily
Job market	The population ages and people tend to work later in their lives (College of Policing, 2020d). Increased automation may lead to job losses for some, if those people are not given appropriate support to re-train this may lead to people feeling dispossessed, and further polarise society (European Commission 2021).	predictable. How or will TST need to adapt to an older police workforce – or will it? Will older officers be able to continue TST well into their 60's and potentially beyond? As with Social Cohesion above, TST may be faced with examining different ways to approach public order offences.
Economic change	Fragility in the global economy and economic power shifting East means it may be a good idea to prepare for recession (College of Policing, 2020d). Post-Covid recession or a global economic crisis may lead to mental-health and stress responses for individuals, which may increase the risk of some types of offending or cuicido (ANZRAA, 2021b)	Future TST may need to make sure it is not just evidence based, but also economically efficient – using the most cost-effective tools available. Future TST may need to consider the time and type of de-escalation training used.
Terrorism and extremism	Terrorism and extremism from the right (ANZPAA, 2021b).	The risk of terrorism may change. TST will have to monitor this and adapt training accordingly.
8. Case Studies and Survey

8.1 Overview

In order to understand the experience of other jurisdictions in tactical and safety training two different research methods were employed.

The first, described as 'case studies' examine online tactical and safety training documentation for different jurisdictions most similar to New Zealand. The aim of which is to understand what type of training is conducted and in what context.

Overall information on other jurisdictions online was limited. None had specific information about what their tactical and safety training involved beyond topic names.

It appears as though policing in England and Wales have had some of the most recent changes to their training overall. In addition and from what can be seen publicly, it appears that England and Wales have done a lot of work in understanding what their frontline want from their training.

Interestingly, higher education for police officers was not uncommon across case studies.

The second research method was a survey sent to different jurisdictions asking specific questions about tactical and safety training. The aim of the survey was to help fill in some of the gaps from the case studies and have a better understanding of what modules were taught overseas and how they were taught.

While survey returns were low, those that did reply indicated that their tactical and safety training had only recently or was in the process of being updated. This shows that New Zealand Police is not alone in understanding the need to update this type of training.

While there were many similarities across the jurisdictions, one of the biggest differences was in the time given for training, which in some cases ranged from hours to days.

In developing the training, all jurisdictions almost always used police subject matter experts as part of that development. However, there were three cases where the response 'best practice from other police or similar organisations' was higher than 'evidence-based research', as well as cases where they were the same. Unfortunately, for this survey it is impossible to know why a training module was considered 'best practice', so it is difficult to determine its efficacy. Given that evidence-based research on tactical and safety training is limited, that may be the reason why its use is also limited.

Technology used for training was very limited for those who replied to the survey, with Simunition[®] devices and first aid simulators the only items mentioned.

A considerable amount of training assessment was practical, with some degree of replication of action as the criteria for completing or passing the training. This may in part be due to the survey not having the appropriate amount of space, or those respondents not having time to include criteria for completing – or just simplifying the criteria. In any case, simply showing the ability to master the skills during training may not be enough to indicate higher levels of learning.

While this survey was only able to show at a 'high level' how other jurisdictions undertake tactical and safety training, it does indicate that New Zealand Police are not too dissimilar from the rest.

8.2 Case Studies

The below case studies are short summaries of tactical and safety training in jurisdictions similar to New Zealand.

8.2.1 Method

Search terms used to gather documents for the case studies included:

(Australia OR England OR Scotland OR Northern Ireland OR Republic of Ireland OR Norway OR Sweden OR Denmark OR Finland) AND (tactical safety training OR operational safety training OR officer safety training)

Additionally, similar searches focusing on different Australian territories were also conducted.

In total, the searches resulted in 23 documents and webpages, and four case studies, the larger two being England and Wales, and Australia, and the smaller two being Sweden and the United States.

8.2.2 England and Wales

The year 2016 began a reform in police training in England and Wales, with the publication of the 'Policing Vision 2025' (APCC & NPCC, 2016). The Association of Police and Crime Commissioners (APCC), and National Police Chiefs Council (NPCC) authored report looked to the future to imagine the type of policing communities would need. Highlighting increased risk from online harm, as well as the potential for new and emergent technology to be both risk and opportunity, the report sought to understand the skills that might be needed in the future, as well as the appropriate recognition for those skills.

8.2.2.1 PEQF

The College of Policing (The College) was tasked with creating a new qualification framework to deliver the necessary skills (APCC & NPCC, 2016). The College proposed professionalising the police through the Policing Education Qualifications Framework (PEQF), a programme with multiple entry points and earning recognised qualifications (College of Policing, 2016). The PEQF partners Constabularies with local Higher Education providers to achieve a minimum level of education for all officers and allows existing staff to upskill and be recognised for their qualifications (College of Policing, 2016). The result of the PEQF should be officers who have operational training underpinned by theory (College of Policing, 2020b). Those new to policing can join police according to the PEQF via (College of Policing, 2020b):

- an apprenticeship, a three-year degree course paid for by the Constabulary while also being paid to work for them;
- a post-graduate certificate in professional policing, for those who already hold degrees; and
- completing a degree in professional policing first, then later applying to a Constabulary.

The success of the PEQF will depend in part on the ability of trainers and tutors to take what is learned in the classroom and apply that to operational training (Hough & Stanko, 2018).

It is not immediately clear what parts of tactical and safety training (if any) are being learned in British institutes of higher education through the PEQF, or whether they remain as part of the tactical safety syllabus. In addition, programme literature does not explain how the practical and academic side of policing integrate on a day-to-day basis; for example, whether practical training is 'blocked in' as a one week in every *x* academic weeks, or whether practical training follows on more organically from the academic learning to which it applies.

8.2.2.2 The Front Line Review

In May 2018, the Front Line Review was launched by the Home Secretary with the aim of involving frontline staff in putting forward ideas for organisational change (Home Office, 2019).

Staff contributed to the review through online channels and workshops and interviews facilitated by the Office for National Statistics. In addition documentation was provided by policing-related organisations and evidence-based research was completed by the University of Northampton (Home Office, 2019).

Time was a key theme, with both internal (administration) and external (reliance on police by other public services) causing excess demand. In addition, officers did not feel they had the time needed to focus on wellbeing practice including decompression, appropriate debriefing, ability to interact with colleagues outside of shift patterns, time for training and development needs, workforce counselling and physical activity (Home Office, 2019)

Officers also reported a disconnect between the frontline and executive levels of policing, as well as insufficient time with line managers.

Lastly, the learning and development system was not well known, there were questions about the suitability of some new recruits and officers who were critical of the performance review system and online learning (Home Office, 2019).

8.2.2.3 Officer and Staff Safety Review

As part of reforming policing in England and Wales a national survey of police safety was undertaken in late 2019 (Clarke-Darby & Quinton, 2020). Participants included sworn officers, staff and volunteers employed by a Constabulary in England or Wales. The response rate for sworn officers was 20%. In response to questions on operational safety the survey found (Clarke-Darby & Quinton, 2020):

- 93% of officers felt that assaults against officers or staff had gone up 'a little' or 'a lot';
- 81% of officers had received safety training in the 12 months before the survey;
- 16% of officers were 'very' or 'fairly' dissatisfied with the training they received, while 18% were neither satisfied or dissatisfied; and
- only 26% of officers said enough time was spent on communication training.

The findings of this survey combined with an actual increase in recorded assaults against officers in 2018/19 led the National Police Chiefs Council to commission a new report from the College of Policing, known as the 'Officer and staff safety review' (College of Policing, 2020a). The review examined Personal Safety Training (PST) to standardise it across Constabularies and provide evidence-based guidance for Chief Constables. PST has been mandatory for officers in England and Wales below the rank of Superintendent for over 20 years, however since the College was set up in 2012 there has been no minimum required hours for PST training, with the College looking at learning outcomes rather than time spent (College of Policing, 2020a). Because of this, annual PST training hours have been reduced and much of the contact time is spent on modules staff physically need to be there for to achieve certification – such as fitness testing and first aid. This had led to little time to practice other non-physical skills such as de-escalation (College of Policing, 2020a).

The report made a number of recommendations, including:

- revising the national PST training curriculum and specifying minimum annual contact training hours;
- Chief Constables to implement conflict management guidance produced by the College;
- creating a learning pack specifically addressing risks for Road Policing, with Chief Constables to consider issuing hi-vis road safety kit to all officers working on roads not just Road Policing staff;
- producing a learning module on corrosive substances¹⁸ as well as investigating potential neutralising agents and attempting to make it an offence to carry such substances without good reason;
- issuing slash and needle stick resistant gloves to all frontline sworn officers and appropriate non-sworn staff; and
- examining options to prevent assaults on officers by those in the rear seat of police vehicles (College of Policing, 2020a).

Unfortunately, there is little publicly available information about What PST changes have already taken place and what is still left (if anything) to do. The current PST manual is available only to those who have access to the College learning and development network.

¹⁸ Substances typically used in acid attacks and thrown in people's faces.

However, some indication of current PST in England and Wales can be found through publicly accessible freedom of information requests. One such request had been sent to Kent Police and was available – with an answer – on the Constabulary website. Kent Police stated that their current PST (updated in April 2020) was based on College of Policing guidance, and consisted of the following modules (Kent Police, n.d.):

- National Decision Model
- Tactical Communication
- Medical Implications
- Use of Force Reporting
- Tactical Positioning
- Approaching People and Vehicles
- Personal Protection Skills
- Edged Weapons Awareness
- Baton Use
- Physical Restraints
- Mechanical Restraints/Limb Restraints
- Incapacitant Spray
- Searching of Individuals
- Taser (specialist trained units only)

Refresher training occurs every 12 months, and consists of elements of the initial training modules; with 12 hours of contact time a year allocated for refresher PST training (Kent Police, n.d.).

The 'Joining the Police' career website states that initial PST training typically takes place over five days (Joining the Police, 2021).

The College of Policing has also embraced Reflective Practice (College of Policing, n.d). Reflective practice is a key component of practice-based learning, and requires an individual to record and reflect on activities in order to assess their performance and discover new areas of learning to enable a deeper understanding of development needs (College of Policing, n.d).

8.2.2.4 Police Covenant

In September 2019 the Home Secretary announced a public consultation on the proposal of a Police Covenant. The Covenant was meant to acknowledge the work and sacrifice of police officers and staff and in particular the risks they and their families take. The focus of the Covenant was on health and wellbeing, physical safety and support for families and came about as a result of the Front Line Review. Enshrined in law, the Covenant was meant to provide protection and support for officers and staff (Home Office, 2020b).

The Covenant in the public consultation was as follows:

This Covenant acknowledges the sacrifices made by those who serve or have served in our Police Forces, either in a paid or voluntary capacity, whether as an officer or as a member of staff. It is intended to ensure that they and their families are not disadvantaged as a result of that commitment and seeks to mitigate the impact on their day to day life or in their access to justice.

Police officers are required at all times to uphold the important principles of policing by consent, the foundation of their long-standing relationship with the public. We ask a great deal of our police and we expect the highest standards to be maintained. In return, we have a responsibility to provide protection and support to the police.

The Covenant recognises that working within policing comes with a high level of personal accountability, duty and responsibility requiring courage and personal risk both on and off duty. This recognition extends to all those who support police forces in upholding the principles and practices of their vocation. Recognising those who have served in policing unites the country and demonstrates the value of their sacrifice. This has no greater expression than in upholding this Covenant. (Home Office, 2020b).

Over a thousand responses (1,113) were received to the consultation. Some of the areas mentioned by those who supported the Covenant included (Home Office, 2020b):

- National standards to PST and associated kit
- Double crewing of officers
- Improvements to occupational safety
- Improved justice outcomes for police as victims of assault

A press release by the Home Office outlined the following proposals by the government regarding the Covenant (Home Office, 2020c):

- enshrining a police covenant in law, creating a statutory duty to do more to support the police;
- placing a requirement on the Home Secretary to report annually to Parliament on progress with the covenant;
- ensuring the covenant applies to all those working within or retired from policing roles, whether paid or as a volunteer;
- putting the initial focus of the covenant on physical protection, health and wellbeing, as well as support for families; and
- implementing a new governance structure to drive forward activity on wellbeing and protection to fulfil the covenant.

The Police Covenant is meant to come into law through the Police, Crime, Sentencing and Courts Bill 2021 (Thompson, 2021). A more recent Home Office press release has stated that the Covenant will be a declaration, rather than being set in legislation (Home Office, 2021). Aspects of the Covenant that have been introduced into law are (Home Office, 2021):

- A requirement for the Home Secretary to complete an annual Police Covenant report;
- Increasing the maximum penalty for assaulting an emergency worker from 12 months to 2 years;
- A new test to assess the standard of a police driver so that police officers are compared to another police driver with a similar level of training; and
- Allowing Special Constables to join the Police Federation of England and Wales.

An oversight board will also be created for the Covenant and while the present focus will be on health and wellbeing, physical safety and support for families, it is expected that the focus of the Covenant will evolve to tackle changing needs (Home Office, 2021).

England and Wales have put considerable time and effort into the way they train their officers, not only in terms of recruit training, but also in terms of ongoing personal development and learning and personal safety training. Unfortunately the specifics of their Personal Safety Training were not publicly available, however, it is interesting to note how the theme of Police safety and wellbeing has come through in a number of documents (Front Line Review, Officer Safety Survey, and the Police Covenant) and appears to have been given a high priority.

