VICTORIA UNIVERSITY OF WELLINGTON
Te Whare Wānanga o te Ūpoko o te Ika a Māui

For fulfilment of the Master of Education (MEd)

Submitted to the Victoria University of Wellington by Bradley Simpson

An organisational and task analysis to inform police physical education and defensive tactics training

Date: 08/05/2012

Supervisors: Dr Barrie Gordon & Dr Michael Johnston

Acknowledgements

This thesis would not have been possible without the support and understanding of Charlotte Schörling, Marty Bidois, and my supervisors: Barrie and Michael.

Special thanks to my colleagues at the Royal New Zealand Police College, who had the foresight to recognise the need, and the patience to wait for the results; especially Todd Southall, Ian McLachlan and Tania Kura. Thanks to the gym staff for your encouragement and backing throughout the project.

Finally thanks to Emily and Lynette Simpson for editing at short notice and under tight timeframes.

This research was partially funded by the New Zealand Police.

Contents

Abstract

"For to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill". Sun Tzu.

In the preparation for front-line policing, the teaching of Physical Education and Defensive Tactics (PE and DT) should integrate a number of tactics and techniques, and focus on operationally relevant scenario training. This study used a mixed-method approach (comprising of interviews, observations, focus groups, and a questionnaire), and involved 350 police officers and staff in New Zealand. It sought to identify the critical PE and DT related tasks front-line officers complete, to allow for an evidence based approach to informing the design and development of the training curriculum. The study identified two major topics that it was commonly considered should be part of the PE and DT curriculum: (1) empty-hand techniques and appointments (equipment); and (2) ceremonial (military drill), physical conditioning, and crowd control training. A number of underpinning principles also emerged as being important: the need for self-awareness, confidence, contributing to team effectiveness, and expecting the unexpected. Officers identified situations involving non-compliant and violent people to be the most critical to be trained for, with a focus on easily transferred and effective restraint and self-defence techniques and tactics. Tasks that were judged easy to learn (such as pepper spraying dogs) were deemed to be the least critical tasks to include in the curriculum. Analysis of data related to difficulty, importance, and frequency responses by various officer demographics, showed that those policing in the most rural locations reported using force and communications on non-compliant people less often than other officers.

Introduction

"While a constable I will, to the best of my power, keep the peace and prevent offences against the peace, and will, to the best of my skill and knowledge, perform all the duties of the office of constable according to law. So help me God" - New Zealand Police Constable Oath (New Zealand Government, 2008, p. 17).

International data suggest that, of an approximate 200,000 police arrests in New Zealand each year (Statistics New Zealand, 2010), around 40,000 will involve police using force (Garner, Maxwell, & Heraux, 2002; New Zealand Police, 2007; Smith et al., 2010; Smith & Petrocelli, 2002). Statistically it has been shown that police use force in 15-24% of arrests (Garner, Buchanan, Schade, & Hepburn, 1996; Smith, et al., 2010; Smith & Petrocelli, 2002), and possibly even more when verbal (for example, commanding a subject to do something) and trifling (for example holding a subject by the arm) techniques are included (Smith & Petrocelli, 2002; Terrill, 2003). Furthermore, there are on average over five assaults on police officers in New Zealand every day (New Zealand Police, 2007). Most of these assaults occur on the street (45%), at private residences (21%), or within police premises (17%; (New Zealand Police, 2007). These statistics would suggest the need for appropriate, high quality training in self-defence and the use-of-force and in dealing with violent offenders. Despite this apparent need, little empirical evidence exists to inform the design and development of Physical Education and Defensive Tactics (PE and DT) training for police officers. The importance of developing appropriate quality training cannot be overstated because, unlike other occupations, if police defensive tactics training does not provide the correct knowledge and skills then the consequences are potentially fatal (Minor, 2005).

The development of many police curricula have not been based on empirical evidence, and many contain techniques or other curriculum elements that have not been validated (Bonneau & Brown, 1995; Kinnaird, 2003). Martial arts, for example, have traditionally been the basis of police defensive tactics curricula both internationally (Kaminski & Martin, 2000; Ness, 1991; Smith & Petrocelli, 2002), and in New Zealand (M. Wickens Supervising Instructor: Defensive Tactics for the NZP, personal communication, May 25, 2011). One criticism of using martial arts as a basis for training is that they require years to master (Minnis & Parker, 2002), and therefore may not provide the ideal basis for

police training, because there is insufficient time in training programs to learn techniques properly (Kaminski & Martin, 2000; Kinnaird, 2003). A number of front-line police needs analyses have been completed internationally (see for example, Kaczmarek & Packer, 1996; Occupational Information Network, 2010). However, these analyses did not contain sufficient detail to inform the design and development of PE and DT training.

The Royal New Zealand Police College (RNZPC) currently spends approximately 129 hours on PE and DT training with each police recruit. This time allocation has been evaluated against other police recruit topics (for example driving, firearms, police studies, computers), and judged to be appropriate given the evaluations of officers performing the job who had recently completed the training (T. Anderson & Penny, 2003).

The PE and DT program includes physical conditioning, arresting techniques, use of New Zealand Police (NZP) equipment (such as pepper spray and handcuffs), and self-defence training. Maximising officer and public safety is a primary principle of this program, and the objectives also include developing decision-making skills, identifying, responding to and managing critical incidents, and employing tactical options (New Zealand Police, 2008).

The optimal distribution of topics within this time allocation is currently unknown. Some authors have argued that massed training, where topics are taught separately, is useful for fast acquisition, but any proficiency tends to deteriorates quickly (Donovan & Radosevich, 1999; Dunning, Heath, & Suls, 2004).

Cerno (2007) identified the need for a systematic job analysis to ensure that the standards and assessments used by the NZP in PE and DT match operational needs. While there has been some assessment of the general front-line policing role in New Zealand (Burke, 2009a) and internationally (Kaczmarek & Packer, 1996) there has been no systematic research that informs the curriculum of PE and DT training in either New Zealand (M. Wickens, personal communication, June 7, 2011; Cerno, 2007) or internationally (Ness, 1991; Smith & Petrocelli, 2002). Training needs analyses completed to date focus on the entire police job and therefore have provided a scope that is too wide to specifically inform the design and development of PE and DT training.

Previously, the New Zealand police has recognised the need for evidence-based research in curriculum content (New Zealand Police, 2006), however the catalyst for the present

research was the decision by the NZP management that a comprehensive training needs analysis (TNA) needed to be completed to inform the design and development of the PE and DT curriculum. Without a thorough TNA, curriculum content can change based on supposition (Smith & Petrocelli, 2002), and trainers may have “a tendency to concentrate on what they enjoy teaching (or what they believe the trainees will enjoy learning) and the training content can drift away from the job requirements" (Bramley, 1993, p. 11).
This TNA aimed to provide specific information to inform the curriculum to be developed.

A framework for completing a Training Needs Analysis

It is generally considered that the design and development of a training curriculum should begin with a systematic training needs analysis, (see for example Ford & Wroten, 1984; Goldstein, 1993; Noe, 2008; S. I. Tannenbaum & Yukl, 1992). A TNA should be conducted to identify needs when it is considered that current training programmes may be teaching the wrong content (Noe, 2008), and/or when the training content has changed (Tessmer, McCann, & Ludvigsen, 1999). Using a needs analysis to inform curricula may also have the additional advantage of mitigating any litigation against the NZP (Arvey, Nutting, & Landon, 1992; Marion, 1998). There is little consensus, however, on how data produced by the TNA should be used to inform the selection of curriculum topics (Fallon & Trevitt, 2006; R. J. Tannenbaum, Robustelli, & Baron, 2008; Wang, 2010; Wang, Schnipke, & Witt, 2005).

A TNA is "a systematic method for determining the training needed for people to perform successfully in their work" (Hall, 2010, p. 2), and aims "to obtain information concerning the critical tasks required to perform on the job" (Goldstein, 1993, p. 61).
Since the first needs analysis models proposed by Gilbreth (1911) and Taylor (1911; cited in Hollnagel, 2006), widespread agreement has developed on the optimal methodology for conducting a TNA and the type of information required at each stage of the analysis process. The accepted methodology is based on that originally proposed by McGehee and Thayer (1961), and consists of three distinct processes: an organisational analysis, followed by a task analysis, and finally a person analysis, see for example (Blanchard & Thacker, 2007; Goldstein, 1993; Noe, 2008; Ostroff & Ford, 1989).

The present research will encompass the first two of these stages, comprising an organisational analysis, followed by a task analysis, leading to the identification and validation of tasks for PE and DT training in the NZP.

An organisational analysis gives information on the organisational qualities (such as company policy and managerial support) that affect training (Goldstein, Macey, & Prien, 1981). It is primarily focused on establishing whether there is organisational support to undertake training. If there is not this support then there is little point in proceeding with a full TNA (Noe, 2008).

The task analysis identifies critical tasks performed on the job and involves a number of systematic stages (Goldstein, 1993).
(i) *Identifying job tasks* These could be identified as constructs such as endurance, or specific tasks such as handcuffing a compliant individual. It may be that what the researcher chooses to focus on (constructs or tasks), will strongly influence the form of training that appears to be required when the TNA is complete.
(ii) *Sorting tasks into 'groups'* Groups could be based on, for example, tactical options, techniques, or subject behaviour.
(iii) *Task validation* Rating of tasks on their difficulty, importance, and frequency by job incumbents.

When the data collection phase in the task analysis has been completed, many writers consider that descriptive statistics should be used to identify the 'critical' tasks, defined as some combination of the difficulty, importance, and frequency ratings (Hedge, Borman, Kubisiak, & Borne, 2006). There is no consensus, however, regarding: (a) choosing which variables should be included in analyses (for example, whether some combination of 'difficulty', 'importance', or 'frequency', or other variables should be used); (b) whether a 'multiplicative', 'additive', or some other algorithm is used to derive 'critical' tasks (Raymond, 2001; Sanchez & Fraser, 1992; Spray & Huang, 2000; Wang, 2010); and (c) where cut-offs for the acceptance of groups or tasks into the curriculum should be made. Some authors suggest that these decisions should not be made based on any specific criteria, but that the researcher should simply "analyze the data" (Wang, et al., 2005, p. 16) to determine the criticality of the tasks.

One of the goals of the present research is to refine the process of identifying critical tasks from task data, ultimately determining the tasks that should be included in a training curriculum.

As presented in Figure 1, one approach that addresses issues (a) and (b) is that of Bramley (1993). He proposes the difficult/importance/frequency framework, hereafter referred to as the Bramley framework. One weakness of the framework is that there is no guidance on how to define how 'difficult' a task must be to be rated as such or similar, how important or frequent a task must be to be classified as ‘moderately important’ or ‘very frequent’. For example, when classifying tasks according to difficulty, it is not clear whether researchers should rank order and divide the tasks evenly, divide them subjectively based on natural breaks in the data, rank them according to a pre-determined Likert rating, or use some alternative method. The Bramley framework has also not been validated in any way, nor widely used to derive curricula. With an absence of alternative unambiguous guidance on the classification of tasks, this framework will be used in the present research as a basis for the identification of critical tasks.

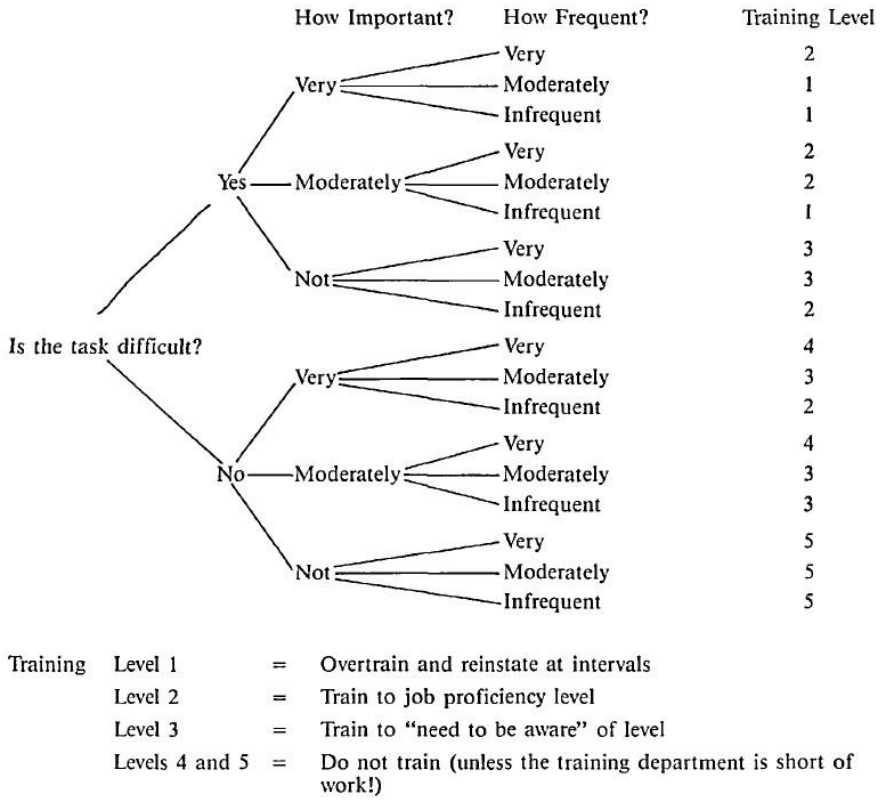

Figure 1. **Difficulty / Importance / Frequency Framework (Bramley, 1993, p. 11).**

Identifying the tasks of police PE and DT training

Peer-reviewed literature on the validity of PE and DT training curriculum content is lacking both locally and internationally. Analysis of the time-allocation international jurisdictions give to PE and DT provides some insight into accepted practice. Kaminski

and Martin (2000) found overseas jurisdictions spend between 10 and 148 hours (between 2 and 20% of total training time) on defensive tactics training. Research conducted on over 60 United States jurisdictions found that between 8 and 38% (44 to 326 hours) of training time is spent on self-defence, drill, and physical training, an average of 145 hours (Strawbridge & Strawbridge, 1990). Clearly there is lack of agreement within police recruit curricula, with no consensus on the amount of time that should be allocated to this area. The benchmarking of training content also provides insight. Overseas police jurisdictions from Australia, the United States, and the United Kingdom responded to requests for information on curriculum content. These showed substantial differences from the New Zealand situation, for example in relation to the topics of drill (military-like parading), water based training, and physical conditioning (Personal correspondence - various, such as; Peter Davis, Australia; Bill Glady, United States; Clint May, Australia; Rod Warrington, Australia; Mark Smith, United Kingdom).

Research examining the physical requirements of policing clearly identifies extremes: the job is mostly sedentary, (G. S. Anderson, Plecas, & Segger, 2001; Burke, 2009a; Famega, 2005; Meyer, 1992) but at times includes physically demanding tasks of critical importance (G. S. Anderson, et al., 2001; Ness, 1991; Payne & Harvey, 2010). There is consensus internationally regarding the physical tasks performed in policing roles, with activities such as balancing, crawling, carrying, climbing, dragging, jumping or vaulting, lifting, pulling or extracting, pushing, running, squatting and kneeling, striking or kicking, twisting or turning, walking, and wrestling being consistently identified (G. S. Anderson, et al., 2001; Arvey, Landon, Nutting, & Maxwell, 1992; Collingwood, Hoffman, & Smith, 2004; Osborn, 1976). The identification of police tasks for the purposes of the design and development of physical entry tests, which applicants must pass before being accepted into recruit training, have identified key physical movements that are believed to be performed in the front-line role - for the most recent local review of the test see Handcock and Dempsey (2011). Some have argued that any training should involve techniques that are simple, so they can be transferred on the job more successfully (Mitchell, Cowan, & Hamilton, 1998), and be based on operational realities (Collingwood, et al., 2004; Marenin, 2004; Mayhew & Australian Institute of Criminology, 2001; Nowicki, 2007; Trappitt, 2007). A gap one researcher believes currently exists within the NZP is in training for situations requiring "choice, discretion, and judgement" (Burke, 2009b). Some believe PE and DT training curricula should also focus on decision making by using

scenario training, where recruits attend jobs simulating reality (Bradford & Pynes, 1999; Marenin, 2004; Morrison, 2006).

The amount of physical conditioning training given to police recruits varies greatly (Marion, 1998), despite physical fitness being identified as important in policing for numerous reasons (Quigley, 2008).

Although no detailed empirical evidence exists on the physical training needs of front-line police, one Australian study examined the general work of front-line policing (Kaczmarek & Packer, 1996). In this study, 913 police officers rated 87 tasks on their difficulty, importance and frequency of use. The researchers identified 25 tasks that were deemed critical to the role, regardless of gender, rank, location, or duration of front-line experience. Of these tasks, only one was directly related to the PE and DT curriculum (deal with aggressive people). A number of other general tasks were identified that, while relevant to PE and DT tasks, were not exclusively so (for example ‘participating in team work or encourage team morale’, ‘adapting communication strategies to meet the needs of individuals’, or ‘using police communications equipment’, such as closed network radios).

Other relevant police research has concentrated on three areas: use-of-force, tactical option effectiveness, and injuries to officers and subjects. There are some difficulties in assessing local training needs accurately from this research because combining and interpreting these data is difficult, due to a wide variety of research methodologies and differences in terminology (see for example Famega, 2005; New Zealand Police, 2004; Smith, et al., 2010; Terrill, 2005; Wolf, Mesloh, Henych, & Thompson, 2009). Differences include (a) the definitions of 'force' (for example whether it includes verbal directives, or trifling techniques); (b) the threshold required for officers to submit a use-of-force report (Terrill, 2005); (c) the tactical options available; (d) definitions of subject behaviour, (for example, Mesloh et al., 2008 used six levels of subject behaviour, while the NZP tactical options framework classifies five (New Zealand Police, 2004)); and (e) the classification of techniques used by jurisdictions (Zschoche and Fridell, 08, as cited in Engel, 2008); for example, the TASER is a tactical option that has been rated at different levels of force between jurisdictions. These factors make it virtually impossible to compare and contrast differences in findings between studies (Engel, 2008). Nonetheless, these projects offer interesting insights into trends, which might inform task identification and curriculum design.

Use-of-force

International data suggest that suspects use a degree of resistance in approximately 12% of arrest situations (Garner, et al., 2002), with most of these incidents involving defensive efforts by subjects to resist control by pushing, wrestling (sometimes on the ground), or fleeing on foot (Alpert & Dunham, 2010; Smith, et al., 2010; Smith & Petrocelli, 2002). Anderson, et al., (2001) found that 38% of all critical incidents (defined as an event where there is an active threat to life and/or property) involve two, three or four subjects, and that subject resistance included using weapons such as clubs, knives, guns, or the officer's weapons.

There are a number of popular and effective techniques to overcome resistance, including applying handcuffs (Farenholtz & Rhodes, 1986; Garner, et al., 2002), various forms of physical restraint (G. S. Anderson, et al., 2001; Bayley & Garofalo, 1989; Garner, et al., 2002), team tactics (Garner, et al., 2002), TASERs, pepper spray, restraint holds, takedowns, dogs (Mesloh, et al., 2008), using verbal control tactics, pulling and pushing, and twisting and turning subjects (G. S. Anderson, et al., 2001). There is some evidence to suggest that different tactical options may be preferred in different geographical settings (Moxey & McKenzie, 1993), and by gender, with women tending "to be more skilled at communicating and using verbal skills to achieve compliance whilst men tended to favour physical coercion" (Hamdorf, Boni, Webber, Pikl, & Packer, 1998, p. 36).

The propensity of a subject to use force against an officer is the biggest predictor of the likelihood of an officer using force; however multivariate statistical analysis has identified that two thirds of the variance in the amount of force used by an officer in an incident is still unexplained (Garner, et al., 1996). It may be, for example, that during busy times officers believe they do not have the time to deal verbally with every subject without using force (Mesloh, et al., 2008). Previous research has suggested that an officer’s physical attributes may explain their decision to use physical force, rather than seek a more peaceful resolution to a situation (Mesloh, et al., 2008). Additionally, in an analysis of use-of-force data sets in America, Paoline and Terrill (2007) concluded experience and education affect the use of verbal and physical force, with those more educated using less verbal force and experienced officers using less of both verbal and physical. Similarly some authors found more educated officers used less force than those without graduate degrees (McElvain, 2008; Rydberg, 2010). It is assumed from this data that educated and

experienced officers manage to resolve more potential conflicts through verbal communications with non-compliant people.

Risks and Injuries

Statistically, there is little doubt that throughout the world, officers are at a high risk of assault. International data indicate that 10% of officers are assaulted each year (Mayhew & Australian Institute of Criminology, 2001). Additionally, the front-line role poses the greatest risk of any position within the police (Mitchell, et al., 1998). In California, Peek-Asa (1997) calculated that police are 73 times more likely to be assaulted at work than other municipal occupations. International studies show that factors that raise the risk of injury include lack of expertise in performing use-of-force techniques (Meyer, 1992), the subject having a weapon (Castillo, Prabhakar, & Luu, 2011), officer complacency (Kaminski & Sorensen, 1995), officers who use physical force as a last resort - for example, after the situation has escalated (Mayhew & Australian Institute of Criminology, 2001), and using 'hands-on' tactics - such as restraining a subject with bare hands (Alpert & Dunham, 2004). Some international use-of-force and injury research indicates that maximising the safety of members of public (including the subjects officers are dealing with) and that of police officers may not be mutually exclusive objectives in all incidents. The Crimes Act 1961 and NZP policy currently grant police officers authority in using force when carrying out their duties. It also bestows a level of responsibility to ensure officers do not use more force than is necessary (New Zealand Government, 1961; New Zealand Police, 2008). For example, tactical options such as the carotid hold (a neck restraint) "must not be used…where a lesser level of force would be effective in achieving the necessary control of a violent person" (New Zealand Police, 2008, p. 10). Some have argued that the requirement to use the lowest possible level of force to resolve a situation may actually heighten the risk to the officers and/or members of the public (Mesloh, et al., 2008). Similarly Smith, et al (2010) suggest that if minimising injuries is the primary goal then police should use CEDs and OC spray preferentially, because they allow an officer to maintain a safe distance from a subject. These authors postulate that by using these force options, rather than the lowest possible force, risk to subjects and officers is lessened; by trying to use a low level of force, officers place themselves at greater risk of injury, and the situation may escalate, ultimately requiring *more* force to be used against the subject. However, recent analysis (measuring injury dichotomously) conflicts with this belief,

finding that subjects are more likely to be injured when CEDs are used (Terrill & Paoline III, 2011).

Tactical option effectiveness

International literature suggests that tactical options (for example pepper spray or tackling) vary in their capability to successfully resolve incidents. For example, using a punch or a strike with a flashlight has been found to be effective in resolving 75% and 96% of incidents respectively (Meyer, 1992). Internationally, verbal techniques are commonly judged as being effective (Mitchell, et al., 1998; Smith & Petrocelli, 2002) although Smith and Petrocelli (2002) found verbal threats and shouting were likely to be ineffective, indicating 'verbal techniques' may be too broad a description to judge effectiveness. There are currently no more-detailed analyses available to inform the specific communication techniques that may lead to effective resolutions. The wide variety of tactics and techniques used by officers to resolve incidents suggest that decisions in relation to the use of tactical options must necessarily involve professional judgment, and cannot be prescriptively determined.

The accepted needs analysis process relies on a sequential approach to identification and authentication of task data. The main aim of the present research is to identify the PE and DT tasks in the New Zealand context. It is intended that this research will inform the design and development of PE and DT training to NZP recruits. Given the absence of previous training needs evidence, and the inclusion of new training content in the last 20 years (pepper spray, expandable baton, and, most recently, TASER), research into the PE and DT training needs of police recruits is timely.

The first aim of this research is to identify the PE- and DT-related tasks used by NZP front-line constables in the performance of their duties. These tasks will then be authenticated, using a questionnaire to front-line constables, to identify the criticality (a combination of frequency, importance, and difficulty) of each. Various statistical analyses will be used to establish whether or not there are differences in task-criticality ratings by front-line police in relation to their location, gender, age, front-line policing experience, physical size, fitness level, ethnicity, or level of education. In combination with the qualitative data, responses to the questionnaire will be used to identify, and to rank in criticality, the topics to be included in the RNZPC PE and DT curriculum.

Methods

"Police officers must be trained for war but prepared for peace" (Bayley & Garofalo, 1989, p. 21).

This research uses a mixed-method approach based on the TNA framework outlined by Noe (2008) and Goldstein (1993). This framework involves both non-experimental quantitative and qualitative methodologies and was first recommended by the originators of the modern approach to conducting a TNA (McGehee & Thayer, 1961).

The research was conducted in four sequential stages (Figure 2) with the qualitative task data collected during the first three stages being integrated in the final stage, which comprised a quantitative questionnaire for front-line staff. This method is known as the Sequential Exploratory Strategy (Creswell, 2003). Each stage involved distinct participants, instruments, and procedures, as presented in detail in Appendix A. The research aims were addressed using diverse quantitative and qualitative sources from the research, as outlined in Appendix B.

This research was completed with support from New Zealand Police Research and Evaluation Steering Committee.

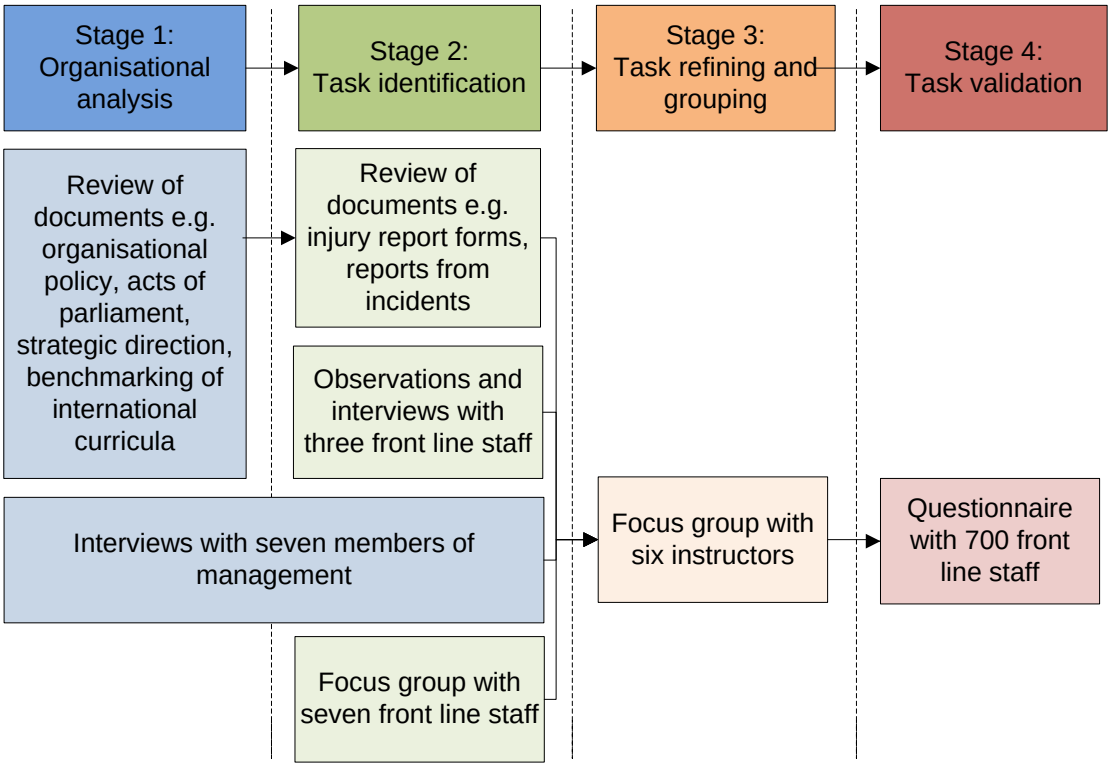

***Figure 2*. The four stages of data collection in this research.**

Participants and documents reviewed

Stage 1: Organisational analysis

Documents reviewed included NZP Policy, Acts of Law, Independent Police Conduct Authority reports, NZP documentation, overseas jurisdictions' curricula, and international literature on recruit training.

