

# Towards Democratic Policing in Taiwan: A Longitudinal Study of the Effects of Police Education on Human Rights, Moral Reasoning, Prejudice and Receptivity to Evidence-Based Policing

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## Declaration of Authorship

'I, Keng-hui Lin, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.'

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Date:

# Towards Democratic Policing in Taiwan and Police Education

## Abstract

This thesis investigates how police socialisation, and in particular police education, influences police recruits in terms of several democratic policing indicators (DPI) and their receptivity to evidence-based policing (EBP). The DPI used here are derived from prior research and theory, namely: 1) human rights endorsement, 2) advanced moral reasoning, and 3) lack of prejudice.

To observe temporal changes in DPI and receptivity to EBP, this thesis applies a multiple-group longitudinal design that includes both police recruits and university undergraduates (as a comparison group). This sample takes advantage of the centralised police education system in Taiwan – Central Police University (CPU) – and the fact that there is only one criminology department in Taiwan – National Chung Cheng University (NCCU). The sample used here comprises five cohorts: 1) police officers on in-service programs, 2) graduate recruits in police academy training, 3) new and 4) senior recruits on cadre programs at CPU, and 5) first-year undergraduates at NCCU.

To determine the potential influence of different stages of police socialisation, this thesis conceptualises police socialisation from three perspectives: 1) recruit predisposition, 2) police education and training and 3) police work/culture. All participating cohorts are surveyed on three occasions (primarily September 2016, 2017 and 2018) in order to test the applicability of these perspectives. The sample covers the whole population of each cohort and was subject to little attrition across the three periods of data collection. Five research instruments were used here: 1) Attitude towards Human Rights (ATHR), 2) Defining Issues Test–2 (DIT-2), 3) Right-Wing Authoritarianism (RWA), 4) Social Dominance Orientation (SDO) and 5) Evidence-based Policing Receptivity scale (EBPR).

This thesis has five principal findings. First, the conceptualisation of democratic policing used here passes the construct validity test, implying that the concept is sufficiently captured by the three indicators used in this study: adherence to human rights, advanced moral reasoning and the absence of prejudice. Second, among the

three stages of police socialisation considered here, police education and training is found to exert a *negative* influence on all outcome variables. There is little effect observed in both the predisposition and police work/culture perspectives on these outcome variables. Third, graduate recruits are shown to exhibit no reliable differences on all outcome variables when compared to police recruits without degrees. Fourth, sworn officers do not change significantly during in-service education. Finally, the observed negative influence of police education and training is mainly attributed to the paramilitary management at CPU. The implications of the findings for police practice, police education and further research are discussed.

## Impact Statement

The research reported in this thesis is expected to impact three broad areas: academia, public policy and police education. In relation to academia, this research is novel in using longitudinal data to both conceptualise and model – using structural equation modelling (SEM) – ‘democratic’ policing in the context of Taiwan. This conceptualisation and modelling illustrate how the sub-dimensions of democratic policing as defined here – comprising of human rights endorsement, advanced moral reasoning and lack of prejudice – correlate with each other, facilitating future research to explore police legitimacy-related issues.

Democratic policing should be evidence-based. In addition to focussing on the concept of democratic policing, this thesis also examines Taiwanese police officers’ receptivity to research evidence. In doing so, this research reports an original attempt to determine the latent structure underlying evidence-based policing (EBP) receptivity using factor analysis. This analysis extends previous research and can usefully contribute to the development of instruments designed to better measure police receptivity to research evidence. It is also the first study to assess receptivity to EBP in an Asian setting.

The second dimension of impact expected to follow from this research concerns public policy. Using a robust longitudinal research design, the results of this study show that the current model of police education in Taiwan - compared to recruit predisposition and police work/culture - is the most influential factor in shaping police cadets’ human right endorsement, moral reasoning, levels of prejudice and EBP receptivity, as measured herein. The role of police education in facilitating democratic policing remains a highly topical subject, especially in Asian settings. The concern has been raised that the prevailing model of police education in the US, in which police academy training and collegiate programs operate in parallel, is insufficient to adequately prepare police officers for the complexity of modern day policing. This research adopts a robust research design to empirically examine the prevailing model of police education and compares it with the professional model that combines liberal arts, professional modules and vocational training. This research shows the strengths and weaknesses of different police education models and

suggests an alternative model of police education in Taiwan that is more conducive to embedding and developing the principles of democratic policing.

The third beneficiary of this research concerns the long-standing issue in Taiwanese police education. This issue is related to the sequence of recruitment that among the three steps of training, qualification and employment, whether training or qualification should be the first step. This research shows that there is little difference in the propensity for democratic policing and EBP receptivity between recruits who are trained first and those who are qualified first. That is, the sequence of recruitment does not make a difference in desirable attributes of recruits, but the contents of police education do.

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## List of Acronyms

4P, stage 4 (maintaining norms schema)

AGFI, adjusted goodness-of-fit index

ATHR, the Attitude towards Human Rights

ATHRI, Attitudes towards Human Rights Inventory

AVE, average variance extracted

CC, civilian constraints

CFA, confirmatory factor analysis

CFI, comparative fit index

CPU, Central Police University

CR, composite reliability

DIT-2, Defining Issues Test -2

DMP, Dual-Process Motivational Model

DoC, Department of Criminology

DPI, democratic policing indicator

E, equality

EBP, Evidence-based policing

EFA, exploratory factor analysis

FTO, Field Training Officer

GFI, goodness-of-fit index

HR, Human rights

HRQ, Human Rights Questionnaire

ICCPR, International Covenant on Civil and Political Rights

ICESCR, International Covenant on Economic, Social and Cultural Rights

IPTF, United Nations International Police Task Force

MACR, missing at completely random

MAR, missing at random

MI, multiple imputation

MNAR, missing not at random

MOI, Ministry of the Interior

MR, moral reasoning

MSV, maximum shared variance



NCCU, National Chung Cheng University  
NFI, normed fit index  
NPA, National Police Agency  
OSCE, Organisation for Security and Co-operation in Europe  
P, privacy  
PCA, principal components analysis  
PJ, prejudice  
PL&SW, personal liberty and social welfare  
POP, problem-oriented policing  
P score, Post-conventional score  
RCT, randomised controlled trial  
RM ANOVA, Repeated Measures Analysis of Variance  
RMSEA, root mean square error of approximation  
RWA, Right-Wing Authoritarianism  
S23, stage 2 and 3 (personal interest schema)  
SEM, structural equation modelling  
SD, standard deviation  
SDO, Social Dominance Orientation  
SRMR, standardised root mean residual  
TLI, Tucker-Lewis index  
TPC, Taiwan Police College  
UDHR, Universal Declaration of Human Rights

# Chapter 1 Introduction

This thesis is concerned with the influence of police socialisation and education on democratic policing in Taiwan. The objective of this thesis is to explore whether police education supports or stifles the development of democratic policing in contemporary Taiwan.

To explore this issue, this thesis encompasses four themes: democratic policing, evidence-based policing (EBP), police socialisation and education. These themes are framed and examined using a multiple-group longitudinal research design that covers three models of police education and three perspectives of police socialisation, details of which are provided in later sections.

This chapter is intended to provide a short introduction to the thesis. To set the scene for what is to follow, the next section will introduce how this thesis seeks to pin down the core elements of democratic policing by drawing on the dual framework of fairness and effectiveness. This framework is commonly used to describe the development of policing research in the US over the past half-century (Skogan & Frydl, 2004). Moreover, this section also shines a light on the hitherto absent linkage between these representations of democratic policing and police socialisation and education. The second half of this chapter will cover the organisation of this thesis, describing the thread that links subsequent chapters.

## 1.1 Introduction

Democratic policing, though diversely defined, refers to ‘a kind of redistributive mechanism resting on notions of trust, equality and legitimacy’ (Manning, 2010, p 3). It is less concerned with whether policing is located inside or outside a democracy but more with the restraint and responsiveness of the police to citizen demands (Bayley, 1979). Various scholars have proposed definitions of democratic policing from distinct viewpoints, such as history, jurisprudence and sociology. The variation between definitions reflects the idea that democratic policing encompasses diverse functions, structures and images.

### *A dual framework of fairness and effectiveness*

The enduring themes of extant democratic policing research offer a clue to find the critical features of what democratic policing is. To this end, Skogan and Frydl (2004) review the themes of policing research published mainly in the US between 1968 and 2000. They find that two core police mandates have consistently received researchers' attention: how to effectively control crime and how to best ensure justice. Skogan and Frydl (2004) accordingly argued that the dual framework of fairness and effectiveness could best articulate the track of American policing in recent decades.

It is important to unpack the two elements of this dual framework. Effectiveness, as understood in the context of democratic policing, generally refers to the effectiveness of the police at tackling those troublesome issues that fall within the police remit, namely reducing crime, disorder and various public safety issues. American policing has been subject to debate about its effectiveness since at least the 1970s. This examination covers a variety of police strategies believed to be effective, such as random patrol, rapid response to calls for service and follow-up investigations. (Greenwood et al., 1975; Kelling et al., 1974; Spelman & Brown, 1984). Despite the popularity of these police tactics, emerging research showed that the majority of these traditional strategies were largely ineffective. Concerns about their (in)effectiveness partly explain the growth in advocacy for EBP, which suggests that police practice should be based on the best available research evidence (Sherman, 1998; Sherman et al., 2002).

Fairness, on the other hand, relates to an impartial manner by which the police fulfil the goal of effectiveness (Skogan & Frydl, 2004). This theme was given research attention partly due to civil rights movements and public disorder in the US in the 1960s, with research discovering the enormous discretion available to street-level officers and the discriminatory way in which some police decisions were made. The focus of this line of research subsequently evolved from a concern with the impact of legal (e.g., the strength of evidence) and extra-legal (e.g., suspect demeanour) factors on officer behaviours to an interest in the administrative mechanisms for dealing with abuses of police authority (e.g., decentralisation of operations) in the

1970s. With the rise of community policing in the 1980s, research interest then turned to the intersection between the police and community (Mastrofski et al., 1995). That is, the police, in their endeavour to secure neighbourhood safety, often rely on the public's support of and involvement in police activities. Research in this vein thus directs attention toward police legitimacy where levels of compliance with law and public cooperation with police are determined, in part, by their perception of police officers' procedural fairness (Hough et al., 2010; Tyler, 2003).

Drawing then on the dual framework of fairness and effectiveness, this thesis considers receptivity to EBP as a core component of the *effectiveness* aspect of democratic policing. As EBP aims to incorporate research evidence into police practice, how police officers embrace research evidence in their routine work might thus reflect their capacity to reduce crime and disorder. By contrast, instead of applying police legitimacy in the previous research directly, the other theme is structured upon the commonality of democratic policing definitions - the relationship between human rights and use of force. In this thesis, this relationship is further operationalised as three related but conceptually distinct dimensions: endorsement of human rights, advanced moral reasoning and lack of prejudice. In other words, this thesis argues that democratic policing could be represented by the openness of police officers to police-relevant research evidence and their capacity to handle the human-rights and use-of-force relationship.

#### *An absent link between democratic policing and police socialisation*

Presently there is surprisingly little research that examines empirically the relationship between police fairness, effectiveness and socialisation (Skogan & Fydl, 2004). Socialisation is taken here to mean the process by which police officers learn to fit into their occupation by adapting and internalising certain values, cultural norms and worldviews (Charman, 2017). In light of this lack of research, it is therefore unclear how police officers' attitudes towards the representations of democratic policing are shaped by police socialisation.

Police socialisation is a process. This process typically unfolds as follows. It starts with admittance to the police academy and ends with resignation or retirement from the police. Between these start and end points are four phases, commonly defined

as: anticipatory (pre-entry period), introduction (academy training), encounter (field training) and metamorphosis (officially assigned), with each phase influenced by various factors (Fielding, 1988; Van Maanen, 1973, 1974). The anticipatory phase, for example, is mainly influenced by reference groups (e.g. police acquaintances), recruit motivation, and the generalised conception of police roles (Conti, 2009). By contrast, the influential sources at the introduction phase of police socialisation are thought to relate to such factors as training content and curricula (Kenney & McNamara, 1999).

Influenced by multiple factors at various stages, police socialisation is thus dynamic, depending on the particular training content and contexts, and cultural norms of affiliated police organisation (Charman, 2017). It is difficult to differentiate among influential sources in the police socialisation process without tracking the changes of police recruits over those stages. In other words, the optimal research strategy to reliably estimate those factors that meaningfully impact police socialisation is a longitudinal design that covers the various stages of police socialisation, enabling processes and causes of change both within and among individuals to be identified (Campbell & Stanley, 1967; Kempf, 1990; Zeger & Liang, 1992). However, to the best of my knowledge, there are less than 20 longitudinal studies concerned with police socialisation (see Section 4.2 for a detailed review). This lack of longitudinal research is likely attributable to the resource-intensive nature of this kind of research design as well as the practical challenges of being able to track and repeatedly measure police cohorts over time. Of those longitudinal studies that are available, the results on the effects of police socialisation are surprisingly mixed. For example, Bennett (1984) found that police academy training reinforced recruits' authoritarianism. By contrast, data from Australia found a liberalising effect of academy training (Wortley & Homel, 1995). None of the existing longitudinal studies on police socialisation has been carried out in Asian contexts. The rarity of longitudinal research on police socialisation, particularly in Asia, signals the importance of this thesis to explore this theme in Taiwan.

### *Police education that contributes to democratic policing*

From the perspective of police socialisation, police education is often deemed to be the most proximate and available policy instrument with which to shape police officers' attitudes and behaviours (Stanislas, 2015). Police training and education has been progressing in response to the increasingly complex society since the early 20<sup>th</sup> century (Cordner, 2016). From a historical perspective, this progress starts with there being no fixed requirements for new police recruits to the now prevailing model in which standard and uniform academy training and collegiate programs in higher education institutions operate in parallel. A recent development related to police training in England and Wales, for example, is the Police Education Qualifications Framework (PEQF) that aims to professionalise police forces by raising educational standards in policing (Belur et al., 2019).

The prevailing police training model, however, has been considered inadequate to prepare officers for the complexities of modern society (Bittner, 1972; Cordner, 2018). Moreover, this model has shown mixed effects on police officers in terms of critical attributes such as conservatism (Christie et al., 1996) and behaviour towards minorities (Ellis, 1991; Kakar, 1998; Smith & Aamodt, 1997). Some scholars suggest that this inadequacy can be dealt with by adopting a new model of police education – the so-called professional model – that seeks to bring together the advantages of liberal arts and vocational training in the interests of generating improvements in policing (Cordner, 2018; Weisburd & Neyroud, 2011). It is, however, unclear how police education and training can contribute to democratic policing.

So far, the descriptions above outline how this thesis draws on the dual framework of police fairness and effectiveness to develop the two critical characteristics of democratic policing - the human-rights and use-of-force relationship and EBP receptivity - and the absent linkages of these characteristics to police socialisation and education. The next section will discuss why these issues are critical for the research site – Taiwan.

### *Why Taiwan?*

The section above highlighted the current lack of research on the linkages between democratic policing, police socialisation and police education, both worldwide more generally and Taiwan in particular. Although these linkages have not been given much attention by researchers and policy-makers, they nevertheless have special importance for Taiwan, a country that has witnessed a 'great transition' in politics, economy and society in recent decades (Tien, 1989). The political transformation in Taiwan saw a shift from authoritarianism to democracy, which brought with it radical changes in Taiwanese policing. In particular, there was a shift from so-called "high" to "low" policing, involving the transition from an intelligence-led system designed to preserve the distribution of power in society to a system constrained by the rule of law and obliged to respond to the public (Brodeur, 1983, 2007; Cao et al., 2014). It is unclear how Taiwanese police socialisation and education contributes to these changes.

In addition to a shift from high to low policing, Taiwanese police education raises special research interests because of its centralised professional model. Briefly, the centralisation means all Taiwanese police recruits are uniformly trained and educated at one of two police schools: Taiwan Police College (TPC) and Central Police University (CPU). This clearly implies that these two schools play an important role in shaping the attitudes and behaviours of police officers in Taiwan and, more generally, the function of the Taiwanese Police service. Furthermore, CPU adheres to a professional model of police education, which policing scholars have suggested is the most promising approach for the preparation of officers for contemporary society (Bittner, 1972; Cordner, 2018). Presently, however, little research has looked into the influence of this form of police education model on democratic policing and EBP receptivity, as mentioned above. It is also true that little research has assessed how different models of police education (i.e., academy training, collegiate program and professional education) affect recruits in improving democratic policing. By including undergraduates in the only criminology department at National Chung Cheng University (NCCU) in Taiwan as comparison groups and the two models of education (professional education and academy training) at CPU, this research

seeks to bridge the gap of the influence of these education models on democratic policing.

## **1.2 Thesis chapter mapping**

This section will give an overview of how this thesis is organised. The chapters are organised into five parts: 1) literature review (C2 – 5), 2) review of research sites (C6), 3) method (C7), 4) analysis and results (C8 – 12), and 5) discussion and conclusion (C13).

The literature review covers four issues in four respective chapters: democratic policing in Chapter 2, EBP receptivity in Chapter 3, police socialisation in Chapter 4 and police education in Chapter 5. As discussed in the preceding section, this thesis draws heavily on the dual framework of fairness and effectiveness, where fairness is conceptualised using various definitions of democratic policing and effectiveness is represented by EBP receptivity. The conceptualisation is dealt with in Chapter 2, where the definition of democratic policing is anchored in the commonality between various perspectives of democratic policing. EBP is reviewed in Chapter 3, where the origins, development and barriers to EBP are discussed.

Chapter 4 deals with the process of police socialisation. As mentioned above, this process is concerned with the influences of four phases (anticipatory, introduction, encounter and metamorphosis). Among these phases, police education (introduction phase) is of special concern because it is widely considered to be the most amenable and available instrument for policy purposes of changing police practices (Kratcoski & Das, 2007). However, previous research presents an ambiguous picture of just how police education influences police recruits, especially in terms of attitudes and behaviours associated with democratic policing. This ambiguity might be explained by diverse education/training contents and contexts delivered within and among countries. This theme is reviewed in Chapter 5, which summarises models of police education and training and what is known from previous research about their influence on police recruits. Research gaps are also identified, such as the influence of the professional education model (Cordner, 2016, 2018), a bachelor's degree as



entry criterion (Brown, 2018) and evaluation of in-service training (Huey, 2018). The literature review ends by focussing on the linkages between democratic policing and police socialisation and education (Section 5.5).

In order to contextualise the issues reviewed in Chapters 2 - 5, Chapter 6 provides a succinct overview of Taiwanese policing and education, and in particular, the site where fieldwork for this thesis was carried out. Besides introducing Taiwanese policing, the police education system, Central Police University (CPU) and National Chung Cheng University (NCCU), this chapter also situates the training content and contexts of CPU within the existing literature, derived mainly from the West, on the supposed sources of influence on police socialisation and education. These connections will help determine how the CPU might affect police recruits. Finally, this chapter compares the CPU and NCCU in terms of recruit motivation, curricula, faculties, campus experience and so on. This is important because disparities across these variables might be responsible for any observed differences in outcome variables between participants of the two universities.