8.2.3 Australia

In general, States and Territories have their own training arrangements, with some being provided by Registered Training Organisations, and some being provided in partnership with other organisations (Private Communication, 2021).

For tactical and safety training, jurisdictions may collaborate through ANZPAA, however the training may vary depending on the legislation of the State/Territory and their policy and procedures (Private Communication, 2021).

Only two Australian states/territories had descriptions of what their tactical and safety training includes online, Queensland and New South Wales (NSW).

8.2.3.1 Queensland

When in situations where force may be used, Queensland police officers have to think of COPS (Consider all Options and Practice Safety). This requires considering all the options before choosing the most appropriate for the situation. They have also adopted a 'Situational use of Force Model' to guide decision-making. All options in the model have communication as a central component, and while not restrictive, the aim is to de-escalate situations with minimum force used (Queensland Police, 2021).





Figure 8.1: Situational Use of Force Model (2016) in Queensland Police OPM – Operational Skills and Practices, Chapter 14, page 7

In Queensland, TST is referred to as Operational Skills and Tactics (OST) training, consisting of four parts (Queensland Police, 2021):

- Operational Skills Training
 - $\circ \quad \text{Theoretical and skills-based}$
 - o Both lethal and less than lethal use of force
 - Can include Operational Skills, Conducted Energy Weapon (Taser), Service Pistol, Tactical First Aid, and Active Armed Offender training
 - Revision and/or novel elements
- Dynamic Interactive Scenario Training (DIST)
 - Scenario-based training
 - Can include Operational Skills and Tactics, Service Pistol, Conducted Energy Weapon (Taser), Tactical First Aid, and Active Armed Offender training
- Pistol and TASER Requalification
 - Practical re-qualification of pistol and TASER
- Rifle Requalification
 - \circ Practical re-qualification with a rifle

This training must be completed annually (Queensland Police, 2021).

8.2.3.2 New South Wales

Operational Safety and Tactics (OST) is completed as part of the Constable Education Programme, and Associate Degree in Policing Practice; it is conducted at Charles Sturt University and Wetherill Park (New South Wales Police, n.d.).

The OST includes the following sections (New South Wales Police, n.d.):

- Weapon-less control
 - Open hand and restraint tactics
 - o Understanding the use of force
 - Effective communication
- Batons, Handcuffs, Oleoresin Capsicum Spray (OC)
 - Correct use of and judging when to use these tactical options
- Conducted Electronic Weapon (CEW Taser)
 - Safe handling and proper judgement when using the CEW
- Firearms
 - Use of Glock 22 service pistol
 - o Safe handling and marksmanship
 - o Justifiable use
- Operational Safety Tactics Buildings, Persons and Vehicles
 - Search and secure buildings, persons and vehicles
- Dynamic Simunition¹⁹ & Tactical Options Training
 - o Use of survival and tactical skills in a simulated environment

8.2.4 Other Jurisdictions

Sweden and the United States of America were the only other jurisdictions where there was some information online with regards to tactical and safety training.

8.2.4.1 Sweden

In Sweden, recruits go to one of five Universities for two and a half years for basic training. A non-confrontational approach is used in Swedish policing, and under Swedish Police Regulation (2014:1104), police officers are meant to be considerate and show constraint when interacting with the public (Emsing et al., 2020).

Tactical and safety training in Sweden is known as conflict management training or POLKON for short. POLKON consists of tactics, weapons, communication, mental preparedness and hand-to-hand techniques. Training is both theoretical and practical (Emsing et al., 2020).

Umeå University is one of the Swedish Universities which has a police programme. Their website describes some of the content (translated through Google Translate) of 'Police Conflict management 1'. While many of the learning outcomes might be similar to New Zealand Police, such as being able to legally describe the use of force and understanding their tactical model, they also have to be able to perform water rescue in summer and winter and be able to understand what dictates a healthy police lifestyle (University of Umeå, n.d.).

After graduation, POLKON training is attended yearly (The Local, 2018). However, reports from the Swedish media website 'The Local' in 2018 suggest just under half of the officers receive five or more days of training in POLKON a year due to staff shortages (The Local, 2018).

¹⁹ Simunition is a trademark for the company of the same name that create less than lethal ammunition (amongst other apparatus) for military, law enforcement and civilian use. The company is based in Canada. Simunition is also a word used to describe any type of simulated ammunition. In this instance it is unclear whether the Canadian company are supplying any training or simulated ammunition or whether NSW police are using a generic form of simulated ammunition.

8.2.4.2 United States

There are no national standards in the United States that cover police training. Instead, individual states can mandate their training. However, many states do have minimum standards that are established by 'POSTs' – Police Officer Standards and Training Commissions (Cordner, 2016). Training in the United States has in general moved away from classroom teaching and more towards applied learning techniques such as scenarios, and role-playing (Cordner, 2016). Training has more recently also focused on reducing conflict and de-escalation, as well as understanding procedural justice and bias (Cordner, 2016).

However, Cordner (2016) points out that training still focuses on how to 'do' an intervention (such as stopping a person) rather than how to observe and decide whether the person should be stopped in the first instance.

In 2017, a national survey of law enforcement executives was conducted by the Bureau of Justice Assistance 'VALOR Officer Safety and Justice Initiative'. The focus of the survey was on 'perception of threats and training challenges' (Rojek et al., 2020). The survey was sent to 1,514 law enforcement agencies by stratified random sample – representing 10% of agencies in the USA. The response rate for the survey was 43% (Rojek et al., 2020). Selected findings of the survey showed that (Rojek et al., 2020):

- Executives believed their officers were most likely to die or be hurt in a vehicle accident, with being shot or assaulted with an edged weapon the least risk;
- In total, 27% reported at least one officer in their jurisdiction had died or been hurt in an assault that did not involve a gun or edged weapon. In addition, 25% reported an officer had died or been seriously injured in a vehicle collision;
- The most common training modules reported were active shooter, use of force, and dealing with public mental ill-health;
- While the perceived risk from vehicle collision was high, the associated training was rated lower than other training types; and
- Scenario-based training was the most popular method of training.

The Bureau of Justice Assistance (BJA) currently supports a number of national projects relating to officer safety; with five overarching programmes as part of the VALOR Initiative (Bureau of Justice Assistance, 2017):

- VALOR Officer Safety and Wellness Training and Technical Assistance Program
- Active Shooter Response Training and Technical Assistance Program
- Destination Zero (promotes innovation in wellness programmes)
- Officer Safety and Wellness Pilot Research and Evaluation Model Program (will assess the impact of VALOR)
- De-Escalation Training and Technical Assistance Program

Unfortunately, the full content of the programmes and the training provided by the BJA are not available online, so it is difficult to assess how that content might apply to the New Zealand environment.

8.3 Survey

In order to better understand how tactical and safety training was undertaken in overseas jurisdictions, and to support what could be found online, a survey was developed and sent to overseas jurisdictions determined to be most similar to New Zealand.

8.3.1 Method

The tactical and safety Training survey, which can be found in Appendix A, covers general questions about the modules undertaken as part of tactical and safety training, as well as more in-depth questions on eight specific modules. The survey was sent through the ANZPAA network to all Australian jurisdictions and was sent to SLO London to be passed through to police services/college's in the United Kingdom, Republic of Ireland and Scandinavian jurisdictions.

As we were not distributing the surveys ourselves, it is not possible to know how many and which jurisdictions received the survey and/or if they were sent to the appropriate peo/.':ple or department.

Five responses were received in time for analysis. As the surveys were anonymous, no detail of the country or continent the surveys came from will be mentioned.

Lastly, jurisdictions were able to provide multiple answers to each question, so readers should not expect answers to add up to the number of jurisdictions that answered each section.

8.3.2 Findings

8.3.2.1 Background findings

All five respondents identified themselves as belonging to a Constabulary/Force/Service, rather than a College or other police training organisation. All stated that they had updated all or part of their tactical and safety training in the last year, or were currently in the process of doing so.

There were ten tactical and safety training modules that all five jurisdictions had in common out of the 20 mentioned in the survey, they were:

- De-escalation training
- Decision-making under pressure
- Tactical communications training
- Use of force
- Hand-to-hand/unarmed skills
- Irritants
- Batons
- Handcuffing
- Restraints
- First aid (general)

Four out of five jurisdictions had the following in common:

- Risk assessment models
- Firearms training
- Room clearing

While three out of five had the following in common:

- Stress management training
- TASER training
- Edged weapons training
- General weapons training
- High risk vehicle stops

While only two jurisdictions stated that tactical first aid was a module, a third jurisdiction had plans to roll it out next year.

No jurisdictions trained in non-lethal firearms, such as rubber bullets and pepper rounds as part of their tactical and safety training.

One jurisdiction mentioned an 'active armed offender' module as part of their training.

Overall, there was a lot of similarity in the small sample of surveys that were returned. It is possible that some jurisdictions have these modules as part of other police training, rather than part of tactical and safety training; also that the modules have different names but similar content – such that jurisdictions do cover the content, however, have not said so because they use a different name.

8.3.3 Modules in Depth

8.3.3.1 De-Escalation Training

All five jurisdictions completed de-escalation training as part of their tactical and safety training. It is taught at recruit level for the five jurisdictions, and part of ongoing training for four out of five jurisdictions. The training is taught both in class, and as practical (hands on) for all, with one jurisdiction also having the ability to do some training online.

All jurisdictions have training taught by a local police training centre, while national police training centres and Universities/Polytech's were also mentioned. Time spent on the training ranged from 2 days to 5 days, with others stating that the de-escalation training was embedded throughout safety training and therefore they were not able to determine time taken.

All five jurisdictions had elements of group or team training in de-escalation and four stated their training also comprised individual learning.

Refresher training ranged from having none, to every two years. All jurisdictions had refresher training available at a local facility, two also have online ability and one at a specialist facility.

Competency in de-escalation was assessed by all five jurisdictions through a practical exam, while three of the five also required a written exam. Minimum pass requirements varied, two jurisdictions required new recruits to attain above a certain percentage score, another two required those being trained to be 'competent' or 'effective'.

Training was always developed with Police subject matter experts; however four out of five jurisdictions also used the following to develop their training: Best practise from other Police services, military, or fire and rescue; evidence-based research; or with learning and development specialists.

Standards for training were typically set through national organisations that were specific to police or training in general. De-escalation was considered an important operational tactic.

8.3.3.2 Stress Management Training

Only three jurisdictions completed stress management training. All completed training in a classroom, while one jurisdiction had practical and online training. Training was provided at a local police training centre for all, although one jurisdiction also used a private company. Days spent training were varied from half a day to multiple 'sessions' over weeks.

Training was completed as both individual and group learning for all jurisdictions. Only one jurisdiction has refresher training, because content was taught through another module which was required every six months. Competency for the module typically assessed via a practical or scenario, with no pass requirements. The goal of training however was to identify or recognise stress and mitigate its effects.

8.3.3.3 Decision-Making Under Pressure Training

Decision-making training was part of all five jurisdictions recruit and ongoing training and for one jurisdiction also part of advanced training. Training was practical (hands on) in all jurisdictions and had additional classroom elements in four, one jurisdiction also had an online element. Training was provided through a local police training centre in all cases, with the addition of a national police training centre for one jurisdiction.

Initial training lasted between half a day to five days, or was embedded into other elements of the course (i.e. number of days could not be determined due to the module being integrated into other training). Training is

completed through group and individual learning for all jurisdictions. One jurisdiction did not have refresher training for this module, while the maximum re-training time was 12 months. All refresher training was delivered at a local facility.

In all cases the training was assessed by a practical exam, in three jurisdictions additionally by written exam, in two cases through on-the-job actions and in two cases also through scenario-based training. Pass requirements ranged from percentage scores to being judged to be 'competent'.

This training was developed with police subject matter experts in all cases. In three jurisdictions evidence-based research was part of training development; and learning and development specialists were also used in three jurisdictions. Standards were typically set through organisational or national requirements; while jurisdictions typically felt that the training was important to operation needs or needed to satisfy legal or policy requirements.

8.3.3.4 Tactical Communications Training

All five jurisdictions completed Tactical Communications Training as part of their recruit training, while four continued with ongoing training or certification in the topic. The training was mostly taught through practical training (five jurisdictions) and classroom training (four jurisdictions), while two jurisdictions also had online components. Training was provided through local police training centres, with one jurisdiction additionally having a National police training centre providing training too.

Training time varied from one hour, to two days, to having the material incorporated throughout recruit or foundation training. While all jurisdictions complete training through group learning, three additionally stated that there were also individual learning aspects to training.

For the four jurisdictions that had some form of refresher training the interval varied from six to 12 months, with one jurisdiction having the content integrated into other refresher training rather than a stand-alone module. Refresher training was available at a local facility in all cases, with one jurisdiction also having an online component.

The training was assessed through a practical exam in all five jurisdictions, with two jurisdictions additionally having a written exam. Minimum pass requirements typically required the ability to perform the skills taught with a level of competency.

Training was always developed with Police subject matter experts, while four jurisdictions also looking to best practice in other Constabularies or similar organisations, three jurisdictions used evidence- based research and three used learning and development specialists

The training was considered an important skill for policing and in most cases was an organisational, legal, or policy requirement.