The 'benchmarking' of overseas curriculum time-allocation and topics were requested from jurisdictions in the United Kingdom, Australia, the United States of America, and Canada; information which should be considered in informing the design and development of the New Zealand curriculum (R. L. Johnson, Penny, & Gordon, 2008; Kinnaird, 2003; Noe, 2008; Wilson & Wilson, 1987).

New Zealand Police injury report forms for a 12-month period from 26 March 2010 were reviewed for trends in the source of the injury (e.g. a punch or kick from a subject). There were over 5,000 reported injuries in the population of NZP staff during this time, which were filtered to include only those constables in front-line duties who were injured whilst working in this role. It was intended to inform the task identification stage with the NZP Tactical Options Reports, which are completed by officers whenever force has been used. However, permission to access the database was not granted by New Zealand Police. As has been previously acknowledged, researching police use-of-force is a sensitive issue, meaning that accessing data is often difficult (Alpert & Dunham, 2004). Seven management personnel currently holding positions relevant to PE and DT training within the NZP were interviewed.

Stage 2: Task identification

Two of the 12 NZP districts were randomly selected to provide a front-line 'section' (typically 6-10 constables) to take part in a focus group. One focus group took place with six front-line constables and their acting sergeant. One of those districts was additionally randomly selected to supply three front-line constables to take part in an interview and an observation during a routine shift. The interview took place at opportune times during the period of observation.

Stage 3: Task refining and grouping

The 11 PE and DT instructors at the Royal NZP College and seven instructors delivering to current NZP staff in the districts (members of the national 'trainers' forum') were then

invited to take part in the refining and grouping of the identified tasks from the previous stage. Six instructors took part in this process.

Stage 4: Task validation

The sample of job incumbent front-line constables for the questionnaire were randomly selected from an exhaustive list of 2,518 in this role as of 22 November 2011. As presented in Table 1, each of the 12 NZP districts had between 22-31% of their front-line constable staff randomly selected from the possible sample. Seven hundred were chosen, in order to receive the target of 248 replies based on an estimated 35% response rate.

Table 1

Randomly Generated Sample for Questionnaire by Police District

New Zealand Police District	Number sampled	Population	Number who responded
Auckland City	50	181	25
Bay Of Plenty	43	193	16
Canterbury	75	285	29
Central	78	239	37
Counties/ Manukau	103	374	47
Eastern	41	154	23
Northland	35	112	11
Southern	65	221	31
Tasman	35	127	19
Waikato	45	195	26
Waitematä	56	190	23
Wellington	74	246	38
Total	**700**	**2,518**	**325**

Table 2 shows the geographical distribution of the sample. Job incumbents completing the questionnaire included a wide variety of city-based and country-based officers.

Table 2

Stage Four Randomly Generated Sample by Position, Ordered From the Most City-Based (Metro) to the Most Country-Based (1, 2, 3 Person Station)

Position	Number sampled	Population	Number who responded
Metro	273	966	116
Urban	216	735	131
Rural	154	596	56
1 to 3 Person Station	47	188	22
Unknown	10	32	-
Total	**700**	**2,518**	**325**

Table 3 presents the constable appointment status of the sample. Probationary Constables (recently out of recruit training, and yet to complete necessary requirements for endorsement to 'Constable'), Constables, and Senior Constables (in the job for at least 14 years), each constituting between 23 and 30% of the sample.

Table 3

Stage Four Randomly Generated Sample by Status

Status	Number sampled	Population	Number who responded
Constable (probationary)	199	667	94
Constable	472	1721	213
Constable (senior)	29	128	17
Total	**700**	**2,518**	**325**

Instruments

Stage 1: Organisational analysis

Documents were accessed via the NZP intranet, or through on-line web searches using a variety of search engines including Google Scholar, ERIC/Proquest, and Scopus. Interviews with management were recorded using the Olympus digital voice recorder (model: WS-100). Because many of the officers were not recently or comprehensively familiar with the current recruit PE and DT curriculum, an outline was provided to them during the interview for their comment.

Stage 2: Task identification

Observations and interviews, and the focus group with front-line constables were recorded on pre-formatted record forms (see Appendices C and D).

Stage 3: Task refining and grouping

During the refining and grouping stage, instructors were presented with the exhaustive task list generated from Stage 1 and 2.

Stage 4: Task validation

Figure 3 shows a screen-shot of Section One of the on-line questionnaire. This questionnaire was hosted by the NZP Te Puna website. It presented the 45 tasks identified in stage three in three separate sections, where participants were asked to rank the difficulty, importance, and frequency of each task on a Likert scale of 0-9.

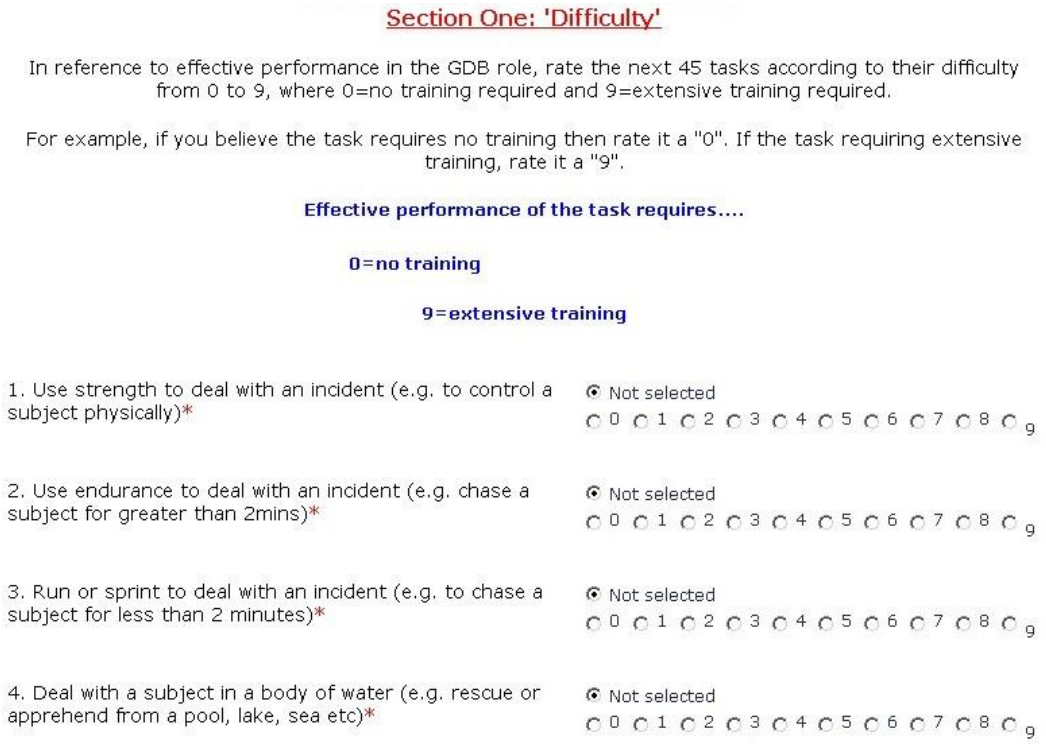

Figure 3. **Screen shot of the beginning of Section One of the questionnaire.**

Scales were provided with descriptions at the '0' and '9' Likert values: Section one (Difficulty), 0=no training required and 9=extensive training required; Section two (Importance), 0=not important for effective performance and 9=important for effective importance; and Section 3 (Frequency of use in job), 0=less than once a year and 9=every day. Participants were finally asked to provide 10 demographic or personal details: NZP district, location (1, 2, 3 person station, rural, urban, or metro), age, gender, front-line

experience, height, weight, most recent physical competency test time (the NZP ‘obstacle course’ officers are required to complete to graduate as constables and then biennially whilst in the front-line role), ethnicity, and whether they had a graduate degree. Respondents were also asked to list any other PE and DT related tasks that they felt were relevant to the front-line role and were not included in the questionnaire. One hundred officers chose to complete the qualitative section of the questionnaire. Many of their comments were about operational matters, rather than identifying additional tasks, as the question specified. Most of the responses mentioned aspects that were either included in the questionnaire, or outside the scope of the research.

All participants were provided with an information and consent form, adapted for the specific stage they participated in. The form used for stage 1 is presented in Appendix E.

Procedures

A working document titled 'Design and development notebook' was kept to record notes that would help inform the design and development of curriculum or assessments following this research.

Stage 1: Organisational analysis

The literature review and organisational analysis involved using the Internet and the NZP intranet.

The Injury Report database (reports officers’ complete following injuries) and Tactical Options Reports database (a collection of the reports officers' complete following using force) were requested, from the respective NZP business owners.

Purposively sampled management personnel were invited to participate in an interview with the researcher face-to-face or via e-mail. A 30-minute meeting time was arranged, typically in the participant's office. Interviews were transcribed from the electronically recorded format. The transcriber signed a confidentiality form (Appendix F). Participants were asked three questions: (1) what organisational support they believed there was for PE and DT training; (2) any relevant policy that determines training; and (3) what topics were required to be covered in the curriculum.

Stage 2: Task identification

To organise front-line participation, the police district liaison (nominated by the district commander) was contacted directly by phone or e-mail to organise the observations and interviews, and focus group. For one district, an additional request was made to observe and interview three different constables on three subsequent night shifts (approximately 4pm to 2am) Thursday to Saturday. Anecdotal evidence from instructors who had previously held front-line roles and the literature both suggested that these times would supply maximum opportunity to observe force being used (Mitchell, et al., 1998). Interviews took place at opportune times during the shift. During the interviews with the front-line constables, tasks were identified by asking the officers to recount some of the problems solved in their workplace and the tools and ideas they used to solve them (Raymond, 2001). Peer debriefing with the supervisors of this thesis was carried out in order to clarify the interpretation process.

Stage 3: Task refining and grouping

This stage involved instructors deleting or combining as appropriate, all tasks identified in previous stages, from documents, observations, interviews, and the focus group. These tasks were then assigned into one of six groups, defined by the instructors, using the Delphi technique, a systematic, multi-stage technique for combining opinion and reaching consensus (Hasson, Keeney, & McKenna, 2000). Consensus was reached as to which group each task belonged to after one 60 minute session, and two days later, a subsequent 30 minute session. Consensus amongst the instructors was judged to have been reached when there was a stability of results (when few, or no, changes are made with subsequent iterations), as this was a better measure of reliability than relying on a set percentage of consensus (Hasson, et al., 2000).

Stage 4: Task validation

A pilot questionnaire listing the tasks in their clusters was sent to 12 Staff Safety Tactical Trainers who had previously held front-line roles. Instructors were invited to pilot the questionnaire over an eight day period from 14 November 2011. They were purposively sampled based on being current recruit PE and DT instructors, or part of the national 'Staff Safety Tactical Trainers' forum', made up of representative trainers from each police district. Three completed the questionnaire and offered feedback. Based on these responses, minor grammatical changes were made to the tasks and instructions, minor

layout changes were made, and one additional task was added: Use endurance to deal with an incident (e.g. chase a subject for more than 2mins).

The sample of 700 job incumbents were sent an e-mail invitation to complete the online questionnaire on 24 November 2011, with a closure date of 17 January 2012. The selected officers were sent two reminder e-mails on 06 January 2012 and 16 January 2012. An article advertising the questionnaire also appeared in the NZP internally circulated 10/1 magazine on 2 December 2011.

Context

This research focuses on the current content of the PE and DT work area at the RNZPC, which excludes firearms, first aid, police studies, driver training, and the physical competency test, which has recently been reviewed elsewhere (see Handcock & Dempsey, 2011). The identification of the knowledge, skills and abilities required by the tasks, and subsequent person analysis (where the gap between what students need to know and what they currently know - typically an element of a TNA) are also outside of the scope of this thesis.

Data analysis

Given the dynamic nature of policing, the data analysis was guided by an interpretivist philosophy (Lather, 2006), an approach Wellington (2000) described as exploring "perspectives and shared meanings and to develop insight into situations" (p. 16). Qualitative data were coded using Nvivo 9 Software (Nvivo). The review of documents and interviews was recorded, coded and enumerated to identify the topics. Microsoft Excel (Excel) was used for sorting and formatting of raw quantitative questionnaire data. All other statistical analyses utilised Statistics 17 (SPSS) Software.

How the research was addressed

The identification of tasks utilised by front-line staff (research aim one) was addressed by identified tasks in interviews, documents, a focus group, observations, and then refining this list in a focus group with instructors.

The criticality of each task (research aim two) was informed by the quantitative responses. For each item, a one-parameter (logistic) graded response model (Samejima, 1969) was used to obtain propensity measures (logit values) for all respondents on each dependent variable (perceived difficulty, importance, and frequency). Rather than using descriptive

statistics on raw Likert categories, the logit values for each item were used to evaluate criticality, ensuring that differences between items were appropriately quantified. Similarly logit values for individuals were used to quantify each respondent's propensity to rate items at or above each point on the Likert scale. The logits for the fifth category were used in the analysis, because this point represents the midpoint on the scale of possible responses.

The meaning of the logit values for items (as opposed to respondents) is the inverse of an intuitive interpretation, because the estimation of the probability is a function of the person value *minus* the item value. Accordingly, all item values were multiplied by -1 so that item parameters increase, rather than decrease, in magnitude with item difficulty, importance, and frequency ratings.

The framework proposed by Bramley (1993) was applied to the difficulty, importance, and frequency logits to identify the critical tasks, as rated by front-line staff. Training priority rankings according to the Bramley framework were established by using the difficulty, importance and frequency logits as follows: Firstly, tasks were rank ordered and assigned a qualitative classification (e.g. difficult or not difficult). To achieve this, all tasks were evenly divided between the possible classifications (half difficult and half not; one third rated as very important, moderately important, and not important respectively; and one third rated very frequent, moderately frequently, and infrequently respectively). The method of task classification substantially influenced the tasks identified as requiring training, and will be further explored in the discussion. Secondly, the tasks were then applied to the Bramley framework to ascertain their 'branch', from 1-18, and associated training level, from 1-5 (See Figure 1). In addition, cluster analysis was undertaken to identify any natural groupings of similarly-rated tasks, based on logit scores for importance, frequency, and difficulty. This enabled comparison with, and evaluation of, the Bramley framework for classification of tasks.

Establishing how the officers perceived criticality of the tasks differs, based on their characteristics (such as their location, gender, age, front-line policing experience, physical size, fitness level, ethnicity, or level of education), may help the instructional designer and educators better meet individuals' training needs, and contribute to understanding on police use-of-force. To determine whether there is a difference between officer demographics ratings for 'use-of-force' tasks and 'empty-hand' tasks, a logit was

calculated. Fifteen tasks were classified as being 'use-of-force' related; and eight ‘empty-hands’ related. The specific tasks used to calculate the use-of-force and empty-hand logits can be found in Appendix G and H respectively. Logits based on the overall response to all items on the questionnaire were calculated. This baseline logit provides a context for comparison with the use-of-force and empty-hand logits, and communications task ratings. The differences between the task ratings of subgroups (research aim three), such as officers of different physical size and location, were analysed using various statistical techniques (*t*-tests, regression analysis, ANOVA, Chi-square, and bivariate correlations). Where significant differences were found in ANOVAs, independent *t*-tests were used to clarify these results.

The topics to be included in the curriculum (research aim four) used 'data triangulation' (Alasuutari, Bickman, & Brannen, 2008) from all stages of the research (see Appendix B). Priority was given to management interviews, organisational documents, and law; because it was considered that the law and organisational strategy of the NZP should outweigh the perceived training needs of job incumbents, where differences exist. If, for example, PE and DT topics were mandated by the NZP, they should be included in the curriculum regardless of job incumbents’ responses in interviews and to the questionnaire. This also allows for organisational strategy (which job incumbents may not be aware of) to dictate training (overriding incumbents’ perceived needs).

Factor analysis was undertaken to validate the item response-analysis approach, and to determine if any factor would elucidate any themes in task ratings. Item response theory assumes approximate uni-dimensionality of the variables, which factor analysis confirmed.

To determine if there were any correlations between officer characteristics, Pearson correlation coefficients were also calculated between the item response values for difficulty, importance, and frequency.

Reliability and Validity

Valid tasks were identified through the use of triangulation methodology (gathering task data from observations, interviews, and a review of material). The face validity of tasks was established by the direct observations and interviews of current staff, and the

subsequent criticality ratings by job incumbents. Content validity is established by ensuring that research first identifies the tasks required by the job (Dy, 2010). Management participants were provided with the transcripts and electronic recordings of their interviews, and asked to review them to verify the content or make clarifications, a method known as *member check* or *respondent validation* (Merriam, 2009, p. 217). None of the seven interview participants offered any clarifications or corrections.

Results

"Officers are frequently required to make decisions within a fraction of a second, where the outcomes may be scrutinized for years by administrators, judges, and juries" (Mesloh, et al., 2008, p. 81).

Stage 1: Organisational analysis

The review of relevant documentation, and the interviews with management, established that there is unreserved support for PE and DT training in the preparation of police recruits for front-line duty. The majority of the seven members of management who were interviewed cited the extensive resources that are currently directed to such training. Legislation also places an obligation on the NZP to "ensure the safety of employees while at work" (Department of Labour, 1992, p. 21), and Police policy explicitly states the commitment of the New Zealand Police to the wellbeing of its staff, and recognises the need for training to "maximise safety and minimise risk" (New Zealand Police, 2008, p. 5). Defensive tactics training is currently considered mandatory safety training for all front-line staff in NZP policy (New Zealand Police, 2008), and both policy and internal documents cite its common-place acceptance as part of the training delivered to NZP employees - in both recruit and job incumbent training.

Stage 2 and 3: Task identification, refining and grouping

The purpose of these two stages was to identify all of the PE and DT tasks that front-line officers complete in their jobs, and to group them into categories of similar tasks. The collation of the task list involved (1) a review of the literature; (2) international benchmarking; (3) review of staff injury data; (4) observation and interviews with front-line staff; (5) a focus group with front-line staff; and (6) interviews with management. The initial tasks, numbering more than 100, were condensed to a set of 60 by combining similar tasks. Finally, the task list was presented to a group of seven instructors for grouping. During this focus group with instructors, on the basis of subjective judgements, the task list was further reduced to 44 items, which were then each categorised into one of six groups. The tasks, situated within each group, are presented in Tables 4 to 9.

In the 12-month period from 26 March 2010 there were over 5,000 reported injuries in the population of NZP staff, which were filtered to include only those in front-line constable roles injured whilst working in this role.

Interviews and observations with three officers were carried out on subsequent Thursday, Friday, and Saturday late shifts (approximately 4pm to 2am), and included two urban and one rural location. Two male officers and one female officer were observed and interviewed. The participants were invited to review the transcript of their observation notes and interview, but none offered any clarifications or corrections.

In addition to the interviews and observations, a focus group took place with six front-line constables and their acting sergeant.

Research Aim One: To identify the PE and DT related tasks used by NZP front-line constables in the performance of their duties.

Physical conditioning and ceremony

As presented in Table 4, Group 1 included physical conditioning tasks, as well as drill (ceremonial training). All officers interviewed reported often performing tasks that relied on a high level of physical fitness - for example chases and subsequent subduing of a resisting individual. It is unclear why instructors categorised drill within this group, and not in Group 6.

Management and front-line constables outlined many instances in which they had to grapple with a subject. Although not regularly occurring, some officers also reported 'foot chases', in which the officer would chase a fleeing offender. Injury data indicate the negotiation of obstacles to have been the source of 47 injuries to front-line officers, in the year beginning 26 March 2010. One hundred and five people have drowned in New Zealand per annum, on average over the last 5 years (Water Safety New Zealand, 2012), however no officers reported ever being in a body of water or performing drill movement operationally; these tasks were included in the list because they are often part of international curricula.

Table 4

Group 1 Tasks, Classified by Defensive Tactics Instructors

Group One
Use strength to deal with an incident (e.g. to control a subject physically)
Run or sprint to deal with an incident (e.g. to chase a subject for less than 2 minutes)
Deal with a subject in a body of water (e.g. rescue or apprehend from a pool, lake, sea etc.)
Negotiate various obstacles
Perform ceremonial/drill movements (e.g. saluting, marching)

Tactics and communication

As presented in Table 5, Group 2 included tasks involving operationally-specific tactics surrounding an incident (such as assessing the risks and decision making), and the ability to communicate.

During the field observations, officers used tactical communication to gain compliance with agitated or resistant subjects on many occasions, with all of these incidents concluding peacefully. This tactic typically involved helping the subject to see how complying with officers' lawful requests would result in the most favourable outcome for all involved. For example, when dealing with a slightly agitated individual who was under arrest, one officer appealed to the subject's judgement - in asking him to comply, rather than the officer having to get back-up from other officers just to take the subject back to the station – a tactic which worked successfully and immediately.

Assessing a situation quickly (for example in relation to a subject's demeanour), and then deciding the most suitable approach, was also seen by all constables as being crucial to the job.

Maintaining a safe distance from any potential threat, to allow an officer time to take adequate action should a subject become violent, was an approach advocated by officers. However, one officer recognised that maintaining a completely safe distance between himself and the subject was not realistic in most circumstances. Because many violent individuals do not appear so initially, it would not be practical to treat everyone so cautiously. Instead officers typically reported assessing a situation before establishing what they considered a safe distance relative to the risk. To assess the risk, officers' reported observing body language, communication cues (content or manner), surveying a

house and listening before entering, getting additional information from police communications centres, and using ‘experience’ – a type of intuitive judgement that many officers could not articulate further.

There were examples of officers using experience in other ways during observations - for example when looking for a subject involved in an altercation in a pub, one officer used local knowledge of hiding places and relied on his experience of what subjects usually do in similar scenarios. Similarly, when approaching a house to execute a warrant to arrest a previously violent subject, one officer approached the property and spoke to a family member outside to gain information on who was in the house, and on their temperament, before entering.

International curricula and interviews with front-line officers indicated separating two people fighting as a common tactic performed by officers. According to front-line officers, this would typically be in a domestic or alcohol-fuelled street altercation.

Table 5

Group 2 of Tasks, Classified by Defensive Tactics Instructors

Group Two
Use verbal communications to gain control of a subject who is non-compliant.
Assess the risk of a subject quickly (e.g. through a combination of body language, response to officer’s presence, and background information).
Tactically separating potentially violent subjects (e.g. in a domestic).

Appointments (equipment) and restraints

Group three related to the police appointments (equipment) currently issued to officers (for example pepper spray and expandable baton), excluding handcuffs. It also included all of the close-quarters techniques for dealing with non-compliant or violent persons, including punching, kicking, and ground wrestling situations. Empty hand techniques and appointment (equipment) use featured prominently, in front-line officers’ assessment of the most important topics to include in the PE and DT curriculum.

All officers believed using their appointments correctly to be critical in being effective in their roles. Pepper spray and TASER were the most often-cited appointments as being useful and critical.

Twenty one officers were injured in the one year period from 26 March 2010 from dog bites, or injured in evading attacking dogs. Additionally, many officers reported using pepper spray effectively on attacking dogs.

Officers were particularly supportive of TASERs after experience first-hand of successfully resolving situations peacefully after aiming a TASER at a subject. Many officers reported using their expandable baton – for example to break windows, but none reported using it on subjects. The use of expandable, and side-handle-baton, as well as using weapons of opportunity (such as a torch) was included in the task list based on its inclusion in international and New Zealand curricula. Officers reported using, or seeing used, the carotid hold (a neck restraint) often. The officers that used it deemed it critical and extremely effective. All officers believed, overwhelmingly, that despite the benefit of having various appointments, situations often arose in which it was necessary to deal with individuals at close range, without being afforded the time or space to access their police equipment (for example pepper spray or expandable baton). It was during very violent altercations in close quarters that the carotid hold was seen to be most valuable. All officers spoke of the importance of being able to restrain a violent individual, a task they perform regularly.

Two officers reported having been punched (in the head) by offenders during dealings with violent subjects. Injury statistics also tell us that the most common source of injury to officers is empty-hand assaults. Of the 149 injuries reported in the one-year period from March 2010, the highest source of injuries was assault on officers at close range, including bites, punches, kicks, or soft tissue damage following a struggle. Additionally, there were eleven reported incidents of subjects spitting in officers' faces. Qualitative reports from officers would suggest this is a substantial under-estimation, as most go un-reported. International literature and reports from front-line officers clearly indicate that officers are at times confronted with two or more non-compliant or even violent subjects. Dealing with subjects in vehicles and cells was also a source of injuries to officers; topics that are often included in international curricula. Locally, in the one-year period from 26 March 2010, seven officers were injured dealing with non-compliant subjects in the cell blocks of stations. Evidence also exists from literature on officers' injuries and reports from job incumbents justifying the inclusion of training on how to defend from an assault on the ground in the questionnaire. In situations in which a safe distance between the officer and

the subject could not be maintained, the use of equipment such as TASER or pepper spray is not always possible, as these are best operated when a distance gap exists between the subject and the officer. In these instances, officers often tackled the subject or fell to the ground involuntarily during the attempt to restrain them. This was followed by the use of ground control/wrestling techniques, such as gaining a position of dominance and then kneeling on the subject to control them whilst handcuffs were applied. Often these situations (attempting to restrain a resisting individual) involved more than one officer, and were sometimes preceded by a foot chase.