Chapter 7 is concerned with the research process of this thesis and covers the research questions, sampling, research design, research instruments and procedures. Five research questions guide this thesis, informed by identified gaps in the literature:

- 1. How does police socialisation in Taiwan affect police officers' belief in human rights, moral reasoning, levels of prejudice and receptivity to EBP?*
- 2. How does undertaking Taiwanese police education, in comparison to studying criminology at the NCCU, affect participants' belief in human rights, moral reasoning, levels of prejudice and EBP receptivity?*
- 3. How does undertaking Taiwanese police academy training affect recruits with a degree, in comparison to those without a degree, in terms of participants' belief in human rights, moral reasoning, levels of prejudice and EBP receptivity?*
- 4. How does undertaking Taiwanese police in-service education affect sworn officers in terms of participants' belief in human rights, moral reasoning, levels of prejudice and EBP receptivity?*
- 5. What is the latent structure underlying EBP receptivity?*

To address these research questions, this thesis uses a multiple-group longitudinal design that covers three perspectives of police socialisation (predisposition, police education and training and police work/culture) and three models of police education (collegiate program, professional model and academy training).

The research instruments used in this thesis comprise five scales: the Attitude towards Human Rights (ATHR, Leung & Lo, 2012), Defining Issues Test 2 (DIT-2; Rest et al., 1999), the Dual-Process Motivational Model consisting of Right-Wing Authoritarianism (RWA) and Social Dominance Orientation (SDO; Duckitt & Sibley, 2009a) and an EBP receptivity scale (EBPR). The first four scales are operationalised from the three components of democratic policing: adherence to human rights, advanced moral reasoning and absence of prejudice. The last scale, EBPR, is created and developed by the author to respond to identified research gaps.

The final issue discussed in C7 is data imputation. Attrition is a familiar problem in any longitudinal research. Attrition causes missing data. This matters because missing data might reduce statistical power and increase the risk of sample bias. To overcome these drawbacks, this thesis applies a form of data imputation, a technique that diagnoses mechanisms underlying missing data and accordingly imputes data to compensate (Buuren, 2018).

The results of this thesis are reported in five chapters: human rights (HR) in C8, moral reasoning (MR) in C9, prejudice (PJ) in C10, evidence-based policing (EBP) in C11 and the construct of democratic policing in C12. Organisation of the first four chapters is research-question (RQ) driven, moving through the formulation of research hypotheses, descriptive statistics, multivariate analysis and hypothesis examination. The multivariate analysis applies the Repeated Measures Analysis of Variance approach (RM ANOVA), a method strong in detecting within-subjects changes (Girden, 1992). Furthermore, the hypotheses are examined by pairwise comparisons and contrast analysis, both of which can be tailored to test hypotheses specifically. The contrast analysis is particularly useful in detecting temporal changes between the experimental and comparison group, which is common to differentiate treatment effects in evaluation research (Gertler et al., 2016).

Chapter 12 consists of two sections: construct validation of democratic policing and the relationship between democratic policing and EBP, as measured herein. The former is to test the contention that democratic policing can be conceptualised and operationalised by the three dimensions of HR endorsement, MR and lack of PJ. If the contention stands, data collected on those three dimensions, tested by structural equation modelling (SEM), should fit well in a specified model (Bollen, 1989). The second part of this chapter explores the relationship between democratic policing and EBP. As both policing approaches are judged as important in contemporary democracies, it is considered worthwhile to examine the relation between them empirically. In particular, as traditional beliefs hold that fair and restrained policing is not conducive to effectiveness of crime control, it would be illuminating to find out the psychological dimensions underlying those two dimensions (Engel & Eck, 2015; Skonga & Frydl, 2004).

Finally, Chapter 13 summarises the key findings of this thesis by organising them in accordance with the sequence of research questions that guide this thesis. First, it reports the influence of police socialisation on police recruits, pointing out that police education and training appear to mainly account for the make-up of police officers as measured in this thesis. Second, it argues that Taiwanese police education, as currently designed and delivered, does not improve police recruits' attitudes in ways that mark a shift towards democratic and evidence-based policing. Third, police recruits with bachelor's degrees in academy training do not perform differently from those recruits without degrees, contrary to expectation. Fourth, in-service education at CPU does not affect police officers significantly in all tested variables. Fifth, the conceptualisation of democratic policing as three components (HR endorsement, MR and lack of PJ) stands up to the construct validation. Sixth, the factor analysis of EBP receptivity indicates no explicit underlying structure. The final sections of chapter 13 discuss the proposed strengths and limits of this research, consider the policy implications of the findings and suggest avenues for future research.

## Chapter 2 Democratic Policing

Chapter 1 described how fairness and effectiveness are core elements of democratic policing. This chapter covers the fairness aspect of the fairness-effectiveness framework. It presents a broad conceptualisation of democratic policing and considers various relevant philosophical and political viewpoints. It then operationalises democratic policing in terms of three important components: HR endorsement, MR and lack of PJ.

This chapter is organised as follows. It starts with a brief discussion of the concept of 'democratic policing', bringing out the diversity in its definition. The chapter then reviews definitions of democratic policing proposed from various perspectives such as history, politics and jurisprudence. Based on this review, an argument is proposed that a critical feature of democratic policing, present in different perspectives on democratic policing, concerns the relationship between human rights and police use of force. Accordingly, three aspects pertaining to police use of force are discussed: 1) what to protect? 2) when and why to use force? and 3) how and against whom to use force? These three aspects of democratic policing are then operationalised into three elements, each of which has a large and diverse research literature, namely HR, MR and PJ.

### **2.1 Democratic policing: Origins, definition and development**

As the name suggests, democratic policing is intimately related to democracy. It refers to a redistributive mechanism that rests on notions of trust, equality and legitimacy (Manning, 2010). Democracy, however, does not guarantee the realisation of democratic policing. Conversely, democratic policing, as it is generally understood, can also exist in non-democratic countries (Manning, 2010). For this reason, a universally agreed-upon definition of democratic policing is not currently available (Sklansky, 2005)

Democratic policing can take many forms; however, a common characteristic of democratic policing relates to the restraint of the police and their responsiveness to demands placed on them by the public (Bayley, 1979). Democratic policing has been examined from various disciplinary perspectives such as history, jurisprudence, and sociology, leading to diverse definitions. In the sections below, I will review chronologically the work of arguably the most prominent commentators on democratic policing, namely George Berkley, Hsi-Huey Liang, Trevor Jones and colleagues, David Bayley, David Sklansky, and Peter Manning. This review is intended to identify the commonalities between different definitions of democratic policing and in doing so, help operationalise democratic policing for the purposes of this thesis.

### *George Berkley*

Berkley, in his seminal book '*The Democratic Policeman*' (1969), maintained that the police contradict almost all democratic principles such as equality, participation, consent and consensus (as set out in the so-called contract theory of government, Skyrms, 2014). Police officers, for example, do not encounter citizens on an equal footing in terms of power and authorised actions. To have the police function in a manner that is consistent with a democratic society, he proposed that democratic policing should be characterised by 1) democratic administration, 2) proactively preventing crime and 3) minimising the use of force.

The first characteristic, democratic administration, suggested that democratic values and norms should be embraced within police organisations. There are three features of democratic administration: 1) standardised rules and regulations, 2) job mobility and 3) employee participation in decision-making. The first principle, standardised rules and regulations, is designed to ensure that members of both the organisation (the police) and its clients (the public) are treated fairly and impartially. The second principle, job mobility, is intended to avoid the tyrannical relationships that sometimes arise between superiors and subordinates caused by the imposition of restrictions and lack of job mobility, both horizontal and vertical. The third principle, employee participation in decision-making, served to cultivate police officers' values and attitudes such as self-respect, respect for conciliation and tolerance that are indispensable in a democratic process.

Without the abovementioned three principles, it is argued that police organisations are at greater risk of exhibiting favouritism and arbitrary personnel policies, and that police officers would not be treated impartially. In other words, non-transparent and arbitrary elements that might exist within police organisations would result in police officers being more likely to treat citizens unequally and unreasonably.

Berkley argued that the above three principles should inform police education. He viewed military style training, which dominated policing in the US at the time, as deleterious to police work, and likely to produce recruits who lack initiative, flexibility and cordiality. He went on to argue that these characteristics, in turn, would limit the extent to which police achieve a positive rapport with the community in which they serve.

Berkley argued that the abovementioned three principles should be prioritised in curricula for police education. Thus, curricula should centre on two key points: within the context of policing, what is democracy and what are its requirements? Hence, the curricula should not be dominated by technical police courses such as patrol operation, police defence tactics and technical report writing, but instead should be focused on broader subjects that can improve citizenship.

The second characteristic of democratic policing, according to Berkley, concerns the proactive prevention of crime. This suggests that democratic police forces should work together with other authorities, agencies and associations such as school authorities, banks etc. to plan activities of common interest that can serve to reduce crime and the harms it generates. The positive approach advocated by Berkley included broad service and caring functions of policing such as traffic instruction courses at school, detective club for youngsters, crime prevention campaigns and talks on dangerous pedestrian habits for older people. By doing so, Berkely argued, the police relay a positive image of themselves to the population and hence further the democratic goal of self-respect for all.

The third characteristic, minimal use of force, differentiated democratic police officers from their totalitarian colleagues. Although the potential use of force is a feature of all police systems, it is the way by which it is viewed and utilised that distinguishes democratic and non-democratic approaches to policing. Democratic police officers,

for example, are allowed to use lethal force only when it is to protect their own or someone else's lives. By contrast, totalitarian police officers use violence as the means to maintain order, amongst other things.

In brief, Berkley argued that democratic policing should be characterised by internal civility, active crime prevention and minimal use of force.

### *Hsi-Huey Liang*

Hsi-Huey Liang, a German historian of Chinese descent, published the seminal *The Rise of Modern Police and the European State System* in 1992. Liang's observations centred on the historical rise and evolution of policing in Western Europe between industrialisation and the Second World War. Over this period, Europe experienced a complicated process of change that required policing systems to be responsive to local needs and strategic shifts in the international balance of power. The period, therefore, gave rise to many variations in policing types and functions among those countries.

According to Liang, in the 19<sup>th</sup> century, the national police style in much of Europe was oriented to responses to revolutionary disturbances (e.g., in the Austrian Empire, Switzerland, France, Prussia and Russia). Then, at the end of that century, came the rise in an international police system, aiming to protect Europe from international crime, the danger of revolution in Russia, and the chaos caused by the ineffectiveness of the multinational state system. At the beginning of the 20<sup>th</sup> century, the police in many European countries were empowered to prepare their countries for total mobilisation and turned to enact a united front against Leninist Russia after the First World War. The next stage saw the rise of Nazism in Germany. That implied that the modern police in Western Europe were associated with totalitarian institutions, which raised the question: what is the function of modern police service?

Against the backdrop of changes in European politics affecting the role and mission of the police, Liang presented four basic sought-after principles of modern policing:

- Police must operate on a legal basis only and prosecute suspects solely on objective (material) evidence.
- Police should regulate the behaviour of individual persons rather than of collective groups and should not use terroristic methods, like hostage-taking.

- Police must apply no more physical coercion than is absolutely necessary in any given situation. Torture to exact confessions, for example, is inadmissible.
- Police serve the European state system by assuring minimal damage to civilian society during all violent clashes. (ibid., p 4)

In short, Liang provides a legalistic definition of modern democratic policing, highlighting that the police should be constrained by procedures and means such as objective evidence and exclusion of excessive violence. This is straightforward in drawing a line to prevent the negative police function from damaging liberty - an indispensable element for democratic policing. Particularly, considering the inexorable crises that reform often incurs and in which police often act as an instrument of oppression rather than protection (Manning, 2010), Liang's stress on the principle of minimised damage is profound.

*Trevor Jones, Tim Newburn and David J. Smith*

The work of Berkley and Bayley (discussed in the next section) draws heavily on policing as it was envisioned and practised in the US. The position of Jones, Newburn and Smith (1996) has more of a British flavour. Jones et al. anchored democratic policing in the broader concept of democracy. They started by way of Greek democracy, rule of (or by) the people and examined a series of democracy-related concepts such as extending participation versus elitism, legitimacy and consent, local democracy and market solutions. Their discussion moved to the seemingly paradoxical role of police in the institutions of democracy insofar as the police possess powers to both be a protector of and a threat to fundamental freedoms.

Extracting from the concepts of democracy reviewed above, Jones, Newburn and Smith (1996) proposed seven ideals for democratic police governance: 1) equity, 2) delivery of service, 3) responsiveness, 4) distribution of power, 5) information, 6) redress and 7) participation. These criteria are rolled out following the order of priority, with each subsequent ideal rooted in the first - equity. As initially applied to policing as a social institution, these criteria actually provide little information to guide police officers on the ground. Specifically, the application discussed primarily relates to police institutional arrangements.



For example, the top criterion, equity, means that the allocation of police services should be fair in relation to the needs of the public. In the case of enforcing law against offenders or suspects, it means the exercise of proportionality in terms of the type and severity of the offences. In their reform proposal, the equity principle requires that the police respect due process and enforce the law without discriminating against certain individuals and groups. The discussion of this criterion explicitly relates to policing policy and organisations. The second criterion is the efficiency and effectiveness of service delivery. Because much of policing involves protection of the public, Jones, Newburn and Smith (1996) argued that efficient and effective delivery would benefit every citizen. Their proposed reform nevertheless centres on the managerial control and supervision within the police organisation designed to limit officer discretion and provide greater oversight. Another case in point is the distribution of power, whereby the power imbalance between the police and the public opens the possibility for abuse of power. The suggested reform, however, concerned the centralisation or localisation of police forces, which again are related to police organisation.

Above all, those criteria proposed are important for democracy. As Jones and colleagues attempted to apply those criteria to police services and, more generally, institutional arrangements, these criteria might nevertheless be too broad to provide a guideline for policing on the ground.

*United Nations Civilian Police (UNCIVPOL) and Organisation for Security and Co-operation in Europe (OSCE)*

There are several guidelines on democratic policing published by international organisations. One such guide includes *The Commissioner's Guidance for Democratic Policing in the Federation of Bosnia-Herzegovina* published by the United Nations Civilian Police (UNCIVPOL) in 1996 (Bayley, 2006). The document presented seven principles for democratic policing:

- Police must be oriented to and operate in accordance with the principles of democracy, consistent with the constitution and with laws;
- Police, as recipients of public trust, are professionals whose conduct must be governed by a professional code of conduct.

- Police must have as their highest priority the protection of life, a fundamental human right.
- Police must serve the public and are accountable to the public they serve. Police must act in such a way so that the public knows, understands, and accepts the police measures which are being undertaken to provide for public safety.
- Protection of life and property is the primary function of police operations, and a central focus of police activity must be on preventing crime.
- Police must conduct their activities with respect for human dignity and basic human rights of all persons.
- Police must discharge their duties in a non-discriminatory manner. Law enforcement, public safety and protection of human rights must be handled in a manner which is fair and equal for all persons (ibid., p 8).

As can be seen, in the UN guidance, human rights are regarded as the police's top priority, with great attention paid to the approaches to and manner by which police exercise force. For example, police should carry out their daily duties in alignment with democratic values and with respect for human dignity.

Another relevant document is the *Guidebook on Democratic Policing* published by the Organisation for Security and Co-operation in Europe (OSCE) (Carty, 2008). The guideline drew on the experience of OSCE working with post-conflict and transitional societies to introduce the foundational concepts of democratic policing. It listed four objectives:

- maintain public tranquillity and law and order;
- protect and respect the individual's fundamental rights and freedoms;
- prevent and combat crime;
- provide assistance and services to the public (ibid., p 9).

and two approaches:

- operate in accordance with the domestic law and international law enforcement standards;
- demonstrate the commitment to the rule of law in practice (ibid., p 9).

The objectives' prioritisation of maintaining order and law over human rights protection might reflect its application being mainly in post-conflict or transitional societies. Overall, these guidelines are practical oriented and readily understood.

*David Bayley*

Since the end of the Cold War, to support the expansion of democracy and ensure a safe environment abroad for market economies, the US has increasingly provided assistance and training to foreign police in transitional democracies (e.g., Poland, El Salvador). Stimulated by the emerging international organised crimes of the 1990s, the US Government expanded its efforts to enhance law enforcement capacity in more countries. Based on his involvement in that assistance, Bayley (2001) proposed some practical advice on embedding and practising democratic policing.

Before defining democratic policing, Bayley (2001) mentioned two prerequisites of democratic policing. The first was that a democratic government has a powerful influence on democratic policing, but it is not true in the opposite direction. The second was that democratic policing would not take root in countries where the culture fosters individual rights and where constraints on the state by law is absent. According to Bayley, democratic policing can contribute to democratic political development by:

- Giving top operational priority to servicing the needs of individual citizens and private groups;
- Being accountable to the law rather than to the government;
- Protecting human rights, especially those that are required for the sort of unfettered political activity that is the hallmark of democracy;
- Being transparent in their activities (ibid., p 13-14);

In short, Bayley's definition is an important landmark in policing scholarship because of the foundation on which he laid out. He prioritises human rights protection as a cardinal feature of democratic policing; it is listed in the first and third points above. The remaining hallmarks of democratic policing, as conceived by Bayley, points towards the rule of law and transparency. This reflects his belief that a democratic police force is expected to be legitimate and accountable through protecting civil rights and responding to individual needs.

*David Sklansky*

Sklansky (2005) considered democratic policing from a jurisprudence perspective. His work drew heavily on changes in and the connections between American democracy and criminal justice procedure from the 1950s onwards. Sklansky's main argument was that any conception of what it is to be a democracy reflects thoughts about the nature and function of police and vice versa. It follows that a rounded understanding of democracy would facilitate a better understanding of the concept of democratic policing.

In the US in the 1950s, mainstream democracy theory centred on notions of democratic pluralism, emphasising the roles of elites, interest groups and competition in sustaining democracy. This understanding of democracy thus led to concerns with police discretion and the reliance on judicial oversight, the emphasis on personal dignity, the attraction to police professionalism and the embrace of modernity. These concerns were reflected in the reforms and evolutions of contemporary American policing. These reforms included organisational centralisation, the creation of specialist units (e.g., vice, juvenile, drugs), preventive patrol by automobile and rapid response to calls for service and so on (Cox, 1996).

In the 1960s, prevailing theory shifted from a focus on pluralism to a focus on participatory and deliberative democracy. This placed greater emphasis on grassroots politics, distrust of elites, an emphasis on cooperation and collective reasoning and an appreciation of the intrinsic value of democracy. Correspondingly in terms of policing, the focal point was oriented towards enthusiasm for community participation, transparency, the distrust of elites and expertise, the preoccupation with legitimacy and the retreat from modernity. These changes contributed to the advocacy for and application of community policing in the 1970s (Sklansky, 2005). The reforms that followed were characterised by decentralised organisations, foot patrol, problem-solving programs, victim counselling and services and community organising and consultation (Kelling & Moore, 1988).

Based on the above developments, Sklansky suggested that democratic policing should manifest the following characteristics:

- Participation of citizens

- Workplace democracy in police organisations
- Concern for equality of service
- Transparency of actions and decisions
- Restraint with respect to actions that increase inequality

Sklansky's definition of democratic policing is both penetrating and robust. It is based on a broad review of democratic theories and criminal procedures over the recent half-century. In addition, he points out that policing is a uniquely frightening tool of official domination that should be as effective as possible in combating domination of powerful groups. This point highlights that policing should not simply be an affiliated institution of the government, but responsive to the needs of the public.