8.3.3.5 TASER Training

Three jurisdictions completed the TASER training section of the survey. In two cases the training was part of recruit and ongoing training, while in one case it was part of advanced training. TASER was taught as both practical and classroom training and provided by the local police training centre. Initial training in TASER took from two to three days and for all jurisdictions completed as both individual and group learning.

All jurisdictions complete refresher training every 12 months at a local facility.

The training is assessed through a practical exam in all jurisdictions and by an additional written exam in two jurisdictions. Training was developed by Police subject matter experts in all cases, in two cases also with best practice from other Constabulary or similar organisations and another two cases with learning and development specialists. Evidence-based research and higher education staff were also mentioned by one jurisdiction.

8.3.3.6 Firearms Training

Four out of five jurisdictions engaged in firearms training. All had this training as part of recruit and ongoing training/certification, whereas two additionally had it as part of advanced training. In all jurisdictions the training had

a practical component and in three out of four jurisdictions also a classroom component. Training was provided through a local police training centre in all cases.

In most cases the training lasted longer than five days and often over a couple of block sessions. In all four jurisdictions the training was delivered via individual learning, but three jurisdictions also signalled a group/team learning component. A couple of jurisdictions mentioned the use of Simunition[®] technology during training.

Refresher training occurred every 6-12 months, typically at a local facility.

Assessment was always through a practical exam and in three cases an additional written exam. Requirements to pass involved using the correct procedure when handling firearms and shooting to an agency standard. Training was always developed with Police subject matter experts, while three jurisdictions also mentioned using best practice from other policing or similar organisations, two jurisdictions also mentioned using evidence-based research. Standards for training were set through either organisational, national, or legislative requirements.

8.3.3.7 First Aid (general) Training

All five jurisdictions completed first aid training as part of their tactical and safety training, five indicated it was part of their ongoing training/certification, three indicated it was also part of recruit training, and one that it was also part of advanced training.

In all cases first aid training was classroom and practically based, with one jurisdiction indicating an online component. Training technology included first aid dummies and training defibrillators as well as choke vests and bleed simulators.

Training providers were mixed and included local police and national police facilities as well as places of higher education and private training providers. Time spent training ranged from half a day to three days. Training was completed through individual and group learning for all jurisdictions.

Training was typically refreshed every one to two years, and happened at a local facility in most cases.

Three jurisdictions assessed competency in first aid through a practical exam, two through written exams, one through scenarios, and one through oral exam. One jurisdiction wasn't clear on assessment type.

Training was developed with police specialists in three cases, learning and development specialists in three cases, in two cases with best practice from other police or similar organisations and in two cases through evidence-based research. Higher education and external training companies were also mentioned. In this case standards were typically set outside of Police organisations and were more likely to come from health care agencies.

8.3.3.8 Tactical First Aid (Advanced) Training

Because only two jurisdictions provided feedback on this training it was decided not to go into depth on the subject due to reasons of providing appropriate anonymity to the Constabularies involved.

9. References

- Adams, A., Hart, J., Iacovides, I., Beavers, S., Oliveira, M., & Magroudi, M. (2019). Co-created evaluation: Identifying how games support police learning. *International Journal of Human-Computer Studies, 132*, 34-44. <u>https://doi.org/10.1016/j.ijhcs.2019.03.009</u>
- Adang, O. (2012). Learning to deal with potentially dangerous situations: A situation-oriented approach. In M. R.
 Haberfeld, C. A. Clarke, & D. L. Sheehan (Eds.), *Police organisation and training: Innovations in research and practice*. New York: Springer (pp. 153-168). <u>https://doi.org/10.1007/978-1-4614-0745-4</u>.
- Alpert, G., & Rojek, J. (2011). Frontline police officer assessments of risk and decision making during encounters with offenders. *Centre of Excellence in Policing and Security Briefing Paper*, *5*, 1-6.
- Alvarez, K., Salas, E., & Garofano, C. M. (2004). An integrated model of training evaluation and effectiveness. *Human Resource Development Review, 3*(4), 385-416. doi: 10.1177/1534484304270820
- Amey, S. J. (2019). Acclimating to the mayhem: Field training officers' perspectives of new police recruits from a problem-based learning academy. (Doctoral dissertation). Available from ProQuest. (10981050)
- Andersen, J. P., & Gustafsberg, H. (2016). A training methods to improve police use of force decision making: A randomised controlled trial. *SAGE Open, 6*, 1-13. <u>https://doi.org/10.1177/2158244016638708</u>.
- Andersen, J. P., Di Nota, P. M., Beston, B., Boychuk, E. C., Gustafsberg, H., Poplawski, S., & Arpaia, J. (2018). Reducing lethal force errors by modulating police physiology. *Journal of Occupational and Environmental Medicine*, 60, 867-874. <u>https://doi.org/10.1097/JOM.00000000001401</u>.
- Andersen, J. P., Papazoglou, K., Arnetz, B. B., & Collins, P. I. (2015a). Mental preparedness as a pathway to police resilience and optimal functioning in the line of duty. *International Journal of Emergency Mental Health and Human Resilience*, 17, 624-627. <u>https://doi.org/10.4172/1522-4821.1000243</u>.
- Andersen, J. P., Papazoglou, K., Koskelainen, M., Nyman, M., Gustafsberg, H., & Arnetz, B. B. (2015b). Applying resilience promotion training among special forces police officers. SAGE Open, 5, 1-8. <u>https://doi.org/10.1177/2158244015590446</u>.
- Andersen, J. P., Papazoglou, K., Nyman, M., Koskelainen, M., & Gustafsberg, H. (2015c). Fostering resilience among the police. *Journal of Law Enforcement*, *5*, 1-13.
- Andersen, J., Pitel, M., Weerasinghe, A., & Papazoglou, K. (2016). Highly realistic scenario based training simulates the psychophysiology of real world use of force encounters: Implications for improved police officer performance. *Journal of Law Enforcement*, *5*, 1-13.
- Anderson, G. S., Di Nota, P. M., Metz, G. A. S., & Andersen, J. P. (2019). The impact of acute stress physiology on skilled motor performance: Implications for policing. *Frontiers in Psychology*, 10, 2501. <u>https://doi.org/10.3389/fpsyg.2019.02501</u>.
- Andrew, J., Henry, T., Coleman, D. A., & Wiles, J. D. (2009). Occurrence of injury during officer safety training at Kent Police. *The Police Journal, 82*, 265-274. <u>https://doi.org/10.1358/pojo.2009.82.3.455</u>.
- ANZPAA (July 2021a). Environment Scan. Edition #23.
- ANZPAA (September 2021b). 2021 ANZPAA trend analysis. https://www.anzpaa.org.au/ArticleDocuments/2112/2021%20ANZPAA%20Trends%20Analysis.ppsx.aspx

- Armstrong, J., Clare, J., & Plecas, D. (2014). Monitoring the impact of scenario-based use-of-force simulations on police heart rate: Evaluating the Royal Canadian Mounted Police skills refresher program. *Western Criminology Review*, 15, 51-59.
- Arnetz, B. B., Nevedal, D. C., Lumley, M. A., Backman, L., Lubin, A. (2009). Trauma resilience training for police: Psychophysiological and performance effects. *Journal of Police and Criminal Psychology, 24*, 1-9. <u>https://doi.org/0.1007/s11896-008-9030-y</u>.
- Arthur Jr., W., Day, E. A., Villado, A. J., Boatman, P. R., Kowollik, V., Bennett, JR., W., & Bhupatkar, A. (2007). Decay, transfer, and the reacquisition of a complex skill: An investigation of practice schedules, observational rehearsal, and individual differences. Air Force Research Laboratory: Arizona, United States. <u>https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.922.9060&rep=rep1&type=pdf</u>
- Association of Police and Crime Commissioners & National Police Chiefs Council (2016). *Policing Vision 2025*. <u>https://www.npcc.police.uk/documents/Policing%20Vision.pdf</u>
- Atkins, V., & Norris, W. A. (2012). Innovative law enforcement training: Blended theory, technology, and research. In M. R. Haberfeld, C. A. Clarke, D. L. Sheehan (Eds.), Police Organization and Training: Innovations in research and practice (pp. 45-63). Springer: New York.
- Bacon, L., & MacKinnon, L. (2012). Using virtual and augmented reality to create realistic training events. Compass: Journal of Learning and Teaching, 3(6). <u>https://doi.org/10.21100/compass.v3i6.159</u>
- Banakou, D., Hanumanthu, P. D., & Slater, M. (2016). Virtual embodiment of white people in a black virtual body leads to a sustained reduction in their implicit racial bias. *Frontiers in human neuroscience*, *10*, 601. <u>https://doi.org/10.3389/fnhum.2016.00601</u>
- Barnett, J. S., & Taylor, G. S. (2012). *How simulator interfaces affect transfer of training: comparing wearable and desktop systems.* Army Research Institute for the Behavioral and Social Sciences: Fort Belvoir, VA, USA.
- Basham, B. R. (2014). Police instructor or police educator? Salus Journal, 2(1), 99-109.
- Beinicke, A., & Muff, A. (2019). Effectiveness of Simulation-Based Learning in Basic Police Training. *European Law* Enforcement Research Bulletin, (4 SCE), 207-212. <u>https://bulletin.cepol.europa.eu/index.php/bulletin/article/view/330</u>
- Belur, J., Agnew-Pauley, W., McGinley, B., & Tompson, L. (2019). A systematic review of Police Recruit Training Programmes. *Policing*, *14*(1), 76-90. doi:10.1093/police/paz022
- Bengtson, K. (2017). Bad cops or bad training? How police officer training impacts use of force incidents (Honours dissertation, Hamline University, Saint Paul, Minnesota, USA).
 <u>https://digitalcommons.hamline.edu/cgi/viewcontent.cgi?article=1076&context=dhp</u>.
- Bennell, C., Blaskovits, B., Jenkins, B., Semple, T., Khanizadeh, A.-J., Brown, A. S., & Jones, N. J. (2021). Promising practices for de-escalation and the use-of-force training in the police setting: A narrative review. *Policing: An International Journal of Police Strategies and Management, 44*, 377-404. <u>https://doi.org/10.1108/PIJPSM-06-2020-0092</u>.
- Bennell, C., Jones, N. J., & Corey, S. (2007). Does use-of-force simulation training in Canadian police agencies incorporate principles of effective training? *Psychology, Public Policy, and Law, 13*, 35-58. <u>https://doi.org/10.1037/1076-8971.13.1.35</u>.

- Bergman, B. (2017). Reflexivity In police education: Voices of Swedish police officers on field training of probationers. *Nordisk politiforskning, 4*, 68-88. doi: 10.18261/ISSN.1894-8693-2017-01-06
- Bergman, B, & Karp, S. (2021). Conflicting thought styles? Responsibility and accountability in the education of Swedish police officers. *Policing and Society, 31*(6), 656-671. doi: 10.1080/10439463.2020.1761805
- Bergman, B., Karp, S., & Widding, U. (2018). Educating police officers in Sweden: All about making meaning. *European Journal of Policing Studies*. <u>http://urn.kb.se/resolve?urn=urn:nbn:se:umu:diva-146861</u>
- Bertilsson, J., Niehorster, D. C., Fredriksson, P. J., Dahl, M., Graner, S., Fredriksson, O., Martensson, J. M., Magnusson, M., Fransson, P. A., & Nystrom, M. (2020). Towards systematic and objective evaluation of police officer performance in stressful situations. *Police Practice and Research*, 21, 655-669. <u>https://doi.org/10.1080/15614263.2019.1666006</u>.
- Betts, P., & Farmer, C. (2019). *Home Office Police Front Line Review: Workshops with police officers and police staff.* Office for National Statistics: United Kingdom
- BinSubaih, A., Maddock, S., & Romano, D. (2009). *Developing a serious game for police training*. In Handbook of research on effective electronic gaming in education (pp. 451-477). IGI Global.
- Birzer, M. L. (2003). The theory of andragogy applied to police training. *Policing: An International Journal of Police Strategies & Management, 26*(1), 29-42. doi: 10.1108/13639510310460288
- Blumberg, D. M., Schlosser, M. D., Papazoglou, K., Creighton, S., & Kaye, C. (2019). New directions in Police Academy training: A call to action. *International Journal of Environmental Research and Public Health*, 16, 4941. doi:10.3390/ijerph16244941
- Boldovici, J. A., Bessemer, D. W., & Bolton, A. E. (2002). *The elements of training evaluation*. The U.S. Army Research Institute for Behavioral and Social Sciences: Virginia, United States of America.
- Boulton, L., & Cole, J. (2016). Adaptive flexibility: Examining the role of expertise in the decision making of authorised firearms officers during armed confrontation. *Journal of Cognitive Engineering and Decision Making*, 10, 291-308. <u>https://doi.org/10.1177/1555343416646684</u>.
- Broome, R. E. (2011). An empathetic psychological perspective of police deadly force training. *Journal of Phenomenological Psychology*, *42*, 137-156. <u>https://doi.org/10.1163/156916211X599735</u>.
- Brown, S. G., & Daus, C. S. (2015). The influence of police officers' decision-making style and anger control on responses to work scenarios. *Journal of Applied Research in Memory and Cognition, 4*, 294-302. https://doi.org/10.1016/j.jarmac.2015.04.001.
- Bryan, C. (2021). *Basic Police Officer Training in the U.S.* (Master's thesis, Rochester Institute of Technology, New York , U.S.A.). <u>https://scholarworks.rit.edu/cgi/viewcontent.cgi?article=11986&context=theses</u>
- Bureau of Justice Assistance (2017). Law enforcement officer safety toolkit. U.S. Department of Justice.
- Burke-Smalley, L. A., & Hutchins, H. M. (2007). Training Transfer: An integrative literature review. *Human Resource Development Review, 6*(3), 263-296. doi: 10.1177/1534484307303035
- Buttle, J. W. (2007). A constructive critique of the officer safety programme used in England and Wales. *Policing and Society, 17*, 164-181. <u>https://doi.org/10.1080/10439460701302735</u>.
- Champney, R. K., Stanney, K.M., Milham, L., Carroll, M.B., & Cohn, J. (2017). An examination of virtual environment training fidelity on training effectiveness. *Int. J. Learning Technology*, *12*(1), 42–65.
- Chapparo, L. (2017). *Digital learning: How to improve knowledge and skills for law enforcement managers.* In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 131-136). Luxembourg: Publications Office of the European Union.