Table 6

Group 3 of Tasks, Classified by Defensive Tactics Instructors

Group Three
Use pepper spray to control a subject: depriving them of vision and/or through pain compliance.
Use pepper spray on an animal.
Using a TASER to control a violent subject.
Use an expandable baton to gain compliance/control a subject/situation.
Use an expandable baton for a purpose other than controlling a subject (e.g. to break a window).
Using a side handle baton to control a subject/situation.
Strike a subject with a weapon of opportunity (e.g. torch, radio) to control the situation/subject.
Apply the Carotid Hold to a subject.
Restrain a subject standing up using a hold other than the Carotid Hold (e.g. wrist lock).
Physically move a 'passively resistant' person from an area
Redirect a subject to create space.
Use a punch, palm, elbow, kick, knee or stomp on a subject.
Defend yourself against a physical assault (e.g. punch, grab, spit or kick).
Break up fights between individuals.
Getting into a position of dominance when in close quarters.
Deal with two of more non-cooperative subjects at a time (per officer).
Deal with non-cooperative, potentially violent people in cells
Defend against an assault on the ground.
Take or tackle a subject to the ground.
Restrain/control a subject on the ground.

Mechanical restraints

As presented in Table 7, Group 4 is a combination of all of the mechanical restraints police currently employ – handcuffs, restraint boards, leg ties, plastic handcuffs, and spit hoods.

Techniques for using this equipment are widely taught in every international curriculum accessed, and were supported through observations of front-line staff, in which handcuffs were the only piece of equipment used on a subject by officers. Officers report the use of

handcuffs regularly with compliant subjects, and to restrain subjects under arrest. Front-line officers also reported having to restrain more than one person, and subjects with unique physical characteristics (such as single limbs, or wrists too big for handcuffs).

Table 7

Group 4 of Tasks, Classified by Defensive Tactics Instructors

Group Four
Apply handcuffs on a compliant subject to temporarily restrain them.
Apply handcuffs to a non-compliant subject on the ground.
Apply handcuffs to a non-compliant subject - not on the ground.
Application of other mechanical restraints (excluding handcuffs).
To restrain persons with unique physical circumstances (e.g. one legged, one armed, large wrists - can't fit handcuffs, pregnant women, wrists in a cast, etc.).

Team-based tasks

As presented in Table 8, Group 5 included two tasks for working with other front-line constables. Most international curricula include crowd control or working with specialist crowd-control units in their recruit training. Additionally, front-line staff in metropolitan areas reported having to assist with the NZP crowd-control specialist squads during major situations. Front-line officers stressed the need to work tactically with a colleague – for example, being on the 'same page' when trying to successfully resolve a situation.

Table 8

Group 5 of Tasks, Classified by Defensive Tactics Instructors

Group Five
Act as part of a 'section/group/squad' to clear an area (e.g. move a group of people down a road, clear a house party).
Working tactically with a colleague (e.g. contact/cover).

Other tactical options and general tasks

The sixth and final group contained tasks that did not naturally sit with others. Accordingly, they contained a variety of dissimilar, miscellaneous tasks, from administration to dealing with violent subjects. These tasks are presented in Table 9.

Defending oneself from attack by a person with a weapon is a topic included in many international curricula. NZP documentation and current training requires the completion of an online ‘tactical options report’ – following any use-of-force.

While any officer may encounter any type of situation, if there was evidence (through communications or knowledge of subject history) that a physical confrontation were likely, officers who are physically more competent (as judged by the sergeant, members on the section, and/or themselves) would preferentially attend those jobs.

All officers spoke of the importance of operating tactically - e.g. getting additional information from the communications centre regarding a subject or job, how to approach certain jobs (for example domestic disputes or street fights), or in dealing with certain subjects (such as those that are drug- or mentally-impaired).

Physically searching individuals following detainment was a technique contained in all international curricula, and was observed in all arrest situations during observations.

Officers regarded dealing with people who are drunk or otherwise mentally disordered as a huge part of the job. Two officers interviewed, and all seven participants in the focus group noted the importance of knowing the laws under which they operated, while one did not see this as important, but instead operated in 'good faith', knowing the law would back them up if they did so. This officer’s view is contradictory to current NZP training, which stresses the importance of knowledge of the law and NZP policy.

Table 9

Group 6 of Tasks, Classified by Defensive Tactics Instructors

Group Six
Deal with a subject who is holding a weapon (non-firearms e.g. knife) who is non-compliant.
Complete an online tactical options report.
Deal with (including decision making and physical tasks) a subject who has the potential/history for violence.
Conduct a search of a person.
Escalate and/or de-escalate the use-of-force/tactical option to control the situation.
Deal with someone who is drunk, drugged, or a mental health patient.
Apply police policy and the laws on the use-of-force.
Apply preventative measures against positional asphyxia.
Deal with conflict in crowded environments

Stage 4: Validation of tasks: Questionnaire

Having identified the PE and DT related tasks, in Stage 4, the aim was to obtain criticality ratings for the tasks. Item response values for difficulty, importance, and frequency for all tasks are presented in Appendix I.

Participants' characteristics

A total of 327 officers responded to the questionnaire (47% of the 700). Two volunteers' contributions were removed from the analysis due to their incorrect completion of the questionnaire. Of the remaining sample, 271 were male and 54 female.

Response rates varied between 31% and 58% across each of the 12 police districts. Senior Constables (who have 14 years or more experience) had the highest response rate of any sub-group (59%), with regular constables and probationary constables (typically with less than 2 years' experience) responding in 45% and 47% of cases respectively. The response rates by proximity of home station location was highest in more rural locations, with little substantial difference between these and metropolitan locations (44% for urban, 46% for metro, and 51% for rural and 1, 2, 3 person stations). Officers who most strongly associated with 'European' ethnicity were the largest group of responders (262), followed by Maori (30), Pacific Islander (10), and Asian (9). The ethnic-distribution of the population is not available, and so response rates by ethnicity are unknown.

Response rate by age

The distribution of respondents' ages is shown in Figure 4. The mean age of the respondents was 35 years, with a standard deviation of 8 years. The youngest respondent was 19, the oldest 60.

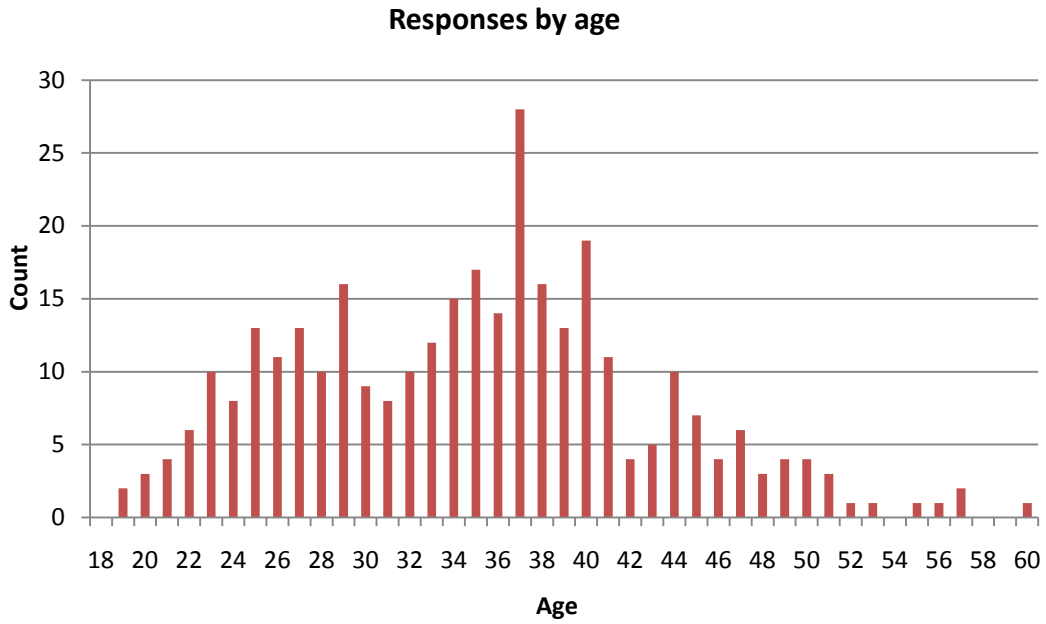

Figure 4. **Distribution of respondents by age.**

Figure 5 shows the distribution of experience amongst respondents. The mean front-line experience was 7 years, with a standard deviation of 6 years, and range 0 to 39 years.

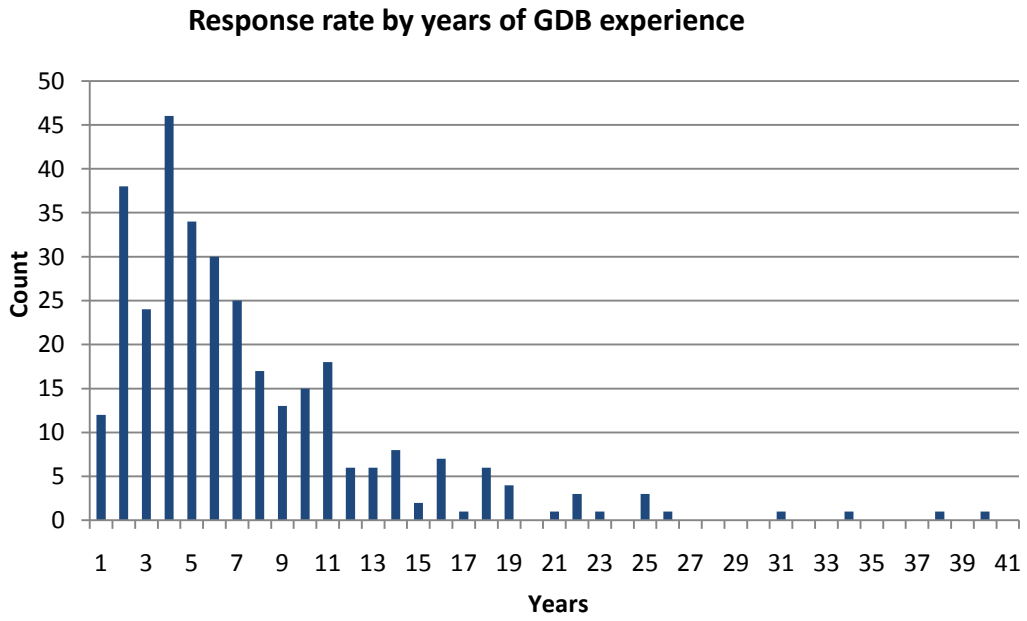

Figure: 5. **Distribution of respondent front-line experience to the nearest year.**

As presented in Table 10, the mean height of respondents was 1.79m, mean weight 87kg, and the mean 'physical competency test' time was 2:13. Of the 325 respondents, 84 had completed a graduate degree. On average, male respondents were older, had more front-

line experience, were taller, heavier, less likely to have completed a graduate degree, and were, on average, faster over the police obstacle course (PCT) than female officers.

Table 10

Respondent Graduate Status, Age, Front-Line Experience, Height, Weight, and PCT Time by Gender

Variable	Male	Female	Total/ Average
Number of respondents	271	54	325
Have a graduate degree	68	16	84
Age (years)	35	34	35
Front-line experience (years)	6.8	4.7	6.5
Height (meters)	1.81	1.67	1.79
Weight (kilograms)	91	67	87
PCT time (minutes: seconds)	2:08	2:37	2:13

Analysis of logit data

Item response analysis provided a pragmatic way of collating Likert values, in a way that accounts for individual differences in respondents and items. Item response logit values, derived from the sample of responses on the Likert scale, varied from 4.74 to -5.57 for difficulty; 5.23 to -4.59 for importance; and 4.80 to -7.62 for frequency. The item responses (logits) for each of the 45 tasks are presented in Appendix I.

The item parameter scores for the five highest- and lowest-rated tasks on each dimension (difficulty, importance, and frequency) are presented in Tables 11-16 below.

Table 11 presents the five most difficult tasks, as rated by respondents. These are all related to dealing with non-compliant or violent people in close quarters. Notably, dealing with a subject holding a weapon was rated as the most difficult of all tasks by a considerable margin, representing, arguably, the most potentially lethal and unpredictable situation an officer faces. This was supported in the qualitative response section of the questionnaire in which respondents typically focused on empty-hand tactics (with ground control, grappling, 'control and restraint', non-handcuff restraints, escorting resisting subjects, and counters - punches, kicks etc. - being often-cited techniques). Additionally, many officers mentioned martial arts as being useful for their jobs - with wrestling and Brazilian Jiu Jitsu being the most often cited.

Table 11

The Five Most Difficult Tasks, as Measured by Item Parameter Scores

Task description	Item parameters
Deal with a subject who is holding a weapon (non-firearms e.g. knife) who is non-compliant	4.07
Apply handcuffs to a non-compliant subject - not on the ground	2.99
Getting into a position of dominance when in close quarters	2.92
Defend against an assault on the ground	2.88
Deal with two of more non-cooperative subjects at a time (per officer)	2.88

The five least difficult tasks are presented in Table 12. Using an expandable baton for purposes other than controlling a subject, ceremonial drill movements, and compliant handcuffing were the three lowest-rated tasks in terms of difficulty. Applying handcuffs to a compliant person, using an expandable baton for a purpose other than to control a subject, and pepper spraying an animal are all tasks that could likely be performed effectively by front-line officers without any specific training. The qualitative data also showed officers considered compliant handcuffing not difficult to learn.

Table 12

The Five Least Difficult Tasks, as Measured by Item Parameter Score

Task description	Item parameters
Use an expandable baton for a purpose other than controlling a subject (e.g. to break a window)	-1.23
Perform ceremonial/drill movements (e.g. saluting, standing at attention)	-0.69
Apply handcuffs on a compliant subject to temporarily restrain them	-0.46
Use pepper spray on an animal	-0.23
Complete an online tactical options report	0.02

The five most important tasks to being an effective front-line officer, as rated by questionnaire respondents are presented in Table 13. As was the case for the most difficult tasks, all of these tasks involved dealing with non-compliant people. Again, dealing with a

subject with a weapon is the highest rated of all tasks, unsurprisingly, considering the potential severity of these situations. Despite a number of officers mentioning physical conditioning and maintaining a reasonable level of fitness as being important to their role (qualitatively), no specific conditioning tasks were present in this list.

Table 13

The Five Most Important Tasks, as Measured by Item Parameter Score

Task description	Item parameters
Deal with a subject who is holding a weapon (non-firearms e.g. knife) who is non-compliant	6.06
Apply handcuffs to a non-compliant subject on the ground	4.14
Restrain/control a subject on the ground	4.12
Defend yourself against a physical assault (e.g. punch, grab, spit or kick)	4.02
Tactically separating potentially violent subjects (e.g. in a domestic)	3.99

The five least important tasks are presented in Table 14. Performing ceremonial drill was rated as the least important task on the questionnaire by a considerable margin. Of all the tasks included in the questionnaire, clearly job incumbents see drill as a task that is the most irrelevant to the front-line job. This conclusion is also supported by the qualitative data.

Table 14

The Five Least Important Tasks, as Measured by Item Parameters

Task description	Item parameters
Perform ceremonial/drill movements (e.g. saluting, standing at attention)	-2.11
Use an expandable baton for a purpose other than controlling a subject (e.g. to break a window)	0.14
Deal with a subject in a body of water (e.g. rescue or apprehend from a pool, lake, sea etc.)	0.58
Complete an online tactical options report	0.70
Use pepper spray on an animal	0.76

The five most frequently-performed tasks are presented in Table 15. Apart from conducting a search of a person, these tasks all involve the officer formulating and then executing a plan to deal with non-cooperative persons in non-physical ways.

This frequency data, shown in Table 15, gives evidence that these techniques and tactics are commonly employed in the front-line role (for example, assessing risk and tactical communication).

Table 15

The Five Most Frequently Performed Tasks, as Measured by Item Parameter Score

Task description	Item parameters
Assess the risk of a subject quickly (e.g. through a combination of body language, response to officers presence, and background information)	3.59
Deal with someone who is drunk, drugged, or a mental health patient	3.15
Use verbal communications to gain control of a subject who is non-compliant	3.04
Conduct a search of a person	2.76
Deal with (including decision making and physical tasks) a subject who has the potential/history for violence	2.47

The five least-frequently performed tasks are presented in Table 16. The two lowest-rated tasks support the findings from the qualitative data, confirming that water based and drill tasks are not frequently performed by front-line officers. The rare application of the carotid hold contradicts the interviews with front-line officers.

Table 16

The Five Least Frequently Performed Tasks, as Measured by Item Parameter Score

Task description	Item parameters
Perform ceremonial/drill movements (e.g. saluting, standing at attention)	-4.21
Deal with a subject in a body of water (e.g. rescue or apprehend from a pool, lake, sea etc.)	-3.66
Using a side handle baton to control a subject/situation	-3.32
Apply the Carotid Hold to a subject	-3.16
To restrain persons with unique physical circumstances (e.g. one legged, one armed, large wrists - can't fit handcuffs, pregnant women, wrists in a cast …)	-3.14

The tasks that were rated highest in difficulty were also rated highly in importance, and similarly, but to a less degree, for tasks rated highly in importance and frequency. There was a strong, positive and significant correlation (0.82) between those tasks rated as difficult and important, a moderate positive correlation between importance and frequency ratings (0.55), and a weak and non-significant correlation between difficulty and frequency (0.16).

Research Aim Two: To identify the criticality (a combination of frequency, importance, and difficulty) given to the PE and DT tasks as they relate to the performance of their duties.

Using the item response values, tasks were classified into groups according to the Bramley framework. A cluster analysis was also performed for comparison with the framework. The groupings for both the Bramley framework and cluster analysis are presented in Appendix J.

All quotes addressing research aims two, three, and four relate to the interviews with management, unless otherwise stated.

Bramley framework

As presented in Table 17, application of the Bramley framework resulted in 25 of the 45 tasks being identified as requiring training (training level 1-3), and the remaining 20

classified as 'do not train' (training level 4 and 5), see Appendix J for the grouping of tasks.

Table 17

Tasks Classified by Training Level of the Bramley (1993) Framework

Training Level	Count
1 - Over train and reinstate at intervals	9
2 - Training to job proficiency level	14
3 - Training to 'need to be aware' of level	2
4 - Do not train	7
5 - Do not train	13

Tasks that were to be included in the curriculum under the Bramley framework were those that were rated highest in difficulty and importance. However, these tasks showed no relationship with frequency.

As presented in Table 18, the tasks classified as highest training priority all involve dealing with violent people. These tasks are classified as 'over-train and reinstate at intervals' by the Bramley framework. While they are rated as difficult and important, many of these tasks are not performed frequently. It is assumed in under the Bramley framework that tasks that are more frequently performed require less of a training focus than otherwise equal tasks, because they are practiced and reinforced sufficiently on-the-job.

Table 18

Tasks Classified at Training Level One by Bramley Training Level

Training Level One
Using a TASER to control a violent subject.
Use a punch, palm, elbow, kick, knee or stomp on a subject.
Defend yourself against a physical assault (e.g. punch, grab, spit or kick).
Getting into a position of dominance when in close quarters.
Deal with two of more non-cooperative subjects at a time (per officer).
Defend against an assault on the ground.
Restrain/control a subject on the ground.
Application of other mechanical restraints (excluding handcuffs).
Deal with a subject who is holding a weapon (non-firearms e.g. knife) who is non-compliant.

Training level two tasks are dominated by those tasks rated as difficult, that are performed more frequently than those classified as training level one. Similarly, they involve dealing with non-compliant people. They are classified as ‘train to job proficiency levels’ by the Bramley framework.

Table 19

Tasks Classified at Training Level Two by Bramley Training Level

Training Level Two
Use strength to deal with an incident (e.g. to control a subject physically).
Using a side handle baton to control a subject/situation.
Apply the Carotid Hold to a subject.
Restrain a subject standing up using a hold other than the Carotid Hold (e.g. wrist lock).
Break up fights between individuals.
Deal with non-cooperative, potentially violent people in cells.
Take or tackle a subject to the ground.
Apply handcuffs to a non-compliant subject on the ground.
Apply handcuffs to a non-compliant subject - not on the ground.
Act as part of a 'section/group/squad' to clear an area (e.g. move a group of people down a road, clear a house party).
Working tactically with a colleague (e.g. contact/cover).
Deal with (including decision making and physical tasks) a subject who has the potential/history for violence.
Deal with someone who is drunk, drugged, or a mental health patient.
Deal with conflict in crowded environments

Training level three comprises tasks that are rated as either difficult and frequently-performed, but not important; or not difficult, but important (see Figure 1). They are classified as ‘train to a – need to be aware – level’ by the Bramley framework. As presented in Table 20, only two of the 45 tasks are classified as such, and share no obvious similarity.

Table 20

Tasks Classified at Training Level Three by Bramley Training Level

Training Level Three
Use pepper spray to control a subject: depriving them of vision and/or through pain compliance.
Apply preventative measures against positional asphyxia.

Table 21 contains tasks classified as training level four, and represents the first of two groups classified as ‘do not train’ by the Bramley framework. Despite this, and due to the

methods used to categories tasks in ‘difficulty’, ‘importance’, and ‘frequency’ (as will be discussed later), many of these tasks (such as communications, assessment of risk, escalation and de-escalation, and applying police policy) have substantial qualitative support for inclusion in the curriculum.

Table 21

Tasks Classified at Training Level Four by Bramley Training Level

Training Level Four
Use verbal communications to gain control of a subject who is non-compliant.
Assess the risk of a subject quickly (e.g. through a combination of body language, response to officers presence, and background information).
Tactically separating potentially violent subjects (e.g. in a domestic).
Physically move a 'passively resistant' person from an area
Conduct a search of a person.
Escalate and/or de-escalate the use-of-force/tactical option to control the situation.
Apply police policy and the laws on the use-of-force.

As presented in Table 22, training level five represents tasks classified as not difficult and not important, regardless of their frequency ratings. Similar to training level four, they are classified as ‘do not train’; yet the qualitative data for some of these tasks none the less, suggests they should be included. These tasks include endurance, sprinting, redirecting (potentially risky subjects to gain space), and compliant handcuffing. These apparent inconsistencies will be addressed in the discussion section.

Table 22

Tasks Classified at Training Level Five by Bramley Training Level

Training Level Five
Use endurance to deal with an incident (e.g. chase a subject for greater than minutes)
Run or sprint to deal with an incident (e.g. to chase a subject for less than minutes)
Deal with a subject in a body of water (e.g. rescue or apprehend from a pool, lake, sea etc.)
Negotiate various obstacles
Perform ceremonial/drill movements (e.g. saluting, standing at attention)
Use pepper spray on an animal.
Use an expandable baton to gain compliance/control a subject/situation.
Use an expandable baton for a purpose other than controlling a subject (e.g. to break a window).
Strike a subject with a weapon of opportunity (e.g. torch, radio) to control the situation/subject.
Redirect a subject to create space.
Apply handcuffs on a compliant subject to temporarily restrain them.
To restrain persons with unique physical circumstances (e.g. one legged, one armed, large wrists - can't fit handcuffs, pregnant women, wrists in a cast, etc.)
Complete an online tactical options report.

Cluster analysis

Cluster analyses were conducted using a variety of clustering algorithms, and distance measures, including Euclidean and Log-likelihood distance measures, and Schwarz's Bayesian Criterion and Akaike's Information Criterion cluster criteria. The difference between these distance measures and cluster criteria is in the specific algorithms they use to differentiate the clusters. Although the criterion method did not affect the number of clusters generated, the distance measure did, with Log-likelihood yielding one cluster and Euclidean distance measures yielding two clusters. Only the results of the latter method are reported here.

Group one contained 40 tasks that were, generally, supported by the qualitative evidence. In contrast, cluster two contained five tasks, none of which received substantial support

for inclusion in the curriculum from front-line staff (see Appendix J). Cluster one tasks were rated at substantially higher levels of difficulty and importance than cluster two tasks, and as the five tasks classified as cluster two, were all classified as training level five, under the Bramley framework (see Appendix J). In conjunction with the qualitative data, it is clear job incumbents believe that those tasks classified in cluster two are not a training priority.

Analysis by officer demographics

Research Aim Three:To establish if there are differences in task criticality ratings by front-line officers in relation to their location (urban/rural), gender, age, front-line policing experience, physical size, or level of education.

A variety of statistical tests were used (*t*-tests, ANOVAs, regression analysis, Chi-square) to determine if there were differences in ratings based on officer demographics.

There were some significant differences in officers' responses to ratings based on the officers' weight, front-line experience, age, location, and ethnicity. Specifically, officers who were older, had more front-line experience, or worked in the most rural locations reported using force less often than other officers. These officers also reported using communications to gain compliance from a non-compliant person less often. No significant differences in frequency of empty-hand use were between any groupings of officer characteristics, although those with more front-line experience judged these tasks to be more important to being effective in the role.

As would be expected, there was a strong, positive correlation between officers' age and their front-line experience; $r(1,325)=0.64$, $p<.01$. Similarly, there was a small, positive correlation between the age and weight of respondents; $r(1,325)=0.25$, $p<.01$, and a significant relationship between the age of the officer and their location, a regression analysis showed a significant relationship; $F(3,324)=10.88$, $p<.01$. The mean and standard deviation for officers' age, based on location, is presented in Table 23. As this table shows, those officers in more country-based locations were older than officers in more city-based locations, although significant differences were found only between adjoining locations for urban and rural officers; $t(187)=3.19$, $p<.01$.

Table 23

Descriptive Statistics for Officer Age (in years), by their Location

Location	Mean	N	SD
1, 2, 3 person station	41.2	22	7.3
Rural	38.0	56	6.8
Urban	34.0	131	8.4
Metro	33.1	116	7.2

Gender

There were no significant differences between the mean baseline overall values of male and female respondents for difficulty; $t(1,323)=0.64$, $p=0.53$; importance $t(1,322)=0.82$, $p=0.41$; or frequency $t(1,323)=0.61$, $p=0.55$.

Table 24 presents the mean and standard deviations of the use-of-force and empty-hand values, based on officer gender. There were no significant differences between mean ratings of male and female officers use-of-force ratings for difficulty; $t(1,320)=0.46$, $p=0.65$; importance $t(1,322)=0.97$, $p=0.33$; or frequency $t(1,320)=0.58$, $p=0.57$, nor any significant differences between ratings based on gender and the empty-hand ratings; for difficulty; $t(1,317)=1.40$, $p=0.16$; importance $t(1,309)=0.57$, $p=0.57$; or frequency $t(1,318)=1.12$, $p=0.26$. Similarly, there was no significant difference between gender and communications responses for difficulty; $\chi 2(9)=10.96$, $p=0.72$; importance $\chi 2(9)=9.63$, $p=0.62$; or frequency $\chi 2(9)=15.94$, $p=0.93$.

Table 24

Mean and Standard Deviation of Difficulty, Importance, and Frequency Use-Of-Force and Empty-Hand Logits, by Officer Gender

	Male			Female		
	N	Mean	SD	N	Mean	SD
Difficulty use-of-force logit	268	-0.02	1.90	54	0.11	1.90
Importance use-of-force logit	270	0.04	1.56	54	-0.19	1.65
Frequency use-of-force logit	268	0.03	2.04	54	-0.14	1.57
Difficulty empty-hand logit	266	0.07	1.95	53	-0.35	2.07
Importance empty-hand logit	261	0.08	6.41	50	-0.44	1.67
Frequency empty-hand logit	267	-0.06	2.22	53	0.31	2.03

Graduate degree

There were no significant differences between those with graduate degrees and those without for the baseline values of difficulty; $t(1,323)=0.13$, $p=0.20$; or frequency $t(1,323)=0.17$, $p=0.87$.