#### *Otwin Marenin*

The way Marenin (2005) grounded his definition of democratic policing differs from the viewpoints presented above. Drawing on academic discussion, a reading of universal codes of conduct for police officers (e.g., CIVPOL operational standards, UN codes on police conduct and the use of force), reform commissions (e.g., Independent Commission on Policing for Northern Ireland, 1999) and policy documents by NGOs and government agencies, he found that proposed ideas for democratic policing were overlapping among the above documents but were expressed using a variety of phrases. Those ideas include:

*'... non-partisanship, representativeness in the composition of personnel, integrity, fairness, accountability, transparency, sensitivity, moral consensus, civilian control, public service orientation, obedience or commitment to the rule of law, concern for human rights, responsiveness to civil society, impartiality, minimal, last-resort use of force, accessibility, separation from military forces and cultures and genre order.'* (ibid., p 10)

Marenin (2005) classified those ideas into three core principles of democratic policing: legitimation, professionalism and accountability. Legitimation relates to non-partisanship, moral consensus, representativeness of personnel and responsiveness to society, accounting for that legitimacy may increase police personnel formation and service against particular social and political groups are not discriminate. The second principle, professionalism, refers to professional knowledge and skills, police

strategies and occupational orientation, covering those traits such as fairness, integrity, sensitivity, impartiality, commitment to law, the use of minimal force, commitment to service, and concern for human rights. The third principle, accountability, centres on the fundamental requests of democracy, encompassing civilian oversight and control, transparency and separation from the military.

In short, the way Marenin organised his definition of democratic policing is inclusive so that he presents an overview of how democratic policing is presented in various literature.

### *Peter Manning*

Manning's (2010) book presents arguably the most comprehensive account to date of democratic policing. He argued that none of the definitions discussed above is satisfactory because of their lack of connections with broader political and philosophical principles.

Before proceeding to his own definition of democratic policing, it is necessary to introduce the viewpoints adopted by Manning. First, Manning adopted Bittner's (1972) phenomenological viewpoint, which viewed police practice as the situationally dependent application of force; that is, 'the convergence of subject and object in the context of doing something' (Manning, 2010, p 32). Specifically, those factors co-determine how police force is exercised (or not). This viewpoint is distinctive from those based on static knowledge such as those criteria deduced from democracy theories (e.g., Jones et al., 1996) and, is arguably more reflective of the true nature of policing.

Second, Manning adopts Bittner's viewpoint that violence is the key to understanding policing because withholding force and its use are essential for police operation and legitimacy. Coupled with the phenomenological perspective, the foundation for police work – use of force - is not rooted in law but in situation-limited awareness whereby the law is an account to rationalise police decisions (Manning, 2010).

Third, Manning cited Robinson and Scaglione's (1987) theory on the emergence of the police. They argued that the modern form of policing is concerned with economic specialisation and differential access to resources that take place in the post-industrial era. Robinson and Scaglione asserted that the police are a political force,

not a neutral political one, created by the dominant class and used as an instrument for the maintenance of control over basic resources.

Finally, Manning adopted some arguments for democratic policing from a variety of scholars. The first argument was the term 'legalistically guided' suggested by Liang (1992). The term implied constraints in dealing with citizens and procedural justice. The second was the reactivity to citizens' complaints (Rawls, 1999). That meant that those opposing activities such as secret proactive interventions, surveillance, and militaristic operations should be restricted. The third related to equal application of coercion to populations, indicating the minimal damage to civility (Jones et al., 1996). The fourth referred to internal civility, including fairness in hiring, internal evaluation, promotion, transfers and discipline treatment of employees (Berkley, 1969). The fifth was the competitiveness in an environment in which multiple forces compete for policing mandate (Bayley & Shearing, 1996). As it is not true that police possess a monopoly on legitimate force in democracies, one of the characteristics of democratic policing is to be competitive with other forces such as private police and vigilante groups. The last argument of Manning was linked with accountability and responsibility for the actions at individual and organisational levels (Bayley, 1975). That is, the police, especially those of high ranks, should account for agency actions.

Departing from these arguments and insights, Manning proposed a definition of democratic policing that is grounded in both the theoretical and practical realms. As a result, he started with the fundamental question: What is policing for and why? His answer was justice. He contended that previous research and theory had not adequately anchored democratic policing in justice and that without it, any types, strategies and features of policing would fail. His contention is based on John Rawls' principles of justice (Justice as Fairness) (Rawls, 1999, p 42-43):

*'Each person has the same inalienable claim to a full, adequate scheme of equal basic liberties, which scheme is compatible with the same scheme of liberties for all;*

*Social and economic inequalities are to satisfy two conditions: first, they are to be attached to offices and positions open to all under conditions of fair equality of opportunity; and second, they are to be the greatest*

*benefit of the least-advantaged members of society'* (the difference principle).

Rawls regarded policing 'as an agency for the redistribution of life chances in a population' (ibid., p 50-52). That is, the police are representatives of trust and trustworthiness on behalf of the public. Further, on the basis of the difference principle, police practice should avoid increasing existing inequalities or be beneficial to the least-advantaged. Technically, the core business of the police is to maintain civil rights and due process (Manning, 2010).

After the comprehensive discussion of the issues above, Manning (2010) arrived at the following definition:

*'The police, as an organisation in Anglo-American societies, constituted of many diverse agencies, are authoritatively coordinated, legitimate organisations. They stand ready to apply force up to and including fatal force in politically defined territories. They seek to sustain politically defined order and ordering via tracking, surveillance, and arrest. As such, they require compliance to command from lower personnel and citizens and the ability to proceed by exception'* (ibid., p 68).

Manning maintained that his definition should be understood under nine social dimensions including the emergence of state-based police authority, collective orientation, fairness and trustworthiness, sacred and profane attributes and so on. Collective orientation, for example, refers to the police's obligations for the general will, not for individuals. Specifically, it is the interest of the state that they serve. In such circumstances, market theory based on supply and demand is not applicable.

Manning's adoption of Rawls' (1999) justice as fairness principle warrants discussion. The police in democracies should act in accordance with the justice principle to prevent the abuse of power, specifically 'to be the greatest benefit of the least-advantaged member of society' (Rawls, 1999, p 43). This is partially because the police in democracies and non-democracies differ primarily in the protecting and preventing mechanism of human rights violation. If democratic policing is not to protect human rights, it would not differentiate itself from the non-democratic counterpart. This is also partially because the most distinctive feature of policing



institutions within democracies is the use of force, compared to other governmental institutions.

Moreover, the point is worth discussion partially because of the perspective adopted. Departing from the practical and sociological basis, this perspective profoundly penetrates the nature of police work. That is to say, police work is highly context-contingent, embedded particularly in the interaction between all parties involved in a case and generally in the values, beliefs and conventions in a country. Unless the justice principle is fulfilled in each case police encountered in daily routines, democratic policing is not be realised (Manning, 2010).

## **2.2 Implication for Democratic Policing**

This section draws together the contributions of those scholars outlined above to provide an integrated conceptualisation of democratic policing, which will then be used to guide the analysis reported in this thesis. It starts with finding the commonalities in the reviewed viewpoints, then anchors the definition of democratic policing in terms of the relationships between human rights (HR) and use of force and ends with operationalising this relationship across three dimensions: HR, moral reasoning (MR) and prejudice (PJ) (Babbie, 2016).

As reviewed in the preceding section, democratic policing is defined diversely. Based on various perspectives (e.g., organisational, historical, sociological, legal), there are various elements of democratic policing proposed such as civilianisation (Berkley, 1969), the rule of law (Carty, 2008), equity (Jones et al., 1996), HR (Bayley, 2001), legality (Liang, 1992), the participation of citizens (Sklansky, 2005), justice (Manning, 2010) and so on. However, one of the commonalities among these diverse approaches is the notion of HR, which arguably stands at the centre of most of the proposed characteristics of democratic policing. That is, other proposed characteristics serve to prevent violations of HR. For example, the rule of law is to prevent the abuse of state power against individuals by regulating the equal imposition of publicly disclosed legal codes and processes on all members of a society (including the police). That is, the rule of law serves as a means to prevent HR violations. Another case in point is the equity that requires the use of force to

respond to individual needs or offence severity (Jones et al., 1996). Those principles are, apparently, designed to ensure the use of police force - the double-edged sword - serves, rather than oppresses, HR.

The relationship between HR and police use of force encompasses multifaceted meanings. To make it measurable, this research contextualises this relationship in terms of what is expected of people who are authorised to use force to protect HR in democracies. Following this thread, handling this relationship could be covered by three questions:

- What to protect?
- When and why to use force?
- How and against whom to use force?

These questions are the immediate considerations that police officers who are about to use force have to face. Interpreted in the light of these questions, the relationship between HR and use of force becomes straightforward.

The first question is self-explanatory and can be answered by HR. This simplicity is also true in response to the second question. Since the objective to protect is posited, the concern following closely is the timings and reasons appropriate to use police force. That is, police officers, before and when using force, should take account of factors beyond constraints of personal interests and preference, immediate situational tensions, fear of punishments and conflict, strict regulations and laws and so forth. For democratic policing, it is legitimacy that acts as the benchmark of the decision (more discussion on this will be presented in the next section). The third question concerns both the manner by which the police exercise force and the subjects who experience police use of force. In democratic policing, the manner should be proportional to the offence committed or targeted activities, and the subjects should not be discriminated against due to factors other than implicated behaviour. Simply put, the answer lies in proportionality and impartiality.

The three questions cited above serve to simplify the relationship between HR and police use of force. The following section will detail how those three questions speak to the notions of HR, legitimacy and PJ, respectively. For the purposes of this thesis,

the concept of democratic policing is thus represented by adherence to HR, making legitimate decisions and absence of PJ.

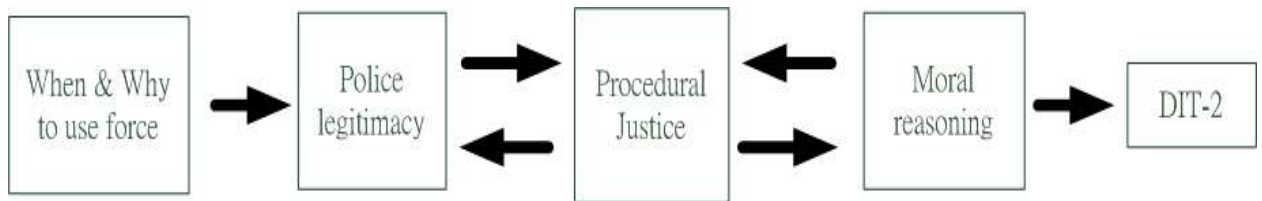
### *2.2.1 What to protect and human rights*

The first question broken down from the relationship between HR and use of force is 'what to protect?', and the answer is, as discussed above, HR. That means it is HR which is a key goal that democratic policing aims to protect, and police officers hence must sufficiently understand it and favour it.

The concept of HR refers to the fundamental rights belonging to every member of the human race. As stated in the Universal Declaration of Human Rights (UDHR, 1948), HR belong to every human 'without distinction of any kind, such as race, colour, sex, language, religion, political or other opinions, national or social origin, property, birth or other status' (Article 2). Nowadays it is documented in several papers such as UDHR, the International Covenant on Civil and Political Rights (ICCPR) in 1966 and the International Covenant on Economic, Social and Cultural Rights (ICESCR) in 1966, which together constitute the International Bill of Human Rights. In UDHR, the definition of HR is described in 30 articles, covering a wide range of equality and freedom of personal, legal, civil, political, economic, social, and cultural rights (De Bary, 1998; McFarland, 2015).

### *2.2.2 When and why to exercise force and moral reasoning*

Concerned with the second question, 'when and why to use force', I will argue from the perspective of moral development theory (Kohlberg, 1984). Specifically, this question could be answered by police legitimacy, the core of which lies in procedural justice, while correspondingly, procedural justice is closely correlated with the advanced MR. Simply put, the question could be answered by procedural justice and thus measured by the research instrument, Defining Issues Test – 2 (DIT-2) (Figure 2.1). In sequence, I will discuss police legitimacy, procedural justice and MR while the designated instrument, DIT-2, will be discussed in Section 7.3.



**Figure 2.1** Procedural Justice as the Linkage between Police Legitimacy and Moral Reasoning

### *Police legitimacy*

Legitimacy refers to ‘the right to govern and the recognition by the governed of that right’ (Jackson & Bradford, 2010, p 1). In the police’s scope, legitimacy delineates the rightful access and exercise of power by the police and the corresponding duty to obey by those subject to its power. In recent decades, the theoretical approach to police legitimacy has been dominated by the model of process-based regulation proposed by Tyler (2006). They argued that the reason that people abide by laws is out of a feeling that legal authorities are legitimate and that their actions are fair. That is, the perceived procedural fairness of the police affects the compliance of the public (Bottoms & Tankebe, 2012).

In order to determine whether the authority is legitimate or not, researchers have proposed objective criteria of normative legitimacy (Jackson & Bradford, 2010). Beetham (1991) presented three criteria for police rightfulness: consent, legality and shared values. The first criterion, consent, refers to general cooperation with the police. The legality relates to whether power has been exercised following erected rules in a given society or not. That is, in a society in which rule of law is the dominant legitimating slogan, legality delineates that the exercise of power should be ‘unbiased, free of passion, prejudice and arbitrariness, loyal to the law alone’ (Tamanaha, 2004, p 123). The last criterion, shared value, is related to rules having to be justified with regard to the prevalent beliefs and values in society. It plays a function of specifying and institutionalising the rightful source of power and determining the qualities appropriate to the exercise of that power (Coicaud, 2002).

Measured using these criteria above, the relation between police legitimacy and

procedural fairness has been the subject of many empirical studies (e.g., Bradford et al., 2014; Gau, 2013, 2014; Hough et al., 2010; Mazerolle et al., 2013; Reisig et al., 2014). The dominant finding emanating from these studies is that procedural justice judgments positively covary with perceptions of legitimacy. For example, Jonathan-Zamir and Weisburd (2011) found that police legitimacy in the manner of legal compliance is determined by the fairness of process by which the police exercise their authority.

Briefly, preceding studies revealed that conceptually and empirically, procedural fairness imposed on the public by the police determines citizen's perception of police legitimacy. This is of particular importance when it comes to the attempt to ground the question of interest (when and why to use force) in police legitimacy. That is, to make decisions rightfully, thereby legitimately, in terms of timing and reasons to use force, the decision-making of the police has to be based on procedural fairness (legality) and shared values. In other words, police officers' capacity for making judgements in accordance with procedural fairness and shared values determine the police legitimacy perceived by their civilian counterparts. In the following section, I will describe how to determine the extent that officers are concerned about procedural justice and shared values using MR.

Yet, it is acknowledged that police legitimacy related to use of force is nevertheless a broad concept, not restricted to the considerations of when and why to use force. As considerations to exercise power are intricately connected to contextual factors such as immediate and grave levels posed by a threat, the argument that the question of when and why to use force can be represented by police legitimacy thus lies in the overall rightfulness of decisions made by police. That is, when police officers can make judgements regarding exerting power legitimately, they can perform better in the overall scope (e.g., when, why, how) and of course, cover the targets: reasons and timing.

### *Moral reasoning*

MR refers to changes across situations in how one defines issues of fairness, justice and social cooperation (Crowson, 2004). Generally, moral development is thought of as a progression from making judgements largely influenced by immediately

perceived, self-interested factors to decisions based on conceptions of organising a societal system of cooperation that optimises the participants' welfare and wins their support. Accordingly, moral development theory clarifies MR into three levels, namely, pre-conventional, conventional and post-conventional morality (Kohlberg, 1984).

As illustrated in Table 2.1, the name of each level articulates the theme of its morality. The term 'conventional' delineates conforming to and supporting the rules and expectations of society just because they are society's rules, expectations, or conventions. Therefore, people at the pre-conventional level do not fully understand and uphold societal rules and expectations while those at the post-conventional level are judged to fully understand and accept society's rules based on formulating the general moral principles that underlie these rules. Those principles sometimes conflict with societal rules, in which case the post-conventional individual judges by principle rather than convention (Kohlberg, 1981).

**Table 1.1** Stages of Moral Development according to Kohlberg

Moral Development	Stage	Characteristics
Pre-convention	1	Orientation to punishment, obedience, and physical and material power. Rules are obeyed to avoid punishment.
	2	Instrumental hedonistic orientation. The individual conforms to obtain rewards.
Convention	3	'Good boy/girl' orientation designed to win approval and maintain expectations of one's immediate group. The individual conforms to avoid disapproval. One earns approval by being 'nice'.
	4	Orientation to authority, law, and duty, to maintain a fixed order, whether social or religious. Right behaviour consists of doing one's duty and abiding by the social order.
Post-convention	5	Social contract orientation, in which duties are defined in terms of contract and the respect of other's rights. Emphasis is upon equality and mutual obligation within a democratic order.
	6	The morality of individual principles of conscience that have logical comprehensiveness and universality. Rightness of acts is determined by conscience in accord with ethical principles that appeal to comprehensiveness, universality, and consistency.

Source: Adapted from Kohlberg, 1973, p 631-632

As shown in the quotes below, Kohlberg (1984) contended that procedural justice is closely linked to higher levels of moral development:

*'... procedural justice, a concern more clearly distinguishable in high moral stage judgements...' and 'Procedural justice ... becomes a solution to substantive justice problems of distribution and correction at Stage 6' (1984, p 622).*

Further comments put

*'procedural justice, including a concern for due process, is closely related to corrective justice at stage 5. It is assumed that the practice of consistently applying due process will lead to more equity than will the practice of making each individual decision on an ad hoc basis' (ibid., p 635-636).*

The concerns and considerations of procedural justice and shared ideals become the centre of stages 5 and 6 of the model depicted in Table 2.1. Furthermore, these concerns and considerations are supported by empirical research. Tested by the

relationship between procedural justice rules (e.g., bias suppression, consistency, proposed by Leventhal, 1980) and moral development, those rules were found to be more likely at higher stages of moral development (Myry & Helkama, 2002; Wendorf et al., 1999). Wendorf et al. (1999), for example, investigated 201 undergraduates at a Midwestern, metropolitan university in the US and found that participants utilizing a post-conventional schema showed strong concerns about the presence of procedures that allow for individual participation in both the decision-making process and in any necessary appeals. In other words, advanced MR indicated a strong commitment to procedural justice and shared values, which are the concerns of police legitimacy.

In short, the above discussion shows how the question, when and why to use police force, is key to a better understanding of democratic policing and can be grounded in the literature on police legitimacy, in which police officers' decision making should be based on rightfulness. On the one hand, legitimacy is determined by procedural fairness and shared values. On the other hand, those two determinants are highly correlated with advanced MR, as theorised by Kohlberg. In other words, individuals' moral development reflects their capabilities to abide by procedural fairness and shared values when using force, and in turn, to exert power legitimately.

### *2.2.3 How and against whom to exercise force and prejudice*

The third question, how and against whom to use force, will be represented here by the absence of PJ, which is commonly articulated by the Dual-Process Motivational Model (DPM; Duckitt & Sibley, 2009a). How to use force is often documented in and guided by acts such as the Police and Criminal Evidence Act 1984 and the Criminal Justice and Immigration Act 2008. These acts, on the one hand, prescribe that consideration of the extent of force used should be based on the immediateness and gravity of the threat faced and the minimal level of force that is capable of achieving a lawful objective. That is, the amount of force used should be reasonable and proportionate to the lawful objective. In other words, excessive use of force should be excluded from considerations of proper use of force.



On the other hand, against whom to use force is included in lawful objectives prescribed in those acts such as lawful arrests and the prevention of damage to property. This question, however, places more concern on individuals involved in cases reported to the police, as opposed to all objects covered within lawful objectives. In particular, police use of coercion is often biased against racial minorities (Jacobs & O'brien, 1998). Thus, to more precisely respond to this question, the current research is based on the argument that police use of force should not prejudice toward individuals of certain gender, ethnicity, class and so on; that is, it is impartial to parties involved in cases.