- Charles, M. T., & Copay, A. G. (2003). Acquisition of marksmanship and gun handling skills through basic law enforcement training in an American police department. *International Journal of Police Science and Management*, *5*, 16-30. <u>https://doi.org/10.1350/ijps.5.1.16.11245</u>.
- Cheung, K. C. (2012). *The generational gap: Values and culture-building in the Hong Kong Police Force.* In M. R. Haberfeld, C. A. Clarke, D. L. Sheehan (Eds.), Police Organization and Training: Innovations in research and practice (pp. 137-152). Springer: New York.
- Clark-Darby, O. & Quinton, P. (2020). National police safety survey: Headline findings. College of Policing.
- Clarke, C. A., & Armstrong, K. (2012). Beyond reproach: The need for effective and responsive training. In M. R. Haberfeld, C. A. Clarke, D. L. Sheehan (Eds.), Police Organization and Training: Innovations in research and practice (pp. 11-26). Springer: New York.
- Clough, G., Adams, A, & Halford, E. (2017). Evidence Cafés and Practitioner Cafés supported by online resources: A route to innovative training in practice-based approaches. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 115-122). Luxembourg: Publications Office of the European Union.
- Cochran, C., & Brown, S. (2016). *Andragogy and the adult learner*. In K. A. Flores, k. d., Kirstein, Schieber, C. E., & S. G., Olswang (Eds.). Supporting the success of adult and online students: Proven practices in education (pp. 73-84). Seattle, WA: City University.
- College of Policing. (2016). *Developing and delivering an education qualification framework for policing: The College of Policing response to the consultation.*
- College of Policing (2020a). Officer and staff safety review. A review of the arrangements to secure the safety of police officers and police staff engaged in frontline policing. National Police Chiefs Council and the College of Policing.
- College of Policing (2020b). *Policing education qualifications framework (PEQF). Available:* <u>https://www.college.police.uk/career-learning/learning/PEQF</u>
- College of Policing (2020c). *Policing Education Qualifications Framework: Initial entry routes (Learning to date: development and implementation, 2016-2019).* College of Policing: United Kingdom.
- College of Policing. (2020d). *Policing in England and Wales: Future Operating Environment 2040.* College of Policing Limited: Coventry.
- College of Policing (n.d). *Resources for reflective practice*. <u>https://paas-s3-broker-prod-lon-6453d964-1d1a-432a-9260-5e0ba7d2fc51.s3.eu-west-2.amazonaws.com/s3fs-public/2020-11/Resources for reflective practice v1 0.pdf</u>
- Comiskey, J., Lockwood, B., Cunningham, S., & Arminio, J. (2021). The association between participant characteristics and perceptions of the effectiveness of law enforcement tactical simulator training. *Police Practice and Research*. Advanced online publication. <u>https://doi.org/10.1080/15614263.2021.1948848</u>.
- Cordner, G. (2016). *Evidence based police education and training in the United States*. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, & J. Nagy (eds.). European Police Science and Research Bulletin: Global trends in Law enforcement training and education. Special Conference Edition Nr 3. CEPOL.
- Colover, S., Jenner-Parson, A., & Kodz, J. (2016). *Defining and assessing competence pilot*. College of Policing: United Kingdom.
- Connelly, M., Suss, J., & DiBello, L. (2019). Improving expertise in Local Law Enforcement: Utilizing virtual environments to assess officer performance and standardise training procedures. *Proceedings of the Human Factors and Ergonomics Society 2019 Annual Meeting*, 63(1), 2144-2148. <u>https://doi.org/10.1177/1071181319631387</u>

- COPS (2001). A problem-based learning manual for training and evaluating police trainees: Training Standard. U.S. Department of Justice. <u>https://cops.usdoj.gov/RIC/Publications/cops-w0248-pub.pdf</u>
- Cordner, G. (2017). *Evidence-based Police education and training in the United States*. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 71-78). Luxembourg: Publications Office of the European Union.
- Coull, N., Donald, I., Ferguson, I., Keane, E., Mitchell, T., Smith, O. V., Stevenson, E., & Tomkins, P. (2017). On the use of serious games technology to facilitate large-scale training in cybercrime response. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 123-130). Luxembourg: Publications Office of the European Union.
- Cox, D. (2011). Educating police for uncertain times: the Australian experience and the case for a 'normative' approach. *Journal of Policing, Intelligence and Counter Terrorism, 6*(1), 3-22, doi: 10.1080/18335330.2011.553178
- Cross, A. B., Mulvey, E. P., Schubert, C. A., Griffin, P. A., Filone, S., Winckworth-Prejsnar, K., DeMatteo, D., & Heilbrun, K. (2014). An agenda for advancing research on crisis intervention teams for mental health emergencies. *Psychiatric Services*, *65*, 530-536. <u>https://doi.org/10.1176/appi.ps.201200566</u>.
- Cushion, C. J. (2018). Exploring the delivery of officer safety training: A case study. *Policing*, *14*, 166-180. <u>https://doi.org/10.1093/police/pax095</u>.
- Dahiya, S., & Jha, A. (2011). Review of training evaluation. *International Journal of Computer Science and Communication*, 2(1), 11-16. <u>http://www.csjournals.com/IJCSC/PDF2-1/Article_2.pdf</u>
- Davies, A. J. (2017). Shoot/do not shoot what are the influences? The police recruit perspective. *Policing and Society, 27,* 494-507. <u>https://doi.org/10.1080/10439463.2015.1077835</u>.
- Dayley, E. H. (2016). *Reducing the use of force: De-escalation training for police officers* (Master's thesis, Naval Postgraduate School, Monterey, California, USA). <u>https://calhoun.nps.edu/handle/10945/50529</u> (Accessed 11 October 2021).
- de Kimpe, S. (2017). A European quality assurance system for police education: a challenge for CEPOL? In D. Nogala,
 P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 139-144). Luxembourg: Publications Office of the European Union.
- Dekanoidze, K., & Khelashvili, M. (2018). *Police education and training systems in the OSCE region*. OSCE, National Police of Ukraine, and Ministry of Internal Affairs of Ukraine: Kiev, Ukraine.
- den Boer, M. (2017). The internationalisation of higher police education: perspectives on the cooperation between the EU and China. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 107-112). Luxembourg: Publications Office of the European Union.
- Deveau, L. M. (2021). Police de-escalation training and education: Nationally, provincially, and municipally. *Journal of Community Safety and Well-Being*, *6*, 2-5. <u>https://doi.org/10.35502/jcswb.183</u>.
- Dewhurst, D., & Harris, M. (August/ September, 2018). *Tactical training.* Employment Today, 20-22. <u>https://www.kirkpatrickpartners.com/Portals/0/Resources/Articles/Employment%20Today%20AUG%20SEP</u> <u>%202018.pdf?ver=2018-08-27-102332-117×tamp=1579885262400</u>
- di Gregorio, C. (2017). *Law enforcement training and learning: a comprehensive capacity-building approach*. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 31-44). Luxembourg: Publications Office of the European Union.
- Di Nota, P. M., & Huhta, J.-M. (2019). Complex motor learning and police training: Applied, cognitive, and clinical perspectives. *Frontiers in Psychology*, *10*, 1797. <u>https://doi.org/10.3389/fpsyg.2019.01797</u>.

- Di Nota, P. M., Chan, J. F., Huhta, J.-M., & Andersen, J. P. (2021). Considering objective and subjective measures of police use of force evaluation. *International Journal of Environmental Research and Public Health, 18*, 5351. https://doi.org/10.3390/ijerph18105351.
- Doan, L., Ray, R., Powelson, C., Fuentes, G., Shankman, R., Genter, S., & Bailey, J. (2021, July). *Evaluation of a Virtual Reality Simulation Tool for Studying Bias in Police-Civilian Interactions*. In International Conference on Human-Computer Interaction (pp. 388-399). Springer, Cham.
- Donohue Jr., R. H., & Kruis, N. E. (2020). Comparing the effects of academy training models on recruit competence: does curriculum instruction type matter? *Policing: An International Journal, 44*(3), 361-376. doi: 10.1108/PIJPSM-07-2020-0121
- Dryer-Beers, E., Braddock, R., & Wire, J. (2020). *Conflict management: What works and risk factors*. College of Policing, London. <u>https://whatworks.college.police.uk/Research/Documents/Conflict_management_REA.pdf</u> (Accessed 11 October 2021).
- DSTL (2021). Unfogging the Future: a Dstl biscuit book. Defence Science and Technology Laboratory: Ministry of Defence, UK.
- Dulin, A., Dulin, L., & Patino, J. (2020). Transferring Police Academy Training to the street: The Field Training Experience. *Journal of Police and Criminal Psychology*, *35*, 432-442.
- Emsing, M., Hansson, J., & Sundqvist, J. (2020). Swedish police officers' perceptions of conflict management training in school and probationary training. *Nordic journal of Studies in Policing*, *7*, 80-98. <u>https://doi.org/10.18261/issn.1894-8693-2020-02-02</u>.
- Engel, R. S., Corsaro, N., Isaza, G. T., & McManus, H. D. (2020a). Examining the impact of Integrating Communications, Assessment, and Tactics (ICAT) de-escalation training for the Louisville Metro Police Department: Initial Findings. Cincinnati: International Association of Chief of Police (IACP)/University of Cincinnati (UC) Centre for Police Research and Policy. <u>https://www.theiacp.org/sites/default/files/Research%20Center/LMPD_ICAT%20Evaluation%20Initial%20Fi</u> ndings%20Report_FINAL%2009212020.pdf (Accessed 11 October 2021).
- Engel, R. S., McManus, H. D., & Herold, T. D. (2020b). Does de-escalation training work? A systematic review and call for evidence in police use-of-force reform. *Criminology and Public Policy*, 19, 721-759. https://doi.org/10.1111/1745-9133.12467.
- European Commission (2021). 2021 Strategic Foresight Report. Brussels, Belgium. <u>https://ec.europa.eu/info/strategy/strategic-planning/strategic-foresight/2021-strategic-foresight-</u> <u>report_en#:~:text=The%202021%20Strategic%20Foresight%20Report%20focuses%20on%20key%20global%</u> <u>20megatrends,economic%2C%20geopolitical%20and%20demographic%20shifts</u>
- Fernie, R., Khalil, L., & Hartley, J. (2019). Systematic literature review: Professional learning and development in occupations relevant to policing. Centre for Policing Research and Learning: United Kingdom. <u>https://www.open.ac.uk/centres/policing/sites/www.open.ac.uk.centres.policing/files/files/Centre/Systema</u> <u>tic%20Lit%20Review%20Final%20June%202019.pdf</u>
- Garcia, E. T., Ware, S. G., & Baker, L. J. (2019, May). *Measuring presence and performance in a virtual reality police use of force training simulation prototype.* In the Thirty-Second International Flairs Conference.
- Gawlik-Kobylińska, M., Maciejewski, P., Lebiedź, J., & Wysokińska-Senkus, A. (2020, February). *Factors Affecting the Effectiveness of Military Training in Virtual Reality Environment.* In Proceedings of the 2020 9th International Conference on Educational and Information Technology (pp. 144-148).
- Gibson, V. (2012). An investigation into training evaluation: The case of the police (Doctoral dissertation, Manchester, Manchester Metropolitan University). EthOS. <u>https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.555824</u>