Figure 6 shows the relationship between the graduate status of the officer and baseline importance ratings. Those with graduate degrees reported significantly higher baseline importance ratings than those without; $t(1,322)=2.01$, $p=0.05$. Those with graduate degrees tended to rate items on the questionnaire as being of more importance to being effective in the front-line role than those without a graduate degree.

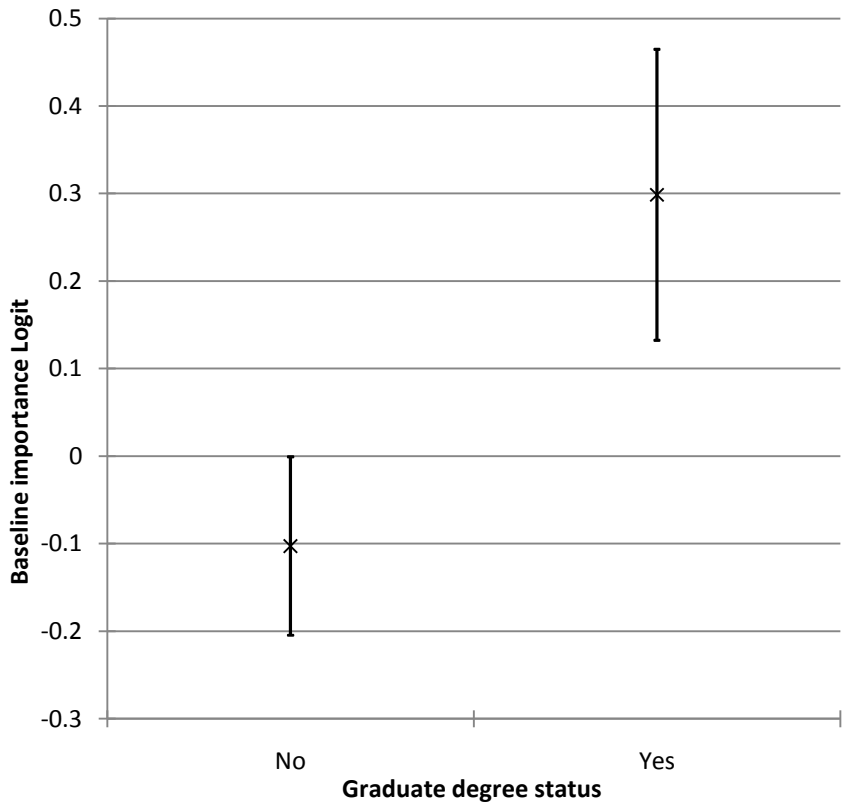

***Figure 6*. Baseline importance values against graduate degree status. Error bars show standard error of the mean.**

Table 25 shows the descriptive statistics for the baseline logits, as they relate to graduate status.

Table 25

Mean and Standard Deviation of Difficulty, Importance, and Frequency Logits, by Officer Graduate Status

	Graduate			Non-graduate		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
Difficulty logit	84	0.18	1.50	241	-0.06	1.47
Importance logit	83	0.30	1.51	241	-0.10	1.58
Frequency logit	84	-0.02	1.66	241	0.01	1.48

Table 26 presents the use-of-force logit values for graduates and non-graduates. There was no significant difference between the use-of-force logits and graduate degree status for difficulty; $t(1,320)=1.66$, $p=0.10$; importance $t(1,322)=0.78$, $p=0.44$; or frequency $t(1,320)=0.43$, $p=0.67$.

Table 26

Descriptive Statistics for 'Use-Of-Force' Logit, by Graduate Degree Status

	Graduate			Non-graduate		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
Difficulty use-of-force logit	82	0.30	1.89	240	-0.10	1.89
Importance use-of-force logit	83	-0.12	1.62	241	0.04	1.56
Frequency use-of-force logit	81	0.08	1.71	241	-0.02	2.05

Table 27 shows the mean and standard deviation of empty-hand logit values, based on officer graduate status. There was no significant difference between empty-hand values and graduate status for difficulty; $t(1,317)=1.20$, $p=0.23$; importance $t(1,309)=0.52$, $p=0.61$; or frequency $t(1,318)=0.46$, $p=0.65$; nor for graduate status and communications values for difficulty; $\chi 2(9)=4.08$, $p=0.09$; importance $\chi 2(9)=10.16$, $p=0.66$; or frequency $\chi 2(9)=6.62$, $p=0.32$.

Table 27

Descriptive Statistics for 'Use-Of-Force' Logit Values, by Graduate Status

	Graduate			Non-graduate		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
Difficulty empty-hand logit	83	-0.22	1.87	236	0.07	2.01
Importance empty-hand logit	78	-0.30	1.72	233	0.10	6.76
Frequency empty-hand logit	83	-0.09	2.00	237	0.03	2.26

Weight

Regression analysis showed there was no significant association between weight and participant baseline ratings for difficulty; $F(1,324)=0.17$, $p=0.68$; or importance $F(1,323)=1.62$, $p=0.20$, although marginally significant, ratings between officer weight and frequency were noted; $F(1,324)= 3.61$, $p= 0.06$. Those weighing more reported performing the tasks in the questionnaire less frequently overall. There were no significant associations for use-of-force and weight for difficulty $F(1,321)=0.10$, $p=0.76$; importance $F(1,323)=2.18$, $p=0.14$; or frequency $F(1,321)=3.28$, $p=0.07$; or for weight and empty-hand logit values for difficulty $F(1,318)=0.21$, $p=0.65$; importance $F(1,310)=2.20$, $p=0.14$; or frequency $F(1,319)=0.35$, $p=0.55$. Similarly, no significant relationships were found between the physical weight of the officer and ratings of communications use for difficulty; $\rho(1,325)=-0.03$, $p=0.61$; or importance: $\rho(1,325)=-0.07$, $p=0.22$.

Figure 7 shows the relationship between officer weight and Likert frequency responses for the communications task. There was a significant correlation; $\rho(1,325)=-0.16$, $p<0.01$, shown in Figure 7 describes a tendency for lighter officers to use communications more often to gain control of a non-compliant subject.

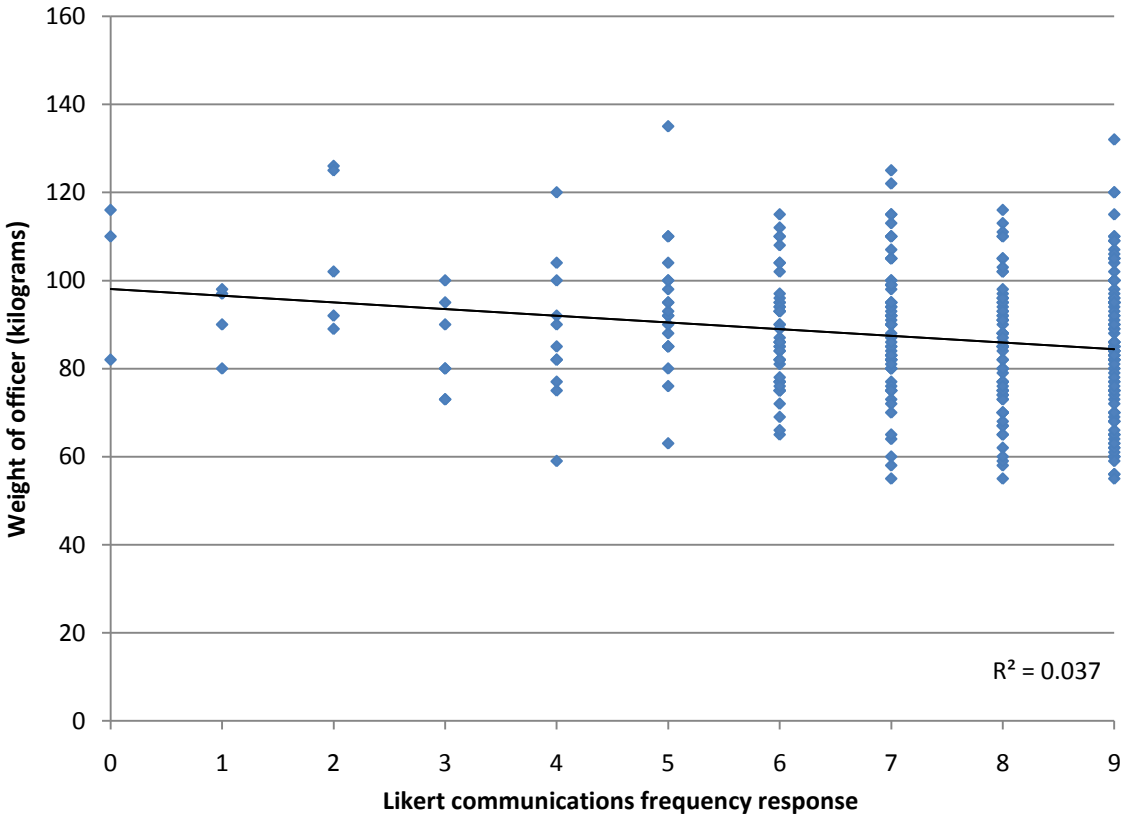

***Figure 7*. Scatter plot for baseline frequency response against officer weight, with regression line.**

Height

Regression analysis showed there was no significant association between height and baseline response values for difficulty; $F(1,324)=0.25$, $p=0.62$; importance $F(1,323)=2.31$, $p=0.13$; or frequency $F(1,324)=0.73$, $p=0.40$. Nor were there significant associations between the use-of-force logit and height for difficulty; $F(1,321)=0.34$, $p=0.56$; importance $F(1,323)=0.18$, $p=0.67$; or frequency $F(1,321)=0.99$, $p=0.32$; nor for height and the empty-hand logit for difficulty, importance and frequency; all $t<1$; nor between the height of the officer and their ratings of communications use for difficulty; $\rho(1,325)=0.02$, $p=0.74$; importance; $\rho(1,325)=-0.07$, $p=0.19$; or frequency; $\rho(1,325)=-0.09$, $p=0.10$.

Physical Competency Test (obstacle course)

Regression analysis showed there was no significant association between physical competency test time and difficulty; $F(1,324)=0.04$, $p=0.85$; or importance $F(1,323)=2.58$, $p=0.11$. Those taking more time to complete their physical competency tests reported performing the tasks less frequently, on average, a result that approached significance; $F(1,323)=3.40$, $p=0.07$. There was no significant associations between the time an officer takes to complete the NZP physical competency test and the use-of-force logit for difficulty; $F(1,321)=0.22$, $p=0.64$; importance $F(1,323)=1.16$, $p=0.28$; or frequency $F(1,321)=2.53$, $p=0.11$; nor was there any significant association for the empty-hand logit values for difficulty; $F(1,321)=2.53$, $p=0.21$; importance $F(1,310)=1.58$, $p=0.51$; or frequency $F(1,319)=0.43$, $p=0.16$; nor for communications use for difficulty; $\rho(1,325)=-0.09$, $p=0.09$; importance: $\rho(1,325)=-0.01$, $p=0.86$; or frequency: $\rho(1,325)=-0.04$, $p=0.54$.

Front-line experience

There was no significant association between experience and participant ratings for difficulty; $F(1,324)=0.01$, $p=0.98$. Importance rating approached significance, with those with less front-line experience reporting higher importance ratings for those tasks; $F(1,324)=3.20$, $p=0.08$. There was a significant association between experience and frequency ratings. Regression analysis showed a significant association; $F(1,324)=13.81$, $p<0.01$.

Figure 8 presents the relationship between baseline frequency logit values and officer front-line experience. Those officers with more front-line experience, tended to rate tasks

in the questionnaire as being less frequently performed, with front-line experience accounting for 4.1% of the variance in the frequency logit distribution.

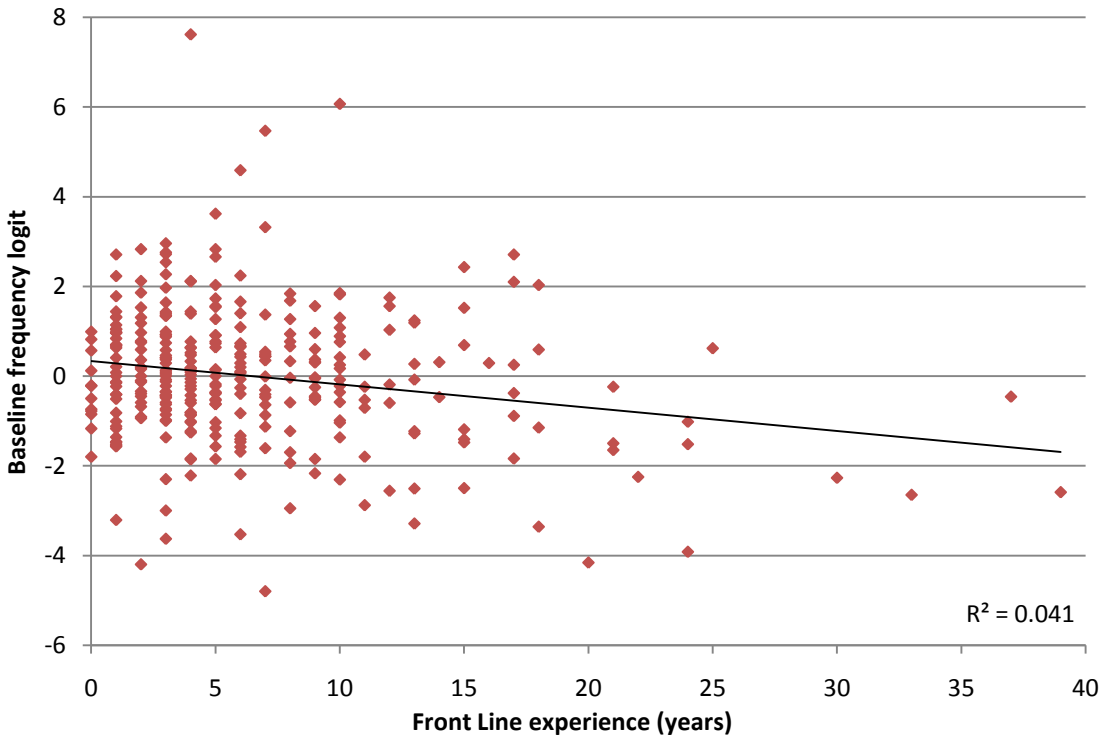

***Figure 8*. Scatter plot for baseline frequency against officer's experience, with regression line.**

There was no significant association between the amount of front-line experience and the use-of-force logit for difficulty; $F(1,321)=0.01.$, $p=0.91$; or importance $F(1,323)=0.47$, $p=0.49$. However, a significant association was found for the frequency logit; $F(1,323)=8.41$, $p<0.01$.

Figure 9 presents the relationship between the use-of-force logit and officer experience. Those officers with more front-line experience tended to rate performing these use-of-force tasks less frequently. This variable explains 2.6% of the variance in the response.

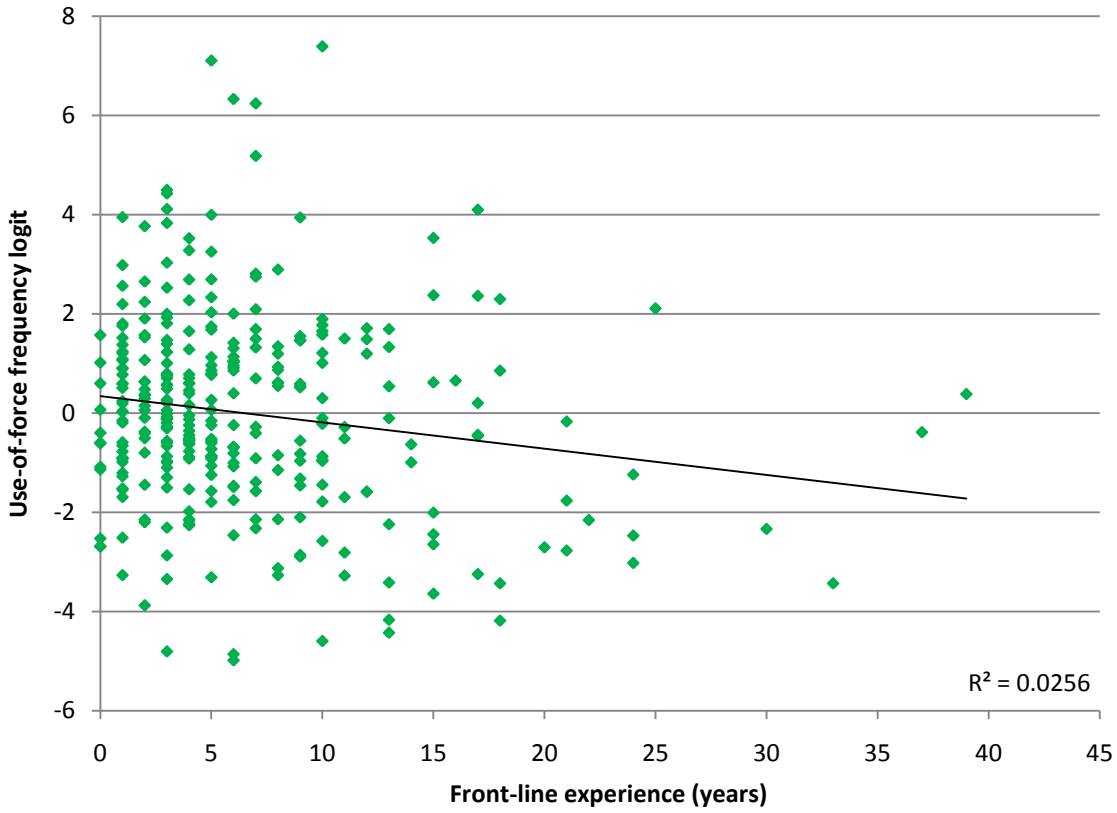

***Figure 9*. Scatter plot of use-of-force frequency against officer front-line experience, with regression line.**

There was no significant association for empty-hand logit value and front-line experience for difficulty; $F(1,318)= 0.88$, $p=0.35$; or frequency $F(1,319)=28.69$, $p=0.58$, however, regression analysis showed there was a significant association for the empty-hand importance logit value and front-line experience; $F(1,310)=0.31$, $p<0.01$.

Figure 10 presents the relationship between the empty-hand importance logit value and officer experience. Those with more experience tended to rate the empty-hand items as less important to the front-line role than others. This association accounts for 1.8% in the variance.

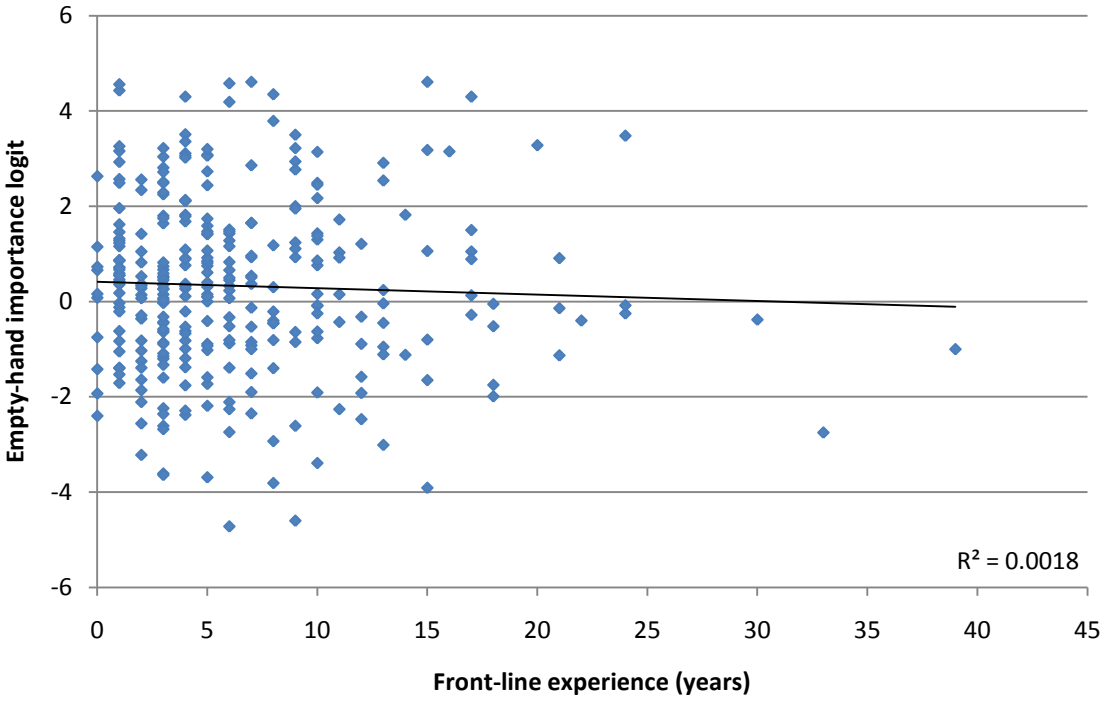

***Figure 10*. Scatter plot for importance against officer experience, with regression line.**

There were no significant association between communications use and importance; $\rho(1,325)=0.04$, $p=0.46$. Ratings for communications use and difficulty approached significance; $\rho(1,325)=-0.10$, $p=0.08$. Those with more front-line experience tended to rate using communications to control of a non-compliant person as less difficult to learn. There was a significant relationship for frequency; $\rho(1,325)=-0.17$, $p<0.01$.

Figure 11 presents the relationship between officer experience and the communications frequency ratings. As is displayed in Figure 11, officers with more front-line experience tended to report using communications to gain compliance of non-compliant people less often than those with less front-line experience.

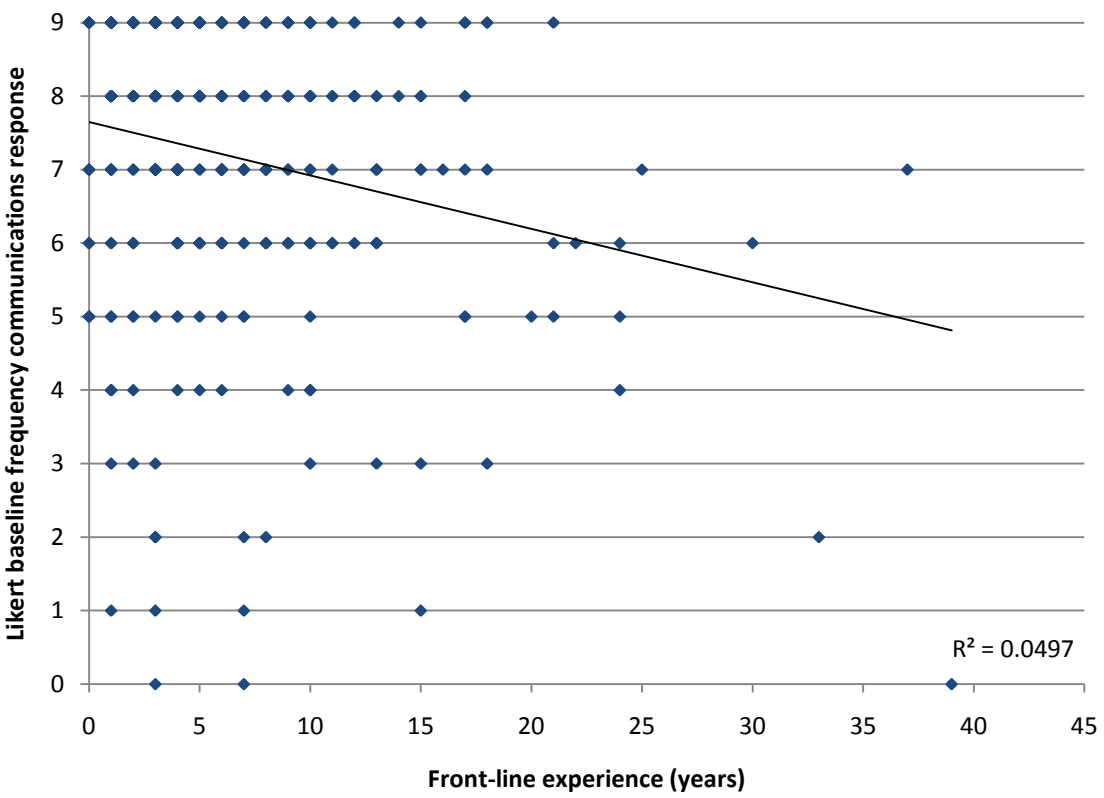

***Figure 11*. Scatter plot for communications frequency against front-line experience, with regression line.**

Age

Regression analysis showed there was no significant association between respondents' ratings based on age and difficulty; $F(1,324)=2.03$, $p=0.16$. There was a significant associations between age and importance; $F(1,323)=4.40$, $p=0.04$; and age and frequency; $F(1,323)=10.51$, $p<0.01$.

Figure 12 presents the relationship between an officer's age and the baseline importance values. Older officers tended to rate the importance of all tasks in the questionnaire higher than other officers.

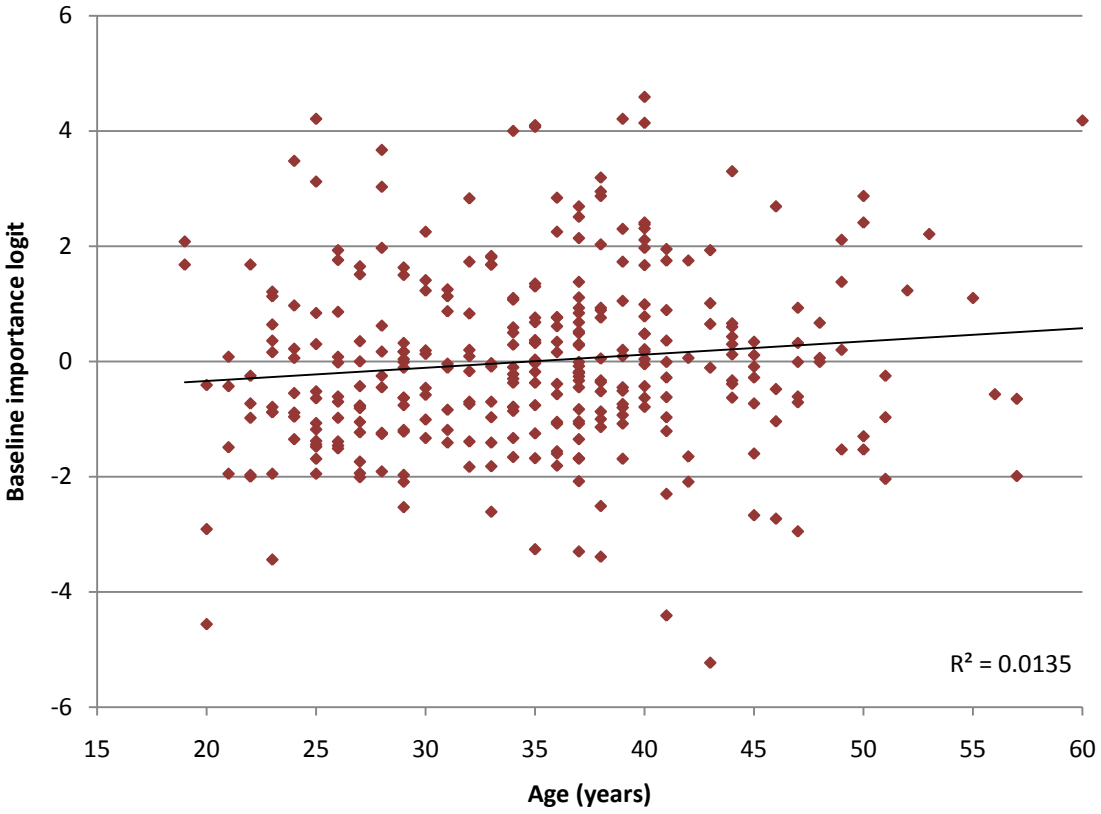

***Figure 12*. Scatter plot for baseline importance against officer age, with regression line.**

Figure 13 presents the relationship between the baseline frequency logit values and the age of the officer. As this table shows, there is a small positive correlation between these variables, with those older officers tending to rate the tasks as being performed less frequently; 3.2% of the variance in sample response was associated with age.