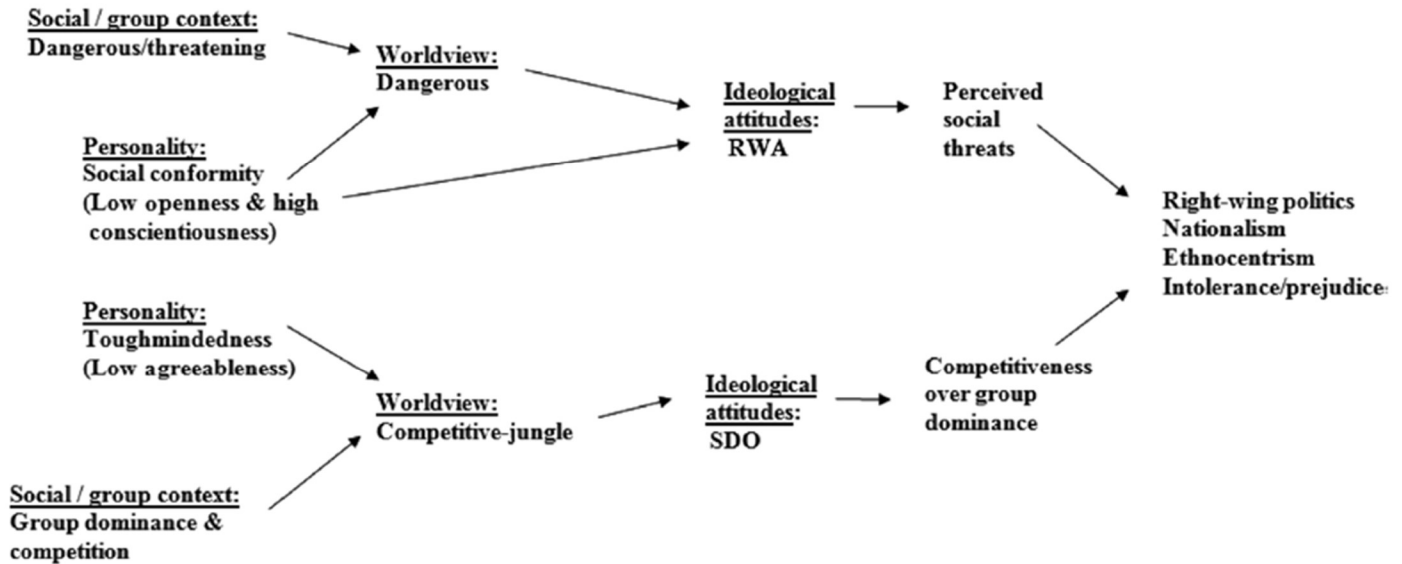
It is, however, difficult to find a concept that adequately covers both proportionate and impartial use of force, but its opposite concept is conveniently available: PJ. The concept of PJ contradicts the two expected aspects of use of force (impartiality and proportionality). PJ stems from research on the psychological structure and bases of ideological attitudes, referring to 'an aversive or hostile attitude toward a person who belongs to a group, simply because he belongs to that group, and is therefore presumed to have the objectionable qualities ascribed to the group' (Allport, 1954, p 7).

Previous studies on PJ often adopt a unidimensional approach whereby ideological attitudes are structured along a right (conservative) to left (liberal) dimension. The extreme of this right end is linked with PJ toward outgroups and minorities and excessive patriotism. It is thus commonly labelled as authoritarianism. Recently, there has been a two-dimension approach proposed: DPM (Duckitt & Sibley, 2009b), comprising Right-Wing Authoritarianism (RWA; Altemeyer, 1981) and Social Dominance Orientation (SDO; Pratto et al., 1994). The two dimensions are considered to be independent and complementary predictors of generalised PJ.

#### *Dual-process motivational model*

In the DPM, RWA is associated with religiosity and valuing order, conformity, and convention, whereas SDO is correlated with cherishing power, achievement, and hedonism (Altemeyer, 1998; Duckitt 2001; Roccato & Ricolfi, 2005). The motivational model proposes that the distinction between RWA and SDO lies in an individual's worldview, socialisation, personality and motivation (Figure 2.2). The former holds

the belief that the social world is an inherently dangerous, threatening and unpredictable place, while the latter expresses that the world is a cruelly combative jungle where only the fittest survives. These worldviews are thought to be shaped by both personality (social conformity versus tough-mindedness) and exposure to social environments (punitive versus unaffectionate) (Duckitt et al., 2002; Sibley & Duckitt 2009b). Taken together with differences in the personality and social worldview, the two distinct ideological attitudes are gradually formed and lead to distinct patterns of socio-political and intergroup behaviours. In other words, the DPM model reflects how PJ under different worldviews may have originated, be maintained and may be expressed in socio-political attitudes and behaviours. Further, the model has been tested and validated in various cross-national studies (Cantal et al., 2015; Perry et al., 2013). For example, Perry and his colleagues (2013) performed a meta-analysis on the DPM that covered 46 studies across 10 countries. Their findings supported the relationship between worldview beliefs and ideological attitudes in the DPM.



Source: Adapted from Duckitt & Sibley, 2009b, p 101.

**Figure 2.2** Dual-process Motivational Model

In a policing context, PJ is often accompanied by excessive use of force. For example, Perkins and Bourgeois' (2006) research showed that SDO among police officers was positively associated with supporting the use of deadly force. Similarly, Gerber and Jackson (2017) found in a sample of 206 US participants that high levels of RWA and SDO correlated with support for the police use of excessive violence.

PJ is antithetical to both impartiality and proportionality, and therefore, arguably, is the appropriate qualities that respond to the question of how and against whom to use force (Feather, 1996). In other words, the question of interest is answered by a negative indicator, PJ, which comprises two dimensions: RWA and SDO. How the two dimensions are measured as to research validity and reliability will be discussed in Section 7.3.

### *Summary*

This chapter has dealt with the fairness aspect of the fairness-effectiveness framework. By reviewing definitions of democratic policing from various perspectives, this chapter conceptualises democratic policing as the relationship between HR and police use of force. In turn, this relationship is operationalised as three dimensions: HR, MR and PJ. Simply put, the concept of democratic policing, as used in this thesis, is represented by adherence to HR, making morally sound decisions and behaving in ways that lack PJ. The next chapter will turn to the other aspect of the fairness-effectiveness framework; effectiveness, and more specifically, EBP.

## Chapter 3 Evidence-based Policing

This chapter is concerned with evidence-based policing (EBP), defined as the ‘use of the best available research on the outcomes of police work to implement guidelines and evaluate agencies, units, and officers’ (Sherman, 1998, p 3). EBP is reviewed here because it relates to the effectiveness aspect of the fairness-effectiveness framework that guides this thesis. EBP has received considerable attention in recent years, from both research and practitioner communities. It forms part of a wider debate about how the police can most effectively (and efficiently) reduce crime, disorder and other public safety issues. Central to this debate is police officer receptivity to EBP, and the obstacles and enablers to police practitioners using research evidence in their routine work.

This chapter is organised as follows. The first section covers the definition, development of and debates in EBP. It then discusses the challenges in the implementation of EBP. The second section discusses notable gaps in the existing literature on police receptivity to EBP.

### 3.1 Definition, origins, development of and receptivity to EBP

EBP was first proposed by Sherman in 1998. It advocates an approach in which ‘... *police practise should be based on scientific evidence about what works best*’ (Sherman, 1998, p 2). Sherman articulates this approach using his triple-Ts model, namely, Targeting, Testing and Tracking. Compared to the traditional three-Rs (i.e., random patrol, rapid response, and reactive investigations), the model centres on the systematic evaluation of places, times, people, and situations that cause harm, and accordingly applying, tracking and evaluating police (and partner) responses (Sherman, 2013). The paradigm promises an approach to policing that uses evidence-based strategies and thus offers greater accountability.

Nearly a quarter of a century on from Sherman’s original article, there is increasing recognition of the importance of EBP. Societies of EBP have been established in the US, UK, Canada and Australia and New Zealand. EBP forms a major part of the

police training curriculum in the UK (Brown et al., 2018). Moreover, there are now various resources designed to make research evidence more accessible and relevant to police decision-makers, such as the Crime Reduction Toolkit (Thornton et al., 2019), Evidence-Based Policing Matrix (Lum et al., 2011) and Global Policing Database (Mazerolle et al., 2017).

The origins of EBP can be traced back earlier than Sherman's article of 1998. For example, Herman Goldstein in 1979 pointed out the 'means over ends' syndrome. This syndrome described how the police had become preoccupied with their improvement efforts in internal management such as staffing, modernising equipment, as opposed to the substantive result of their work. By citing the recently completed research projects that evaluated preventive patrol (Kelling et al., 1974) and follow-up investigations (Greenwood et al., 1975) and that found these police strategies had limited impact on crime, Goldstein suggested a systematic approach to effectively achieving the core objective of policing – problem-oriented policing (POP). This approach comprises four steps: identify and analyse potential problems, respond with appropriate interventions and finally evaluate the effectiveness of the response(s) on the presenting problem. This approach has explicit implications for the development of EBP as both approaches hold that research evidence should guide police decision-making, in combination with professional judgement (Bullock & Tilley, 2009; Sherman, 1998).

Key to the development of EBP was the publication of the 'Maryland Report' in 1998 – the first large-scale effort to synthesise research on police and crime reduction (Sherman et al., 1998). To determine whether research findings were valid and reliable or not, the report reviewed over 500 studies on crime prevention programs and graded them according to methodological quality as ranked by the 'Maryland Scale of Scientific Methods'. This scale, based on the assessment of scientific rigour, classified research designs into a five-level hierarchy based on internal validity, with randomised controlled trials (RCT) at the top and expert opinion at the bottom (Sherman et al., 2002). The Maryland Report called for the generation of an evidence base upon which police practitioners could make decisions about how best to prevent crime and disorder (Lum et al., 2011).

Few would disagree with the basic idea of EBP. However, there have been (and continue to be) disputes about the nature of EBP, most obviously concerning the types of evidence required to inform police practice (Tilley, 2005, 2009; Veltri et al., 2014) and the extent to which police strategies can be compared to (and evaluated like) treatments in medicine (Thacher, 2001). As set out by the Maryland scale, RCTs are the 'gold standard' in determining 'what works' in police interventions. However, Tilley (2005, 2009) argued that in some circumstances this gold standard might fall short in respect of external validity and practicality. Because RCTs are strong in removing threats to internal validity (e.g. maturation, selection) so as to generate reliable and valid findings, findings generated from such design nevertheless invite doubt when applied or generalised to a different setting. Moreover, the randomisation of group allocation in RCTs is not always practical, as concealing the interventions to those who deliver and receive them is seldom possible in police research. Accordingly, Tilley proposed that evaluations should not be preoccupied with particular research techniques but be theory-driven with a focus on working out 'What works, for whom, in what circumstances and how'.

Another issue pertinent to EBP is raised by Thacher (2001), who questioned the analogy of police interventions to medical treatment. He argued that in the institutional setting of medical research where 'value pluralism' is relatively small, the main concern of stakeholders lies in the effectiveness of treatment on patients. By contrast, the institutional setting of police is relatively broad and vague, covering not only the effectiveness of police interventions in reducing crime but also a mix of values such as equity and due process. In such an institutional setting, the knowledge generated through RCT that seeks to find 'the best means to a given end' might be of limited use (ibid., p 389). Rather, police decision-making is, he argued, more similar to practical reasoning that seeks to strike a suitable balance between a set of ambiguous values. Police research, according to Thacher (2001), thus should provide knowledge to help police officers understand the contents of these values and their trade-offs.

### *Receptivity to EBP*

In practice, however, arguably the toughest challenge for EBP is the implementation by police of the research evidence in daily routines (Lum, 2009; Mastrofski, 1999;

Weisburd & Neyroud, 2011). Out of recognition of this challenge has emerged a series of studies concerned with how police officers view and make use of research evidence.

Table 3.1 provides an overview of those studies in chronological order. Four observations warrant mention: 1) all studies to date have taken place in the Anglo-American countries (the exception is Jonathan-Zamir et al., 2019 which uses data from Israel), 2) the majority of quantitative studies on police officer receptivity to research evidence report only descriptive (rather than multivariate) statistics, 3) police officer receptivity to research evidence has hitherto been measured in various ways using various research instruments and 4) qualitative findings are, to some extent, consistent with those of quantitative research. These four key themes are now described in greater detail.

The studies identified in Table 3.1 cover a number of shared themes. Between them, Lum and Telep have initialised a series of EBP receptivity studies because most of the following quantitative studies used the questionnaires they developed (Lum et al., 2012; Telep & Lum, 2014; Telep & Winegar, 2015; Telep, 2016). The Canadian research that covers seven city agencies, for example, used the same questionnaire and produced results comparable to those of Lum's research (Blaskovits et al., 2018). The shared themes discussed are basically aligned with Lum's questionnaire: 1) understanding of EBP, 2) practical application of research evidence in daily work, 3) practice-research partnership and 4) general attitude towards EBP.

Regarding police officers' awareness of EBP, considerable variation is observed across police departments. For example, in four American police departments (Sacramento, Richmond, Roanoke, Reno), just over a quarter of surveyed officers (27.5%) were reportedly familiar with the term EBP (Telep & Lum, 2014). By contrast, over 90% of executives in Oregon (Telep & Winegar, 2015), 68% of officers in the seven Canadian police agencies (Blaskovits et al., 2018) and around 50% of the inspectors and chief inspectors in Great Manchester Police (Palmer, 2011) had heard of it.

**Table 3. 1** Review of EBP Receptivity Research

<b>Author(s) and date</b>	<b>Study setting</b>	<b>Population</b>	<b>Participants</b>	<b>Method</b>	<b>Reported purpose of research</b>	<b>Key findings</b>
Palmer, 2011	UK	Great Manchester Police	Inspectors or chief inspectors	Quant.	Personal approach to professional updates and tactical evaluation, knowledge of scientific methods and experience of experimentation, willingness to engage in scientific methods	Knowledge about EBP was far from adequate, and higher education was poorly rated.
Lum et al., 2012	US	Sacramento, California, Police Department	Police officers	Quant.	Knowledge of evidence-based policing, use of research resources, knowledge of research findings on effective practices, receptivity toward researchers and analysts, willingness to engage in research, digestible research	EBP was not well-known by surveyed practitioners. The majority of officers could not correctly rate the effectiveness of traditional and recent-developed crime prevention strategies.
Rojek, Alpert & Smith, 2012	US	Random stratified sample from all state and local law enforcement agencies	Agency-based (executives)	Quant.	The utilisation of research by the police	More than 75% of responding agencies reported often or sometimes using research evidence to inform decision-making, but whether the use actually affects decisions is not clear.
Rojek, Smith & Alpert 2012	US	The same as the above	Agency-based (executives)	Quant.	Police practitioner-researcher partnership	32% of investigated police agencies had cooperated with researchers in the past five years, and the major reason for not doing so was a lack of funding (56%).



Steinheider et al., 2012	US	Four criminal justice and policing related organisations in Oklahoma	Police officers & criminal justice researchers	Quant.	Philosophical orientations (pragmatic, intellectual, or humanistic) of police operations	There were significant differences between practitioners and researchers in relation to research philosophy. Researchers displayed higher intellectual orientation, whereas a humanist orientation was dominant among sampled practitioners.
Telep & Lum, 2014	US	Sacramento, California; Richmond and Roanoke County, Virginia, Police Department	Police officers & civilian staff	Quant.	The same as the research by Lum et al., 2012	Rarely had police officers accessed research. Experience was overwhelmingly valued as more important than scientific knowledge in day-to-day decision-making.
Hunter et al., 2015	UK	Interview - Police and Crime Commissioners and Community Safety Partnership Managers; Online survey – seven policing-related associations	chief inspector rank and above (including civilian staff equivalents)	Mixed	Factors influencing decision- making; extent to which research evidence meets practitioners' needs; organisational culture and the use of research evidence; familiarity with and use of research evidence; and College services and resources	57% of respondents agreed that research evidence played an important role in their day-to-day decision-making, and 72% of them reported at least once research evidence had shaped their allocation of resources in the recent year. Roughly three-fifths (56%) of participants responded that investment in crime reduction and prevention was politically driven.
Telep & Winegar, 2015	US	Oregon Association Chiefs of Police; Oregon State Sheriffs' Association	Police chiefs and sheriffs	Quant.	The same as the research by Lum et al., 2012	Traditional tactics were commonly viewed as effective in reducing crime. Respondents generally believed all officers have knowledge of research evidence.
Grieco, 2016	US	Two police academies	New recruits	Quant.	Partially adapted from the questionnaire by Lum et al., 2012. Partially adapted from the Matrix Demonstration Projects	After the academy training, cadets become more familiar with EBP tactics. In attitudinal dimensions, three out of the five dimensions (i.e., research receptivity, proactivity, community

					which enquires EBP receptivity with five attitudinal dimensions: research receptivity, proactivity, communication, community relationships and low cynicism.	relationship and low cynicism) decreased (negative effect).
Lumsden, 2016	UK	Police forces in Midlands, victim' support organisations, Magistrates' Courts, College of Policing	Police practitioners with research experiences	Qual.	Receptivity to research and evidence-based policing, context driving definitions of evidence-based policing, meanings of research, what type of research work	Interviewed officers demonstrated explicit enthusiasm and support for EBP and an awareness of the benefits from the practice-research partnership.
Telep, 2016	US	Sacramento, California; Richmond and Roanoke County, Virginia; Reno, Nevada, Police Department	Police officers	Quant.	The same as the research by Lum et al., 2012	Officers' awareness of EBP and willingness to cooperate with researchers were influenced by education and prior research exposure.
Hunter et al., 2017	UK	Institutions invited are the same as the previous one.	the same as Hunter et al., 2015	Mixed	The same as the research by Hunter et al. 2015.	There was a shift towards greater use of research and perceived organisation support in comparison of the prior research (Hunter et al., 2015).
Huey et al., 2017	Canada	Seven Canadian city police agencies	Sworn officers, civilian employees	Qual.	Partially adapted from the questionnaire by Lum et al., 2012, a portion is revised to fit the Canadian context.	This research reported the results of the open-ended question about agency experience in implementing new strategies. The responses were categorised and analysed by targeting, testing and tracking. Most respondents had positive ratings in targeting and

						testing while the main criticism went to tracking.
Blaskovits et al., 2018	Canada	Seven Canadian city police agencies	Police officers and civilian staff	Quant.	The same as the research by Lum et al., 2012	Participants were well-informed about EBP, showing higher receptivity to research in most enquired items than those surveyed in the US by Telep and Lum, 2014.
Coli et al., 2018	Australia	not specified	Police officers	Mixed	Revised from EBP questionnaire in the medical field (Weng et al., 2013)	EBP had very limited adoption by the police force. The findings on barriers aligned with previous research.
Cherney et al., 2018	Australia	Queensland Police Service	Police officers	Quant.	The different degrees to which police receive, read and apply research in their decision-making and the organisational context in facilitating or hindering communication, receptiveness to change, encouragement, support and fairness.	More than half of the participants agreed that decision-making should be based on the balance between science and personal experience. Nine out of ten respondents were willing to try a new tactic when solving a current problem. The most important barrier was lack of resources.
Fleming, 2018	UK	Police training institution	Police officers	Qual.	Officers' beliefs about, and understanding of evidence-based practice generally and how they thought it might be implemented	There was a general lack of understanding of EBP in policing. Constables and sergeants expressed a strong sense of cynicism.
Kalyal, 2018	Canada	Police organisations with a membership of Canadian Society for	Police officers, civilian executives	Qualit.	The reasons behind resistance towards EBP in Canada	There were four themes in organisational factors that might lead to resistance to EBP (i.e., lack of communication regarding EBP, cultural resistance, lack of confidence in external researchers and resources) and one political factor.