- Glasgow, C., & Lepatski, C. (2012). The evolution of police training: The Investigative Skill Programme. In M. R.
 Haberfeld, C. A. Clarke, D. L. Sheehan (Eds.), Police Organization and Training: Innovations in research and practice (pp. 95-111). Springer: New York.
- Green, M. (2017). *The future of technology and learning*. Championing better work and working lives: United Kingdom. <u>https://www.cipd.co.uk/knowledge/work/technology/future-technology-learning</u>
- Harding, R., Hartley, J., & Martin, D. (n.d.). Police learning & development 2025: Destination map.
- Harman, J. L., Zhang, D., Greening, S. G. (2019). Basic processes in dynamic decision making: How experimental findings about risk, uncertainty, and emotion can contribute to police decision making. *Frontiers in Psychology*, 10, 2140. <u>https://doi.org/10.3389/fpsyg.2019.02140</u>.
- Hartley, J., Hesketh, I., & Chase, S., (2017). Education and research for 21st century policing: Collaboration, competition and collusion. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 159-165). Luxembourg: Publications Office of the European Union.
- Hasler, B. S., Spanlang, B., & Slater, M. (2017). Virtual race transformation reverses racial in-group bias. *PloS one*, *12*(4), e0174965. <u>https://doi.org/10.1371/journal.pone.0174965</u>
- Hattie, J. (2015). Teacher-ready research review: The applicability of visible learning to higher education. *Scholarship* of Teaching and Learning in Psychology, 1(1), 79-91. <u>http://dx.doi.org/10.1037/stl0000021</u>
- Helsen, W. F., & Stakes, J. L. (1999). A new training approach to complex decision making for police officers in potentially dangerous interventions. *Journal of Criminal Justice*, 27, 395-410. <u>https://doi.org/10.1016/S0047-2352(99)00012-4</u>.
- Henriksen, S. V., & Kruke, B. I. (2020). Norwegian police use of firearms: Critical decision-making in dynamic and stressful situations. Nordic Journal of Studies in Policing, 7, 99-120. <u>https://doi.org/10.18261/issn.2703-7045-2020-02-03</u>.
- Henriksen, S. V., & Kruke, B. I. (2021). Police basic firearms training: A decontextualised preparation for real-life armed confrontations. *Policing and Society*. Advanced online publication. https://doi.org/10.1080/10439463.2021.1877290.
- Himona, S., Stavrakis, E., Loizides, A., Savva, A., & Chrysanthou, Y. (2011). *Sympol VR–A virtual reality law enforcement training simulator.* In Mediterranean Conference on Information Systems (Vol. 6).
- Hine, K. A., Porter, L. E., Westera, N. J., Alpert, G. P., & Allen, A. (2018). Exploring police use of force decision-making processes and impairments using a naturalistic decision-making approach. *Criminal Justice and Behaviour*, 45, 1782-1801. <u>https://doi.org/10.1177/0093854818789726</u>.
- Hoel, L. & Barland, B. (2021). A lesson to learn? A study of how various ranks and police leaders understand and relate to experience-based learning, *Policing and Society*, *31*(4), 402-417. doi: 10.1080/10439463.2020.1748626
- Home Office (July, 2019). *The Front Line Review: Recommendation report*. Home Office: London. <u>https://www.gov.uk/government/publications/front-line-policing-review</u>
- Home Office (2020a). *Market exploration: future policing*. Home Office: London. https://www.gov.uk/government/news/market-exploration-future-policing
- Home Office (2020b). *Police Covenant for England and Wales: Response to the consultation*. London: Home Office. <u>https://www.gov.uk/government/consultations/police-covenant-for-england-and-wales</u>
- Home Office (2020c, September 8). *Priti Patel to create police covenant to protect officers and staff.* Accessed 02/11/2021. <u>https://www.gov.uk/government/news/priti-patel-to-create-police-covenant-to-protect-officers-and-staff</u>

- Home Office (2021, July 7). *Policy Paper: Police, Crime, Sentencing and Courts Bill 2021: the protection of the police factsheet.* <u>https://www.gov.uk/government/publications/police-crime-sentencing-and-courts-bill-2021-factsheets/police-crime-sentencing-and-courts-bill-2021-protection-of-the-police-factsheet</u>
- Hope, L. (2016). Evaluating the effects of stress and fatigue on police officer response and recall: A challenge for research, training, practice and policy. *Journal of Applied Research in Memory and Cognition*, 5, 239-245. <u>https://doi.org/10.1016/j.jarmac.2016.07.008</u>.
- Hough, M. & Stanko, B. (2018). *Developing an evidence-based police degree-holder entry programme: Final report.* Mayors Office of Policing and Crime (MOPAC): London
- Howard, M. C., Gutworth, M. B., & Jacobs, R. R. (2021). A meta-analysis of virtual reality training programs. *Computers in Human Behavior, 121*, 106808. <u>https://doi.org/10.1016/j.compedu.2019.103707</u>
- Hsu, E. B., Li, Y., Bayram, J. D., Levinson, D., Yang, S., & Monahan, C. (2013). State of virtual reality-based disaster preparedness and response training. *PLoS currents*, *5*. doi: 10.1371/currents.dis.1ea2b2e71237d5337fa53982a38b2aff.
- Huey, L. (2018). What do we know about in-service police training? Results of a failed systematic review. *Sociology Publications, 40.* <u>https://ir.lib.uwo.ca/sociologypub/40/</u>
- IACP (2020). National consensus policy and discussion paper on use of force. Alexandria, VA: International Association of Chiefs of Police (IACP). <u>https://www.theiacp.org/sites/default/files/2020-07/National Consensus Policy On Use Of Force%2007102020%20v3.pdf</u> (Accessed 10 November 2021).
- Jacobsen, G. W. (2015). *Instructional practices of Canadian Police officer training programs* (Master's thesis, Brandon University, Manitoba , Canada).
- James, L., Goldstein, M. S., Lecy, P., & Mase, S. (2021). Testing the impact of physiological stress response on police performance during critical job tasks. *Policing: An International Journal of Police Strategies and Management, 44*, 405-417. <u>https://doi.org/10.1108/PIJPSM-04-2020-0060</u>.
- Jenab, K., Moslehpour, S., & Khoury, S. (2016). Virtual maintenance, reality, and systems: A review. International Journal of Electrical and Computer Engineering, 6(6), 2698. doi: 10.11591/ijece.v6i6.11468
- Jenkins, B., Semple, T., & Bennell, C. (2021). An evidence-based approach to critical incident scenario development. *Policing: An International Journal of Police Strategies and Management, 44*, 437-454. <u>https://doi.org/10.1108/PIJPSM-02-2020-0017</u>.
- Jha, A. P., Morrison, A. B., Dainer-Best, J., Parker, S., Rostrup, N., & Stanley, E. A. (2015). Minds "at attention": Mindfulness training curbs attentional lapses in military cohorts. *PLoS ONE, 10*, e0116889. <u>https://doi.org/10.1371/journal.pone.0116889</u>.
- Johnson, D. C., Thom, N. J., Stanley, E. A., Haase, L., Simmons, A. N., Shih, P. B., Thompson, W. K., Potterat, E. G., Minor, T. R., Paulus, M. P. (2014). Modifying resilience mechanisms in at-risk individuals: A controlled study of mindfulness training in Marines preparing for deployment. *American Journal of Psychiatry*, 171, 844-853. <u>https://doi.org/10.1176/appi.ajp.2014.13040502</u>.
- Joining the Police (2021). *Personal Safety Training*. <u>https://www.joiningthepolice.co.uk/career-progression/training-and-progression/personal-safety-training</u>
- Kaminski, R. J., & Martin, J. A. (2000). An analysis of police officer satisfaction with defence and control tactics. Policing: An International Journal of Police Strategies and Management, 23, 132-153. <u>https://doi.org/10.1108/13639510010333697</u>.
- Kent, S., Devonport, T. J., Lane, A. M., Nicholls, W., & Friesen, A. P. (2018). The effects of coping interventions on ability to perform under pressure. *Journal of Sports Science and Medicine*, *17*, 40-55.

- Kent Police (n.d). *Personal Safety Training SOP (O43a*). <u>https://www.kent.police.uk/foi-ai/kent-police/Policy/operational-partnerships/personal-safety-training-sop-o43a/?_cf_chl_captcha_tk_=pmd_.GAqtBRY2w6c7YrQlyOLFHDeT.Q3CmwSRrX_023skvU-1630624049-0-gqNtZGzNA1CjcnBszQbR</u>
- Kim, J. W., Ritter, F. E., & Koubek, R. J. (2013). An integrated theory for improved skill acquisition and retention in the three stages of learning. *Theoretical Issues in Ergonomics Science*, 14(1), 22-37. <u>http://dx.doi.org/10.1080/1464536X.2011.573008</u>
- Kirkpatrick, J. & Kirkpatrick, W. (2021). Authentic Kirkpatrick[®] slides to use withing your organization. Kirkpatrick partners: Atlanta, United States of America.
- Koerner, S., & Staller, M. S. (2021). Broadening situational awareness: An ecological dynamics approach on officer safety and officer safety training. Manuscript submitted for publication.
 https://www.researchgate.net/publication/351411737_Broadening_Situational_Awareness_An_Ecological_Dynamics_Approach_on_Officer_Safety_and_Officer_Safety_Training (Accessed 15 November 2021).
- Kooi, G. P. V., & Palmer, L. B. (2014). Problem-based learning for police academy students: comparison of those receiving such instruction with those in traditional programs. *Journal of Criminal Justice Education*, 25(2), 175-195. <u>https://doi.org/10.1080/10511253.2014.882368</u>
- Kovács, G. (2017). *The Hungarian law enforcement education system at the National University of Public Service: The best practice of Hungary.* In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 93-99). Luxembourg: Publications Office of the European Union.
- Krätzig, G. P. (2016). Skill retention: A test of the effects of overlearning and skill retention interval on maintenance of infrequently used complex skills. (Doctoral dissertation). Available from ProQuest. (28141744)
- Krätzig, G. P., & Hudy, C. (2012). From theory to practice: Simulation technology as a training tool in law enforcement. In M. R. Haberfeld, C. A. Clarke, D. L. Sheehan (Eds.), Police Organization and Training: Innovations in research and practice (pp. 65-80). Springer: New York.
- Kukulska-Hulme, A., Bossu, C., Coughlan, T., Ferguson, R., FitzGerald, E., Gaved, M., Herodotou, C., Rienties, B.,
 Sargent, J., Scanlon, E., Tang, J., Wang, Q., Whitelock, D., & Zhang, S. (2021). *Innovating Pedagogy 2021: Open University Innovation Report 9.* Milton Keynes: The Open University.
- Kurilovas, E. (2016). Evaluation of quality and personalisation of VR/AR/MR learning systems. *Behaviour & Information Technology*, *35*(11), 998-1007. <u>https://doi.org/10.1080/0144929X.2016.1212929</u>
- Lauritz, L. E., Astrom, E., Nyman, C., & Klingvall, M. (2012). Police students' learning preferences, suitable responses from the learning environment. *Policing*, 7(2), 195-203. doi: 10.1093/police/pas009
- Leach, B., Gloinson, E., Sutherland, A., & Whitmore, M. (2019). *Reviewing the evidence base for de-escalation training: A rapid evidence assessment*. Cambridge, UK: RAND Europe. <u>https://www.rand.org/pubs/research_reports/RR3148.html</u> (Accessed 15 November 2021).
- Lee, H., Jang, H., Yun, I., Lim, H., & Tushaus, D. W. (2010). An examination of police use of force utilising police training and neighbourhood contextual factors: A multilevel analysis. *Policing: An International Journal of Police Strategies and Management, 33*, 681-702. <u>https://doi.org/10.1108/13639511011085088</u>.
- Lettic, S. (2015). *Problem based learning (PBL) in police training: An evaluation of the recruit experience.* (Doctoral dissertation). Available from ProQuest. (3735149)
- Lynch, M. D. (2005). Developing a scenario-based training programme. FBI Law Enforcement Bulletin, 74, 1-13.
- Makin, D. A. (2015). A descriptive analysis of a Problem-Based Learning Police Academy. *Interdisciplinary Journal of Problem-Based Learning*, 10(1). <u>http://dx.doi.org/10.7771/1541-5015.1544</u>

- Mangels, L., Suss, J., & Lande, B. (2020). Police expertise and use of force: Using a mixed-methods approach to model expert and novice use-of-force decision-making. *Journal of Police and Criminal Psychology, 35*, 294-303. <u>https://doi.org/10.1007/s11896-020-09364-4</u>.
- Marler, T., Straus, S. G., Mizel, M. L., Hollywood, J. S., Harrison, B., Yeung, D., Lewis, M. W., Rizzo, S., Hartholt, A., & Swain, C. (2020). *Effective Game-Based Training for Police Officer Decision-Making: Linking Missions, Skills, and Virtual Content*. In Proceedings of the I/ITSEC 2020 Conference.
- McCay, D. A. (2011). They are old enough to carry guns, should we teach them like children? The application of adult *learning strategies in police training.* (Doctoral dissertation). Available from ProQuest. (3481101)
- McCombs, J. W. (2015). *Problem based learning in law enforcement in-service training: A study of use of force.* (Doctoral dissertation). Available from ProQuest. (3706528)
- McCraty, R., & Atkinson, M. (2012). Resilience training program reduces physiological and psychological stress in police officers. *Global Advances in Health and Medicine*, *1*, 42-64. https://doi.org/10.7453/gahmj.2012.1.5.013.
- McGinley, B., Agnew-Pauley, W., Tompson, L., & Belur, J. (2019). Police recruit training programmes: A systematic map of research literature. *Policing*, *14*(1), 52-75. doi: 10.1093/police/paz019
- Miller, J. K., Peart, A., & Soffia, M. (2020). Can police be trained in trauma processing to minimise PTSD symptoms? Feasibility and proof of concept with a newly recruited UK police population. *The Police Journal: Theory, Practice and Principles, 93*, 310-331. <u>https://doi.org/10.1177/0032258X19864852</u>.
- Minjina, B. (2014). Survival stress management through mental skills training in law enforcement. *European Police Science and Research Bulletin, 11,* 10-16.
- Morrison, G. B, & Garner, T. K. (2011). Latitude in deadly force training: Progress or problem? *Police Practice and Research*, *12*, 341-361. <u>https://doi.org/10.1080/15614263.2011.563968</u>.
- Moskaliuk, J., Bertram, J., & Cress, U. (2013). Impact of virtual training environments on the acquisition and transfer of knowledge. *Cyberpsychology, Behavior, and Social Networking, 16*(3), 210-214. https://doi.org/10.1089/cyber.2012.0416
- Mugford, R., Corey, S., & Bennell, C. (2013). Improving police training from a cognitive load perspective. *Policing: An International Journal of Police Strategies and Management, 36*, 312-337. <u>https://doi.org/10.1108/13639511311329723</u>.
- Muñoz, J. E., Quintero, L., Stephens, C. L., & Pope, A. T. (2020). A psychophysiological model of firearms training in police officers: a virtual reality experiment for biocybernetic adaptation. *Frontiers in psychology, 11*, 683. doi: 10.3389/fpsyg.2020.00683.
- New South Wales Police (n.d.). Weapons and Tactics Training Unit. <u>https://www.police.nsw.gov.au/recruitment/the_training/associate_degree_in_policing_practice/operation</u> <u>al_skills</u>
- Nguyen, Q., Jaspaert, E., Murtinger, M., Schrom-Feiertag, H., Egger-Lampl, S., & Tscheligi, M. (2021, August). *Stress Out: Translating Real-World Stressors into Audio-Visual Stress Cues in VR for Police Training*. In IFIP Conference on Human-Computer Interaction (pp. 551-561). Springer, Cham.
- Nieuwenhuys, A., & Oudejans, R. R. D. (2011). Training with anxiety: Short- and long-term effects on police officers' shooting behaviour under pressure. *Cognitive Processing*, *12*, 277-288. <u>https://doi.org/10.1007/s10339-011-0396-x</u>.
- Norman, J., & Williams, E. (2017). *Putting learning into practice: self-reflections from cops.* In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 197-203). Luxembourg: Publications Office of the European Union.