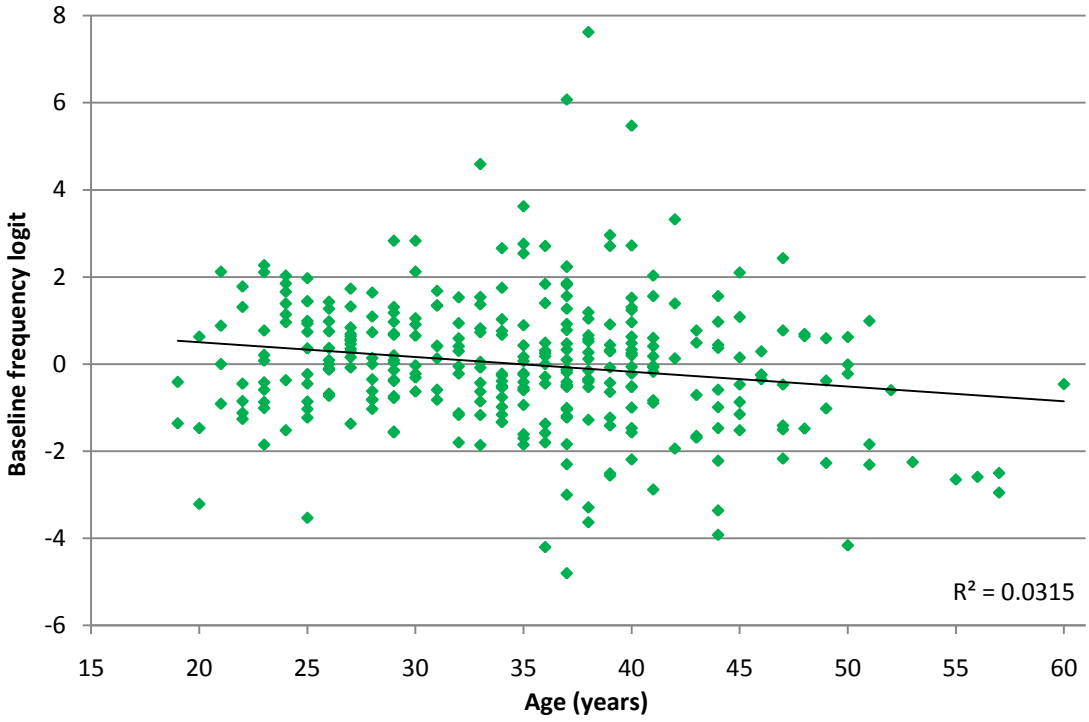

***Figure 13*. Scatter plot for baseline frequency against officer age, with regression line.**

There was no significant association between the use-of-force logit values and age for difficulty $F(1,321)=2.60$, $p=0.11$; or importance $F(1,323)=0.10$, $p=0.75$, however there was a significant association for frequency $F(1,321)=8.09$, $p=0.01$.

Figure 14 presents the relationship between the age of the officer, and the use-of-force logit values. Older officers tended to report performing use-of-force associated tasks less often.

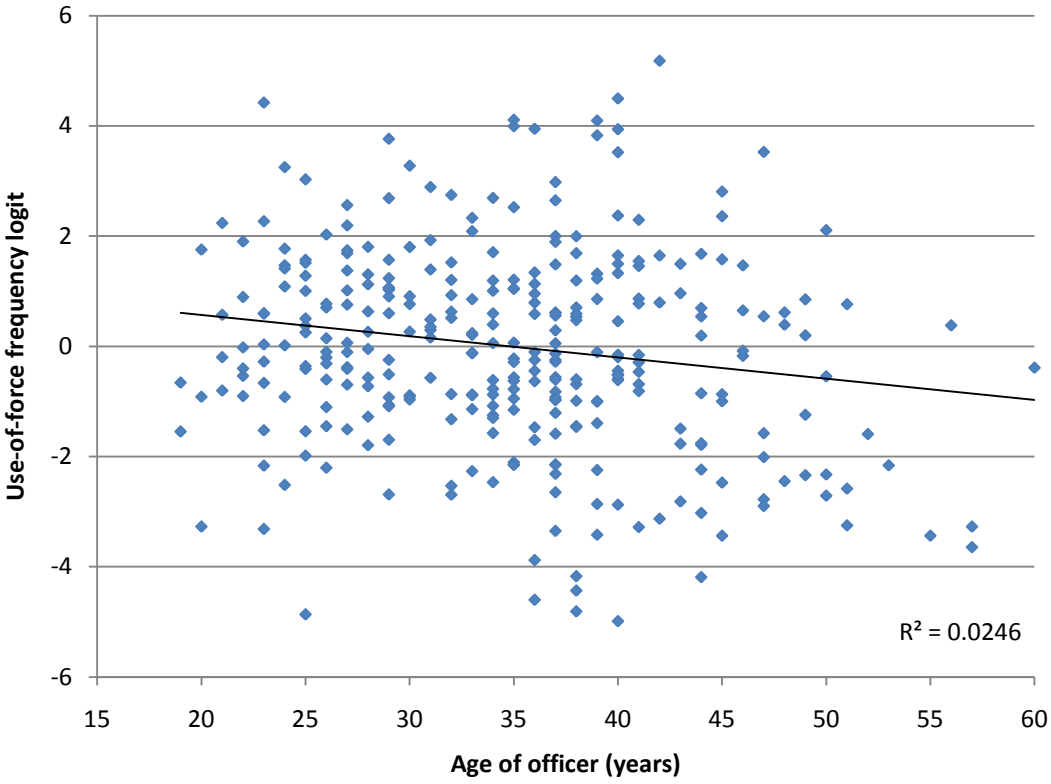

***Figure 14*. Scatter plot of use-of-force frequency against officer age, with regression line.**

There was no significant association between officers' age and empty-hand logit scores for difficulty $F(1,318)=0.34$, $p=0.56$; or frequency $t(1,319)=4.41$, $p=0.04$.

Figure 15 shows the relationship between the officers' age and the empty-hand importance logit values. There was a significant association between empty-hand importance and the age of the officer: $t(1,310)=10.89$, $p=0.01$. Older officers tended to rate empty-hand items as less important to the front-line job than other officers.

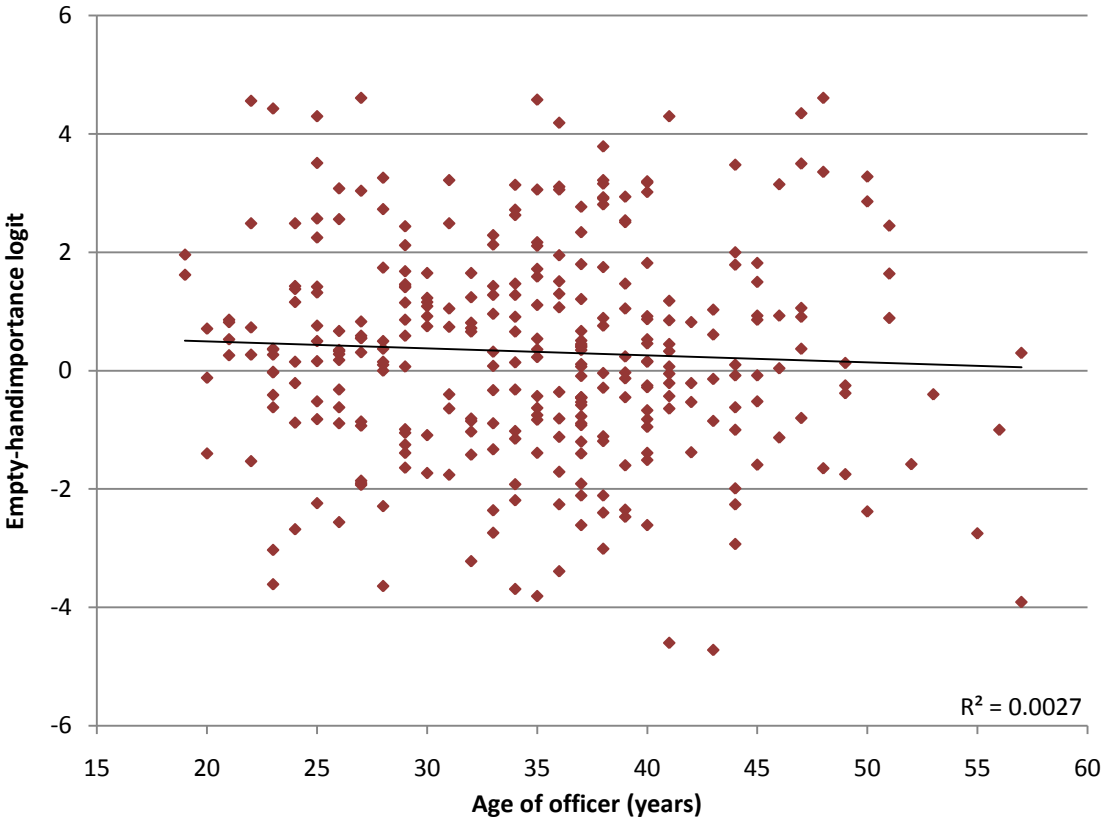

***Figure 15*. Scatter plot for empty-hand importance against officer age, with regression line.**

There were no significant association based on the age of the officer and ratings for the communications task for difficulty: $\rho(1,325)=0.03$, $p=0.60$; or importance: $\rho(1,325)=-0.01$, $p=0.81$.

Figure 16 shows the correlation between an officers' age and their response to the communications frequency task. There was a significant association between frequency ratings: $\rho(1,325)=0.22$, $p<0.01$. As displayed in Figure 16, older officers tended to report using communications on non-compliant people less often than other officers.

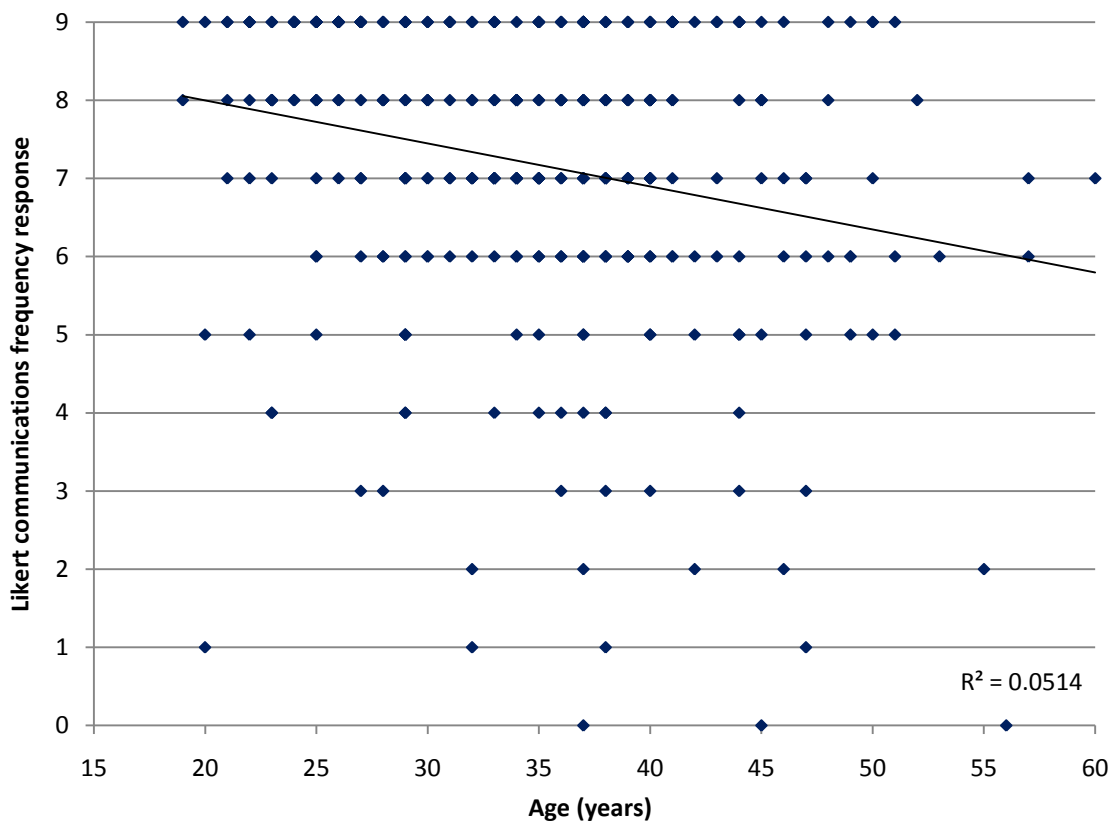

***Figure 16*. Scatter plot for communications frequency against officer age, with regression line.**

Location

ANOVA showed there was no significant difference between the location and baseline responses for difficulty $F(1,324)=1.44$, $p=0.23$; or importance $F(1,323)=0.27$, $p=0.85$. A significant difference did exist between location and baseline frequency $F(1,324)=6.64$, $p<0.01$.

Table 28 presents the mean and standard deviations for baseline frequency logits, by officer location. Metro based officers had the highest logit mean (0.28), followed by urban (0.10), rural (-0.41) and 1, 2, 3 person station (-1.06). The obvious trend in this data is that the more city-based an officer is, the more likely they were to rate a task as performed more frequently.

Table 28

Rank Order for Baseline Frequency Item Parameters

Location	Mean	N	SD
Metro	0.28	116	1.68
Urban	0.10	131	1.29
Rural	-0.41	56	1.62
1, 2, 3 person station	-1.06	22	1.17

There was no significant difference for frequency values between rural and 1, 2, 3 person station; $t(78)=1.71$, $p=0.09$; or urban and metro $t(247)=0.93$, $p=0.34$.

Figure 17 presents the relationship between baseline frequency logit and officer location. There was a significant difference between frequency ratings for urban versus rural based officers; $t(187)=2.27$, $p=0.02$. Urban-based officers rated significantly, and substantially higher frequency values than rural-based officers.

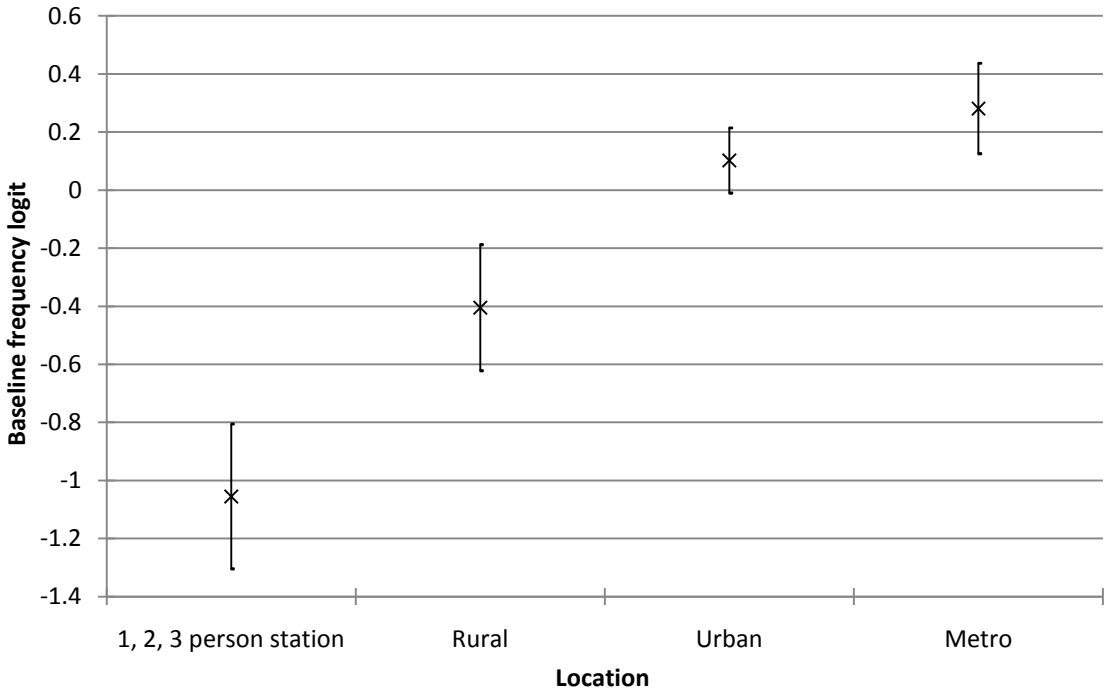

***Figure 17*. Baseline frequency values against officer location. Error bars show standard errors of the mean.**

Similarly, regarding the use-of-force values, there was no significant difference between the location and mean responses for difficulty; $F(1,321)=0.87$, $p=0.46$; or importance $F(1,323)=0.28$, $p=0.84$.

Table 29 presents the mean and standard deviation for use-of-force frequency logits by officer location. A significant difference was found between location and frequency; $F(1,321)=6.16$, $p<0.01$. As presented in this table, officers stationed at 1, 2, 3 person stations had the lowest mean use-of-force responses, followed by rural, urban, and metro based officers.

Table 29

Descriptive Statistics for Use-Of-Force Frequency Logit Values, by Officer Location

Location	Mean	N	SD
Metro	0.33	114	1.97
Urban	0.06	131	1.79
Rural	-0.21	55	2.08
1, 2, 3 person station	-1.55	22	2.09

There was no significant difference for use-of-force frequency logits between metro and urban; $t(245)=1.11$, $p=0.27$; or urban versus rural based officers; $t(186)=0.92$, $p=0.36$.

Figure 18 shows the relationship between officer location and the use-of-force frequency logits. There was a significant difference in the frequency ratings for rural versus 1, 2, 3 person station; $t(77)=2.54$, $p=0.02$. As shown in the Figure 18, 1, 2, 3 person station-based officers rated significantly, and substantially lower frequency values than the more city-based officers ($p=0.013$).

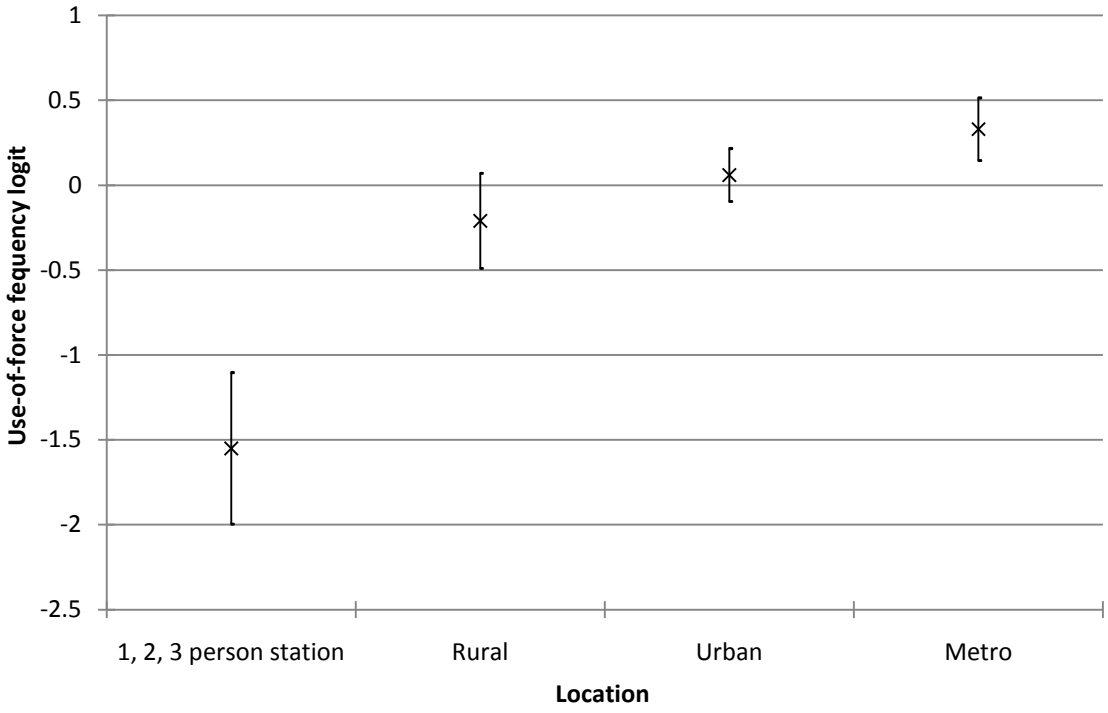

***Figure 18*. Use-of-force frequency logit values versus location. Error bars show standard errors of the mean.**

There were no significant differences between police location and ratings for empty-hand tasks for difficulty; $F(3,318)=0.23$, $p=0.88$; importance $F(3,310)=0.73$, $p=0.53$; or frequency $F(3,319)=0.85$, $p=0.47$. Similarly, there was no significant difference between location and communications values for difficulty $\chi 2(27,N=325)=23.62$, $p=0.65$ or importance ratings $\chi 2(27,N=325)=30.95$, $p=0.27$.

Figure 19 presents the relationship between officer location and the ratio of responses to the frequency ratings of the communications task. There was a significant difference based on location and frequency $\chi 2(27,N=325)=68.13$, $p<0.001$. Metro and 1, 2, 3 person stations both rated tactical communications as being performed less frequently than rural and urban officers.

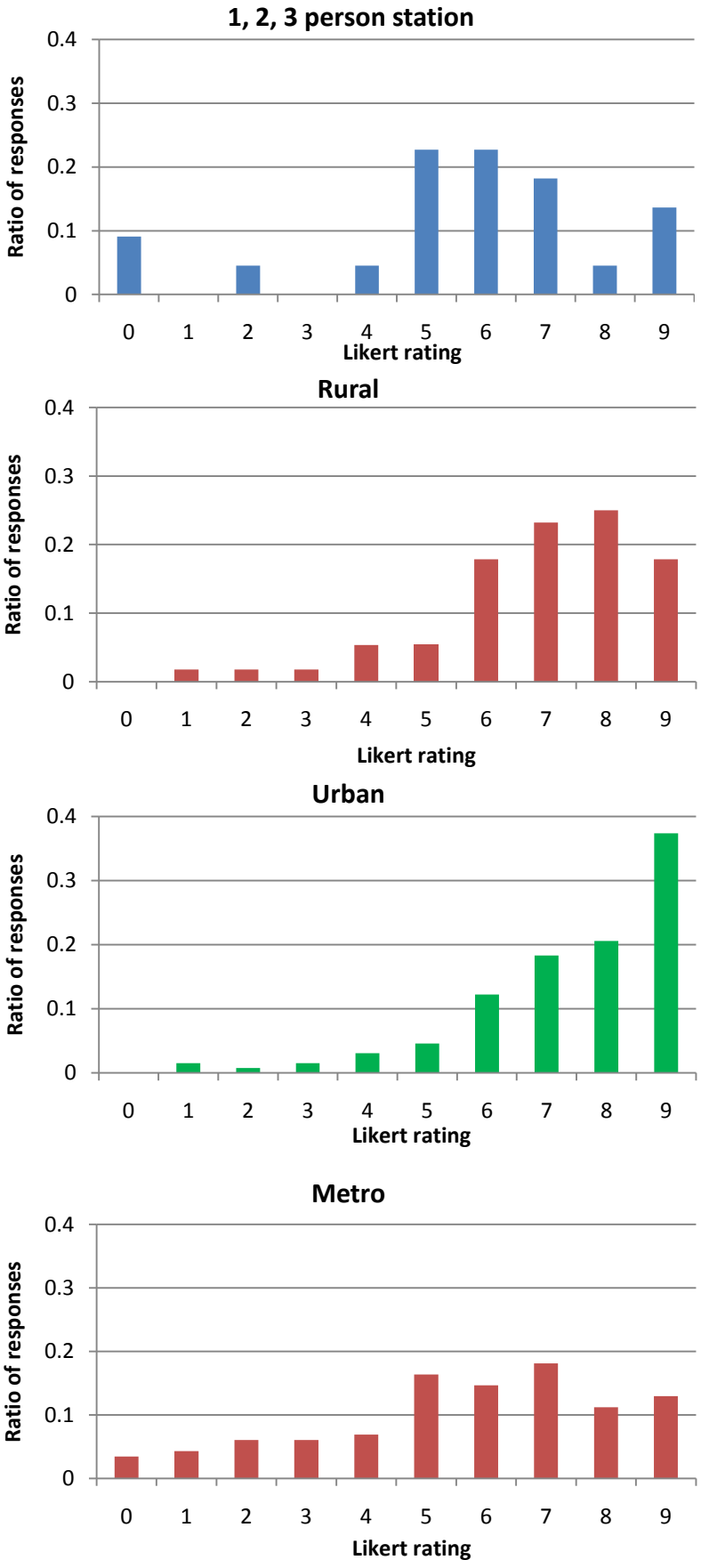

***Figure 19*. Proportion of frequency of communications Likert response, by officer location.**

District

ANOVA analysis showed there were no significant or substantial differences between police district and baseline values for difficulty; $F(11, 324)=0.87$, $p=0.57$, importance $F(11, 323)=1.40$, $p=0.17$, or frequency $F(11, 324)=1.26$, $p=025$, nor between police district and ratings for use-of-force values for difficulty; $F(11,321)=0.96$, $p=0.48$; importance $F(11,323)=0.74$, $p=0.70$; or frequency $F(11,310)=1.61$, $p=0.09$, nor for police district and empty-hand values for difficulty; $F(11,318)=0.94$, $p=0.50$; importance $F(11,310)=0.59$, $p=0.84$; or frequency $F(11,319)=1.48$, $p=0.14$; nor significant correlations between police district and communications ratings for difficulty; $\rho(1,325)=-0.023$, $p=0.68$; importance: $\rho(1,325)=0.04$, $p=0.46$; or frequency: $\rho(1,325)= 0.01$, $p=0.82$.