		Evidence-based Policing				
Hunter, May & Hough, 2019	UK	Institutions invited are the same as the previous one.	the same as Hunter et al., 2015	Mixed	The same as the research by Hunter et al. 2015.	This research is part of the synthesis of the prior two studies (i.e., Hunter et al., 2015, 2017).
Jonathan-Zamir et al., 2019	Israel	Israel National Police	Superintendents or above	Quant.	Based on the receptivity questionnaire by Lum et al., 2012.	There was a generally positive attitude toward EBP among participants, but they ranked personal experience as the top factor in the decision-making in policing. Preference for personal experience over scientific evidence is positively associated with resistance to EBP.
Kalyal, 2019	Canada	The same of the preceding	The same of the preceding	Qualit.	The motivating factors behind the agency's adoption of EBP	The findings categorised motivating factors into two dimensions: outer and inner contexts. The former included monitoring and review, funding, inter-organisational networks, while the latter had the absorptive capacity, culture, climate and leadership.
Telep and Somers, 2019	US	Those police departments investigated in the studies by Telep and Lum, 2014, Telep, 2017 and Telep and Winegar, 2016	Police officers and civilian staff	Quant.	Definition of EBP	Participants with higher ranks, master's degree and more intakes of policing publications responded the definition of EBP more accurately.

The observed differences in awareness of EBP were also found across ranks: senior officers tended to exhibit greater awareness of EBP than junior participants (Telep & Winegar, 2015). This same pattern held when officers were asked about their experience of reading police literature. Roughly three out of five officers in those four US departments had not read anything in the past six months, whereas one tenth of executives in Oregon reported doing so (Telep & Lum, 2014).

The second theme is related to the police use of research evidence. The reviewed studies showed relatively consistent results regardless of how this was measured. For example, in the national survey on American law enforcement agencies, more than three quarters of responding agencies reported that they sometimes or very often used research findings to inform decisions on policy development and operations (using a 4-point scale: never, seldom, sometimes and very often) (Rojek, Alpert et al., 2012). The high usage was also found in two American police departments (i.e., Richmond, 59.1%; Roanoke, 81.2%) and the Canadian agencies (60.7%; Blaskovits et al., 2018; Telep & Lum, 2014). Similarly, more than 70% of UK officers responded that they sometimes, very often and always (in a 5-point scale) used research evidence (Hunter et al., 2015). By contrast, there was lower usage rates reported in Sacramento (37.7%) and Queensland (34.3%) (Cherney et al., 2018).

Third, regarding the issues from which respondents seek help, there were two topics - use of force and emergency/pursuit driving - accounting for the top (73.5%) and second (59.3%) help-seeking issues (Rojek, Alpert et al., 2012). Pertaining to the priority of research evidence in decision-making, tactics that are proven to be effective were only rated as third (83%) in decision-making in Palmer's (2011) research while responding to community needs (98%) was rated top.

Fourth, on research-practitioner partnerships, there were two aspects investigated: cooperation experiences and willingness to work with researchers. The first aspect was reported in the American national survey, indicating that around one third of law enforcement agencies had cooperated with researchers in the past five years (Rojek, Smith et al., 2012).

On the second aspect of partnership, surveyed practitioners, irrespective of ranks, demonstrated great proclivities to collaborate with researchers. In those five US departments investigated by Lum, more than 70% of respondents agreed or strongly agreed with the importance of researcher-practitioner partnerships (Telep & Winegar, 2015). Additionally, the Canadian and Great Manchester police witnessed an even higher percentage when responding to a similar question (84.9% and 80% respectively) (Blaskovits et al., 2018; Palmer, 2011).

Fifth, in contrast to collaboration with researchers, police officers demonstrated various levels of openness and acceptance of research in policing across departments and ranks. The present research compared three issues on the topic, namely, willingness to stop a tactic, science and experience weights in decision-making and perception of seeking help from outside researchers. More than 95% of officers in the three US police departments (i.e., Sacramento, Richmond, Roanoke) and Canadian respondents expressed willingness to stop a tactic to see if the problem gets worse (or presumably better) (Blaskovits et al., 2018; Telep & Lum, 2014). By contrast, officers in Queensland expressed a lower willingness (29%, 5-point scale; Cherney et al., 2018) while inspectors or above in Manchester even strong reluctance (92.8%; Palmer, 2011).

Likewise, there was a notable contrast as to the receptivity to independent researchers across departments covered in the research literature. Within those three US departments, the receptivity spread from 21.8% to 51.3% (overall 27.1%). A similar level of receptivity was also observed among Manchester high-ranking officers (20%; Palmer, 2011). Relatively, executives in Oregon and officers in Canada showed greater receptivity: 57.8% and 54.1%, respectively (Blaskovits et al., 2018; Telep & Winegar, 2015).

Consistent across all studies was the finding related to science versus experience in policing. In the US, around eight out of ten officers agreed that experience outweighs science in their decision-making, while more than half respondents in Manchester (55%) and Canadian agencies (56.6%) said the same (Blaskovits et al., 2018; Palmer, 2011; Telep, 2016).

Turning to the qualitative studies in Table 3.1, Lumsden's (2016) contextual understanding of British officers revealed that EBP is part of a performance culture and is perceived to be related to political pressure. This resonated with the findings of Hunter et al. (2015) that politically driven policy-making (56.2%) and organisational emphasis (51.3%) were strongly agreed or agreed as considerations in decision-making. Kalyal's (2018, 2019) research identified internal and external factors that inhibit or boost receptivity to research in Canada. Lack of confidence in external researchers was identified as one of the major inhibiting factors. This is congruent with the quantitative results in the seven Canadian, five US and one Australian departments in which seeking help from researchers inside the organisation is more agreeable than from 'outside' researchers (Blaskovits et al., 2018; Telep & Lum, 2014; Telep & Winegar, 2015). Another inhibitor – resources – was top-rated in Queensland police (70%, Cherney et al., 2018) and the US national agency survey (56%, Rojek, Smith et al., 2012). The exclusion of individual factors in her studies was also consistent with Jonathan-Zamir et al.'s (2019) findings but conflicted with Telep's (2016) in which receptivity was associated with gender, education levels and service length. Yet Fleming's (2018) interviews revealed another aspect – gaps between ranks in the police organisation where street-level officers demonstrated more cynical attitudes towards EBP.

Overall, the existing research on police officer receptivity to research evidence presents a somewhat paradoxical picture. In most instances, police officers did not comprehensively understand EBP, did not frequently access police-relevant research and consistently prioritised experience over evidence. However, the majority of study participants demonstrated a real openness to research evidence in the interests of police improvement (Jonathan-Zamir et al., 2019; Telep & Somers, 2019). These findings have several implications relevant to this thesis, which will be discussed in the following section.

### **3.2 Implications of research findings into EBP receptivity**

This section will attempt to draw together the relevant aspects of the literature on EBP. Overall, three key research gaps were identified in this literature: 1) geographical limitations, 2) limited consideration of psychometric properties in relation to how receptivity EBP is measured, and 3) lack of research on the influence of police training on EBP receptivity. These three gaps will be discussed in turn.

First, as indicated in Table 3.1, research on police officer receptivity to EBP has thus far been mainly carried out in Anglo-American countries (i.e., US, UK, Canada, Australia, New Zealand). Among them, variation in the level of receptivity was observed across departments and ranks. This variation raises the question: 'How is police-relevant research and researchers understood and valued by police officers in settings outside of those that have hitherto made up the majority of EBP research (i.e., Anglo-American countries)'? Thus, it is considered important to assess police officer receptivity to research in Taiwan. Thus far, no published study has explored this.

The second issue identified here is methodological. It relates to the ways in which police officer receptivity to EBP has been measured. Presently, surveys have been the primary instrument to measure police officer knowledge on and attitude towards EBP. What is absent from that research is information on the psychometric properties of those instruments used to measure receptivity to EBP. In other words, no prior research has attempted to construct assessment tools and formalise models that may serve to connect observable phenomena (e.g., responses to items in a receptivity scale) to theoretical attributes (e.g., receptivity) (Boppre et al., 2018). Arguably, it is important to create an instrument that reliably assesses the concept of receptivity to research evidence so as to probe potential patterns that affect how police officers think about research evidence.

Finally, the third issue concerns the influence of police training. When investigating the inhibiting and facilitating factors of EBP receptivity, none of the previous research reviewed in Table 3.1. looked into the effects of police training and education on receptivity to EBP. This is somewhat surprising given that some characteristics



related to education have been shown to be associated with EBP receptivity. Education attainment (master's degree), for example, was positively associated with high levels of receptivity to research (Telep, 2016) and a greater willingness to engage in RCTs (Fleming, 2018; Palmer, 2011). Furthermore, higher education was highly valued for police careers by executives (Telep, 2018; Cherney et al., 2018) and considered as a motivating factor in engaging with EBP (Kalyal, 2019). In particular, researchers have argued that higher education in policing is essential for the realisation of EBP (Brown, 2018; Paterson 2011; Sherman, 2013; Weisburd & Neyroud, 2011). However, none of the previous research has specifically investigated the influence of police training on EBP receptivity. Thus, it is of interest for this research to explore this research gap, more specifically - does police education and training affect EBP receptivity? This research gap thus will be further reviewed in the following two chapters.

## Chapter 4 Police Socialisation

To understand the process through which individuals become police officers and its relation with democratic policing, this thesis draws on police socialisation theory. This theory refers to the process through which police officers learn to fit into their occupation by adapting and internalising certain values, cultural norms and worldviews (Kenney & McNamara, 1999). This process is thought to start before someone enters the police and extend across their police career. It is generally classified into four phases: anticipatory (pre-entry), introduction (academy training), encounter (field training), and metamorphosis (fieldwork). Each phase of police socialisation theory is discussed in the first part of this chapter.

Police socialisation theory holds that at each phase of the process, individuals are exposed to various potentially influential factors such as recruit motivation and organisational norms. The temporal nature of the police socialisation process suggests that without tracking police recruits over time, it may not be possible to reliably estimate the impact of different factors occurring at different phases of the police socialisation process. Thus, the second part of this chapter focuses on longitudinal studies on police socialisation. This review of longitudinal research reveals two important findings relevant to this thesis: 1) that evidence on the impact of different phases of the police socialisation process on various attributes is mixed, and 2) that there is a lack of research evidence on the links between police socialisation and democratic policing.

This chapter is thus organised as follows. The first section introduces and reviews the function of and influential sources in each phase of police socialisation. The second section centres on longitudinal studies that cover police recruitment, training and fieldwork. The final section summarises notable gaps in longitudinal studies of police socialisation and describes how these gaps inform the research reported in this thesis.

## **4.1 Phases of police socialisation**

Police socialisation is the process by which police recruits become full members of police organisations (Christie et al., 1996). It involves both formal and informal learning as well as a process of social assimilation, ensuring continuity of normative values and practices in an organisation (Morrison, 1993). In other words, new recruits are subject to the influence of both formal socialisation via police training and education but also informal socialisation through occupying the policing environment. Taken together, these formal and informal processes are seen as a mechanism through which individuals acquire the motives, sentiments and behavioural patterns of the police occupational culture.

Police socialisation is proposed to begin before entering policing. It starts at the time individuals receive admittance notification to the police and progresses over their police career. The process is generally categorised into four phases: 1) anticipatory, 2) introduction, 3) encounter and 4) metamorphosis (Bennett, 1984; Fielding, 1988; Thornton & Nardi, 1975; Van Maanen, 1973, 1974). These four stages delineate the periods before police training, during police training, field training and working in the field, respectively. Drawing on the available literature, the following section will discuss the skills, knowledge and recognition individuals are expected to acquire at each of these four stages of police socialisation.

It warrants mention at this point that some of the research cited below was carried out in the 1960s and 1970s. These citations might invite doubt as to whether studies undertaken fifty years ago are still applicable to the policing context today. This is, however, inevitable as police socialisation research, particularly that concerning the predispositions of those entering the police (i.e., the anticipatory stage), was most pronounced during the 60s and 70s, and has been relatively neglected afterwards.

### *Anticipatory phase*

The anticipatory phase of police socialisation refers to the pre-entry period in which soon-to-be recruits are preparing to join the police service, and with it adopt the occupational position assigned to them (Van Maanen, 1973). During this phase, prospective recruits typically undergo a series of events including written and

physical examinations, background investigations and oral assessments. These events serve to bring to the fore would-be recruits sense of being admitted to an 'elite' organisation (Van Maanen, 1975).

There are three issues of concern commonly associated with the anticipatory phase of police socialisation: 1) generalised perceptions of police roles, 2) motivation for joining the police and 3) police personality (Bennett, 1984; Fielding, 1988; Van Maanen, 1973). Here we discuss each in turn.

First, prospective recruits acquire generalised and stereotyped conceptions of police roles that are (inevitably) somewhat different from the reality of policing (Conti, 2009; Thornton & Nardi, 1975). Those conceptions are often derived from reference groups such as family, relatives and police acquaintances, police-relevant experiences and mass media, and, in the main, tend to be incomplete and inaccurate, over-emphasising the idealised aspects of policing (Phillips et al., 2010). Thus, images enacted at this stage are often related to what the police role should entail rather than what it actually involves. The accuracy of these images and expectations might, however, preclude recruits' future assimilation into policing (Chan, 2001; Goffman, 1962). If the gap between those idealised images and what will be actually experienced is large, recruits might have trouble assimilating themselves into policing and thus have a higher probability of dropping out (Bennett, 1984; Van Maanen, 1975).

The second issue is concerned with why people join the police. More specifically, why they might join a profession where the working conditions are potentially dangerous and highly scrutinised. This issue attracts researcher attention because new recruits' motivations to join the police are assumed to affect their perceptions of the role of the police and their levels of job satisfaction, both of which are deemed crucial in how police officers carry out their function (Charman, 2017). Research has shown that new recruits' motivations to join the police are diverse. Identified reasons include perceived job security (Balch, 1972; Raganella & White, 2004), doing meaningful work that contributes to society (Foley et al., 2008; Wu et al., 2009) as well as the more adventurous aspects of police work (Fielding, 1988; Van Maanen, 1975). By classifying these motivations into two types, thrill-seeking and service-

oriented, Sollund (2008) found that police officers who were motivated to join by the desire for action and excitement tended to become more cynical, frustrated and fatigued, compared to their counterparts.

The issue of motivation is also related to the third concern prominent in discussions of the anticipatory phase of police socialisation theory namely, predisposition, (i.e. whether policing attracts a certain type of person or not; Bardi et al., 2014; Harper et al., 1999). Some argue that there is such a thing as a 'police personality', whereby police officers possess a distinct set of personality traits that differ from the wider population (Balch, 1972; Burbeck & Furnam, 1985). Instead, it is generally argued that those wishing to join the police typically exhibit an orientation toward those traits which are then strengthened through police training and fieldwork, leading to a similar personality pattern among police officers. It follows that such personality traits are believed to dictate police officers' behaviour in general and their behaviour in work in particular (Bardi et al., 2014; Lefkowitz, 1975; Rubinstein, 2006). The contents of police personality are often linked to traits such as suspiciousness, authoritarianism, cynicism, bigotry and aggressiveness (Gudjonsson & Adlam, 1983; Harper et al., 1999; Lefkowitz, 1975).

Empirical evidence in support of the police predisposition argument is limited (Bennett, 1984; Fekjær, 2014). Smith et al. (1967), for example, showed through comparing the levels of authoritarianism between police officers and students newly enrolled at John Jay College of Criminal Justice, that officers were less authoritarian than their freshman counterparts. Similar findings were reported by Bayley and Mendelsohn (1969). More recently, results reported by Turner (2003) that showed police officers were not more authoritarian, aggressive, nor cynical than the non-police comparison group.

### *Introduction phase*

The introduction phase of police socialisation theory refers to training in police academies, where new recruits typically transfer from their position as an 'outsider' to an 'insider' (Conti, 2006). Recruits at this stage are expected to learn the basic knowledge and techniques of policing, which are often codified in handbooks or textbooks. This is not to say that formal training is the only influential source at this

stage of the socialisation process; informal socialisation is also believed to play a part mainly in the form of interactions with peers and instructors (Fielding, 1988). This stage is characterised by socialisation through conformity to the organisational prescriptions of police academies. Thus, recruits, in order to get accepted by their new group, are keen to conform to organisational expectations (Wallace, 1966). The conformity-focused training raises three issues: 1) formal training contents, 2) obedience and solidarity shaped via harsh and sometimes arbitrary discipline, and 3) reference groups. Discussing each in turn.

First, the formal contents of academy training are generally thought to serve as a means by which recruits build up their knowledge and language specific to policing and the police community, thus enabling them to conform to and take on an occupational identity (Fielding, 1988; Ryan & Ollis, 2019; Van Maanen, 1974). Moreover, coupled with informal socialisation processes, the training contents of police training convey the message to recruits that policing is a craft where 'learning comes exclusively through experience intuitively processed by individual officers' (Charman, 2017; Bayley & Bittner, 1984, p 35). As reported in the last chapter, this notion that experience is the primary source of police knowledge remains a common view among many police officers and is clearly an obstacle to the idea of a more evidence-based approach to policing. As academy training is generally heavily weighted in favour of the vocational side of police work, the majority of class time is thus filled with technical aspects of policing, such as marksmanship, defence tactics, driving skills. The technical knowledge learnt through such training thus allows and facilitates recruits to more precisely communicate with each other using knowledge and language common to the police community. This shared knowledge and language, in turn, leads to their confirmation of occupational identity (Adlam, 2002; Fielding, 1988).

Together with informal socialisation such as 'war stories' in corridor conversations, the training content at police academies is thought to contribute to recruits' perception of policing as a craft (Ryan & Ollis, 2019; Van Maanen, 1974). Technical-focused contents typically preclude recruits from developing critical thinking skills

and the ability to reflect on the deeper aspects of police work (Ryan & Ollis, 2019). Informal socialisation, such as exposure to ‘war stories’ that describe certain figures like notorious criminals and sensational events important to the department, tend to foster an environment in which recruits value ‘practical wisdom’ (Ford, 2003). The combination of technical content and informal socialisation contributes to recruits’ interpretation of police work as a craft where book-based knowledge is of little use.

The second issue in this phase of police socialisation concerns obedience and solidarity, typically shaped via sometimes harsh and arbitrary discipline, such as de-socialisation processes that strip recruits’ old, civilian identity and channels them towards the police occupation, characterised by the ‘formal, mechanical and arbitrary bureaucratic features’<sup>1</sup> (Chappell & Lanza-Kaduce, 2010; Conti, 2011; Van Maanen, 1974, p 88). In other words, these two characteristics, obedience and solidarity, are the products of a high-stress paramilitary training context shaped via the process of depersonalisation in which recruits are restricted to interact with people according to their ranks or status rather than individuals per se. This is typically achieved through a series of rigorous physical training exercises (e.g., drill, parade), disproportionate punishments in response to small mistakes, and a ritualistic concern for details in academies (Chappell, 2008; Albuquerque & Paes-Machado, 2004; Harris, 1973). Coupled with a series of degradation and humiliation measures, depersonalisation often leads to recruits’ obedience to authority and solidarity to peers. This is traditionally considered to be an important characteristic of the police officer.