- Northup, J. B. (2019). *Law enforcement officers' perceptions of their skill development and transfer of learning posttraining* (Doctoral dissertation, University of Rhode Island, Rhode Island , United States of America).
- O'Hare, A., & Beer, A. (2020). A mixed method investigation of past trainees' perceptions of a critical incident situational awareness training programme. *Journal of Police and Criminal Psychology, 35*, 13-34. https://doi.org/10.1007/s11896-018-9291-z.
- Öztürk, M. (2011). Teaching style preferences of trainees at police in-service training sessions and differences among demographic groups. (Doctoral dissertation). Available from ProQuest. (3482178)
- Pallavicini, F., Argenton, L., Toniazzi, N., Aceti, L., & Mantovani, F. (2016). Virtual reality applications for stress management training in the military. *Aerospace medicine and human performance*, *87*(12), 1021-1030. doi: 10.3357/AMHP.4596.2016
- Perez, S. I. R. (2017). The Spanish National Police training system. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 85-92). Luxembourg: Publications Office of the European Union.
- PERF (2016). ICAT: Integrating communications, assessment, and tactics. A training guide for defusing critical incidents. Washington, DC: Police Executive Research Forum (PERF). <u>https://www.policeforum.org/assets/icattrainingguide.pdf</u> (Accessed 10 November 2021).
- PERF (n.d.). *ICAT: Integrating communications, assessment, and tactics*. <u>https://www.policeforum.org/icat-training-guide</u> (Accessed 10 November 2021).
- Phelps, J. M., Strype, J., Le Bellu, S., Lahlou, S., & Aandal, J. (2018). Experiential learning and simulation-based training in Norwegian police education: Examining body-worn video as a tool to encourage reflection. *Policing: a journal of policy and practice, 12*(1), 50-65. <u>https://doi.org/10.1093/police/paw014</u>
- Phillips, S. W., & Jarvis, J. P. (2017). The police patrol rifle: Training standards in American law enforcement agencies. *Police Science and Management, 19*, 72-80. <u>https://doi.org/10.1177/1461355717695321</u>.
- Police Care UK (2019). *Trauma Impact Prevention Techniques (TIPT)*. <u>https://www.policecare.org.uk/get-informed/trauma-impact-prevention-techniques-tipt/</u> (Accessed 14 November 2021).
- Preddy, J. E. (2018). *Building a cognitive readiness construct for violent police-public encounters* (Doctoral thesis, Old Dominion University, Norfolk, Virginia, USA). <u>https://doi.org/10.25777/t8jr-8n49</u>.
- Punia, B. K., & Kant, S. (2013). A review of factors affecting training effectiveness vis-à-vis managerial implications and future research directions. *International Journal of Advanced Research in Management and Social Sciences, 2*(1), 151-164. <u>https://garph.co.uk/ijarmss/jan2013/12.pdf</u>
- Queensland Police (2021, Effective from 15 September). *Operational procedures manual. Chapter 14 Operational skills and practises (public edition)*. <u>https://www.police.qld.gov.au/sites/default/files/2021-09/OPM%20-%20Chapter%2014%20-%20Operational%20Skills%20and%20Practices.pdf</u>
- Rajakaruna, N., Henry, P. J., Cutler, A., & Fairman, G. (2017). Ensuring the validity of police use of force training. *Police Practice and Research*, *18*, 507-521. <u>https://doi.org/10.1080/15614263.2016.1268959</u>.
- Rantatalo, O., & Karp, S. (2016). Collective reflection in practice: an ethnographic study of Swedish police training. *Reflective Practice*, *17*(6), 708-723. doi: 10.1080/14623943.2016.1206881
- Rantatalo, O., Sjoberg, D., & Karp, S. (2019). Supporting roles in live simulations: How observers and confederates can facilitate learning. *Journal of Vocational Education and Training*, *71*, 482-499. https://doi.org/10.1080/13636820.2018.1522364.

- Rao, P. (n.d.). Unlocking Kirkpatrick levels 3 and 4. Kirkpatrick Partners: Georgia. <u>https://www.kirkpatrickpartners.com/LinkClick.aspx?fileticket=Vx4EU_6CMgM%3d&portalid=0×tamp</u> <u>=1579885762767</u>
- Redford, A. C. (2021). *Perceptions of the Use of Augmented and Virtual Reality Supporting Emergency Response Education and Training* (Doctoral dissertation, Capella University).
- Renden, P. G., Nieuwenhuys, A., Savelsbergh, G. J. P., & Oudejans, R. R. D. (2015). Dutch police officers' preparation and performance of their arrest and self-defence skills: A questionnaire study. *Applied Ergonomics, 49*, 8-17. <u>https://doi.org/10.1016/j.apergo.2015.01.002</u>.
- Renden, P. G., Savelsbergh, G. J. P., & Oudejans, R. R. D. (2017). Effects of reflex-based self-defence training on police performance in simulated high-pressure arrest situations. *Ergonomics, 60*, 669-679. <u>https://doi.org/10.1080/00140139.2016.1205222</u>.
- Richards, D., Kavakli, M., & Dras, M. (2005). *Training for high risk situations. In Agent-based Systems for Human Learning.* In AAMAS Workshop.
- Robson, S., & Manacapilli, T. (2014). *Enhancing performance under stress: Stress inoculation training for battlefield airmen*. Prepared for the United States Airforce. Santa Monica, CA: Rand Corporation. <u>https://www.rand.org/content/dam/rand/pubs/research_reports/RR700/RR750/RAND_RR750.pdf</u> (Accessed 19 October 2021).
- Roediger, H., Nestojko, J., & Smith, N. (2019). Strategies to improve learning and retention during training. In M. D.
 Matthews & D. M. Schnyer (Eds.), Human Performance Optimization: The Science and Ethics of Enhancing Human Capabilities (pp.302-332). Oxford University Press: England. doi :10.1093/oso/9780190455132.001.0001
- Rojek, J., Grieco, J., Meade, B., & Parsons, D. (2020). *National Survey on Officer Safety Training: Executive Brief.* Washington, DC: National Police Foundation.
- Rosmith, E. S. (2013). *Mental toughness training for police officers: The impact of a stress inoculation programme on police stress* (Doctoral thesis, University of North Texas, Denton, Texas, USA). <u>https://digital.library.unt.edu/ark:/67531/metadc500044/</u>.
- Salas, E., Milham, L. M., & Bowers, C. A. (2003). Training evaluation in the military: Misconceptions, opportunities, and challenges. *Military Psychology*, 15(1), 3-16. <u>https://doi.org/10.1207/S15327876MP1501_01</u>
- Saus, E.-R., Johnsen, B. H., Eid, J., Riisem, P. K., Andersen, R., & Thayer, J. F. (2006). The effect of brief situational awareness training in a police shooting simulator: An experimental study. *Military Psychology*, 18, S3-S21. <u>https://doi.org/10.1207/s15327876mp1803s_2</u>.
- Scheer, C. (2014). Adaptative expertise in Police work: The role of in-service training (Doctoral dissertation). Available from ProQuest. (3631342)
- Seitz, K. R., Good, J. J., & Peck, T. C. (2020, March). Shooter bias in virtual reality: the effect of avatar race and socioeconomic status on shooting decisions. In 2020 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW) (pp. 606-607). IEEE.
- Simpkins, B. K. (2015). First responder training transfer: Does training delivery method matter? (Doctoral dissertation, Eastern Kentucky University, Richmond, United States of America). https://encompass.eku.edu/etd/425/
- Sjöberg, D., & Karp, S. (2012). Video–based debriefing enhances reflection, motivation and performance for police students in realistic scenario training. *Procedia-Social and Behavioral Sciences, 46,* 2816-2824. <u>https://doi.org/10.1016/j.sbspro.2012.05.570</u>

- Solomun, D. (2017). *The role of the Police Research Centre in strengthening criminalists' competencies and securing society*. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 205-213). Luxembourg: Publications Office of the European Union.
- Staller, M. S. (2016). Simulated (un-)armed confrontations and police decision making: Examining influencing factors on tactical decision making (Doctoral thesis, University of Liverpool, Liverpool, UK). <u>https://doi.org/10.17638/03005407</u>.
- Staller, M. S., & Zaiser, B. (2015). Developing problem solvers: New perspectives on pedagogical practices in police use of force training. *Journal of Law Enforcement*, *4*, 1-15.
- Staller, M. S., Koerner, S., Abraham, A., & Poolton, J. (2020). Expertise in violent encounters and how to prepare for it: An expert consensus. Manuscript submitted for publication. <u>https://doi.org/10.13140/RG.2.2.18005.86242</u>.
- Staller, M. S., Koerner, S., Heil, V., Abraham, A., & Poolton, J. (2021a). *Police recruits' perception of skill transfer from training to the field.* doi: 10.13140/RG.2.2.16219.90404
- Staller, M. S., Koerner, S., Heil, V., Abraham, A., & Poolton, J. (2021b). *Police recruits' wants and needs in police training in Germany*. doi: 10.13140/RG.2.2.22930.79040
- Staller, M. S., Koerner, S., Heil, V., Klemmer, I., Abraham, A., & Poolton, J. (2021c). The structure and delivery of police use of force training: A German case study. *European Journal for Security Research*. Advanced online publication. <u>https://doi.org/10.1007/s41125-021-00073-5</u>.
- Stanko, E. A. (2017). When does training become learning? Reflections about transmitting ideas across borders. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 215-223). Luxembourg: Publications Office of the European Union.
- Stréhli-Klotz, G. (2017). Law enforcement agencies and action learning approach a potential tool for leadership development. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 187-196). Luxembourg: Publications Office of the European Union.
- Ta, V. P., Lande, B., & Suss, J. (2021). Emotional reactivity and police expertise in use-of-force decision-making. *Journal of Police and Criminal Psychology, 36*, 513-522. <u>https://doi.org/10.1007/s11896-020-09428-5</u>.
- Tassinari, M., Aulbach, M., & Jasinskaja-Lahti, I. (2021). The use of virtual reality in studying prejudice and its reduction: a systematic review. *PsyArXiv.* doi: 10.31234/osf.io/xrac7.
- The Local (2018, April 19). *Staff shortages mean Swedish police unable to take part in adequate training.* <u>https://www.thelocal.se/20180419/staff-shortages-mean-swedish-police-unable-to-take-part-in-adequate-training/</u>
- Thériault, R., Olson, J. A., Krol, S. A., & Raz, A. (2021). EXPRESS: Body Swapping with a Black Person Boosts Empathy: Using Virtual Reality to Embody Another. *Quarterly Journal of Experimental Psychology*, 17470218211024826. <u>https://doi.org/10.1177/17470218211024826</u>
- Thomas, S., & Watson, A. (2017). A focus for mental health training for police. *Journal of Criminological Research, Policy and Practice, 3*, 93-104. <u>https://doi.org/10.1108/JCRPP-01-2017-0005</u>.
- Thompson, T. (2021, July 14). *Home Secretary hosts first Police Covenant Board Meeting*. Police Professional. <u>https://www.policeprofessional.com/news/home-secretary-hosts-first-police-covenant-board-meeting/</u>
- Ticknor, B., & Tillinghast, S. (2011). Virtual reality and the criminal justice system: new possibilities for research, training, and rehabilitation. *Journal for Virtual Worlds Research*, 4(2). https://doi.org/10.4101/jvwr.v4i2.2071