Ethnicity

ANVOA results based on the ethnicity of the officer are presented in Table 30.There were no significant differences between ethnicity and baseline logit values for difficulty; $F(4,324)=1.31$, $p=0.27$; or importance $F(4,323)=0.97$, $p=0.42$. There were significant differences between ethnicity and baseline frequency logits; $F(4,324)=2.63$, $p=0.03$.

Table 30

ANOVA Results for Baseline Logits and Ethnicity (Df=4)

Logit	Sum of Squares	Mean Square
Difficulty	11.48	2.87
Importance	9.63	2.41
Frequency	24.06	6.02

Table 31 presents mean and standard deviations of baseline frequency logits based on officer ethnicity. The greatest mean frequency logit based on ethnicity is for Asian (0.59), followed by Maori (0.41), and European (-0.01), and finally Pacific Islander (-1.24),

Table 31

Rank Order of Mean Baseline Frequency Logit by Ethnicity

Ethnicity	Mean	N	SD
Asian	0.59	9	1.41
Maori	0.41	30	2.18
European	-0.01	262	1.41
Pacific Islander	-1.24	10	1.95

There was no significant difference for frequency between logits between European and Maori; $t(292)=1.44$, $p=0.15$; or Maori and Asian $t(39)=0.24$, $p=0.81$.

Figure 20 presents the relationship between officer ethnicity and baseline frequency logits. There was a significant difference in frequency logits between European and Pacific Islander $t(272)=2.67$, $p=0.01$. Pacific Islanders were more likely to rate frequency items lower in the questionnaire than other ethnicities.

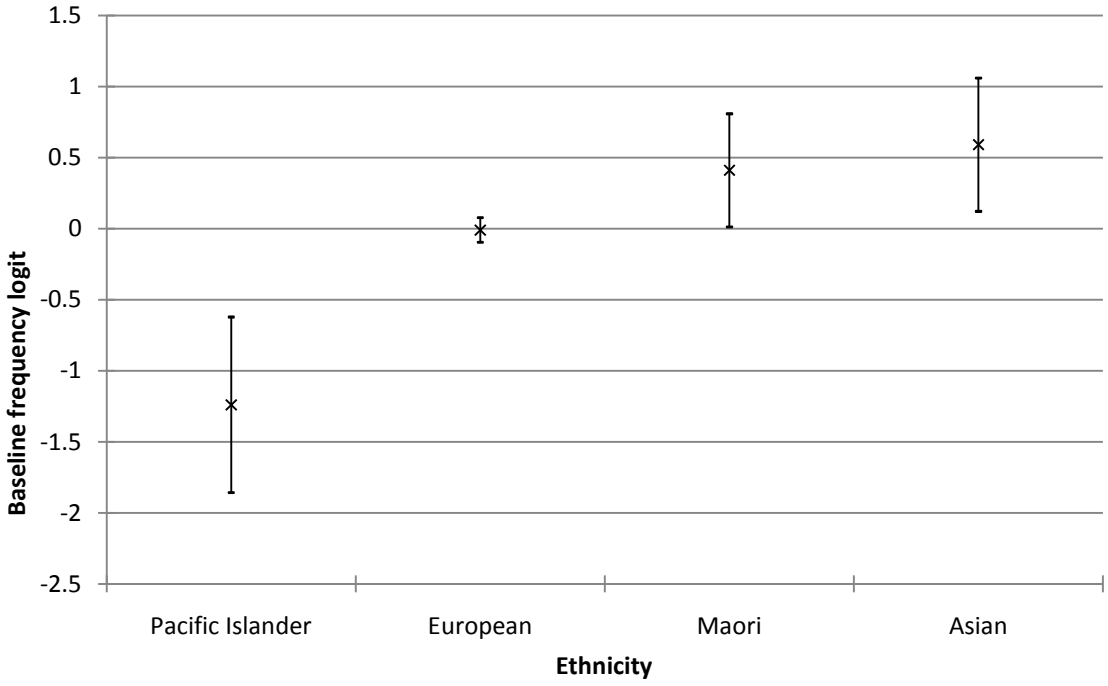

***Figure 20*. Mean baseline frequency logit by ethnicity. Error bars show standard error of the mean.**

There was no significant differences between the use-of-force values and ethnicity for difficulty; $F(4,321)=1.26$, $p=0.29$, importance $F(4,323)=0.62$, $p=0.65$, or frequency $F(4,321)=0.84$, $p=0.50$, nor for ethnicity and empty-hands logit values for importance: $F(4, 310)=0.22$, $p=0.93$; or frequency: $F(4, 319)=2.38$, $p=0.051$.

Table 32 presents the mean and standard deviation for empty-hand logit values based on officer ethnicity. There was a statistically significant difference for difficulty; $F(4,318)=2.49$, $p=0.04$. As presented in Table 32, this difference, although significant, does not appear to be especially substantial.

Table 32

Descriptive Statistics for Ethnicity and Empty-Hand Difficulty Logit Values

Ethnicity	Mean	N	SD
Asian	1.20	9	0.92
Maori	0.75	29	1.93
Pacific Islander	0.04	9	2.16
European	-0.15	258	1.96

Statistical analysis confirmed this, with no statistical differences between any consecutive categories: European and Pacific Islanders; $t(267)=0.29$, $p=0.77$; Pacific Islanders and Maori; $t(38)=0.94$, $p=0.36$; or Maori and Asian; $t(38)=0.67$, $p=0.51$. There was no significant difference for ethnicity and communications Likert values for difficulty; $\chi 2(45,N=325)=53.22$, $p=0.19$; or frequency $\chi 2(45,N=325)=56.96$, $p=0.11$. There were significant differences for importance Likert ratings; $\chi 2(44,N=325)=68.96$, $p=0.01$. These differences are mostly due to people of Asian ethnicity rating the importance of communicating to gain control of non-compliant people of less importance than other ethnicities.

Research Aim Four: To identify, and rank in importance, topics to be included in the NZP recruit PE and DT curriculum.

Of the tasks classified as requiring training according to the Bramley framework (research aim two), there was no substantial qualitative evidence to suggest their place in the curriculum was not warranted. On the contrary, there were many tasks identified as requiring no training according to the framework that experienced substantial qualitative support. This was primarily due to three factors: (1) the Bramley framework assumes a cluster structure that may not be present in the data; (2) the method to divide the tasks between categories resulted in tasks that were ‘difficult’ being rated otherwise, as was also the case for importance and frequency; (3) by not including all tasks completed in the front-line role, only tasks identified as important were included in the questionnaire. Therefore there was no baseline to compare the difficulty, importance, and frequency of the tasks against tasks front-line officers complete that are not as critical. All of these factors will be explored further in the discussion.

As presented in Figure 21, the most prominent and consistent principle identified in relation to the PE and DT curriculum was the need to ensure that training is as

operationally relevant as possible. There were four other prominent principles identified as underpinning all topics taught in the PE and DT curriculum: self-awareness, confidence, contributing to team effectiveness, and expecting the unexpected. There was also compelling evidence from the literature and officers that the physical techniques officers were taught must be easily transferable under stress, perhaps after months having not practiced the technique.

Two clear groups of topics emerged from this research: Close quarter and appointments (e.g. pepper spray, restraint holds); and the remaining sub-topics: 'crowds, conditioning, and ceremony' (crowd control, physical training, ceremonial training, and water based training). These two topics were not mutually exclusive, for example in resolving a physical altercation with a subject, an officer may use pepper spray and empty-hand techniques, and rely on strength and colleague support.

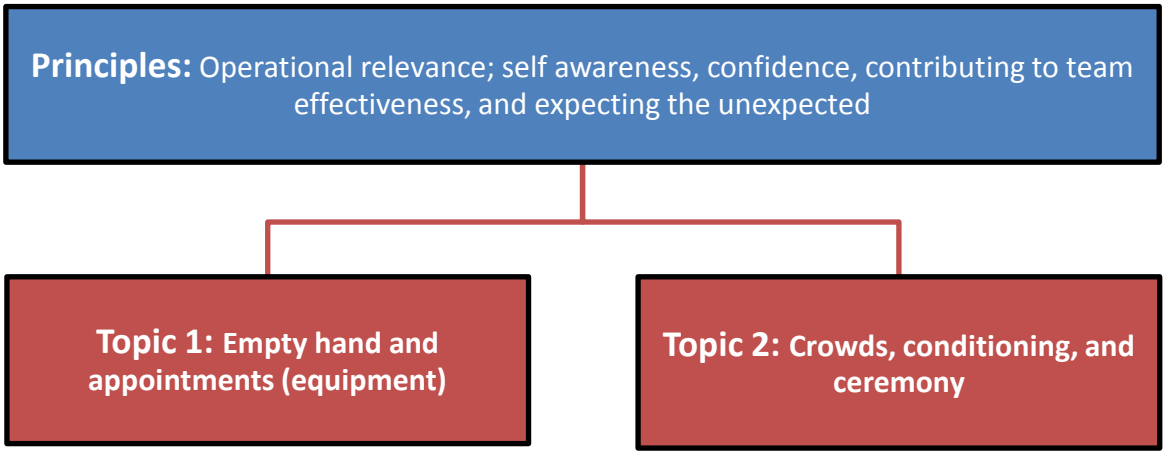

***Figure 21*. The recommended principles and topics for PE and DT training**

Principles

Operationally relevant

Overwhelmingly officers believed that training situations that matched operational reality were critical for effective preparation of front-line policing. Examples from officers on how operational reality could be achieved all involved scenario training. Specific examples given by officers varied greatly, for example, in pepper spray training, ensuring that the situations trained for are the same as those operationally encountered (in the amount of information given to officers attending the scenario, the locations – in houses, cells, or on the street, and subject behaviours). It also required that role players were aware of the time pepper spray takes to take effect on the subject, and its effectiveness at controlling a resisting person. It was highlighted by officers, that pepper spray takes a

while to work (sometimes more than 30 seconds), and that it is not always effective. All the interviewees reported pepper spray as either having delayed or no effectiveness on occasions, whilst at other times it had been totally effective – irrespective of how accurate they were in their application on the subject. Other examples included ensuring the subject resistance levels offered during the final stages of training matched operational reality, for example applying restraint holds and handcuffing individuals of different sizes and abilities, and attending a wide variety of (scenario) jobs where there are many variables the officer must assess and deal with simultaneously – some involving the immediate safety of themselves and/or members of the public.

A foundation of front-line policing is the ability to assess a situation/subject accurately, often autonomously, and to continue to make appropriate decisions throughout the event until it is effectively resolved. One criticism by management of current training relates to the belief that while the NZP does a good job with basic training (for example, handling skills of pepper spray or the expandable baton), there needs to be greater focus on the decision making around the use of them. Most believed that a major focus of training should revolve around decision making in scenarios with as many tactical options available to the recruit as possible. This is in contrast to the teaching of tactical options (for example pepper spray or TASER) in scenarios in isolation. Basic handling skills and the learning of techniques were seen as a necessary first step in training, however there was a strong belief that the focus of training should be on their application in operationally relevant situations.

Similarly, many qualitative comments by officers suggested scenario training to be an effective teaching method for recruits. Officers clearly identified scenario training to be the best method to train many of these PE and DT tasks. Scenario training would enable officers to practice on the assessment of risk, decision making surrounding use-of-force, and tactical communications.

Self-awareness

Officers believed training in police-specific tactics and situations' leading to an increased awareness of their own ability, is necessary in recruit training. As well as ensuring training matches operational reality whenever possible, increased awareness can also be developed through a process of reflection and receiving feedback following the completion of PE and DT tasks or scenarios.

Contributing to team effectiveness

Being able to contribute positively to an effective team effort was seen as a crucial trait necessary for effective front-line policing. "We need to build that camaraderie with them." This went beyond good rapport between colleagues, and extended to including officers physically contributing to work (such as a physical struggle), regardless of their physical capability. Team-based physical activities were seen as the most effective way of physically conditioning recruits whilst teaching and encouraging how individuals can positively contribute to effective team outcomes. Team based activities were also an area identified by one, where potentially negative personality traits of the recruit may be identified and addressed early in the person's career; "somebody's competitive instinct or the way they treat their colleagues in that environment can actually be quite revealing about their personality which sometimes can be an eye opener."

Confidence

Officers stressed the need for the officer to project themselves in a confident way that will make a subject question 'taking them on'. Physical size and strength were seen as helpful qualities, although not the only factors, with other traits, such as self-awareness, being important: "it's not just your stature, it's how you hold yourself, it's how you present yourself. It's how you communicate, it's how you, you know, how you have your own awareness of what your strength and limitations are."

Expect the unexpected

Other than violent members in the community, officers routinely cited complacency as their greatest risk. As few jobs involved unexpected or violent situations, it was easy for officers to become complacent when approaching situations or subjects. Some jobs that involve serious risk to life at times arise from innocuous beginnings. "Go[ing] in low does not mean unprepared" - front-line constable. Officers believed the best preparation for all jobs was to be prepared for the worst (having to use force), both physically and mentally.

Topic one: Close quarter and appointments

The evidence for including PE and DT relevant close quarter and appointment training to police recruits was unequivocal in both this research and the literature (see, for example, Kokko & Mäki, 2009; Mitchell, et al., 1998; Smith, et al., 2010). International literature has previously suggested the integration of police training (Hamdorf, et al., 1998). As

presented in Table 33, because many of these sub-topics are performed together, or in succession of each other, there is justification for them being combined into one ‘topic’.

The ability to tactically communicate and make appropriate use-of-force decisions were key elements that front-line officers should possess. "Look at everything [a front-line officer does], it’s communication, communication, communication". One senior officer noted how a majority of complaints surrounding the use-of-force regarding these two aspects, yet they are not a focus of the current training. Raw quantitative data also supports the qualitative data – with communications having a median importance response of 8, and mode response of 9 on the 0-9 Likert scale. Clearly this is a task job incumbents also see as important to being effective in the front-line role. Officers believed that through training, an officer can gain experience in the knowledge of how to best assess a situation to communicate given the situation and subject's demeanour and to maximise the likelihood of a desirable outcome. For example, at times officers use 'submissive' approaches, whilst at others an immediate use-of-force may be more appropriate. This assessment is made based on a number of factors, such as the subject's body language, previous history, the subject's communication, and their response to the constable’s greeting/arrival. When dealing with resisting/abusive persons, constables believed a tactical approach (for example physically and verbally) is necessary to be effective. This approach did not necessarily match how they would normally approach and talk to a person: "I'm not on a social call" - front-line constable. Officers believed through their approach and use of appropriate communications techniques they would more likely get a desirable result (not necessitating force use): [Help the subject] to see common sense" - front-line constable.

The inclusion of most NZP appointments (pepper spray, batons, non-compliant handcuffing, other mechanical restraints - e.g. restraint boards, and TASER) and approved restraint holds (carotid hold, and physical restraints standing up and on the ground) were supported by the Bramley framework and reported as having been used by all officers interviewed. Conversely, compliant handcuffing and the use of an expandable baton were classified as not requiring training according to the framework. As the expandable baton and handcuffs are currently general issue items for all front-line constables in the NZP, they should be trained for. Although job incumbents clearly identified non-compliant handcuffing as difficult and important, they found compliant handcuffing, whilst

important to the role, not difficult to learn. "Handcuffing is not a science - [we] get lots of practice on the street, and things like which way the keyholes are facing is irrelevant" – front-line constable. There were also clear views as to the focus for training compliant handcuffing: "just get it on" – front-line constable. Many job incumbents reported having only used their baton for tasks un-related to defensive tactics - such as breaking windows. Although outside the scope of this project, there was considerable evidence that job incumbents judge the expandable baton an ineffective tool. Conversely, there was strong support for side handle baton - gaining considerably more support than for the expandable baton. Two front-line officers voiced concern over the effectiveness of the expandable baton for dealing with violent people: "no one in their right mind would attempt to really use it"; as one officer who had attempted to use it commented: "may as well have used a fly swat". One management staff member also suggested a specific example of a way to more effectively teach baton training: to include both police batons (the side handle and expandable), and to focus on gross physical use of the tools, rather than elaborate techniques that are not operationally relevant. Front-line officers expressed the need for training in physical positioning when dealing with a subject to maximise their tactical advantage should the situation escalate. Conversely, the most recently introduced tactical option to the NZP, TASER, was identified by job incumbents as the most critical of the entire 45 tasks. Training in its use was universally deemed critical and supported by management and job incumbents. Similarly, the use of pepper spray is a tactic that is well supported by all officers at all levels. Although a critical sub-topic, pepper spraying skills were identified by two management personnel to be a relatively simple skill, and not requiring as much of an emphasis as is currently given in the curriculum.

Overall the data regarding close quarter and appointments reiterates the primary principle of ensuring training includes operationally relevant (scenario) training. Officers expressed the need for techniques to be easily retainable and transferable on the job - so officers can effectively use them operationally, often in high stress situations, where simple, easy to recount techniques are most likely to be transferred successfully. Officers saw little point in learning ‘fancy’ moves that they will not be able to remember or use operationally without a substantial amount of practice, which is unlikely given the time constraints in training once officers graduate as constables.

Two dominant focuses of empty-hand and appointment training were on restraint and self-defence. Being able to subdue a resisting subject - to restrain them - was seen as the most critical empty-hand aspect to front-line policing. Despite most arrests involving minimal or little force, sometimes officers would be attacked immediately upon arriving at a situation, or subjects would begin attacking after first being compliant and when their effort to avoid officer attention or arrest was unsuccessful. Officers were also often called on to deal with situations where others were fighting. International statistics and front-line officer reports indicate these attacks occasionally involve two or more subjects and/or weapons, and hence the training to deal with these is an important sub-topic. Various empty-hand tactics were mentioned as being critical 'tools' in the front-line constables' repertoire to enable them to achieve either restraint and/or self-defence. Redirection (creating space through pushing), punches, kicks, takedowns, and handcuffing following ground restraint were the most regularly mentioned. Officers stated that when dealing with resisting or violent individuals who needed to be restrained, taking them to ground in an attempt to better control them is more desirable than wrestling with them standing up – where there is a less chance of success and greater chance of injury. They believed it is safer for all involved, and that they are able to control a subject more effectively this way. Handcuffing would follow when the officer(s) have controlled the subject(s) on the ground. In situations in which restraint was necessary and the subject was compliant, members suggested getting the handcuffs on as soon as possible - because a subject may become violent.

Searching an individual was universally supported by organisational documents, management, and analysis of raw data suggests it warrants inclusion in the curriculum (gaining mode importance and frequency rating of 9 – on a scale of 0-9).

Qualitative results around the carotid hold are extremely supportive of this tactical option, and emphasise its use - when 'hands-on' with subject and no other options may be available - was often critical to preventing serious injury or worse. Despite what front-line officers stated in interviews and focus groups, it was rated the fourth least frequently performed task by staff in the questionnaire. The largest and most common concern shown by members regarding it was an organisational matter, outside the scope of this thesis: the level the technique is placed on the tactical options framework (a guiding framework of force use relative to subject behavior), which most officers believed was too 'high'. Some

officers believed it should be at a lower level on this framework, and suggested under-reporting, as despite what statistics would suggest, it is an often used tactic, which is also very effective. Despite this front-line support, comprising of less than 10 officers, two officers in management positions mentioned the carotid hold was being reviewed, with the possible outcome of the technique being removed from use as a tactical option in the NZP. They questioned the need for the carotid hold to remain an approved technique.

The ability of a front-line constable to assess a situation, and then be able to escalate and de-escalate their level of force, as appropriate, was identified as being absolutely critical in the qualitative data by all management and front-line officers. Aligned to good assessment and decision making was the need for officers to be able to justify their decision (and any associated force use) correctly and legally. "What we want to see is that the constables actually can articulate to the trainers that they went through a logical thought process and that that logical thought process resulted in their doing or not doing." ‘Applying police policy and the law with respect to use-of-force’ had a mode importance and frequency rating of '9', indicating it is a task that job incumbents consider important to the role and is frequently performed. Some management also recognised the importance of providing specific training in avoiding excess force.

Various 'street craft' techniques and tactics were mentioned by front-line officers as being critical to their role. Undoubtedly, many of these traits were believed to come from experience (for example moving safely and effectively within a building with potentially hostile people) and working tactically with a partner.

The officers believe new officers should also be prepared for the physical realities of policing, which are at times not 'glamorous' or easy - for example wrestling and then having to search people who have soiled themselves. They noted that most of the resistant subjects they dealt with were mental health patients, drunk, or otherwise drugged. The officers believed new constables need to be aware of the limitations of their appointments, in these situations, as these people may have a high pain tolerance, and on average appeared to not be as affected by the use-of-force.

Qualitative comments were made in the on-line survey by three members indicating a 'missing' task was getting non-compliant persons in and out of vehicles. The inclusion of this topic within the curriculum was supported by injury statistics, which indicate at least

eight officer injuries in the one year period from 26 March 2010 were as a result of dealing with uncooperative subjects in and around police vehicles (e.g. getting subjects into or out of vehicles, or controlling them inside them).

Table 33

The Sub-Topics and Training Priority of Empty-Hand and Appointments

Primary training focus
• Scenario training: assessment of risk, decision making, communications, applying police policy and the law, justifying actions, working tactically with other officers, escalating and de-escalating force use. • Restraint and self-defence: weapon defence, takedowns/tackling, counters (punching, kicking etc.), mechanical restraint application to non-compliant people; control techniques (e.g. wrist locks), ground control; dealing with two or more subjects, tactical positioning, use of the TASER • Dealing with drunken and drugged persons and mental health patients.
Secondary training focus
• Carotid Hold technique • Side handle baton technique • Breaking up fights • Dealing with subjects in cells
Tertiary training focus
• Compliant handcuffing technique • Expandable baton technique • Redirection technique (pushing people to create space) • Pepper spray technique • Moving passively resistant people • Preventing positional asphyxia • Searching individuals
Train only if there is time, or to an 'awareness' level
• Pepper spray on animals • Striking with weapons of opportunities • Restraint of persons with unique physical characteristics

Topic two: Crowd, conditioning, and ceremony

As presented in Table 34, the secondary topic to be included in the curriculum contains the remaining sub-topics not contained in empty-hand and appointments, and hence a wide variety of activities, including water-based training, ceremonial training, and physical conditioning.

Crowds

Two officers holding management positions expressed their desire for team based tactical/street craft activities, for example, how to clear out a party as a section or working in other crowded environments. There were various sources of evidence for the inclusion of basic crowd control drills in the recruit curriculum. For example, many job incumbents spoke of getting called into the specialist units who deal with crowd control at short notice during important incidents. During these times a basic understanding of how this specialist unit works was necessary.

Physical conditioning

There was strong qualitative evidence supporting physical conditioning of recruits. The reasons varied – from the ability to complete operational tasks such as being fast - to be able to chase offenders; strong enough to effectively restrain a resisting subject; and endurance – to be able to complete longer foot chases, and to deal better with the physical demands of shift work. They were seen as an effective and appropriate medium to begin to facilitate and encourage the ability to positively contribute to team objectives. Topics that contained fitness and are operationally relevant (for example talking on radios and running) were seen as the most relevant by job incumbents and management. Endurance, dealing with obstacles and running/sprinting were all tasks that had widespread qualitative support for inclusion in the curriculum. This support included the raw data (Likert responses and injury data) and front-line testimony, all advocating their inclusion. Strength-based activities were also supported, to a greater extent than endurance activities, by front-line officers interviewed, and quantitative responses in the questionnaire. One officer noted the emphasis on endurance-based activities in the curriculum, and suggested the operational need is higher for strength type activities: "I think in my career I've only ever had about three or four people run away from me where cardio-vascular [fitness] has been important… [b]ut just about every weekend I'd be involved in some kind of physical altercation requiring strength".

Water-based training

The need to teach water skills at the recruit level was supported by all but two members of management. While most saw the face validity of completing water training, two officers expressed concern over the need to spend time on this topic. Specifically they were unsure of any evidence for its need (e.g. 'how many officers get into the water in the course of their duties?'), and they believed an officer was very unlikely to get into a body of water if they are not capable of being effective in there. No job incumbents interviewed, observed, or who took part in focus groups reported ever being in a body of water operationally. Some front-line officers felt that learning how to rescue individuals should be part of the entry requirements to becoming a recruit as this is a difficult, time consuming and specialist skill that cannot be achieved in the limited time available at the training college. Officers believed time saved through not teaching rescuing could be spent training for operationally relevant tasks and awareness around being in bodies of water (for example wearing stab-resistant body armour).

Ceremonial training

There was a consensus from all management personnel that basic ceremonial drill training (to deal with the weekly parading whilst at training college, and in preparation of attending the occasional pay parades and funerals once a constable) was important to include in the recruit curriculum. One NZP officer in management cited support from district management in conducting these parades, and saw the running of them on a weekly basis during training as unlikely to change 'under their watch', regardless of the evidence for its operational 'needs'. All management saw this drill training as a mechanism to maintain dress standards and promote teamwork. The graduation parade (which takes place during the last week of training) was also seen by many management as important; to recognise the achievement of the recruits and to give friends and family an opportunity to celebrate with them, as summarised by one officer ("we all remember the throwing our hats in the air"). Conversely, two members of management regarding the amount of time currently spent on preparing recruits for the graduation parade, at the expense of defensive tactics training as excessive: "What's the opportunity cost [of the time spent on drill]?" - NZP management. "I'm not saying don't have parades, I'm not saying that at all but I do wonder about the value of the amount of time spent on it". "I think it's 16 hours on the final week and for me its [benefit is] for graduation [parade] only and I think we could get those two days, 16 hours and put them into scenario training …I don't think they're any

use". Similarly, there was very little evidence to suggest resources should be put towards weekly drill or graduation parade training based on data collected at all levels from job incumbents – they clearly view this as not necessary to prepare a recruit for their duties as a front-line constable. Ceremonial drill training was the task rated as the least important and least frequently performed of the 45 tasks in the questionnaire. It was also an outlier in its importance ratings, which strongly suggests that drill is not an operational training need. Ceremonial training also gained second to lowest ratings for difficulty of all the tasks, suggesting the skills are not difficult to learn.

Given that drill training is not a critical task for front-line officers, yet considerable organisational/management support exists, it may be more appropriate for the drill in the preparation for the graduation parade to sit outside the PE and DT's curriculum - where it may often be fighting to justify its validity in the curriculum of front-line officers. The time allocation given to this aspect should be considered against other aspects identified in this research to require substantial training that are not currently covered in recruit training, namely team-based disorder, dealing with subjects in cells, defense from weapons and multiple subjects, and substantial scenario training. Introductory drill classes could also be combined with other 'team' based tasks, such as preparing for crowd disorder situations – where uniformity and teamwork are critical.