After entering academies, recruits soon find that a minor mistake such as being a minute late to class may cost them a whole day of extra work. The optimal policy is therefore for them to strictly follow departmental rules and conform to authority (Chappell & Lanza-Kaduce, 2010). Another example of measures employed to consolidate solidarity is group punishments. Because of the regulations of many police academies, recruits will inevitably make a mistake. The mistake would,

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<sup>1</sup> The description of ‘harsh and sometimes arbitrary punishment’ (including the degradation and humiliation within the paragraphs) might invite doubt that if these descriptions still fit police training today. To the best of my knowledge, these descriptions were still used to depict the training context of police academies in Florida (Chappell & Lanza-Kaduce, 2010), and Texas (Rockport; Conti, 2009, 2011) in the 2000s.

however, incur punishments to their innocent peers. This process serves to instil in recruits an identification that it is their peer groups rather than the 'brass' (e.g., supervisors) that support them when encountering troubles or crises, and they, in return, must support their peers (Van Maanen, 1975).

Third, reference groups play an influential role in how recruits are affiliated within the police organisation (Guimond et al., 2013; Wallace, 1966). Driven by the two elements of the paramilitary training: depersonalisation and uncertainty for police role in the future, recruits often seek consultation from reference groups. As the most accessible and trustful reference group at this stage, instructors provide recruits with not only advice on appropriate behaviours and values for survival in the police but also future occupational demands. One of the examples is the 'war stories' that expose recruits to the tradition that typifies the department (Charman, 2017; Ford, 2003). Via those consultations, the reference group plays a role that fortifies recruits' identification with the organisation and controls their cognitive compliance to it (Fielding, 1988; Shibutani, 1955).

Moreover, reference groups are also a source from which recruits learn about the informal operations of policing (Charman, 2017; Van Maanen, 1974). Specifically, recruits learn that formal rules and regulations are not consistently applied. Conduct that is punished in one case may be disregarded in another. In this regard, recruits recognise academy rules as normative behavioural prescriptions that are dealt with formally but dismissed informally. The gap between the formal and informal application of rules will be enlarged at the following stage, leading to recruits' recognition of subculture (Charman, 2017).

Because the core of this stage lies in socialisation through conformity to departmental prescriptions, empirical research findings concerning this stage of police socialisation vary depending on the training contents and contexts delivered in different academies. Hence, previous research has found mixed results in relation to the impact of police training on police recruits. For example, Bennett (1984) found that academy training reinforced recruits' authoritarianism, whereas an opposite result was revealed by Wortley and Homel (1995). The influence of police academy on police recruits will be covered in further detail in Section 5.3.



### *Encounter phase*

The encounter phase of police socialisation refers to field training in which recruits are introduced to the reality and complexity of policing, mainly by their Field Training Officers (FTOs) (Getty et al., 2016). This stage concerns four key issues: 1) learning from interactions with individuals rather than formalised sessions, 2) the continuity of influence from one generation to another, 3) 'reality shocks' and 4) the conception of one's role in the police organisation (Conti, 2009; Kenney & McNamara, 1999). These four issues are discussed below. Together, they outline a process whereby recruits seek to bridge the disconnect between what they learnt from academy training and what they encounter in the field.

First, one of the major characteristics of this stage of police socialisation is to learn from interactions with others, as distinct from the formalised interactions present in the preceding stage (Van Maanen, 1974). Recruits start their field training by watching, listening and mimicking their FTOs and they gradually accumulate personal experience in dealing with the objects of the occupation: victims, offenders, witnesses, the brass in the department, and the criminal justice system itself. All of these learning processes to be a police officer stem from individual interactions, both formal and informal. This learning soon will have recruits finding not only that department rules are applied inconsistently but also that the law that governs their practice has to be negotiated and interpreted constantly (Charman, 2017). This recognition forms the basis of organisational culture, which is the theme of the next stage.

Second, in addition to the systems that are in place, FTOs (and their equivalents) are critical for the continuity of a steady pattern of police behaviour from generation to generation of new officers (Charman, 2017; Van Maanen, 1973). As FTOs are typically in charge of appraising recruits' applicability for the police, recruits give more prominence to the stated attitudes and displayed behaviours of FTOs. Moreover, as a 'green pea' ill-prepared for 'real' police work, recruits often learn how to handle encounters primarily from their interpretation of the responses by their FTOs or other senior officers (Getty et al., 2016). Both the attention given by and experience vacuum of new recruits not only lead to their special susceptibility to

attitude changes but also to the influence flow from FTOs to recruits. In turn, the influence flow contributes to a steady continuity of police behaviour from one generation to the next (Holmes & Mara, 2002).

Third, 'reality shocks' affect how recruits assimilate themselves into the police organisation (Charman, 2017; Van Maanen, 1975). The reality shock stems from the disconnect between expectations (e.g., motivations to join the force) and the reality of policing. It manifests itself in a variety of forms, described by recruits as the misguided impression of the role of policing, paperwork, shift work, and responsibility without power (Ellis, 1991). The shock is attributed to various factors, including a perception of alienation from the public (Ellis, 1991), appreciation of the criminal justice system's limits, having little influence on crime (Tuohy et al., 1993; Garner, 2005), and the absence of support from other criminal justice institutions (Alain & Gregoire, 2008). The effect of this shock on recruits is various. In some cases, recruits become more cynical and suspicious (Ellis, 1991). In other cases, the difference between one's belief about police work and the realities of policing may cause recruits to leave the police service (Haarr, 2005). Moreover, the shock will affect the strategies that recruits typically adopt to deal with the rest of their occupational time, an issue that will be discussed in the next phase.

Finally, recruits gradually establish a view of their role in the police organisation (Charman, 2017; Thornton & Nardi, 1975). Under the guidance of their FTOs, recruits will eventually take the backup test that examines recruits' willingness to place themselves in a vulnerable position to support their FTO or fellow officers (e.g., showing no hesitation when approaching a suspicious person, leading the way up a dark stairwell, and so on). Passing these tests signal a recruits' success in the organisation and as members of the working police force. With their increasing assimilation into the police organisation, recruits experience the gap between law and practice, 'reality shocks', and the influence of FTOs, all of which contribute to their understanding of what types of behaviour are appropriate and expected of them within the police social setting (Engelson, 1999; Getty et al., 2016).

As with the previous stage of police socialisation theory, prior research suggests that the encounter stage has mixed effects on recruits. Some researchers have found

that field training was negatively associated with legalistic police practice (e.g., Fekjaer et al., 2014), whereas others report that field training had no effects on officers' reasoning skills (e.g., De Schrijver & Maesschalck, 2015). The mixed results will be discussed in the section designated for longitudinal research on police socialisation.

### *Metamorphosis phase*

The metamorphosis phase is the final phase of the police socialisation process. It starts from the time that rookie officers are officially assigned to a permanent police role and extends across their whole police service (Charman, 2017; Van Maanen, 1975). This phase is concerned with how recruits adopt the organisational police culture in order to assimilate and function as a member of the organisation. Concerns considered influential at this stage include 1) strategies recruits adopt to respond to organisational norms, 2) informal rules, and 3) characteristics of police culture.

Because of the 'reality shock' described above, recruits often develop strategies to better integrate themselves into the police organisation so as to be able to continue with the job. Various strategies have been proposed in the literature. Some researchers, based on the motivations of the anticipatory stage, propose three types of adaptation: idealistic, practical and realistic (Hopper, 1977). Those in the first type, 'idealists', emphasise public service. They tend to drop out or move towards the second type, where a pragmatic and open-minded approach is of most concern. Those in the practical group, in turn, are likely to become 'realists', who are aware of positive aspects of police work and also of the structural restrictions inhibiting these aspects.

Van Maanen and Schein (1979) argue that there are three response options for recruits when they adopt organisational norms: content innovation, role innovation and custodianship. The content and role innovation responses refer to substantive improvements or changes in the knowledge base or strategic practices and changes of the stated objectives of the agency mission, respectively. The custodianship approach, the frequently adapted strategy of police socialisation, refers to

*One simply learns the substantive requirements of the job and the customary strategies that have been developed to meet these requirements (and the norms of use that surround them) and the successful accomplishment of the mission is assured (Van Maanen & Schein, 1979, p 31).*

This approach is characterised by maintaining the status quo. Researchers have proposed three informal rules which recruits use to assimilate themselves into the custodianship: 1) 'lay low', 2) 'value the team' and 3) 'make the law work'.

'Lay low' is related to the least resistance principle (Van Maanen, 1974). With the accumulation of work experience, recruits become masters in the various technical and social skills of routine policing. Yet they typically soon find out that the vast majority of time they spend in routine work is to handle administrative tasks rather than 'real' police work. In other words, their routine is filled with the hierarchical labyrinth, the red tape and paperwork and the plethora of rules and regulations. Moreover, the more proactive approach to policing recruits adopt, the more likely they will be sanctioned by any of their audiences - the department and the public (Guimond et al., 2013; Waddington, 1999). Under these considerations, the optimal strategy for recruits is to keep a low-profile, following the established ways of working that maintain the status quo.

'Value the team' concerns the displayed emotion of solidarity consolidated in academy training that becomes more prominent for police recruits at this stage (Alain & Baril, 2005; Van Maanen, 1974). After becoming engaged in police work, recruits soon realise that without the support of their street companions and squad, they will not be able to handle the unexpected dangers in the field or the mistakes that they unavoidably make. Moreover, over time recruits become disenchanted with the public and the police system itself, and they cannot continue the job without the support from their fellow officers. The power of being in solidarity with and valuing the team emphasises the collective consciousness of 'in the same boat', persuading recruits not to 'make waves' (Charman, 2017).

'Make the law work' refers to recruits' softening of absolutist principles and favouring a more relativist approach as to how the law is applied to the practice (Oberfield,

2012). This informal rule is contributed to by two factors: the influence of organisational culture and appreciation of the complexity of police decision-making. The former is associated with the gap between 'law in books' and 'law in action', that recruits experience in police practice (Oberfield, 2012). The latter is concerned with the myriad of social problems with which the police have to deal on a daily basis, but on which they are unable to exert considerable impact (Fielding, 1984). The softening implies that recruits are willing to enforce the law in favour of fellow officers (Tuohy et al., 1993), and a recognition to act resourcefully and creatively in responding to a perceived lack of legal powers (Charman, 2017).

Despite being guided by these rules, organisational culture manifests itself in diverse forms. It is characterised by authoritarianism (Waddington, 1999), aggression (Christensen & Crank, 2001), a crime fighter ethos (Skolnick & Fyfe, 1993), suspicion (Skolnick, 1966), cynicism (De Lint, 1998; Scripture, 1997), solidarity and isolation (Loftus, 2009). Solidarity and isolation, for example, result from the shift system, in which necessary support from officers working the same shift and precinct while facing dangers forms an ideology of insider/outsider (Van Maanen, 1975; Westmarland, 2005). The ideology leads to a clear-cut distinction between police officers and citizens. Another instance is the crime fighter ethos, by which officers perceive themselves as dedicated to a crusade against crime and disorder. The preoccupation with crime has officers obsessed with excitement and leads them to considering some aspects of routine policing to be less important (Loftus, 2009).

Even though officers increasingly identify with their departments and become integrated into police culture in this stage, individual variation in adapting to the organisational reality is affected by the officers' capacity to resist and embrace the influence arising from the introduction and encounter phases (Charman, 2017; Fielding, 1988). That is, their adjustment is not uniform but affected by personality. In a broad sense, the adjustment acts as a linkage between officers and their departments that allows officers to be integrated into police organisation without diminishing their personality (Waddington, 1999; Reiner, 2000).

## 4.2 Longitudinal research on police socialisation

As discussed above, the process of police socialisation is generally described as being formed of four stages: anticipatory, introduction, encounter and metamorphosis, each of which is influenced by various factors. From a research perspective, it follows that longitudinal research is well placed to capture the changes, both in and between individuals, that do or do not occur across these different stages of a police career. However, because longitudinal research (of any sort) is generally both time- and resource-consuming, and vulnerable to attrition, presently there are only a handful of longitudinal studies on police socialisation (Babbie, 2016; Ployhart & Vandenberg, 2010).

To the best of my knowledge, there have been less than 20 longitudinal studies of police socialisation that cover police recruitment, training and fieldwork. These studies have measured different variables and produced mixed findings. For example, the measured variables include instrumental values (Bennett, 1984), authoritarianism (Brown & Willis, 1985; Wortley, 1992), ethical orientation (Catlin & Maupin, 2004), reasoning skills (De Schrijver & Maesschalck, 2015), conservative attitudes (Christie et al., 1996), police culture (Charman, 2017; Chan, 2001; Fielding, 1988; Van Maanen, 1975), use of force (Oberfield, 2012), and procedural justice (Fildes et al., 2017).

Some longitudinal studies on police socialisation show that training outweighs fieldwork in terms of its effect on the measured outcomes of interest. For example, Bennett (1984) found that recruits' values became more similar to sworn officers during their time in police academies, as opposed to the first three-months spent doing fieldwork. Similarly, Teahan (1975) found that recruits became more hedonistic during their academy training, and this hedonism was then maintained afterwards. Catlin and Maupin (2004) found that academy training was more influential than field experience in determining ethical orientation. Fildes et al. (2017) revealed that academy training rather than operational experiences had negative associations with procedural justice. And Oberfield (2012) found that early training (the first three months) was correlated with attitudes towards the use of force, relative to street experiences.

Other research suggests the opposite result, that fieldwork dominates. Charman (2017) found that significant changes in authoritativeness, cynicism and solidarity took place during fieldwork (between the first to the fourth year), as opposed to academy training. Chan (2001, 2003) found that the effects of initial police training were temporary, compared to powerful street experiences. As police officers spent more time in the field, they became more disillusioned with community service and their capacity to fight crime. Likewise, Fekjaer et al. (2014) revealed that field training rather than academy training was negatively associated with adherence to the rule of law.

Some studies showed that both academy training and fieldwork play a part in influencing police officer attitudes and behaviour. The depressed effects of academy training on authoritarianism and increased effects of field experiences were found by Brown and Willis (1985) and Wortley (1992). Similarly, positive influences of academy training in terms of attitudes towards community policing and problem-oriented policing and negative influences of probationary training were revealed by Haarr (2001). Christie et al. (1996) proposed that both academy training and police service had de-liberalising effects on recruits in terms of their conservative attitudes. Similarly, Hazer and Alvares (1981) found that both training and street duty increased recruits Extrinsic Work Values (e.g., high earning, job security).

Still, other studies showed no effects of both training and fieldwork on recruits. De Schrijver and Maesschalck (2015) found that academy training (including field training) had no effects on reasoning skills.

These mixed findings reported above suggest that the effect of academy training and field experiences depends on training content and context, working conditions and organisational culture. This implication leads to the necessity to look into the training context and working conditions that might plausibly contribute to changes in the attributes of interest. To this aim, the training context and working conditions will be discussed in the next chapter (general training contexts) and Chapter 6 (specific to Taiwanese policing and police education). Regarding the predisposition perspective, the longitudinal studies described above provide very limited information as none of them, except one (Brown & Willis, 1985), included a

comparison group (fire officers, N = 16) in their sample to test for differences in predisposition at recruitment between police and non-police groups. The rarity of comparison groups in the existing research suggests that in order to advance the literature and reliably distinguish between the effects of the three perspectives – predisposition, police education and training and police work/culture, a longitudinal research design needs to also collect data on a suitable comparison group. More details on this will be discussed in the next section.

### **4.3 Summary**

As described in the previous sections of this chapter, the four phases of police socialisation have been shown to exert distinct influences on police recruits attitudes and behaviour. Within each phase, influential sources are various. In the anticipatory phase, influential sources include reference groups, recruit motivation and personality. In the introduction phase, the sources comprise training content and contexts, as well as (new) police-oriented reference groups. In the encounter phase, there are three sources considered: FTOs, reality shocks and the building up of police recognition. And in the metamorphosis phase, the main source of influence stems from organisational norms and culture.

Moreover, these sources of influence are not independent. They are intricately connected across phases such that certain sources of influence at one stage exert an effect on sources of influence at another stage. Recruits' motivations and personalities, for example, might affect their selection of a police job initially and continue to influence how they absorb organisational culture at later stages. Furthermore, how this process influences recruits depends on the training contents, contexts, and wider police culture accommodated. These contingencies may explain why mixed results have been observed among those longitudinal studies on police socialisation.

The literature review and discussion presented in this chapter suggest two implications relevant to this thesis. First, the research objective – to understand how police recruits are influenced by the process of police socialisation - cannot be



achieved without a longitudinal design that covers both the four phases of police socialisation *and* includes a suitable comparison group. How this implication informs the research design of this study is further discussed in Section 7.4. The second implication is that it is impossible to locate and articulate the influential sources within these phases of socialisation without looking into the elements of these phases. To address this issue, the next chapter will review police education and training in general, and C6 will focus on Taiwan, the site for this research in particular.

## **Chapter 5 Police Education**

There is considerable variation in how police training and education is conceived, defined and delivered, both nationally and internationally (Brown, 2018). In the US, for example, there are notable differences in mandatory police training across each state (Cordner, 2018; Kratcoski & Das, 2007). This chapter will introduce the history of police education and training in America and review the objectives and impact of different police education models. The chapter is limited to American police training for several reasons. The first reason is that research related to police education and training has been primarily conducted in America. This is evidenced by the systematic review of police training research published between 1987 and 2011 (Aguilar-Moya et al., 2013). That review showed that the US accounted for 46% of all publications. The second reason is that Taiwanese policing (and police education) draws heavily on the American model of policing, as will be discussed in the next chapter.

This chapter starts with a brief description of the history of and controversies in American police education and training. Then, it focuses on the goals, characteristics, and impact of four models of police education and training. Additional attention is given to the evaluation of in-service police training, which hitherto has been the subject of limited research. The next section describes five identified research gaps related to police education and training. The final section of this chapter draws together the previous four chapters (C2 - 5) and discusses how the theories and research evidence covered in the literature reviews thus far are relevant to and inform the research undertaken in this thesis, particularly the research questions and study design.

### **5.1 History of American police education and training**

To set the scene, this section describes the changed requirements of police education and training in the so-called Political, Professional and Community

Policing Eras and mentions the historical events that led to the prevailing model of police education and training in the US.

The establishment of police schools in the US was started by August Vollmer at the University of California, Berkeley a century ago. Before his advocacy, very little police training had been required before becoming a sworn officer (Cox, 1996; Oliver, 2016). This is because police work at the time was regarded largely as a practice-focused vocation where only physical labour mattered. Also, at that time (often called the Political Era of American policing, which covered the time between the 1840s and the early 1900s), the way police officers got their positions was mainly through political connections or bribes, and then they learnt the duties and responsibilities of policing on the job rather than from textbooks or in the classroom (Cordner, 2018).

The Political Era of American policing ended at the turn of the 20<sup>th</sup> century. It was followed by the so-called Professional Era, during which time the image of professional policing was established. This image portrayed the police as effective and efficient, a departure from the corruption, misconduct and inefficiencies that were evidently common in the prior era (Cordner, 2016; Kelling & Moore, 1988). An increased emphasis on police effectiveness and efficiency was associated with rising educational standards for policing, and thus police academies and formal police training became common. With the concurrent revolution of due process in the US legal system, police training thus responded by providing recruits with reading and writing skills and legal reasoning (Cordner, 2018). Meanwhile, the recruitment process of new police officers changed from one that centred on bribes and connections to that which was merit-based, often assessed via written tests.