- Tong, S. (2017). Professionalising policing: seeking viable and sustainable approaches to police education and learning. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 171-178). Luxembourg: Publications Office of the European Union.
- Tonhäuser, C., & Büker, L. (2016). Determinants of Transfer of Training: A Comprehensive Literature Review. *International journal for research in vocational education and training*, 3(2), 127-165. <u>https://doi.org/10.13152/ URVET.3.2.4</u>
- Toubman, A., van der Pal, J., & Crijnen, J. (n.d.). *On-demand skills training to support regular continuation training for fighter pilots.* NATO: Brussels, Belgium. <u>https://scholar.google.be/citations?view_op=view_citation&hl=fr&user=7tjwaOAAAAAJ&cstart=20&pagesiz</u> <u>e=80&citation_for_view=7tjwaOAAAAAJ:MXK_kJrjxJIC</u>
- Trevisan, M. S. (2004). Practical training in evaluation: A review of the literature. *American Journal of Evaluation*, 25, 255-272. doi: 10.1177/109821400402500212
- Umeå University (n.d.). *KURSPLAN: Polisiär konflikthantering 1, 4 hp* <u>https://www.umu.se/utbildning/kursplan/2po002/</u>
- Vincent, G. (2017). *Global society targeted by global crime: the OSCE's approach through police training*. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 25-29). Luxembourg: Publications Office of the European Union.
- Vodde, R. F. (2012). Changing paradigms in Police training: Transitioning from a traditional to an andragogical model. In M. R. Haberfeld, C. A. Clarke, D. L. Sheehan (Eds.), Police Organization and Training: Innovations in research and practice (pp. 27-44). Springer: New York.
- Xu, T., & Fu, H. (2017). Police education and training in China the case of Zhejiang Police College. In D. Nogala, P. Neyroud, A. Vera, E. Ferreira, J. Nagy (Eds.). Global trends in law enforcement training and education (pp. 101-106). Luxembourg: Publications Office of the European Union.
- Werth, E. P. (2009). *Problem-based learning in police academies: Adult learning principles utilized by police trainers.* (Doctorate dissertation, Liberty University, Virginia , U.S.A.). <u>https://core.ac.uk/download/pdf/58821682.pdf</u>
- Wheller, L., & Morris, J. (2010). Evidence reviews: What works in training, behaviour change and implementing guidance? NPIA Research, Analysis and Information(RAI) Unit: United Kingdom. <u>https://whatworks.college.police.uk/Research/Documents/What_Works_in_Training_and_Behaviour_chang_e_REA.pdf</u>
- White, M. D., & Escobar, G. (2008). Making good cops in the twenty-first century: Emerging issues for the effective recruitment, selection and training of police in the United States and abroad. *International Review of Law Computers & Technology, 22*(1-2), 119-134. doi: 10.1080/13600860801925045
- White, M. D., Mora, V. J., Orosco, C., & Hedberg, E. C. (2021). Moving the needle: Can training alter officer perceptions and use of de-escalation? *Policing: An International Journal of Police Strategies and Management*, 44, 418-436. <u>https://doi.org/10.1108/PIJPSM-08-2020-0140</u>.
- Wilkes, D. (2016). Influences of scenario based training on the sympathetic nervous system (Leadership white paper, Leadership Command College, Law Enforcement Management Institute of Texas, Pflugerville, Texas) <u>https://shsu-ir.tdl.org/handle/20.500.11875/2282</u> (Accessed 13 October 2021).
- Wiseheart, M., Küpper-Tetzel, C. E., Weston, T., Kim, A. S. N., Kapler, I. V., & Foot-Seymour, V. (n.d.). *Enhancing the quality of student learning using distributed practice.* In J. Dunlosky & K. A. Rawson (Eds.), The Cambridge handbook of cognition and education (pp. 550–583). Cambridge University Press: United Kingdom.
- Wolfe, S. E., McLean, K., Rojek, J., Alpert, G. P., & Smith, M. (2019). Advancing a theory of police officer training motivation and receptivity. *Justice Quarterly*. <u>https://doi.org/10.1080/07418825.2019.1703027</u>

- Wright, R. A. (2013). *Effects of virtual reality on the cognitive memory and handgun accuracy development of law enforcement neophytes* (Doctoral dissertation, University of South Florida).
- Wu, S. (2018). *Psychological Presence in Immersive Virtual Environments* (Doctoral dissertation, San Jose State University).
- Zaiser, B., & Staller, M. S. (2015). The word is sometimes mightier than the sword: Rethinking communication skills to enhance officer safety. *Journal of Law Enforcement*, *4*, 1-17.
- Zimmerman, L. A. (2006). Law enforcement decision making during critical incidents: A three-pronged approach to understanding and enhancing law enforcement decision processes (Doctoral thesis, University of Texas at El Paso, El Paso, Texas, USA). <u>https://www.researchgate.net/publication/28659838</u>.
- Zinovieff, M. A., & Rotem, A. (2008). *Review and analysis of training impact evaluation methods, and proposed measures to support a United Nations System Fellowships Evaluation Framework.* United Nation's Task Force on Impact Assessment of Fellowships.

Tactical Safety Training Survey

The New Zealand Police (NZP) is currently writing an evidence review of Tactical Safety Training (sometimes called 'personal safety training', 'officer safety training', or 'operational safety training') as part of its Frontline Safety Improvement Programme (FSIP). As part of the review, we wanted to reach out to other similar jurisdictions to find out how they trained their staff. The below survey asks some questions about how your College/Police Service teaches Tactical Safety Training.

This survey is voluntary, you do not have to complete it. Alternatively, if you do not have time to complete the survey, but still wish to assist in our review, we would happily accept any documentation on your Tactical Safety Training programme that you were able and willing to share.

All responses to this survey will be kept in the New Zealand Police computer system in a restricted access folder – such that three members of the project team are the only people with access to raw data and any additional documentation you send. The raw information you send us will be deleted from our system once the final report has Executive sign-off.

Every effort will be made to protect the confidentiality of any information you are able to provide, except to the extent that its subsequent disclosure is required by law (notably, under New Zealand's Official Information Act 1982). In order to assist us with this, when you return the survey or send documents can you please explicitly state whether the information you are providing New Zealand Police with is 'in confidence' or not.

Use of survey results:

Survey results will remain anonymous and may be used to

- inform an internal report on Tactical Safety Training, in addition
- a summary of results may be provided to our internal survey team.

Use of additional documentation:

If you would like to send us additional documentation or documentation instead of a survey:

- If a survey has been filled in, then additional documentation will be used to provide added context
- If a survey has not been filled in, then documentation will be used to complete the survey where possible and to provide added context

We would appreciate it if you were able to answer the following questions about your Tactical Safety Training. We have broken the questions down by modules which might make up your tactical safety training programme.

Questions should take no more than 20 minutes to complete.

Thank you

- If you have any questions about this survey, please contact: <u>sarah.czarnomski@police.govt.nz</u>
- Please return this survey to the person who sent it to you in order to make sure it goes through appropriate secure channels
- We would appreciate it if you were able to complete the survey within two weeks of receipt.

Most questions are check box, <u>please check ALL that apply</u>. All other questions are free text.

Introductory questions

1. What Police organisation are		
you from?	A Police Constabulary/Service/Force	
	A Police College for a single constabulary	
	A Police College for multiple constabularies	
	Other (please specify)	Click or tap here to enter
		text.

2.	How recently has your organisation updated all or part		
	of your Tactical Safety Training?	Within the last year	
		Within the last two years	
		Within the last five years	
		Over five years ago	
		We are currently in the process of updating it	

3.	What modules listed comprise	Risk assessment models	
	programme?	De-escalation training	
		Stress Management Training	
		Decision making under pressure	
		Tactical communications training	
		TASER training	
		Non-lethal firearms e.g. rubber bullets, pepper rounds etc	
		Firearms training	
		Use of force	
		Hand-to-hand/unarmed skills	
		Irritants	
		Batons	
		Handcuffing	
		Restraints	
		Edged weapons	
		General weapons (not edged)	
		Room clearing	
		First Aid (general)	
		Tactical First Aid (advanced)	
		High risk vehicle stops	
		Other (please specify)	Click or tap here to enter
			text.

PART ONE: De-escalation Training

All questions below relate to your de-escalation training. If you do not have de-escalation training in your Police Service or do not which to answer questions about this form of training, please move on to the next training module.

1.	This training is learnt as part		
	of	Recruit training	
	Advanced or Specialist training		
		Ongoing or Certification training	
		Independent learning (Officer initiated)	

2.	What kind of environment is		
	the initial training taught in?	In classroom (lecture)	
		Practical training (hands on)	
		Online	
		On the job (apprenticeship or similar)	
21			

2b. Is there any specialist equipment OR technology you use in this training, for example Virtual Reality headsets? Click or tap here to enter text.

3. Who pro	ovides this training?	Local police training centre	
		National police training centre	
		University/Polytech or other higher education facility	
		Private training company	
		Other (please specify)	Click or tap here to enter text.

4.	How many days does the		
	initial training last?	0.5	
		1	
		2	
		3	
		4	
		5	
		Other (please specify)	Click or tap here to enter text.

5.	Training is completed		
	through	Individual learning	
		Group/Team learning	

6. Refresher training is typically		
required every	Refresher training is not required	
	6 months	
	12 months	
	18 months	
	2 years	
	Other (please specify)	Click or tap here to enter text.
6b. Do you know why this interval	was chosen? If 'yes' please explain.	
Click or tap here to enter text.		

7.	Where is training refreshed?	N/A This training is not refreshed	
-			

At a specialist facility	
At a local facility	
Online	
On the job (apprenticeship or similar)	

7b. Is there any specialist equipment OR technology you use to refresh this training, for example Virtual Reality headsets?

Click or tap here to enter text.

8.	How is the competency for		
	this skill assessed?	Written exam	
		Practical exam	
		Through on the job actions	
		Other (please specify)	Click or tap here to enter text.

8b. What are the key goals of the training (learning outcomes) that participants are meant to achieve? Click or tap here to enter text.

8c. What are the minimum pass requirements? Click or tap here to enter text.

9. How was the training		
developed?	With Police subject matter experts	
	With best practise from other Police Services	
	or similar organisations such as Military or	
	Fire and Rescue Services	
	With evidence-based research	
	With learning and development specialists	
	In collaboration with those working in higher	
	education i.e. university staff.	
	In collaboration with external training	
	companies	
	Other (please specify)	Click or tap here to enter text.

10. How were the standards for this training set (e.g. through national qualification authority)? Click or tap here to enter text.

11. Why was this training module considered important as part of your Tactical Safety Training? Click or tap here to enter text.

PART TWO: Stress Management

All questions below relate to your stress management training. If you do not have this training in your Police Service or do not which to answer questions about this form of training, please move on to the next training module.

1.	This training is learnt as part		
	of	Recruit training	
	Ongoing or Certification training		
		Advanced or Specialist training	
		Independent learning (Officer initiated)	

2.	What kind of environment is		
	the initial training taught in?	In classroom (lecture)	
		Practical training (hands on)	
		Online	
		On the job (apprenticeship or similar)	
21-	2h. Is there are successful to a view and OD to should are used in this tasking. For even all, Mintuck Deality, has deated		

2b. Is there any specialist equipment OR technology you use in this training, for example Virtual Reality headsets? Click or tap here to enter text.

3.	Who provides this training?	Local police training centre	
		National police training centre	
		University/Polytech or other higher education facility	
		Private training company	
		Other (please specify)	Click or tap here to enter text.

4.	How many days does the		
	initial training last?	0.5	
		1	
		2	
		3	
		4	
		5	
		Other (please specify)	Click or tap here to enter text.

5.	Training is completed		
	through	Individual learning	
		Group/Team learning	

6. Refresher training is typically		
required every	Refresher training is not required	
	6 months	
	12 months	
	18 months	
	2 years	
	Other (please specify)	Click or tap here to enter text.
6b. Do you know why this interval	was chosen? If 'yes' please explain.	
Click or tap here to enter text.		

7. Where is training refreshed? N/A This training is not refreshed	
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	At a specialist facility	
	At a local facility	
	Online	
	On the job (apprenticeship or similar)	

7b. Is there any specialist equipment OR technology you use to refresh this training, for example Virtual Reality headsets?

Click or tap here to enter text.

8.	How is the competency for		
	this skill assessed?	Written exam	
		Practical exam	
		Through on the job actions	
		Other (please specify)	Click or tap here to enter text.

8b. What are the key goals of the training (learning outcomes) that participants are meant to achieve? Click or tap here to enter text.

8c. What are the minimum pass requirements? Click or tap here to enter text.

9. How was the training		
developed?	With Police subject matter experts	
	With best practise from other Police Services	
	or similar organisations such as Military or	
	Fire and Rescue Services	
	With evidence-based research	
	With learning and development specialists	
	In collaboration with those working in higher	
	education i.e. university staff.	
	In collaboration with external training	
	companies	
	Other (please specify)	Click or tap here to enter text.

10. How were the standards for this training set (e.g. through national qualification authority)? Click or tap here to enter text.

11. Why was this training module considered important as part of your Tactical Safety Training? Click or tap here to enter text.

PART THREE: Decision making under pressure

All questions below relate to your decision making under pressure training. If you do not have this training in your Police Service or do not which to answer questions about this form of training, please move on to the next training module.

1.	This training is learnt as part		
	of	Recruit training	
		Ongoing or Certification training	
		Advanced or Specialist training	
		Independent learning (Officer initiated)	

2.	What kind of environment is		
	the initial training taught in?	In classroom (lecture)	
		Practical training (hands on)	
		Online	
		On the job (apprenticeship or similar)	
21-	2h. Is there are an electric and the DD to share be an end of the two is in the two is in the dest		

2b. Is there any specialist equipment OR technology you use in this training, for example Virtual Reality headsets? Click or tap here to enter text.