Table 34

The Sub-Topics and Training Priority of Crowd, Conditioning, and Ceremony

Primary training focus
• Strength training, especially upper body strength for dealing with physical confrontations. • Endurance training, especially in increasing fitness for well-being, and for being physically prepared to deal with long chases and/or having superior endurance when dealing with resisting individuals.
Secondary training focus
• Running or sprinting to deal with an incident • Crowd disorder techniques
Tertiary training focus
• Operating in water • Negotiating obstacles • Performing ceremonial drill

Discussion

"It is when legitimate status no longer affords protection, and the police officer is rolling around the floor of a public house in mud, blood and beer, that their inability to cope with violent encounters becomes apparent" (Buttle, 2007, p. 165).

This study sought to use an evidence based approach to inform the design and development of the recruit front-line PE and DT curriculum for the NZP. Organisational and task analyses were completed to identify the critical PE and DT activities front-line officers perform. The results established that there were two major topics and five underlying principles that it was generally felt should be the focus of the curriculum. This study provides the first evidence based recommendations into the principles that should be the focus of police PE and DT training, methods of instruction and the content to be included.

This research also provides the first mixed-methods insight into various officer perceptions regarding the difficulty to learn, importance to the job, and frequency of performance of various PE and DT related tasks.

Establishing the topics to include in the curriculum

The Bramley framework and cluster analysis were used to determine the critical PE and DT tasks. The Bramley framework was the only structured approach identified in the literature designed to help determine the topics to be included in the curriculum based on the difficulty, importance, and frequency ratings of respondents. One limitation of the model was that it did not present clear protocols for categorising the tasks according to their difficulty, importance, or frequency. In this study a decision was made to distribute the tasks evenly amongst the various branches of the framework, and to include only PE and DT related tasks deemed by overseas jurisdictions, job incumbents, literature, or management as being important to the front-line job. As a result of these decisions a third of the tasks were rated as ‘not important’, and consequently, a considerable number of tasks were excluded from those recommended to be included in the curriculum. This was despite considerable evidence to the contrary.

The Bramley framework also assumes a categorical cluster structure that in fact may not exist in the data. Based on their difficulty, importance, and frequency ratings, it clusters the tasks into one of 18 'branches', which are then classified to one of five 'training levels' (see Figure 1). The classification of tasks within these branches is arbitrary. This results in

tasks that have very similar ratings by respondents being classified very differently. For example, 'Escalate and/or de-escalate the use-of-force/tactical option to control the situation', with a difficulty item parameter of 1.56, is classified as 'not difficult', while 'deal with someone who is drunk, drugged, or a mental health patient', with a difficulty item parameter of 1.57, is classified as 'difficult' (see Appendix J). If it was not for this insignificant difference in 'difficulty' rating, the former item would be classified as a training priority two ('train to job proficiency levels'), rather than four ('do not train').

The results from this study would suggest that the use of cluster analysis, by comparison, offers a more prudent method, by dividing the data. This means that the division into different categories is based on the structure of the data set itself, and not a pre-determined framework. Along with the qualitative data, and the unlikely outcomes from the Bramley framework, cluster analysis supports the assertion that most of the tasks included in the questionnaire require training.

Observational data

In generating lists of tasks for the questionnaire, it has been recommended that researchers exhaust all possible sources, or saturate categories before they stop gathering data (Lincoln & Guba, 1985 cited in Merriam, 2009). Unfortunately, collecting a complete list of PE and DT tasks based on observations was impractical within the scope of this research, primarily due to the fact that use-of-force occurred rarely. As has been recognised previously, an impractically large number of front-line shifts would need to be observed before researchers would gather enough PE and DT relevant incidents (Alpert & Dunham, 2004; Bayley & Garofalo, 1989). Despite previous research recognising people may change their behaviour when they know they are being observed (Roberts, 2006), the observation of officers while on duty was included in this research to provide access to objective data, so that the data collected was not based exclusively on the perceptions of officers or reliant on their memories.

Limitations

It is important to acknowledge the limitations in this research. This study relied predominately on self-reported data which has the potential for bias, and is susceptible to individual differences in response criteria. For example, members of the focus groups may have provided responses that they believe are socially desirable, a process known as the 'social desirability response set' (B. Johnson & Christensen, 2008). Respondents, upon

learning of the purpose of the questionnaire (to inform the design and development of recruit PE and DT training), may have been inclined to respond in a way that reflects their belief on the need for training, and not their actual perceptions on the difficulty, importance, and frequency of the tasks questioned. Because all officers had previously completed the recruit PE and DT training, and receive annual recertification in these areas, it is likely they hold opinions as to how training could be modified, and emphasised these during questioning. For example, respondents may rate tasks they believe warrant inclusion in the training to be more difficult and important in the questionnaire, or more critical to include in the curriculum in interviews.

The nature of questionnaires means there is potential for some inaccuracy in responses. The relatively high percentage of responses (47%) does, however, increase confidence in the validity of this data.

The questionnaire also provided a respondent an opportunity to respond to questions anonymously, as even though confidentiality was guaranteed, anonymity was not always possible in other aspects of the research, due to the face-to-face nature of the observations and interviews. A desire to please may have been further compounded as the researcher was a current PE and DT instructor.

Many officers referred to the current training curriculum when discussing training needs. It was apparent that officers were therefore heavily influenced by current training in this area. Cordner (1980; cited in Ford & Wroten, 1984) also recognised that any TNA data may involve incumbents legitimising the 'status quo', which may result in officers rating items included in the current curriculum preferentially.

Additionally, job incumbents may be biased towards rating tasks they have most recently completed.

Summary of research

The results from this study suggest the need for training to integrate the teaching of many of the use-of-force tactics and techniques, a focus on operationally relevant scenario training - providing the opportunity to receive feedback and reflect on their contribution to team tasks and decision making. It identified the two major topics that should be part of the PE and DT curriculum: (1) empty-hand techniques and appointments; and (2) ceremony, conditioning, and crowd control training. A number of important principles underpinning the design of the training also emerged: operational relevance, self-

awareness, confidence, contributing to team effectiveness, and expecting the unexpected. The ability of an officer to make appropriate decisions in relation to the use-of-force and to communicate effectively were seen as the two greatest characteristics of an effective front-line officer. Officers also believed restraint of individuals and self-defence should be a focus of all use-of-force related training.

Comparison of results with the literature

The lack of similar research requires comparisons to be made with research on the whole front-line policing role, and with research on how officer characteristics affect the use-of-force. This research shares many of the concepts and topics identified in front-line policing research in Australia, such as self-confidence, decision-making, communications (Kaczmarek & Packer, 1996); and in New Zealand, such as judgement, physical conditioning, and ensuring training matches operational reality (Burke, 2009a). The specific amount of time allocated to these topics varied considerably between international jurisdictions, and none presented an evidence-base to the researcher that would enable comparison with this research. Comparison of this research with international curricula shows most of the empty-hand techniques and equipment identified, such as punching and the use of pepper spray, are also present in overseas curricula. However, there were some substantial exceptions to this, most notably in the inclusion of water-based and ceremonial training. Comparison with these curricula should be made with some caution however, because there is no basis to believe that overseas curricula are more valid than current New Zealand curricula. Some international police recruit curricula include no water-based training at all. The evidence for inclusion of water-based training within recruit training in New Zealand is moderate, and strengthened by the proximity to bodies of water within New Zealand, and the risk of fatalities from any incident involving water.

Considering the preparation for the graduation parade is something that requires a skill set beyond that which appears to needed operationally, its inclusion in the PE and DT curriculum should therefore be considered with caution, given that it might replace tasks that could be critical to the prevention of/or loss of life or property. While evidence in this research supports the inclusion of drill and graduation parade within the curriculum, it also advocates the consideration of the opportunity-cost of time spent drill training in place of topics needed in the front-line role, such as decision making scenarios surrounding the use-of-force.

Conditioning, crowd controls, and ceremony

In the development of physical testing standards to become a front-line officer, previous research has routinely advocated many 'sub-topics' that are endorsed by this research. These include such aspects as the necessity of strength and endurance as it relates to operational requirements (Arvey, Landon, et al., 1992). In addition to the significant evidence for the inclusion of physical conditioning in this research, as it relates to operational needs, such training also provides the opportunity to instill life-long habits for employees that may lead to a healthier workforce.

Front-line experience, age, and country-based officers

Officers with more front-line experience, who were older, and the most country-based officers all reported performing use-of-force and communications techniques less frequently. Interestingly, these three officer characteristics were all also significantly positively correlated. Based on the results of this research, it is accurate to say that 'country-based' officers are more experienced, older, heavier, and self-report using force and communications less often when dealing with a non-compliant person. This is aligned with previous research which also suggested experienced officers use less force (Paoline & Terrill, 2007). The level of accuracy of the self-assessments by experienced officers is unclear; while some authors have found that experience can influence task ratings (Landy & Vasey, 1991), others have found any difference is not significant (Ford, Smith, Sego, & Quiñones, 1993). Although front-line experience, age, and location explained only a small percentage of the variance in response to these tasks in this research, the differences are statistically significant and note-worthy. The overall frequency responses from older officers with more front-line experience were significantly lower for all items in the questionnaire. These differences are either a result of response bias, or of older officers actually performing PE or DT tasks less frequently. No evidence to establish which of these two options was most likely was found in this research. Officers in the most rural location (1, 2, 3 person stations) rated the communications task and use-of-force logit at significantly lower levels than other officers. One possible reason is that most rural-based officers have developed a relationship with their communities, through the course of their career, which results in subjects complying with the officer on their arrival at an incident – without the need to use communications or force to gain compliance.

Despite previous research suggesting females tend to be more skilled at communicating and using verbal tactics to gain compliance (Hamdorf, et al., 1998; Paoline & Terrill, 2005), the results of this research do not support this assertion. Previous research has also indicated that officers with graduate degrees use less force (see for example McElvain, 2008; Paoline & Terrill, 2007; Rydberg, 2010). This research however, indicated no significant difference in the use-of-force logits between those with and without graduate degrees. The reason for these results is unclear; however it may be the New Zealand female officers and graduates are more willing to use-force and hands-on techniques than their overseas counterparts; or that there is no difference in force use between gender and graduate status in New Zealand policing setting. It may be that the 'life-experience', or maturing, gained through going to university is the variable responsible for any difference in use-of-force identified internationally. Another possible reason is self-norming response bias, where respondents tend to rate themselves towards the middle of a scale. One way in which this issue could be addressed in the future would by using direct observations, and also analysis of reports by officers – comparing force-use between graduates and genders.

Authors have previously hypothesised that larger officers use more 'hands-on' or physical force than smaller officers (see for example Bonneau & Brown, 1995; Kaminski & Martin, 2000). As highlighted by Bonneau and Brown (1995), the advantage larger people have in physically confrontational situations is why many related sports (such as wrestling and boxing) have weight classes. The results of this research do not support the assertion that larger officers use more force or more 'empty-hand' techniques, although they did report using communications less frequently to control non-compliant people. This difference may be due to these officers being more likely to gain compliance through their physical presence.

Ethnicity

Asian officers rated the use of communications to gain control of a non-compliant person of less importance than all other ethnicities. Given there were no differences in frequency of use, a possible reason for this result is that Asian officers value other forms of communications not included in the questionnaire, such as body language or facial mannerisms in dealing with non-confrontational subjects.

Impact of this research

Pending the approval of an internal governance committee, this research will inform the future design and development of recruit PE and DT training within the NZP. It provides a number of key aspects that, if adopted, would change the face of PE and DT training: The integration of empty-hand techniques and police equipment, and the implementation of more scenario-based training would prepare officers for the unfortunate reality of violent operational environments. A focus on effective decision-making and encouraging individuals to positively contribute to team effectiveness will ensure the curriculum focuses on developing the characteristics needed for effective front-line policing. Contributing to team-effectiveness is a unique concept emerging from this research that goes well beyond 'team building'. As well as supplying numerous opportunities to practice, providing chances for feedback and self-reflection will be crucial if recruits are to successfully develop these traits. Ensuring that any technique that is taught will be easy to retain and transfer under stress would be an important amendment to current practices. While many techniques are strongly supported by all officers who regularly practice them (for example in martial arts), there was strong feeling that most officers are not able to develop these skills adequately enough to become proficient in the time available in the recruit curriculum.

Designing and developing effective tactical communications training poses a considerable opportunity for the NZP. If an officer was well versed in a range of techniques to ensure confrontational situations do not escalate, and ideally to be able to de-escalate them, the benefit could be extensive (for example, using less force would likely result in improved public relationships, fewer injuries, fewer complaints, and time saved through fewer reporting requirements).

The general absence of significant differences between officers' individual characteristics has positive implications for training developers and deliverers. It suggests there should be no variation in the curriculum based on officer characteristics (for example gender, education, fitness, or ethnicity), or for officers that will be deployed to different districts.

Although outside the scope of the thesis, the results provide evidence to support the design and development of police physical entry standards, and current front-line PE and DT (re-certification) training. The research also provides evidence which may inform organisational decisions surrounding the use of specific techniques and appointments. This

research would be of potential use to overseas jurisdictions; however it would have to be adapted for local conditions to account for many factors, such as the equipment available to the officer and societal factors, such as population demographics.

Future research suggestions

The next stage in this research will be to identify the specific knowledge, skills, and abilities (KSAs) necessary to perform the identified tasks, and then to uncover the difficulty and importance of these, and when they should be trained for (before recruit training, during recruit training, or 'on-the-job').

A more pragmatic use of the Bramley framework in the future would be to ensure inclusion of all job tasks, including those not part of the PE and DT work area. Alternatively, and more applicable to specific areas of research within an occupation, the classification of tasks into the qualitative categories (e.g., 'difficult' or 'not difficult') could be informed by job analysis comprising the entire job, and based on natural breaks in the data.

One of the aims of this research was to refine the process for identifying the critical tasks that justify inclusion in a curriculum. A mixed-method approach using a combination of qualitative sources (such as those used in this research), and the use of cluster analysis based on quantitative difficulty, importance, and frequency data appears to be an appropriate methodology for this objective.

Future work in this area could validate front-line self-reported data with their ratings of difficulty to learn PE and DT tasks versus observed (actual) difficulty in acquisition. This would provide an excellent benchmark against which questionnaires could be validated and interpreted in the future.

The specific communications techniques an officer uses to gain compliance of a resisting officer is an area of future research. It may, for example, be that non-verbal communication (for example, body language or the physical size of the officer), or the tone of the officer has a much larger impact on gaining compliance than the content of any communications. The identification of the factors that officers use to resolve situations, not included in this research, also presents an opportunity for future research. For example, those who weigh more reported using less communications than other officers, however there was no corresponding increase in use-of-force or empty-hand techniques

use reported. This may suggest these officers used other techniques not included within the questionnaire, such as intimidation (either intentionally or otherwise) to gain compliance from subjects.

Information on how officers are preferentially deployed to incidents likely to involve a physical struggle, and the subsequent outcomes, is an area that may make front-line policing practices more efficient.

Regarding use-of-force, the value of an officer with a graduate degree, and a comparison of this with other life experiences is worthy of future examination. As with physically larger officers, there are likely many other, yet identified, factors affecting force-use in these individuals, or response biases concealing any significant differences in this research. By identifying these, recruitment and training will help ensure communities are policed by competent individuals.

The lack of empirical evidence previously available to inform the content of police PE and DT instruction is surprising, given the large amount of resource devoted to it internationally. This research represents the only empirical research specifically identifying the critical PE and DT tasks and over-riding principles in front-line policing. It also provides detail curriculum designers and developers can use to inform future instruction.

References

Alasuutari, P., Bickman, L., & Brannen, J. (2008). *The sage handbook of social research methods*. Thousand Oaks, CA: SAGE.

Alpert, G. P., & Dunham, R. G. (2004). *Understanding police use of force: Officers, suspects, and reciprocity*. Cambridge, United Kingdom: Cambridge University Press.

Alpert, G. P., & Dunham, R. G. (2010). Policy and training recommendations related to police use of CEDs: Overview of findings from a comprehensive national study. *Police Quarterly, 13*(3), 235-259. doi: 10.1177/1098611110373993

Anderson, G. S., Plecas, D., & Segger, T. (2001). Police officer physical ability testing–re-validating a selection criterion. *Policing: An International Journal of Police Strategies & Management, 24*(1), 8-31. doi: 10.1108/13639510110382232

Anderson, T., & Penny, T. (2003). An evaluation of the length of the 19-week recruit training course at the Royal New Zealand Police College. Wellington, New Zealand: New Zealand Police.

Arvey, R. D., Landon, T. E., Nutting, S. M., & Maxwell, S. E. (1992). Development of physical ability tests for police officers: A construct validation approach. *Journal of Applied Psychology, 77*(6), 996-1009. doi: 10.1037/0021-9010.77.6.996

Arvey, R. D., Nutting, S. M., & Landon, T. E. (1992). Validation strategies for physical ability testing in police and fire settings. *Public Personnel Management, 21*(3), 301-312.

Bayley, D. H., & Garofalo, J. (1989). The management of violence by police patrol officers. *Criminology, 27*(1), 1-25. doi: 10.1111/j.1745-9125.1989.tb00861.x

Blanchard, P. N., & Thacker, J. W. (2007). Effective training: Systems, strategies and policies. Upper Saddle River, NJ: Pearson Education.

Bonneau, J., & Brown, J. (1995). Physical ability, fitness and police work. *Journal of Clinical Forensic Medicine, 2*(3), 157-164. doi: 10.1016/1353-1131(95)90085-3

Bradford, D., & Pynes, J. E. (1999). Police academy training: Why hasn't it kept up with practice? *Police Quarterly, 2*(3), 283-301. doi: 10.1177/109861119900200302

Bramley, P. (1993). Effective training. *Journal of European Industrial Training, 13*(7), 2-33. doi: 10.1108/EUM0000000000203

Burke, S. (2009a). Job analysis of the probationary constable role: Qualitative comment and appendices. Wellington, New Zealand: OPRA Consulting group.

Burke, S. (2009b). Probationary constable job analysis. *[PowerPoint slides]*. Wellington, New Zealand: OPRA Consulting Group.

Buttle, J. W. (2007). A constructive critique of the officer safety programme used in England and Wales. *Policing and Society, 17*(2), 164-181. doi: 10.1080/10439460701302735

Castillo, E. M., Prabhakar, N., & Luu, B. (2011). Factors associated with law enforcement-related use-of-force injury. *The American Journal of Emergency Medicine, In press*. doi: 10.1016/j.ajem.2011.01.017

Cerno. (2007). Stage one report: Advice on police standards and assessment practice. Wellington, New Zealand: New Zealand Police.

Collingwood, T. R., Hoffman, R., & Smith, J. (2004). Underlying physical fitness factors for performing police officer physical tasks. *Police Chief.* Retrieved 30/05/11, from http://www.policechiefmagazine.org

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed method approaches*. Thousand Oaks, CA: Sage Publications.

Department of Labour. (1992). Health and Safety in Employment Act 1992. Retrieved 24/05/11, from http://legislation.govt.nz/act/public/1992/0096/latest/viewpdf.aspx%20/

Donovan, J. J., & Radosevich, D. J. (1999). A meta-analytic review of the distribution of practice effect: Now you see it, now you don't. *Journal of Applied Psychology, 84*(5), 795-805. doi: 10.1037/0021-9010.84.5.795

Dunning, D., Heath, C., & Suls, J. M. (2004). Flawed self-assessment. *Psychological Science in the Public Interest, 5*(3), 69-106. doi: 10.1111/j.1529-1006.2004.00018.x

Dy, S. B. (2010). *The application of multiple matrix sampling to KSAO-task linkages.* Master of Arts, California State University, Sacramento, CA.

Engel, R. S. (2008). Revisiting critical issues in police use-of-force research. *Criminology & Public Policy, 7*(4), 557-561. doi: 10.1111/j.1745-9133.2008.00535.x

Fallon, K. E., & Trevitt, A. C. (2006). Optimising a curriculum for clinical haematology and biochemistry in sports medicine: A Delphi approach. *British Journal of Sports Medicine, 40*(2), 139-144. doi: 10.1136/bjsm.2005.020602

Famega, C. N. (2005). Variation in officer downtime: A review of the research. *Policing: An International Journal of Police Strategies & Management, 28*(3), 388-414. doi: 10.1108/13639510510614528

Farenholtz, D. W., & Rhodes, E. C. (1986). *Police Officers Physical Abilities Study*. New Westminster, Canada: Justice Institute of B.C.

Ford, J. K., Smith, E. M., Sego, D. J., & Quiñones, M. A. (1993). Impact of task experience and individual factors on training-emphasis ratings. *Journal of Applied Psychology, 78*(4), 583-590. doi: 10.1037/0021-9010.78.4.583

Ford, J. K., & Wroten, S. P. (1984). Introducing new methods for conducting training evaluation and for linking training evaluation to program redesign. *Personnel Psychology, 37*(4), 651-665. doi: 10.1111/j.1744-6570.1984.tb00531.x

Garner, J. H., Buchanan, J., Schade, T., & Hepburn, J. (1996). Understanding the use of force by and against the police, research in brief. *National Institute of Justice.* Retrieved from http://www.ncjrs.gov/pdffiles/forcerib.pdf

Garner, J. H., Maxwell, C. D., & Heraux, C. G. (2002). Characteristics associated with the prevalence and severity of force used by the police. *Justice Quarterly, 19*(4), 705-746. doi: 10.1080/07418820200095401

Goldstein, I. L. (1993). *Training in organizations: Needs assessment, development, and evaluation*. St. Paul, MN: Thomson Brooks/Cole Publishing Co.

Goldstein, I. L., Macey, W. H., & Prien, E. P. (1981). Needs assessment approaches for training development. In H. Meltzer & W. R. Nord (Eds.), *Making organizations humane and productive*. New York, NY: Wiley.

Hall, C. (2010). *Topic: Training Needs Analysis [PowerPoint slides]*. Wellington, New Zealand: Victoria University of Wellington, School of Educational Psychology and Pedagogy.

Hamdorf, R, Boni, N, Webber, I, Pikl, A, & Packer, J. (1998). *National minimum guidelines for incident management, conflict resolution and use of force* (Vol. 132.1). Payneham, Australia: National Police Research Unit.

Handcock, P.J. , & Dempsey, P.C. . (2011). A review of the New Zealand Police Physical Competency Test 2010 (Vol. Report No. 2010.1). Dunedin, New Zealand: School of Physical Education, University of Otago.

Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing, 32*(4), 1008-1015. doi: 10.1046/j.1365-2648.2000.t01-1-01567.x

Hedge, J. W., Borman, W. C., Kubisiak, U. C., & Borne, M. J. (2006). The development of task-level performance standards for apprentice, journeyman, and master skill levels for Aerographer's Mate (AG) jobs in the US Navy. Tampa, FL: Personnel Decisions Research Institutes.

Hollnagel, E. (2006). Task analysis: Why, what, and how. In Gavriel. Salvendy (Ed.), *Handbook of human factors and ergonomics* (pp. 371-383). San Franciso, CA: John Wiley & Sons.

Johnson, B., & Christensen, L. B. (2008). *Educational research: Quantitative, qualitative, and mixed approaches* (3rd ed.). Los Angeles, CA: Sage Publications.

Johnson, R. L., Penny, J. A., & Gordon, B. (2008). *Assessing performance: Designing, scoring, and validating performance tasks*. New York, NY: Guilford Press.

Kaczmarek, A., & Packer, J. (1996). *Defining the role of the general duties constable: A job analysis*. Payneham, Australia: National Police Research Unit.

Kaminski, R. J., & Martin, J. A. (2000). An analysis of police officer satisfaction with defense and control tactics. *Policing: An International Journal of Police Strategies & Management, 23*(2), 132-153. doi: 10.1108/13639510010333697

Kaminski, R. J., & Sorensen, D. W. M. (1995). A multivariate analysis of individual, situational and environmental factors associated with police assault injuries. *American Journal of Police, 14*(3/4), 3-48. doi: 10.1108/07358549510111938

Kinnaird, B. A. (2003). *Use of force: Expert guidance for decisive force response*. Flushing, NY: Looseleaf Law Publications.

Kokko, T., & Mäki, M. (2009). The Verbal Judo approach in demanding customer encounters. *Services Marketing Quarterly, 30*(3), 212-233. doi: 10.1080/15332960902993478

Landy, F. J., & Vasey, J. (1991). Job analysis: The composition of SME samples. *Personnel Psychology, 44*(1), 27-50. doi: 10.1111/j.1744-6570.1991.tb00689.x

Lather, P. (2006). Paradigm proliferation as a good thing to think with: Teaching research in education as a wild profusion. *International Journal of Qualitative Studies in Education, 19*(1), 35. doi: 10.1080/09518390500450144

Marenin, O. (2004). Police training for democracy. *Police Practice and Research, 5*(2), 107-123. doi: 10.1080/156142604200190261

Marion, N. (1998). Police academy training: Are we teaching recruits what they need to know? *Policing: An International Journal of Police Strategies & Management, 21*(1), 54-79. doi: 10.1108/13639519810206600

Mayhew, C., & Australian Institute of Criminology. (2001). *Occupational health and safety risks faced by police officers*. Canberra, Australia: Australian Institute of Criminology.

McElvain, J. P. (2008). Police officer characteristics and the likelihood of using deadly force. *Criminal Justice and Behavior, 35*(4), 505-521. doi: 10.1177/0093854807313995

McGehee, W., & Thayer, P. W. (1961). *Training in business and industry*. New York, NY: John Wiley and Sons Inc.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Mesloh, C., Henych, M., & Wolf, R. (2008). *Less lethal weapon effectiveness, use of force, and suspect & officer injuries: A five-year analysis*. Fort Myers, FL: National Criminal Justice Reference Service.

Meyer, G. (1992). Nonlethal weapons vs. conventional police tactics: Assessing injuries and liabilities. *The Police Chief, 59*(8), 10-18.

Minnis, R. B., & Parker, P. L. (2002). *An analysis of Mississippi conservation officer satisfaction with weaponless tactics training.* Paper presented at the

Proceedings Annual Conference Southeast Association of Fish and Wildlife Agencies, MS.

Minor, K. I. (2005). *Test validity in justice and safety training contexts: A study of criterion-referenced assessment in a police academy*. Springfield, IL: Charles. C. Thomas Pub Ltd.

Mitchell, M., Cowan, M., & Hamilton, R. (1998). *Facing violence: Assessing the training and support needs of police constables in Scotland*. Edinburgh, Scotland: Central Research Unit.

Morrison, G. B. (2006). Police department and instructor perspectives on pre-service firearm and deadly force training. *Policing: An International Journal of Police Strategies & Management, 29*(2), 226-245. doi: 10.1108/13639510610667646

Moxey, M., & McKenzie, I. (1993). Assaults on police. *Policing: An International Journal of Police Strategies and Management, 9*, 172–186.