Major crises in the US in the 1960s and 1970s dramatically changed the focal point of American policing and ushered in the so-called Community Policing Era. Those crises included rocketing levels of crime, riots, the civil rights movement and mounting tensions between the police and the community (Oliver, 2013). Because these issues were more political in nature, the focal point of policing thus moved to one which paid greater attention to the relationship between the police and communities, and how police practice can be enhanced by police officers' social

skills and social science knowledge, as opposed to technical competencies which were the primary focus of the prior era (Cordner, 2016).

During the Community Policing Era, and in response to the vast and varied demands of policing, it was recommended that a college education be the minimum requirement for police education. Indeed, the recruitment of college-educated officers was highlighted in the *President's Commission on Law Enforcement and Administration of Justice* published in 1967, which stated that all police officers should have 4-year degrees by 1982. This recommendation was not heeded (Cordner & Shain, 2011; Oliver, 2013), in part because of disagreements over the objectives and models (i.e., vocational or educational) that police education should adopt, and because of research showing the mixed results of college education on police officers (Novak et al., 2017; Sherman et al., 1978).

Because of the rising standards and expectations of police education, the distinction between training and education became widely accepted. College courses gradually centred on the analytical, critical, theoretical and philosophical aspects of police work whereas the 'what and how' aspects were taught in police academies, which became mandatory basic police training in the US in the 1970s (Paterson, 2011; Stanislas, 2015).

Another noteworthy development in police education in the US is the domination of criminal justice and criminology as areas of study. This development deviated from the original idea of Vollmer's police education, where police science and administration dominated. The deviation was boosted by field research by the American Bar Foundation in the 1950s where the police were considered to be at the front end of the criminal justice system and by the substantial funding offered by the aforementioned commission for existing police personnel to attend criminal justice programs at higher education institutes (Cordner, 2016; Oliver, 2016). The domination of criminal justice and criminology also triggered the call for the establishment of professional schools designated for the police, a move which is reviewed in the next section of this chapter (Cordner, 2016, 2018, 2019).

The development of police education in America has raised many debates. With the increasing complexities of policing in contemporary societies, it is proposed by some,

for example, that it is essential to create university-based police education (Paterson, 2011). But it is unclear what and how higher education affects police officers (Stanislas, 2015), what impact graduate police officers have on current policing (Brown, 2018; Paterson, 2011) and the relationship between police science and criminology/criminal justice (Cordner, 2016, 2019)? The next section of this chapter will seek to clarify these issues by going through the objectives, models and impact of police education in the US.

## 5.2 Objectives of police education

As described in the preceding section, the police function in the US varied in response to changes in society in recent centuries, and so did the objectives of police education. Specifically, the inconsistencies among the objectives of police education are partially due to the history of police involvement in tumultuous political and social events, and the belief that police education and training might be the means to remedy the various problems encountered within and outside police organisations. This section will review the objectives for police education proposed in the US.

The US National Advisory Commission on Higher Education for Police Officers presented a broad review of police education objectives in 1978 (Sherman et al., 1978). The objectives were categorised into three dimensions: impact on students, policing and police professionalisation (Table 5.1).

**Table 5. 1** Objectives of Police Education

<b>Dimension</b>	<b>Objectives</b>
Impact on students	Develop general qualities Train students for police careers Create change agents
Impact on policing	Improve police efficiency Produce changes in the problems of policing
Impact on police professionalization	Provide professional behaviour and professional prestige

In the first dimension, police education is expected to work in the same way that education is expected to work in any higher education institution, namely, to cultivate in participants desirable qualities such as cognitive learning and moral development (Bowen, 1996). Some scholars have argued that the ideal qualities of a police officer should include intelligence sufficient for making complex decisions, tolerance and understanding of differences between cultures, values supporting the controls on police conduct, self-discipline and the ability to control one's emotion (Goldstein, 1977).

The second objective within this dimension is to have individual students learn the practical skills and knowledge necessary for functioning as a police officer. It follows that the first and second objectives described above stand at two ends of the liberal-vocational continuum. The last objective in this dimension is to create 'change agents', taken to mean agents capable of determining what needs to be changed, have the foresight required to accomplish such changes and value accomplishing change over maintaining career security and advancement (Sherman et al., 1978).

The second dimension shown in Table 5.1 centres on the aggregated effect of police education on policing as opposed to impact at the individual level. The first objective under this dimension, improving police efficiency, is to improve policing using analyses of what the police do now as the basis for teaching future police how to do things better (Neary, 1977). The second objective under this dimension considers the police themselves as the social problem as opposed to their ability to solve social problems. It argues that police education should help police understand the positive function of dissent in a democracy, and thus diminish police violence in response to protest demonstrations (Skolnick, 1969). That is, police education should contribute to a better understanding of the ethical behaviours that can affect law enforcement.

The last dimension contended that police education should be the means to professionalise the police. Specifically, it should inform professional police behaviours, including practice based on sophisticated formal knowledge, autonomy from lay interference in decision making, collegial discipline and peer accountability, and thereby raise the prestige of the profession (White, 1972). Efforts to implement

evidence-based policing, as described in chapter 3, speak to this idea of trying to professionalise the police service.

However, this classification of police education objectives is somewhat obsolete, given that police education has been linked to the reforms of modernisation and professionalisation. In other words, police education is a changing landscape in which expectations for it have been renewed constantly. Brown (2018), for example, proposed that the following values should be fostered by higher education institutions for the police:

- Culture change, ethical awareness and accountability;
- Response to the changes in the complexities and types of policing tasks;
- Offsetting crises of public confidence;
- Improving the standing and status of policing;

Despite the diverse and multiple proposed objectives of police education, research on the effect of different police education models is sparse. This is evidenced by the systematic review of Huey (2018), which found a dearth of robust primary studies on the impact of in-service training. The subsequent section will introduce and review the models of police education and their impact on cadets.

### **5.3 Models and impact of police education**

This section introduces four distinct models of police education and training. Particular attention is given to empirical research into the influence of such models on police recruits. Additionally, in this section there is a brief discussion on in-service training, an issue that has received less research attention but which is considered important in improving democratic policing.

Sherman et al. (1978) set out four basic models of police education (Table 5.2). These four models form a continuum ranging from less to more directly relevant to police work. The models also differ in terms of their position on the longstanding debate – is policing a profession or a craft?

**Table 5. 2** Four Models of Police Education

<b>Model</b>	<b>Contents</b>
General education	Undergraduate programs, the same as those programs in various fields such as business, management and social science in higher education.
Criminal justice as a liberal art	Seek the best aspects of both liberal arts and career education such as criminal justice, criminology and crime science departments.
Criminal justice as a professional education	A professional education that emphasises descriptions of professional and policy issues rather than theoretical explanations of deviance and social control such as Central Police University in Taiwan.
Police Technology as a paraprofessional vocational training	Just like police academies where the courses are taught using concrete instructions and are full of prescription on how to perform police tasks without analysing the rationale for those tasks.

*General education*

The first model, general education, refers to majors in subjects other than specialised police or criminal justice studies, ranging from arts and science disciplines to professional education programs such as business and engineering. It is believed that general education provides a 'learning experience in a context that broadens their [police officers] intellectual perspectives and alert police officers to concerns not generally associated with the law enforcement community' (Navasky & Twentieth Century Fund, 1976, p 17). In this model, more emphasis is placed on the development of police officers in qualities such as cognitive learning, emotional and moral development and practical competence (Bowen, 1996; Pascarella & Terenzini, 1991).

The impact of this model has been comprehensively studied in higher education literature, but not in relation to the police (Pascarella & Terenzini, 1991). Nevertheless, there is considerable evidence suggesting that many desirable traits are cultivated and developed in students during the course of a college education,



such as critical thinking and communication skills (Bowen, 1996). In the police literature, the impact of this model on police-related traits is not separated from that of the second model, as they are typically investigated under the criterion of a baccalaureate. Thus, its impact will be discussed together in the following model.

### *Criminal Justice as a liberal art*

The second model – criminal justice as a liberal art – refers to interdisciplinary arts and science programs on criminal justice topics such as criminology or criminal justice, delivered in universities. It seeks to find the best combination of liberal arts and career education. This model is based on the assumption that in the same way that traditional majors develop the general qualities in educated people, a broad and multidisciplinary approach to crime and crime control can function sufficiently for police officers (Brown, 1974). This model is founded on behavioural and social science and places the main concern on the explanation and understanding of human behaviour.

Some police scholars have argued that the liberal arts model is too broad to adequately prepare individuals for a career in the police (Cordner & White, 2010; Goldstein, 1977). As the criminal justice curriculum is mainly related to all forms of crime and disorder, and much of policing has little to do with crime, majoring in criminal justice might lead many police officers to regard police tasks unrelated to criminal justice as unimportant.

So far, research evaluating the impact of higher education in policing (the combination of the first and second models) has primarily investigated differences in characteristics, such as authoritarianism and conservatism, between police officers with a bachelor's degree and those without. This line of research was reviewed by Brown (2018) and is summarised in Table 5.3. Brown's (2018) review covered studies published from 1970 onward featured in several major research databases in Anglo-American countries. The synthesis indicated a mixed impact of higher education on police officers, as well as identifying potential confounds that may affect the observed results such as small sample sizes and the lack of suitable control groups.

**Table 5. 3** Positive, Nil and Negative Findings Associated with Measured Graduate Attributes

<b>Attribute</b>	<b>Positive association</b>	<b>No association</b>	<b>Negative association</b>
Authoritarianism	Smith et al. (1970); Guller (1972); Dalley (1975); Austin and O'Neill (1985)		Owen and Wagner (2008)
Conservatism	Dalley (1975)		Christie et al. (1996)
Cynical			Regoli (1976); Charman (2017)
Insularity			Heath (2011); Heslop (2011); Cox and Kirby (2018)
Open	Roberg (1978)		
Rigidity/flexibility	Guller (1972); Worden (1990); Lee and Punch (2004)		
Stress	Kakar (1998)	Miller and Fry (1978)	
Job satisfaction		Dantzker (1993)	Trojanowicz and Nicolson (1976); Kakar (1998); Jones et al. (2005)
Behaviours towards minorities/citizen / sense of public service	Weiner (1974, 1976) Cascio (1977); Kappeler et al. (1992); Smith and Aamodt (1997)	Weirman (1978); Worden (1990); Kakar (1998)	Ellis (1991); Carlan (2007)
Professional attitudes	Carlan (2007); Lee and Punch (2004)	Weirman (1978); Shernock (1992); Loftus and Price (2016)	
Attitudes towards women officers			Golden (1981); Austin and Hummer (1994)
Overall performance	Roberg (1978); Smith and Aamodt (1997)	Cascio (1977); Shernock (1992)	
Firearms use/use of force	Teilrill and Mastroski (2002); McElvain and Kposiwa (2008)	Hayden (1981); Sherman and Blumberg (1981); Rydberg and Terrill (2010)	
Leadership skills	Trojanowicz and Nicolson (1976); Krimmel (1996); Herrington (2017)		

Discretionary effort	Kakar (1998)		
Use of discretion		Shernock (1992); Johnston and Cheurprakobkit (2002)	
Arrest rate	Kakar (1998)	Rydberg and Terrill (2010)	Smith and Klein (1984)
Decision-making	Smith and Aamodt (1997)	Rydberg and Terrill (2010)	
Crime investigation	Krimmel (1996); Kakar (1998)		
Interpersonal skills	Cascio (1977); Weirman (1978) (peers); Krimmel (1996)		
Writing/clerical/admin	Krimmel (1996); Smith and Aamodt (1977)	Weirman (1978)	
Understanding role	Worden (1990); Norman and Williams (2017)		
Ethical conduct	Shernock (1992); Roberg and Bonn (2004)		
Attitudes towards auth/dept rules	Worden (1990); Telep (2011)	Shernock (1992)	Ellis (1991); Loftus and Price (2016)
Discipline infractions	Cascio (1977); Lersch and Kunzman (2001); Manis et al. (2008); Kane and White (2009)	Kappeler et al. (1992); Smith and Aamodt (1997)	Weirman (1978)
Abuse of Authority	Telep (2011)	Johnston and Cheurprakobkit (2002)	
<i>Discipline severance</i>	<i>Weirman (1978); McElvain and Kposowa (2008)</i>		

Source: Adapted from Brown, 2018, p 7.

Brown's (2018) synthesis revealed no clear trends in terms of the impact of higher education on police officers. Research on obeying department regulations, for example, found three distinct results. Worden (1990) and Telep (2011) found police officers with a degree were less inclined towards rigid enforcement and abuse of authority while Shernock (1992) revealed that a college education was not associated with the exercise of discretion. By contrast, Ellis (1991) and Loftus and Price (2016) found that college-educated officers were *more* willing to commit rule violations.

Mixed results were also observed with respect to arrest rates. For example, Kakar (1998) investigated officers with different education levels (high school, some college education, college degree) in South Florida in terms of performance. He found that officers with higher education levels tended to make fewer arrests, compared to those with lower levels of education. With a suitable comparison group and using observational methods, Rydberg and Terrill (2010), however, found no statistically significant correlations between the probability of an arrest and higher education. Moreover, Smith and Klein's (1984) observational study showed that situational exigencies (such as whether a weapon was involved) rather than education levels dominated police decision-making regarding whether to make an arrest (or not).

As mentioned previously, several methodological concerns have been raised in relation to the literature on the effects of police education. These concerns include the use of small sample sizes (for e.g., N = 10 in Norman and Williams, 2017; N=7 in Lee and Punch, 2004), a lack of control groups (Paoline et al., 2015), poor operationalization of performance and directionality (Owen & Wagner, 2008), and not accounting for the socialisation effects of police culture (Fielding, 1988). Other questions raised include the timing of graduate education – before or after entry into policing – (Charman, 2017) and the influential source – the kind of degree studied or university experience per se (Cox & Kirby, 2018).

In light of these methodological concerns, Brown (2018) summarised the impact of the first and second models of police education as follows:

*'Whilst a case could be made on value grounds that university-educated police officers are a 'good thing' to manage complexity in the modern world, the empirical evidence base is not strong enough to draw definitive conclusions about the improvements that more specific graduate attributes bring to policing' (ibid., p 11).*

The research on higher education's impact (including the first and second models) on police officers in the recent five decades has yet to be fully resolved. In particular, the methodological weakness has to be overcome before any reliable conclusion can be drawn. The methodological issues will be discussed again in the following summary section.

### *Criminal justice as a professional education*

The third model, criminal justice as a professional education, refers to professional education programs in police administration or criminal justice. This model borrowed the professional concept from undergraduate education in architecture, business and engineering rather than from liberal arts or science. It emphasises legal, management and policy issues for policing rather than either the theoretical understanding of deviance and social control or the basic vocational training (Sherman et al., 1978). The focal point of this model is the last dimension of the objectives set out in table 5.1 – professionalising the police. It is argued that the symbolic significance of creating degree-granting schools of police work is crucial to professionalise the police (Bittner, 1972). However, the ideal mix of liberal arts and professional courses under this model is far from settled.

This model of education is partly a reaction to the domination of the second model of police education that defines the police as an institution in the criminal justice system. This definition was considered too narrow and restrictive for effective police work (Goldstein, 1977). In other words, majoring in criminal justice at universities may force police to define police tasks unrelated to criminal justice as unimportant. This argument has continued until today. In particular, when the body of knowledge on policing has accumulated for decades, it is considered as substantial enough to establish its own field – what some have called 'police science' (Cordner, 2018; Cordner & White, 2010; Weisburd & Neyroud, 2011).

As this type of police education has not been realised in Anglo-American countries, there is no available evaluative research evidence. However, some prominent scholars argue that this model is a promising alternative to the prevalent model in which police education and training are responsible by criminal justice programs in higher education and in police academies separately (Cordner, 2018, 2019).

### *Police technology as a paraprofessional vocational training*

The last model, police technology as a paraprofessional vocational training, refers to police academies or specialised police education programs. The curricula in this model are taught using concrete instructions, prescribing how to enforce police duties without explaining the rationale underlying them (Sherman et al., 1978). This model has a vocational orientation, emphasising basic agency skill training such as firearms, defensive tactics, first aid and report writing. This makes police officers comparable to technicians. However, it is argued that this kind of course fails to reflect the complexity of the police task (Harris & Grede, 1979).

This model of vocational training has dominated evaluation research on police training. This may be attributable to the notion of a 'total institution' where an individual's physical and social freedoms are restricted, they are isolated and channelled in a certain direction and then they are subject to a process of re-socialisation in which a new set of values, beliefs and norms are put in place (Goffman, 1962, p 14). However, the influence brought about by this 'total institution' on police recruits is controversial, particularly in terms of police officers' adaptation to pluralistic, diverse modern societies. Generally, there are three issues considered to be problematic: 1) crime-fighting ethos, 2) excision of civilian identity and 3) disconnections between training and fieldwork (Conti & Doreian, 2014; White, 2006). Discussing each in turn.

First, a crime-fighting ethos is an underlying assumption for which the prevailing high-stress training prepares police officers, as discussed in Section 4.1 (Albuquerque & Paes-Machado, 2004; Conti & Doreian, 2014; Shernock, 1997). It is believed that this training equips officers with adequate abilities and skills for the high-stress occupation of policing where danger and uncertainties are common. This training often takes advantage of militaristic training that elicits frustration, emotional

overload and subjective crisis by the military-related curriculum (e.g., drill, physical training, weapon use and self-defence), strict protocol, discipline, chain of command and procedures. In turn, these emotions elicited tend to inculcate obedience, uniformity and submission among recruits (Berg, 1990; Chappell & Lanza-Kaduce, 2010; Conti & Nolan III, 2005; Harris, 1973).

Chain of command, for example, that prioritises deference often forces new recruits to adjust themselves quickly to hierarchical and bureaucratic police organisations in which they will serve. The obedience generated, however, tends to develop their suspiciousness towards outsiders (Little, 1990). It is assumed that if such training can highlight recruits' vulnerability to senior recruits, it may reinforce not only their obedience to the superiors who authorise the use of force, but also their contempt to the vulnerable who are usually the poor, unemployed and minority (Chappell & Lanza-Kaduce, 2010; Ford, 2003).

The second issue concerns the deprivation of civilian identity and replacement with elite police roles (Adlam, 2002; Fielding, 1984; Shernock, 1997). The way of stripping away an old identity is, on the one hand, often achieved by reducing diversity and signs of individuality among recruits. A common example is when recruits are requested to dress in the same uniform and have their heads shaved. On the other hand, the stripping process dispossesses the old identity by isolating recruits from civilian life and social arrangements. Recruits have to abandon all belongings connected to their previous civilian identity. With this stripping away, academy training creates a void and then seeks to fill it with an elite identity that is dedicated and sacrificed to police work (Albuquerque & Paes-Machado, 2004; Kraska & Cubellis, 1997). The elitism, however, often contributes to an officer's 'us versus them' mentality, leading to increased tensions with the public (Catlin & Maupin, 2004; Chappell & Lanza-Kaduce, 2010; Ford, 2003).

Moreover, the stripping process using collective punishments, as discussed in the section of introduction phase, also reinforces solidarity among recruits. This consciousness is created for recruits to deal with their stressful training in a cooperative way, and for officers to support comrades when encountering danger in

the field. This solidarity nevertheless often results in officers' alienation from the public (Shernock, 1997; Van Maanen, 1973).