3. Who provides this tr	aining?	Local police training centre	
		National police training centre	
		University/Polytech or other higher education facility	
		Private training company	
		Other (please specify)	Click or tap here to enter text.

4.	How many days does the		
	initial training last?	0.5	
		1	
		2	
		3	
		4	
		5	
		Other (please specify)	Click or tap here to enter text.

5.	Training is completed		
	through	Individual learning	
		Group/Team learning	

6. Refresher training is typically		
required every	Refresher training is not required	
	6 months	
	12 months	
	18 months	
	2 years	
	Other (please specify)	Click or tap here to enter text.
6b. Do you know why this interval was chosen? If 'yes' please explain.		
Click or tap here to enter text.		

|--|

At a specialist facility	
At a local facility	
Online	
On the job (apprenticeship or similar)	

7b. Is there any specialist equipment OR technology you use to refresh this training, for example Virtual Reality headsets?

Click or tap here to enter text.

8.	How is the competency for		
	this skill assessed?	Written exam	
		Practical exam	
		Through on the job actions	
		Other (please specify)	Click or tap here to enter text.

8b. What are the key goals of the training (learning outcomes) that participants are meant to achieve? Click or tap here to enter text.

8c. What are the minimum pass requirements? Click or tap here to enter text.

9. How was the training		
developed?	With Police subject matter experts	
	With best practise from other Police Services	
	or similar organisations such as Military or	
	Fire and Rescue Services	
	With evidence-based research	
	With learning and development specialists	
	In collaboration with those working in higher	
	education i.e. university staff.	
	In collaboration with external training	
	companies	
	Other (please specify)	Click or tap here to enter text.

10. How were the standards for this training set (e.g. through national qualification authority)? Click or tap here to enter text.

11. Why was this training module considered important as part of your Tactical Safety Training? Click or tap here to enter text.

PART FOUR: Tactical communications training

All questions below relate to your tactical communications training. If you do not have this training in your Police Service or do not which to answer questions about this form of training, please move on to the next training module.

1.	This training is learnt as part		
	of	Recruit training	
		Ongoing or Certification training	
		Advanced or Specialist training	
		Independent learning (Officer initiated)	

2.	What kind of environment is		
	the initial training taught in?	In classroom (lecture)	
		Practical training (hands on)	
		Online	
		On the job (apprenticeship or similar)	
2h la there are an electric to an internet OD to the she also are in this to initial for a second by Vietual Deplits has dep		we walk Minter all Deality the seale star	

2b. Is there any specialist equipment OR technology you use in this training, for example Virtual Reality headsets? Click or tap here to enter text.

3.	Who provides this training?	Local police training centre	
		National police training centre	
		University/Polytech or other higher education facility	
		Private training company	
		Other (please specify)	Click or tap here to enter text.

4.	How many days does the		
	initial training last?	0.5	
		1	
		2	
		3	
		4	
		5	
		Other (please specify)	Click or tap here to enter text.

5.	Training is completed		
	through	Individual learning	
		Group/Team learning	

6. Refresher training is typically						
required every	Refresher training is not required					
	6 months					
	12 months					
	18 months					
	2 years					
	Other (please specify)	Click or tap here to enter text.				
6b. Do you know why this interval was chosen? If 'yes' please explain.						
Click or tap here to enter text.						

	7. Where is training refreshed?	N/A This training is not refreshed	
--	---------------------------------	------------------------------------	--
At a specialist facility			
--	--		
At a local facility			
Online			
On the job (apprenticeship or similar)			

Click or tap here to enter text.

8.	How is the competency for		
	this skill assessed?	Written exam	
		Practical exam	
		Through on the job actions	
		Other (please specify)	Click or tap here to enter text.

8b. What are the key goals of the training (learning outcomes) that participants are meant to achieve? Click or tap here to enter text.

8c. What are the minimum pass requirements? Click or tap here to enter text.

9. How was the training		
developed?	With Police subject matter experts	
	With best practise from other Police Services	
	or similar organisations such as Military or	
	Fire and Rescue Services	
	With evidence-based research	
	With learning and development specialists	
	In collaboration with those working in higher	
	education i.e. university staff.	
	In collaboration with external training	
	companies	
	Other (please specify)	Click or tap here to enter text.

10. How were the standards for this training set (e.g. through national qualification authority)? Click or tap here to enter text.

PART FIVE: TASER Training

All questions below relate to your TASER (or other Conductive Electrical Weapon) training. If you do not have this training in your Police Service or do not which to answer questions about this form of training, please move on to the next training module.

1.	This training is learnt as part		
	of	Recruit training	
	Ongoing or Certification training		
		Advanced or Specialist training	
		Independent learning (Officer initiated)	

2.	What kind of environment is		
	the initial training taught in?	In classroom (lecture)	
		Practical training (hands on)	
		Online	
		On the job (apprenticeship or similar)	
21			

3.	Who provides this training?	Local police training centre	
		National police training centre	
		University/Polytech or other higher education facility	
		Private training company	
		Other (please specify)	Click or tap here to enter text.

4.	How many days does the		
	initial training last?	0.5	
		1	
		2	
		3	
		4	
		5	
		Other (please specify)	Click or tap here to enter text.

5.	Training is completed		
	through	Individual learning	
		Group/Team learning	

6. Refresher training is typically		
required every	Refresher training is not required	
	6 months	
	12 months	
	18 months	
	2 years	
	Other (please specify)	Click or tap here to enter text.
6b. Do you know why this interval	was chosen? If 'yes' please explain.	
Click or tap here to enter text.		

7. Where is training refreshed? N/A This training is not refreshed	
--	--

At a specialist facility	
At a local facility	
Online	
On the job (apprenticeship or similar)	

Click or tap here to enter text.

8.	How is the competency for		
	this skill assessed?	Written exam	
		Practical exam	
		Through on the job actions	
		Other (please specify)	Click or tap here to enter text.

8b. What are the key goals of the training (learning outcomes) that participants are meant to achieve? Click or tap here to enter text.

8c. What are the minimum pass requirements? Click or tap here to enter text.

9. How was the training		
developed?	With Police subject matter experts	
	With best practise from other Police Services	
	or similar organisations such as Military or	
	Fire and Rescue Services	
	With evidence-based research	
	With learning and development specialists	
	In collaboration with those working in higher	
	education i.e. university staff.	
	In collaboration with external training	
	companies	
	Other (please specify)	Click or tap here to enter text.

10. How were the standards for this training set (e.g. through national qualification authority)? Click or tap here to enter text.

PART SIX: Firearms Training

All questions below relate to your firearms training. If you do not have this training in your Police Service or do not which to answer questions about this form of training, please move on to the next training module.

1.	This training is learnt as part		
	of	Recruit training	
		Ongoing or Certification training	
		Advanced or Specialist training	
		Independent learning (Officer initiated)	

2.	What kind of environment is		
	the initial training taught in?	In classroom (lecture)	
		Practical training (hands on)	
		Online	
		On the job (apprenticeship or similar)	
21-	2h. Is there are an electric and the second of the second se		

3.	Who provides this training?	Local police training centre	
		National police training centre	
		University/Polytech or other higher education facility	
		Private training company	
		Other (please specify)	Click or tap here to enter text.

4.	How many days does the		
	initial training last?	0.5	
		1	
		2	
		3	
		4	
		5	
		Other (please specify)	Click or tap here to enter text.

5.	Training is completed		
	through	Individual learning	
		Group/Team learning	

6. Refresher training is typically			
required every	Refresher training is not required		
	6 months		
	12 months		
	18 months		
	2 years		
	Other (please specify)	Click or tap here to enter text.	
6b. Do you know why this interval	was chosen? If 'yes' please explain.		
Click or tap here to enter text.			

|--|

At a specialist facility	
At a local facility	
Online	
On the job (apprenticeship or similar)	

Click or tap here to enter text.

8.	How is the competency for		
	this skill assessed?	Written exam	
		Practical exam	
		Through on the job actions	
		Other (please specify)	Click or tap here to enter text.

8b. What are the key goals of the training (learning outcomes) that participants are meant to achieve? Click or tap here to enter text.

8c. What are the minimum pass requirements? Click or tap here to enter text.

9. How was the training		
developed?	With Police subject matter experts	
	With best practise from other Police Services	
	or similar organisations such as Military or	
	Fire and Rescue Services	
	With evidence-based research	
	With leaning and development specialists	
	In collaboration with those working in higher	
	education i.e. university staff.	
	In collaboration with external training	
	companies	
	Other (please specify)	Click or tap here to enter text.

10. How were the standards for this training set (e.g. through national qualification authority)? Click or tap here to enter text.

PART SEVEN: First Aid (General) Training

All questions below relate to your First Aid (general) training. If you do not have this training in your Police Service or do not which to answer questions about this form of training, please move on to the next training module.

1.	This training is learnt as part		
	of	Recruit training	
		Ongoing or Certification training	
		Advanced or Specialist training	
		Independent learning (Officer initiated)	

2.	What kind of environment is		
	the initial training taught in?	In classroom (lecture)	
		Practical training (hands on)	
		Online	
		On the job (apprenticeship or similar)	

3.	Who provides this training?	Local police training centre	
		National police training centre	
		University/Polytech or other higher education facility	
		Private training company	
		Other (please specify)	Click or tap here to enter text.

4.	How many days does the		
	initial training last?	0.5	
		1	
		2	
		3	
		4	
		5	
		Other (please specify)	Click or tap here to enter text.

5.	Training is completed		
	through	Individual learning	
		Group/Team learning	

6. Refresher training is typically		
required every	Refresher training is not required	
	6 months	
	12 months	
	18 months	
	2 years	
	Other (please specify)	Click or tap here to enter text.
6b. Do you know why this interval	was chosen? If 'yes' please explain.	
Click or tap here to enter text.		
		-

|--|

At a specialist facility	
At a local facility	
Online	
On the job (apprenticeship or similar)	

Click or tap here to enter text.

8.	How is the competency for		
	this skill assessed?	Written exam	
		Practical exam	
		Through on the job actions	
		Other (please specify)	Click or tap here to enter text.

8b. What are the key goals of the training (learning outcomes) that participants are meant to achieve? Click or tap here to enter text.

8c. What are the minimum pass requirements? Click or tap here to enter text.

9. How was the training		
developed?	With Police subject matter experts	
	With best practise from other Police Services	
	or similar organisations such as Military or	
	Fire and Rescue Services	
	With evidence-based research	
	With learning and development specialists	
	In collaboration with those working in higher	
	education i.e. university staff.	
	In collaboration with external training	
	companies	
	Other (please specify)	Click or tap here to enter text.

10. How were the standards for this training set (e.g. through national qualification authority)? Click or tap here to enter text.

PART EIGHT: Tactical First Aid (Advanced) Training

All questions below relate to your Tactical First Aid training. If you do not have this training in your Police Service or do not which to answer questions about this form of training, please move on to the next training module.

1.	This training is learnt as part		
	of	Recruit training	
		Ongoing or Certification training	
		Advanced or Specialist training	
		Independent learning (Officer initiated)	

2.	What kind of environment is		
	the initial training taught in?	In classroom (lecture)	
		Practical training (hands on)	
		Online	
		On the job (apprenticeship or similar)	

3.	Who provides this training?	Local police training centre	
		National police training centre	
		University/Polytech or other higher education facility	
		Private training company	
		Other (please specify)	Click or tap here to enter text.

4.	How many days does the		
	initial training last?	0.5	
		1	
		2	
		3	
		4	
		5	
		Other (please specify)	Click or tap here to enter text.

5.	Training is completed		
	through	Individual learning	
		Group/Team learning	

6. Refresher training is typically				
required every	Refresher training is not required			
	6 months			
	12 months			
	18 months			
	2 years			
	Other (please specify)	Click or tap here to enter text.		
6b. Do you know why this interval was chosen? If 'yes' please explain.				
Click or tap here to enter text.				
		-		

|--|

	At a specialist facility	
	At a local facility	
	Online	
	On the job (apprenticeship or similar)	

Click or tap here to enter text.

8.	How is the competency for		
	this skill assessed?	Written exam	
		Practical exam	
		Through on the job actions	
		Other (please specify)	Click or tap here to enter text.

8b. What are the key goals of the training (learning outcomes) that participants are meant to achieve? Click or tap here to enter text.

8c. What are the minimum pass requirements? Click or tap here to enter text.

9. How was the training		
developed?	With Police subject matter experts	
	With best practise from other Police Services	
	or similar organisations such as Military or	
	Fire and Rescue Services	
	With evidence-based research	
	With learning and development specialists	
	In collaboration with those working in higher	
	education i.e. university staff.	
	In collaboration with external training	
	companies	
	Other (please specify)	Click or tap here to enter text.

10. How were the standards for this training set (e.g. through national qualification authority)? Click or tap here to enter text.



- If you complete other modules as part of your Tactical Safety Training which you haven't answered a full set of questions on, we would appreciate any time you were able to spend on answering these questions for your additional modules.
- If you are able to send us any further information or documentation about your Tactical Safety Training (such as a copy of your tactical safety framework/assessment criteria, details of the methodology behind development, and how standards have been set) it would be much appreciated.