Ness, J.J. (1991). The relevance of basic law enforcement training--Does the curriculum prepare recruits for police work: A survey study. *Journal of Criminal Justice, 19*(2), 181-193. doi: 10.1016/0047-2352(91)90052-W

New Zealand Government. (1961). Crimes Act 1961. Retrieved from http://www.legislation.govt.nz/act/public/1961/0043/63.0/DLM327382.html

New Zealand Government. (2008). *Policing Act 2008*. Wellington, New Zealand: New Zealand Legislation: Acts, Bills, and Regulations / Parliamentary Counsel Office Retrieved from http://www.legislation.govt.nz/act/public/2008/0072/latest/096be8ed80713191.pdf

New Zealand Police. (2004). Staff safety tactical training - defensive tactics. Tactical options framework and theory. Retrieved from http://centraldb01/aptrix/sstt/sstt_publishing.nsf/AttachmentsByTitle/SSTT-Tactical-Options-Framework-complete/$FILE/FINAL+-+Tactical+Options+Framework+complete.pdf

New Zealand Police. (2006). *Supporting organisational development - training service centre strategic plan to 2010*. Porirua, New Zealand: The Royal New Zealand Police College.

New Zealand Police. (2007). *Staff safety tactical training workbook*. Porirua, New Zealand: Recruit Training Group.

New Zealand Police. (2008). Staff safety training and tactics. *Police Instructions* Retrieved from http://intranet/nzp/instructions/manuals/pms/gen%20ops%20and%20responses/_layouts/SLIPWeb/Blob.ashx?topicid=1dd0b9bb75ed4c8d002578e7001797cf&pid=9acb091c20284714002578e7001797c1

Noe, Raymond A. (2008). *Employee training and development* (4th ed.). New York, NY: McGraw-Hill/Irwin.

Nowicki, Ed. (2007). Training needs assessment: Why we train. *Law & Order, 55*(12), 31-32.

Occupational Information Network. (2010). Details Report for: 33-3051.01 - Police Patrol Officers. Retrieved 06/05/2011, from http://www.onetonline.org/link/details/33-3051.01

Osborn, GD. (1976). Validating physical agility tests. *Police Chief, 43*(1), 43-45.

Ostroff, C., & Ford, J.K. (1989). Assessing training needs: Critical levels of analysis. In Irwin. L Goldstein (Ed.), *Training and development in organizations* (pp. 25-62). San Francisco, CA: Jossey-Bass Publishers.

Paoline, E. A., & Terrill, W. (2005). Women police officers and the use of coercion. *Women & Criminal Justice, 15*(3), 97-119. doi: 10.1300/J012v15n03_05

Paoline, E. A., & Terrill, W. (2007). Police education, experience, and the use of force. *Criminal Justice and Behavior, 34*(2), 179-196. doi: 10.1300/J012v15n03_05

Payne, W. R., & Harvey, J. T. (2010). A framework for the design and development of physical employment tests and standards. *Ergonomics, 53*(7), 858-871. doi: 10.1080/00140139.2010.489964

Peek-Asa, C., Howard, J., Vargas, L., & Kraus, J.F. (1997). Incidence of non-fatal workplace assault injuries determined from employer's reports in California. *Journal of Occupational and Environmental Medicine, 39*(1), 44-50. doi: 10.1097/00043764-199701000-00009

Quigley, A. (2008). Fit for duty? The need for physical fitness programs for law enforcement officers. *Police Chief, 75*(6), 62. Retrieved from http://policechiefmagazine.org/magazine/index.cfm?fuseaction=display&article_id=1516&issue_id=62008

Raymond, M. R. (2001). Job analysis and the specification of content for licensure and certification examinations. *Applied Measurement in Education, 14*(4), 369-415. doi: 10.1207/S15324818AME1404_4

Roberts, P. B. (2006). Analysis: The defining phase of systematic training. *Advances in Developing Human Resources, 8*(4), 476-491. doi: 10.1177/1523422306293014

Rothwell, W. J., & Kazanas, H. C. (2004). *Mastering the instructional design process: A systematic approach* (3rd ed.). Stafford, TX: Pfeiffer.

Rydberg, J. (2010). The effect of higher education on police behavior. *Police Quarterly, 13*(1), 92-120. doi: 10.1177/1098611109357325

Samejima, F. (1969). Estimation of latent ability using a response pattern of graded scores. *Psychometrika, 35*(1), 139-139. doi: 10.1007/BF02290599

Sanchez, J. I., & Fraser, S. L. (1992). On the choice of scales for task analysis. *Journal of Applied Psychology, 77*(4), 545-553. doi: 10.1037/0021-9010.77.4.545

Smith, M. R., Kaminski, R. J., Alpert, G. P., Fridell, L. A., MacDonald, J., & Kubu, B. (2010). A multi-method evaluation of police use of force outcomes. Retrieved from http://www.ncjrs.gov/pdffiles1/nij/grants/231177.pdf

Smith, M. R., & Petrocelli, M. (2002). The effectiveness of force used by police in making arrests. *Police Practice and Research, 3*(3), 201-215. doi: 10.1080/15614260220150591

Spray, J. A., & Huang, C. Y. (2000). Obtaining test blueprint weights from job analysis surveys. *Journal of Educational Measurement, 37*(3), 187-201. doi: 10.1111/j.1745-3984.2000.tb01082.x

Statistics New Zealand. (2010). Patterns in Police Apprehensions in New Zealand 2005/06 to 2008/09. Retrieved from http://www.stats.govt.nz/browse_for_stats/people_aand_communications/crime_and_justice/patterns-in-police-apprehensions-in-nz.aspx

Strawbridge, P. , & Strawbridge, D. (1990). *Networking guide to recruitment, selection and probationary training of police officers in major departments of the United States of America*. New York, NY: John Jay College of Criminal Justice.

Tannenbaum, R. J., Robustelli, S. L., & Baron, P. A. (2008). Evidence-centered design. *Clear Exam Review, 19*(2), 26-33. doi: 0.1146/annurev.ps.43.020192.002151

Tannenbaum, S. I., & Yukl, G. (1992). Training and development in work organizations. *Annual Review of Psychology, 43*(1), 399-441. doi: 10.1146/annurev.ps.43.020192.002151

Terrill, W. (2003). Police use of force and suspect resistance: The micro process of the police-suspect encounter. *Police Quarterly, 6*(1), 51-83. doi: 10.1177/1098611102250584

Terrill, W. (2005). Police use of force: A transactional approach. *Justice Quarterly, 22*(1), 107-138. doi: 10.1080/0741882042000333663

Terrill, W., & Paoline III, E. A. (2011). Conducted energy devices (CEDs) and citizen injuries: The shocking empirical reality. *Justice Quarterly*, 1-30. Retrieved from doi:10.1080/07418825.2010.549834

Tessmer, M., McCann, D., & Ludvigsen, M. (1999). Reassessing training programs: A model for identifying training excesses and deficiencies. *Educational Technology Research and Development, 47*(2), 86-99. doi: 10.1007/BF02299468

Trappitt, D. E. (2007). New Zealand police training 2007: A study of organisational preparedness of police training in support of the police strategic plan. Wellington, New Zealand: Police National Headquarters.

Wang, N. (2010). Issues in the analysis of PA/JA data and the translation into content weights. In E. Smith & G. Stone (Eds.), *Applications of Rasch measurement in criterion-referenced testing: Practice analysis to score reporting* (pp. 1-23). Chicago, IL: JAM Press.

Wang, N., Schnipke, D., & Witt, E. A. (2005). Use of knowledge, skill, and ability statements in developing licensure and certification examinations. *Educational Measurement: Issues and Practice, 24*(1), 15-22. doi: 10.1111/j.1745-3992.2005.00003.x

Water Safety New Zealand. (2012). Statistics and Research. Retrieved 24 April 2012, from http://www.watersafety.org.nz/

Wellington, J. J. (2000). *Educational research: Contemporary issues and practical approaches*. New York, NY: Continuum International Publishing Group.

Wilson, R., & Wilson, B. (1987). *The systematic design of training courses*. Nashville, TN: Parthenon Publishing.

Wolf, R., Mesloh, C., Henych, M., & Thompson, L. F. (2009). Police use of force and the cumulative force factor. *Policing: An International Journal of Police Strategies & Management, 32*(4), 739-757. doi: 10.1108/13639510911000795

Appendix A

Summary of methodology

	Stage and Instrument	Primary question(s)	Participants	Sampling
Organisational Analysis	1.1 Review of material. 1.2 Interviews using a semi-structured technique	1.1-2 • What are the strategic goals of the NZP, and are they supported by physical education at the recruit level? • What are the relevant legal requirements / Acts / Policy for PE and DT training? • What topics are required to be included in the curriculum?	1.1 All accessible documents, websites 1.2 Training and operational management positions (7)	1.1 n/a 1.2 Purposive
Task analysis	2.1 Review of documents 2.2 Observations 2.3 Interviews (including CI) - semi structured 2.4 Focus group	2.1-4 What are the PE and DT relevant tasks encountered on the job: • The situations and subject behaviours encountered? • The tactical options or tactics used to successfully resolve the situations? 2.3 What are the most useful techniques and tactical options used in resolving events?	2.1 POL 645s from front-line 2.2 Job incumbents front-line (3) 2.3 Job incumbents front-line (3) 2.4 Job incumbents and supervisor (7)	2.1 n/a 2.2-4 Districts randomly selected; Individuals selected by district liaisons
	3.1 Focus group - Delphi technique	3.1 What are the clusters of 'topics' identified?	3.1 DTI (6)	3.1 Purposive
	4.1 Pilot of questionnaire 4.2 Questionnaire (on-line)	4.1 Does the questionnaire operate properly? • Are there any points of confusion? • How long does it take? • Was anything important left out? 4.2 Validation of tasks: criticality, frequency, difficulty	4.1 DTI who have previously been front-line (3) 4.2 SMEs (job incumbent front-line and their supervisors) (325)	4.1 Purposive 4.2 Random

Note. (1) Framework adapted from Noe (2008) and Goldstein (1993).
(2) **CI** - critical incidents; **DTI** Defensive Tactics Instructors; **NZP** = NZP; **PE and DT**: Physical Education and Defensive tactics; **POL 645** = NZ Police Injury reporting forms; **SME** = Subject Matter Expert.

Appendix B

Summary of methodology and research aims

	Research Aim			
Stage and Method	**One**	**Two**	**Three**	**Four**
1.1 Review of material.	✓			✓
1.2 Interviews	✓			✓
2.1 Review of documents	✓			✓
2.2 Observations	✓			✓
2.3 Interviews	✓			✓
2.4 Focus groups	✓			✓
4.2 Questionnaire		✓	✓	✓

Note. Ticks (✓) indicate where data will be gathered to answer that aim. Excluded stages are processes that do not address any of the research aims.

Appendix C

Stage 2 observation and interview guides

Stage 2: Observations guide		
Observer		
Participant/ QID		
Time, date, & location:		
Situation / Subject encountered		**Tactical Option / Tactic used**

Stage 2: Interview guide
General
Can you tell me about some for the PE & DT relevant situations and subject behaviours you have encountered in the front-line role, and the tactical options or tactics you have used to successfully resolve the situations?

Critical Incident(s)
Can you relate a story from your experience about a situation in which you were forced to make a crucially important decision (Rothwell & Kazanas, 2004)? (Show/read NZP definition of critical incident).

After an event
1. Which tactical option or technique did you use in attempting to resolve (*the incident*)? 2. What were the most useful tactical options or techniques you used in successfully resolving (*the incident*)?

NZP definition of a critical incident (New Zealand Police, 2008):
Any incident where:

- force (or the threat/potential for force) is being used and staff responding to it may have to consider the use-of-force as an option to resolve that incident, or
- any person faces the risk of serious harm, or
- There are persons present who have been assessed as mentally unstable or who are affected by substances that raise the potential for violent responses to police presence.

Any occasion where police are responding to people who are:

- in the act of committing a crime, or
- leaving a scene after committing a crime, or
- Mentally unstable or who are affected by substances that raise the potential for violent responses to police presence.

Appendix D

Stage 2 focus group guide

Stage 2 Focus Group Guide	
Observer	
Time & date	
Location	
Officer QIDs	

Please keep the responses of others in the focus group confidential.

1. **What are the PE & DT relevant tasks encountered on the job?**
   - What are the situations and subject behaviours encountered? and/or,
   - What are the tactical options or tactics used to successfully resolve the situations?

Tactical Option / Tactic used	Situation / Subject encountered

2. What do you judge to be the most important topics/tasks for inclusion in the curriculum?	
Topic(s)	

From the above stages an exhaustive task list will be generated. Tasks will describe the task, not the performance level or individual characteristics (Goldstein, 1993).

Tasks

Appendix E

Information and consent forms for stage 1

VICTORIA UNIVERSITY OF WELLINGTON
Te Whare Wānanga o te Ūpoko o te Ika a Māui

Interview Information Sheet

An organisational and task analysis to inform physical education and police defensive tactics training.

1. **Outline of research project**

This study, investigating the defensive tactics and physical training needs of police, is being conducted by Bradley Simpson as part of the of a Masters Thesis. The aim of the study is to provide evidence to inform the design and development of physical education and defensive tactics training at the Royal New Zealand Police College. The purpose of today's activities is to collect organisational information on physical training, and the topics or tasks that are required to be included in the curriculum. Ethical approval for this study has been given by the Victoria University Faculty of Education's Human Ethics Committee. Approval to complete this project has been granted by the New Zealand Police Research and Evaluation Steering Committee.

2. **Participants involvement**

You are being invited to participate in one of a number of data gathering activities. If you volunteer, you will be asked questions on New Zealand Police physical education and defensive tactics training. Your responses will be recorded and transcribed. The estimated time to take part is 15mins.

3. **Confidentiality**

All information that you provide will be kept strictly confidential, and will only be viewed by Bradley Simpson and his supervisor. At no time will your name and any other identifying information be revealed or made available to anyone other than the researcher. Due to the small number of research participants in this stage of the research, your anonymity can not be guaranteed. Data will be securely stored on the

New Zealand Police hard drive, or an encrypted storage device. All individual responses collected will be destroyed on the 07/05/2014.

4. **Results**

The results of this study will be held in the Victoria University of Wellington library. The study may be the subject of presentations or seminars.

5. **Participants' rights**

If you volunteer to participate in this study, you may withdraw and stop participating during the study at any time without any penalty. If you wish to withdraw from the research you must do so before 06/02/2012 by notifying the researcher. If you have any questions about this study you may contact Bradley Simpson, or his supervisor, Dr Barrie Gordon. Both contact details are provided below.

6. **Researchers details**

Bradley Simpson
Project Officer: Teaching and Learning
New Zealand Police
Wellington
bradley.simpson@police.govt.nz
ph: (04) 238-6445.

Supervisor
Dr Barrie Gordon
Victoria University of
barrie.gordon@vuw.ac.nz
ph: (04) 463-9770.

Stage 1: Participant Consent Form

An organisational and task analysis to inform physical education and police defensive tactics training.

1. I have read the above information and have had the opportunity to ask questions which have been answered to my satisfaction.	❑ Yes	❑ No
2. I understand that taking part in this study is confidential.	❑ Yes	❑ No
3. I understand that taking part in this study is voluntary.	❑ Yes	❑ No
4. I understand that I may withdraw from the study.	❑ Yes	❑ No
5. I know who to contact if I have any questions about the study.	❑ Yes	❑ No
6. I agree to the interview being tape-recorded so the research team can listen to the interview afterwards, and transcribe it for analysis.	❑ Yes	❑ No
7. I would like to be sent a summary of the study findings. ***If yes, please provide a confidential <u>email</u> or <u>postal</u> address below***	❑ Yes	❑ No
8. I would like a copy of the transcript (written version of the interview) sent to me at the end of the study. ***If yes, please provide a confidential <u>email</u> or <u>postal</u> address below***	❑ Yes	❑ No
Email: _____, **<u>or</u>** **Postal address**: _____ _____		

Your name and signature:

I …….agree to take part in the study as described.

QID ……..…… Signed: …… Date: ……/……../…..…..

Appendix F

Transcriber confidentiality agreement form

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON
COLLEGE OF EDUCATION

TRANSCRIBER'S CONFIDENTIALITY AGREEMENT

Name (print): ……..

I agree:

- to transcribe the interviews provided to me.
- to maintain the confidentiality of all information contained on the tapes, including the names of interview participants as well as any other identifying information (such as school, etc.).
- not to make any copies of the tapes or the transcripts, or keep any record of them, other than those required for the project and requested in writing by the investigators.
- to delete the interviews once I have finished transcribing them .

Signed: …….

Date: ……..

Appendix G

Tasks used in the calculation of the Use-Of-Force Logit

Use-of-force logit tasks
Use OC Spray to control a subject: depriving them of vision and/or through pain compliance.
Using a TASER to control a violent subject.
Use an expandable baton to gain compliance/control a subject/situation.
Using a side handle baton to control a subject/situation.
Strike a subject with a weapon of opportunity (e.g. torch, radio) to control the situation/subject.
Apply the Carotid Hold to a subject.
Restrain a subject standing up using a hold other than the Carotid Hold (e.g. wrist lock).
Physically move a 'passively resistant' person from an area
Redirect a subject to create space.
Use a punch, palm, elbow, kick, knee or stomp on a subject.
Break up fights between individuals
Take or tackle a subject to the ground.
Restrain/control a subject on the ground.
Apply handcuffs to a non-compliant subject on the ground.
Apply handcuffs to a non-compliant subject - not on the ground.

Appendix H

Tasks used in the calculation of the Empty-Hand Logit

Empty-hand tasks
Use strength to deal with an incident (e.g. to control a subject physically)
Apply the Carotid Hold to a subject.
Restrain a subject standing up using a hold other than the Carotid Hold (e.g. wrist lock).
Physically move a 'passively resistant' person from an area
Redirect a subject to create space.
Use a punch, palm, elbow, kick, knee or stomp on a subject.
Take or tackle a subject to the ground.
Restrain/control a subject on the ground.

Appendix I

Item response values for difficulty, importance, and frequency

N	Task	Difficulty	Importance	Frequency
1	Use strength to deal with an incident (e.g. to control a subject physically)	1.67	2.34	0.95
2	Use endurance to deal with an incident (e.g. chase a subject for greater than minutes)	0.75	1.57	-1.52
3	Run or sprint to deal with an incident (e.g. to chase a subject for less than minutes)	0.39	1.99	-0.92
4	Deal with a subject in a body of water (e.g. rescue or apprehend from a pool, lake, sea etc.)	0.66	0.58	-3.66
5	Negotiate various obstacles	0.36	1.42	-0.27
6	Perform ceremonial/drill movements (e.g. saluting, standing at attention)	-0.69	-2.11	-4.21
7	Use verbal communications to gain control of a subject who is non-compliant.	1.04	3.72	3.04
8	Assess the risk of a subject quickly (e.g. through a combination of body language, response to officers presence, and background information).	1.48	3.73	3.59
9	Tactically separating potentially violent subjects (e.g. in a domestic).	1.46	3.99	2.31
10	Use OC Spray to control a subject: depriving them of vision and/or through pain compliance.	0.97	3.12	-1.55
11	Use OC spray on an animal.	-0.23	0.76	-2.37
12	Using a TASER to control a violent subject.	2.83	3.76	-2.01
13	Use an expandable baton to gain compliance/control a subject/situation.	1.48	1.83	-2.88
14	Use an expandable baton for a purpose other than controlling a subject (e.g. to break a window).	-1.23	0.14	-2.56
15	Using a side handle baton to control a subject/situation.	1.78	1.66	-3.32
16	Strike a subject with a weapon of opportunity (e.g. torch, radio) to control the situation/subject.	0.34	1.74	-2.73
17	Apply the Carotid Hold to a subject.	2.01	1.48	-3.16
18	Restrain a subject standing up using a hold other than the Carotid Hold (e.g. wrist lock).	2.85	3.75	0.32
19	Physically move a 'passively resistant' person from an area	1.35	2.25	0.42
20	Redirect a subject to create space.	0.76	1.90	-1.11
21	Use a punch, palm, elbow, kick, knee or stomp on a subject.	1.68	2.49	-1.70
22	Defend yourself against a physical assault (e.g. punch, grab, spit or kick).	2.59	4.02	-1.04
23	Break up fights between individuals.	1.84	2.67	0.20
24	Getting into a position of dominance when in close quarters.	2.92	3.93	0.18

Table continues on next page

N	Task	Difficulty	Importance	Frequency
25	Deal with two of more non-cooperative subjects at a time (per officer).	2.88	3.94	0.12
26	Deal with non-cooperative, potentially violent people in cells.	2.46	3.42	-0.03
27	Defend against an assault on the ground.	2.88	3.47	-2.32
28	Take or tackle a subject to the ground.	2.02	3.06	-0.48
29	Restrain/control a subject on the ground.	2.78	4.12	0.19
30	Apply handcuffs on a compliant subject to temporarily restrain them.	-0.46	1.18	1.70
31	Apply handcuffs to a non-compliant subject on the ground.	2.44	4.14	0.54
32	Apply handcuffs to a non-compliant subject - not on the ground.	2.99	3.92	0.35
33	Application of other mechanical restraints (excluding handcuffs).	1.97	2.07	-2.30
34	To restrain persons with unique physical circumstances (e.g. one legged, one armed, large wrists - can't fit handcuffs, pregnant women, wrists in a cast, etc.).	1.21	1.04	-3.14
35	Act as part of a 'section/group/squad' to clear an area (e.g. move a group of people down a road, clear a house party).	2.37	2.65	-1.26
36	Working tactically with a colleague (e.g. contact/cover).	1.86	2.88	1.40
37	Deal with a subject who is holding a weapon (non-firearms e.g. knife) who is non-compliant.	4.07	6.06	-1.05
38	Complete an online tactical options report.	0.02	0.71	-1.46
39	Conduct a search of a person.	0.60	2.43	2.76
40	Deal with (including decision making and physical tasks) a subject who has the potential/history for violence.	1.69	3.56	2.47
41	Escalate and/or de-escalate the use-of-force/tactical option to control the situation.	1.56	3.61	1.94
42	Deal with someone who is drunk, drugged, or a mental health patient.	1.57	3.58	3.15
43	Apply police policy and the laws on the use-of-force.	1.17	2.43	1.96
44	Apply preventative measures against positional asphyxia.	0.79	2.07	-0.85
45	Deal with conflict in crowded environments	2.64	3.49	0.10

Appendix J

Task classification according to Bramley framework, and cluster analysis

Task	Difficulty	Importance	Frequency	Bramley classification		Cluster Analysis
				Branch (1-18)	Level (1-5)	Cluster (1 or 2)
Use strength to deal with an incident (e.g. to control a subject physically)	Yes	Mod	Very	4	2	1
Use endurance to deal with an incident (e.g. chase a subject for greater than minutes)	No	Not	Infreq	18	5	1
Run or sprint to deal with an incident (e.g. to chase a subject for less than minutes)	No	Not	Mod	17	5	1
Deal with a subject in a body of water (e.g. rescue or apprehend from a pool, lake, sea etc.)	No	Not	Infreq	18	5	2
Negotiate various obstacles	No	Not	Mod	17	5	1
Perform ceremonial/drill movements (e.g. saluting, standing at attention)	No	Not	Infreq	18	5	2
Use verbal communications to gain control of a subject who is non-compliant.	No	Very	Very	10	4	1
Assess the risk of a subject quickly (e.g. through a combination of body language, response to officers presence, and background information).	No	Very	Very	10	4	1
Tactically separating potentially violent subjects (e.g. in a domestic).	No	Very	Very	10	4	1
Use OC Spray to control a subject: depriving them of vision and/or through pain compliance.	No	Mod	Infreq	15	3	1
Use OC spray on an animal.	No	Not	Infreq	18	5	2
Using a TASER to control a violent subject.	Yes	Very	Infreq	3	1	1
Use an expandable baton to gain compliance/control a subject/situation.	No	Not	Infreq	18	5	1
Use an expandable baton for a purpose other than controlling a subject (e.g. to break a window).	No	Not	Infreq	18	5	2
Using a side handle baton to control a subject/situation.	Yes	Not	Infreq	9	2	1
Strike a subject with a weapon of opportunity (e.g. torch, radio) to control the situation/subject.	No	Not	Infreq	18	5	1
Apply the Carotid Hold to a subject.	Yes	Not	Infreq	9	2	1
Restrain a subject standing up using a hold other than the Carotid Hold (e.g. wrist lock).	Yes	Very	Very	1	2	1
Physically move a 'passively resistant' person from an area	No	Mod	Very	13	4	1
Redirect a subject to create space.	No	Not	Mod	17	5	1
Use a punch, palm, elbow, kick, knee or stomp on a subject.	Yes	Mod	Infreq	6	1	1

Table continues on next page

Task	Difficulty	Importance	Frequency	Bramley classification		Cluster Analysis
				Branch (1-18)	Level (1-5)	Cluster (1 or 2)
Defend yourself against a physical assault (e.g. punch, grab, spit or kick).	Yes	Very	Mod	2	1	1
Break up fights between individuals.	Yes	Mod	Mod	5	2	1
Getting into a position of dominance when in close quarters.	Yes	Very	Mod	2	1	1
Deal with two of more non-cooperative subjects at a time (per officer).	Yes	Very	Mod	2	1	1
Deal with non-cooperative, potentially violent people in cells.	Yes	Mod	Mod	5	2	1
Defend against an assault on the ground.	Yes	Mod	Infreq	6	1	1
Take or tackle a subject to the ground.	Yes	Mod	Mod	5	2	1
Restrain/control a subject on the ground.	Yes	Very	Mod	2	1	1
Apply handcuffs on a compliant subject to temporarily restrain them.	No	Not	Very	16	5	1
Apply handcuffs to a non-compliant subject on the ground.	Yes	Very	Very	1	2	1
Apply handcuffs to a non-compliant subject - not on the ground.	Yes	Very	Very	1	2	1
Application of other mechanical restraints (excluding handcuffs).	Yes	Mod	Infreq	6	1	1
To restrain persons with unique physical circumstances (e.g. one legged, one armed, large wrists - can't fit handcuffs, pregnant women, wrists in a cast, etc.).	No	Not	Infreq	18	5	1
Act as part of a 'section/group/squad' to clear an area (e.g. move a group of people down a road, clear a house party).	Yes	Mod	Mod	5	2	1
Working tactically with a colleague (e.g. contact/cover).	Yes	Mod	Very	4	2	1
Deal with a subject who is holding a weapon (non-firearms e.g. knife) who is non-compliant.	Yes	Very	Mod	2	1	1
Complete an online tactical options report.	No	Not	Mod	17	5	2
Conduct a search of a person.	No	Mod	Very	13	4	1
Deal with (including decision making and physical tasks) a subject who has the potential/history for violence.	Yes	Very	Very	1	2	1
Escalate and/or de-escalate the use-of-force/tactical option to control the situation.	No	Very	Very	10	4	1
Deal with someone who is drunk, drugged, or a mental health patient.	Yes	Very	Very	1	2	1
Apply police policy and the laws on the use-of-force.	No	Mod	Very	13	4	1
Apply preventative measures against positional asphyxia.	No	Mod	Mod	14	3	1
Deal with conflict in crowded environments	Yes	Mod	Mod	5	2	1

Note. **Infreq=infrequently; Mod=Moderately**