The third issue is about the failure of stressful training to advance policing philosophies that are expected in contemporary democracies (Haarr, 2005; Tuohy et al., 1993). On the one hand, stressful training positions police officers as warriors or crime fighters, and the police occupation as a craft trained via an apprenticeship. On the other hand, the police under democratic governance are commissioned to serve rather than fight against the policed (Mastrofski & Ritti, 1996; Marenin, 2004; Sun, 2003). This training thus often leads to the police practice that contradicts democratic governance.

Additionally, this incompatibility between stressful training and democratic governance is also found in the aspects of non-technical competencies such as cognitive development, leadership and problem-solving. The cognitive development of police officers, for example, has been shown to be hindered by the militaristic environment where recruits are required to follow chain of command rather than make judgements independently. This compliance often leads to the poor performance of officers to make situational judgements, thereby increasing the potential misuse or abuse of authority (Birzer, 2003; Birzer & Tannehill, 2001).

### *In-service training*

In-service training is a critical element of police socialisation, but because it is not classified as a form of police education, it is not listed and discussed above. To thoroughly understand the influence of police education on police socialisation, however, I review the literature on in-service training for sworn officers here.

In-service training refers to post-recruit training for already sworn officers (Kordaczuk-Wąs & Sosnowski, 2011). It often takes the form of periodical, specialist and supplementary courses, including seminars, conferences, workshops, consultations or even crash courses or counselling within police organisations. Outside police organisations, it usually involves postgraduate studies, training, courses, seminars, conferences and workshops.



Publications on police in-service training are, however, scarce. The systematic review that investigated research on in-service training published between 2000 and 2015 identifies only 21 studies (Huey, 2018). Moreover, this review ended with the author failing to synthesise the effectiveness of any specific training techniques. The failure is because either there was no specification in the identified studies as to which training technique was being evaluated, or because multiple techniques were being applied at the same time and hence reliable impact evaluations were not possible. Huey's (2018) findings were consistent with a previous review by Neyroud (2011), which pointed out the 'The evidence base on effective training practice was very limited across all sectors' (p 33).

Recently, there is a notable exception that investigated the influence of an in-service training program on police officers' changes of behaviour regarding procedural justice (Wood et al., 2020). This program was conducted by the Chicago Police Department between 2012 and 2016, where 8,480 officers were assigned to a 1-day training session on procedurally just policing strategies. The results showed that the training effectively reduced the frequency of complaints received by 11.6 and mandatory use of force reports by 7.45 per 100 officers in the 2 years following training. This finding is encouraging because it affirms the feasibility of changing the nature of police officer behaviour via in-service training.

The above review on in-service training is short, yet reflecting the current gap in the research literature on the effect of in-service training in policing. This dearth is intriguing, given not only the encouraging results of in-service training carried out by the Chicago Police Department aforementioned (Wood et al., 2020) but also that studies on police training showed an increasing trend between 1987 and 2011 for police services to offer in-service training (Aguilar-Moya et al., 2013). The average publications per year rose from 2 between 1987 and 1991 to 14.2 between 2007 and 2011. Within the theme of police training, in-service training has been given little attention. This scarcity may be attributable to the economic austerity and social costs of potentially ineffective and inefficient in-service training (Huey, 2018).

## 5.4 Summary

This section summarises and discusses the main issues and identified research gaps in the police education literature. More specifically, there are five issues related to the influence of distinct models of police training and education to be discussed here: 1) the prevailing model of police education, 2) the entry requirement of bachelor's degrees, 3) a promising alternative to the prevailing model of police education, 4) the lack of evaluation evidence for in-service police training and 5) identifying the influence of police training contents and contexts.

The first issue is about the prevalent model of police education in Anglo-American countries where the second (criminal justice as a liberal art) and fourth (police technology as a paraprofessional vocational training) models tend to operate in parallel. That is, the vocational training is provided by police academies, whereas a bachelor's degree is optional for new police recruits and experienced officers. This prevailing system has been considered, however, inadequate to prepare officers for contemporary modern societies, and an alternative approach is not yet available (Brown, 2018; Cordner, 2016, 2018).

The second issue relates to the impact of bachelor's degrees in policing. Even though a requirement for a degree to enter policing has long been advocated, the associated literature reveals mixed effects of higher education on police officers, as well as two recurrent gaps (Brown, 2018; Skogan & Frydl, 2004). The first gap pertains to the lack of research that explores how a bachelor's degree makes a difference during academy training. In other words, will graduate recruits behave differently in police training, compared to general recruits? Second, it is unclear how collegiate criminology programs influence undergraduates who are pursuing police occupations. Research has investigated the difference between sworn officers with degrees and those without degrees pertaining to certain attributes. Those investigations, however, fail to differentiate between the influence of training (i.e., the criminal justice programs) and the experience after graduation (i.e., police work; Skogan & Frydl, 2004). That is, it is not well understood whether the difference between graduate officers and their counterparts is attributable to factors in place during education or after graduation.

The third issue is concerned with the lack of evaluations on the effects of the professional model of police education (i.e., the third model). This model is considered as a promising approach for contemporary police education in an effort to better equip officers with the essential skills to deal with the complexities of policing in a modern society (Cordner, 2016, 2018). Specifically, via the combination of liberal arts and professional courses, this model is expected to combine those benefits of both a general education and vocational training and thus professionalise the police. However, this model of police education has not been established in Anglo-American countries, and thus no evaluation of it exists.

Similarly, the fourth issue - in-service training - has also been the subject of limited evaluations. This is important given the observed rise in in-service training in response to the changing and diverse social issues which the police face and to which they are expected to respond fairly and effectively (Huey, 2018).

A scarcity of research also lies at the heart of the final issue identified here, namely, the lack of research into the content of and contexts for police training (Skogan & Frydl, 2004). The influence of police education and training on cadets reflects the training contents and contexts measured. However, rarely has research identified the influential sources. There were, for example, opposite outcomes of police training impacts on authoritarianism in the two studies (i.e., Bennett, 1984; Wortley & Homel, 1995). But what is unknown is which components within the police training in those two studies contributed to the distinction.

## **5.5 Conclusion for Literature Review**

The section draws together the four themes reviewed in the previous four chapters: democratic policing, police officer receptivity to EBP, police socialisation and police education. These four issues are clearly related, but typically they have been treated independently in the research literature. This final section thus sets out how the existing theories and research that relates to these four themes informs the research questions and design of this thesis. More specifically, this conclusion section makes clear 1) the conceptualisation of democratic policing and EBP used in this thesis, 2)

the connection between these two concepts and police socialisation, 3) the connection between these two concepts and police education and 4) the influence of components within education models on democratic policing and receptivity to EBP.

Using Taiwan as a case study, this research aims to clarify what democratic policing is and how police socialisation and education might contribute to its realisation. Both issues remain hotly debated. First, democratic policing is a multi-faceted term where an agreed-upon definition is unavailable (Manning, 2010; Sklansky, 2005). Second, research on police socialisation and education has found mixed results with respect to certain police-relevant attributes, leaving some research gaps in the literature (Bennett, 1984; Brown, 2018). Third, there is little evidence on how police socialisation and education might plausibly influence the development of democratic policing. Fourth, in relation to police education, what components of police education and training are influential on the practice of democratic policing is also presently unclear. Finally, there is a lack of research linking the notion of democratic policing to that of EBP receptivity. The remainder of this section elaborates upon these five points.

Democratic policing is conceptualised as the relationship between HR and police use of force, which for the purposes of this thesis is further represented and replaced by three components: adherence to HR, morally sound decision-making and an absence of PJ. Because this research explores the conceptualisation of democratic policing, there is little reference related to whether the conceptualisation is justifiable or not. The justification, however, can be tested by assessing construct validity, a test that ascertains to what degree a research instrument measures what it claims to be measuring (Bollen, 1989). More specifically, it is of concern here whether those three dimensions that claim to reflect democratic policing measure what they purport to measure. Technically, will those three dimensions of measurement specified in a given model show sufficient construct validity?

The second theme, police socialisation, paints a picture whereby police recruits eventually assimilate themselves into the police organisation via four phases. Those phases are, however, not discrete but interdependent of one another, where

personal character, academy training, field training and culture interact. Moreover, the handful of available longitudinal studies on police socialisation suggest that the effects of each phase are content- and context-dependent. That is, the various effects that a phase (e.g., academy training) exerts on recruits attitudes and behaviours are attributed to both the training content and contexts investigated in particular studies.

To effectively capture the influence of police socialisation, the applied research design has to cover both the process of police socialisation and the progress for relevant comparison groups. Few studies have achieved this. On the one hand, the research should track police recruits across the anticipatory, introduction, encounter and metamorphosis stages of police socialisation so as to clarify the source of influence. On the other hand, the inclusion of comparison groups is a powerful method for examining the effect of variables other than those of interest, thereby helping in ruling out alternative explanations (Campbell & Stanley, 1967). Those requirements imply that the appropriate research design has to be an (quasi-) experimental design that covers the four stages of police socialisation with use of a suitable control group. However, there has been little research with such a rigorous design in the field of police socialisation, particularly in Asian settings (Charman, 2017).

The third reviewed theme, police education and training, unveils several research gaps in the literature. First, despite calls for police education to be degree-based, there has been little research investigating whether a bachelor's degree has a meaningful difference in police training or not. This question is two-fold. The first question is related to graduate recruits in academy training. Will academy training exert different impacts on graduate recruits, compared to general recruits? The other question relates to the impact of criminal justice programs on prospective police officers. Although whether graduate officers perform differently from colleagues or not has been given increasing attention in Western countries, few studies have evaluated the impact of collegiate programs on prospective police officers. To date, most research has investigated the difference between graduate officers and their colleagues in terms of certain attributes, such as cynicism or openness. The

conventional methods used in such studies, however, are not sufficient to reliably show whether those differences are derived from the collegiate programs (before graduation) or factors after fieldwork (Brown, 2018).

The second question lies in the criminal justice as a professional education. Although there are four main modes for police education, the professional model has not been well established in Anglo-American countries (Cordner, 2019; Sherman et al., 1978). Meanwhile, while this model is proposed as a promising alternative to prepare the police for modern societies, it is of great interest to look into the efficacy of this model.

The third concern relates to the absence of evaluations on the impact of in-service training. It is proposed that due to potential economic and social costs of ineffective in-service training, little research has evaluated in-service training (Huey, 2018). However, it is crucial to train and equip police officers in a timely manner with knowledge and skills via in-service training so that they are able to respond to the increasingly diverse society in which they are mandated to operate. The lack of in-service training evaluation is all the more surprising, considering that police officers who undergo in-service training often take influential positions or exert more power after training.

The fourth implication is about the training content and contexts. Obviously, police education models that comprise various education objectives, curricula and training contexts bring about distinct impacts on students/recruits. However, few studies have identified those components of police education and the impacts incurred accordingly. Moreover, it is surprising that little research has covered two or more education models simultaneously so as to evaluate the overall impact of different education models on recruits and to identify the influence of particular education components.

Concerning the last theme, EBP, the research gaps are similar to those found in democratic policing. Initially, as research related to EBP receptivity has been carried out in Anglo-American countries, little is known outside those countries. This leads to the concern with the EBP receptivity of Taiwanese police officers and how it is shaped in the process of police socialisation, particularly in police education.

Another concern with EBP receptivity is the latent structure underlying this concept. Although police officers showed little understanding of EBP and the use of research evidence in routine work (Telep, 2016), they were, however, for the most part open to and supportive of the use of research evidence in policing. Moreover, previous studies primarily investigated police officers' specific knowledge of EBP. It is thus interesting to explore how police officers think about EBP - the psychological measurement of EBP receptivity. It would be practically useful to develop a scale that measures the attitude towards EBP so as to see if there were patterns that underpin police officers' thinking on research evidence.

Finally, there is a lack of research that connects democratic policing with EBP. Although police should be fair and effective in democracies, the relationship between these two concepts has been given little attention. Drawing on the fairness-effectiveness framework, outlined in Chapter 1, this thesis will explore how these two critical concepts of democratic policing correlate. That is, it will investigate how the relationship between HR and use of force is associated with police officer openness to research evidence.

In summary, the research presented in this thesis is concerned with two concepts – democratic policing and police officer receptivity to EBP – and how these two concepts are realised (if at all) in the Taiwanese context through the process of police socialisation in general, and police education in particular. After reviewing the relevant literature in the past four chapters, this research has identified several unresolved issues and research gaps. They include the construct validity of democratic policing, the content- and context-dependence of police socialisation, the evaluation of two modes of police education (criminal justice as a liberal art and as a professional education), the impact of particular components of police education on democratic policing and EBP receptivity, the influence of the bachelor's degree in academy training and psychometrics of EBP receptivity. These research gaps are addressed in this thesis, thereby contributing new knowledge to the field. More specifically, these issues are recast and presented as research questions in Section 7.1.

## **Chapter 6 On Taiwanese Police Education**

This chapter discusses the issues of police socialisation and education in the context of the research site for this thesis - Taiwan. It provides readers with an overview of Taiwanese policing with regard to history, modernisation and organisation. It also shows how the structure of Taiwanese policing might affect recruits in the metamorphosis stage of police socialisation. Details are also provided on Taiwanese police education pertaining to training contents and contexts. These details are intended to help connect the potentially influential sources in the introduction phase (as identified in previous research) with the targeted programs at the Central Police University (CPU). The details of CPU are then compared to the National Chung Cheng University (NCCU), from where the comparison group in this thesis is derived. This comparison will help set the scene for factors that may be responsible for any observed differences in outcome variables measured in this thesis and reported in subsequent results chapters.

The first section of this chapter is a brief history of Taiwanese policing and its modernisation. As little research has studied Taiwanese police organisation and culture, these introductions lay the basis for how Taiwanese police work and organisation might influence police officers. The second half of this chapter examines the objectives, curricula and campus experiences at CPU, compared to NCCU.

### **6.1 Taiwanese Policing**

This section will introduce the history, modernisation and organisation of Taiwanese policing and background factors that contribute to these issues. As Taiwan has experienced a political transformation from authoritarianism to democracy, it is helpful to understand the political, economic and social background that contributed to this transformation. Moreover, these understandings will help readers make sense of the distinct Taiwanese style of policing - a largely European continental policing



model, characterised by a highly centralised system and supplemented with the predominately Japanese policing model of numerous mini-police stations located throughout Taiwan's jurisdictions (Cao et al., 2014).

In many ways, Taiwanese policing is similar to the European continental style of policing, since its current organisation is primarily inherited from the "police state" system that characterised the Japanese empire; Japan having occupied Taiwan between 1895 and 1945 (Ts'ai, 2009). This police system imitated the policing models of several Western European countries (most notably Germany), albeit tailored to the Chinese culture (as will be described shortly). Even after the end of Japanese rule, Taiwan largely adopted this system until martial law was abolished in 1987.

Historically, the development of Taiwanese policing is divided into two phases that correspond to before and after the 1990s: the military-led and the professionalism-led stages, respectively (Chen & Chang, 2013). This division is also characterised by the appointment of police chiefs. The former stage covers the years between 1945 and 1990, where police chiefs were military generals. In practice, this amounted to the police service merely being an extension of the Taiwanese military. This was also reflected in the perceived mission of the police at that time, that of an intelligence-led system centred on surveillance of the public and upholding national security (Martin, 2006).

To fulfil this mission, Taiwanese police at the time were empowered by martial law to restrict civil rights such as private correspondence, religion, free speech, free assembly and the right to petition and to give academic lectures. Moreover, normal judicial procedures were prohibited such that all criminal cases were tried in military courts (Cao et al., 2014).

The features of Taiwanese policing during martial law stand in stark contrast to that which characterised the so-called professionalism-led stage, in which high-ranking posts were held by police officers who underwent police training, had long been involved in police work, and were hence familiar with police business. This stage saw laws protecting civil rights enacted. In 1988, for example, the Assembly Law was promulgated, signalling for the first time in history that Taiwanese assembly

rights are protected. Another example is the replacement of the Law for the Punishment of Police Offenses in 1991, which had been criticised for the violation of HR by authorising the police to arrest, prosecute and punish offenders involved in misdemeanours without judicial review. In particular, the Police Power Exercise Act enacted in 2003 binds Taiwanese police operations to strict principles of legal reservation. The act regulates police organisations and individual officers by listing the powers the police are entitled to exercise and due processes to which they must comply (Chu, 2009). These steps can be seen as ushering in the police's shift towards a more democratic model of policing in Taiwan (Chen, 2010).

The abovementioned transformation of Taiwanese policing from a quasi-military organisation to that of a professional police force was driven by numerous political, societal and economic factors (Chang & Sun, 2014). Politically, the election of the long-term opposition party (Democracy Progress Party, DPP) in 2000 brought with it strong opposition to the ruling party's (Kuomintang, KMT) grasp of and influence on the police. The DPP thus managed to maintain the political neutrality of the police and the constraints on police power by enacting and implementing new laws (Choi, 2015). Meanwhile, another contribution was the relentless public demonstrations that took place from the late 1970s onwards, fighting for broader political participation (Cao et al., 2015b). Those demonstrations caused serious confrontations between the police and the public on a daily basis, especially in the years following the abolition of martial law.

Socially, increasing diversification in Taiwan was, arguably, associated with increases in the crime rates in the post-marital law era (Chang & Sun, 2014). The police recorded crime rate climbed dramatically from 42 cases per 10,000 residents in 1987 to 89 cases in 1998 (Cao et al., 2014). Together with reductions in police powers, the police struggled bitterly with those problems and thus needed to find new means and approaches to deal effectively with rising crime levels.

Economically, the gross national product (GNP) of Taiwan increased by approximately 150 fold, from US\$ 154 in 1951 to US\$ 22,530 in 2016 (National Statistics Taiwan, 2018). The rising living standards meant the police were increasingly expected to provide a more efficient and effective service to the public.

Taken together, these factors, political, social and economic in nature, provided the stimulus for reform in Taiwanese policing, as described below.

### *Modernisation of Taiwanese policing*

The late 1970s marked the start of modernisation in Taiwanese policing as part of a raft of reforms initiated by the government to respond to the changing dynamics in Taiwan (Chen & Chang, 2013). The reforms implemented by the commissioner Kong Ling Cheng are considered still to be the largest scale reforms to have affected the Taiwanese police in terms of comprehensiveness and organisation (Guo, 2001). Moreover, these reforms are widely considered to be ground-breaking and laid the foundation for the subsequent creation of contemporary Taiwanese policing.

Cheng's proposals focused on three dimensions: 1) improving the relationship between the police and the public, 2) modernising the police and police operation and 3) enhancing police morale and discipline. The first dimension focused on developing better relationships between the police and the public by broadening officers' engagement with communities such as joining village meetings and providing good quality responses and interactions when cases are reported to the police. The second change implemented by Cheng was arguably the most influential in terms of its effect on police operations (Chang & Sun, 2014). It consisted of three themes: incorporating routinely used technologies (such as police radio systems, coordinated case report systems across jurisdictions, automobile patrol) into command and control centres and police stations, re-organising police forces and centralising personnel allocation and adopting new shift systems. These innovations were introduced mainly from observations of American policing. In particular, the centralisation of police stations and automobile patrol were efforts to imitate the American policing in the reform era, which was characterised by centralised police organisations and rapid response to calls for service (Guo, 2001; Kelling & Moore, 1988). The third change implemented by Cheng focused on internal affairs such as police education, wellbeing, discipline and promotion processes.

Despite Cheng's efforts, challenges were encountered in the merging and re-allocation of police stations. These measures were considered radical or even threatening to the fundamentals of Taiwanese policing. These measures finally were

halted and led to Cheng's stepping-down in 1980 (Chen & Chang, 2013). Nevertheless, part of the structure and changes introduced by Cheng have been retained, leading to contemporary Taiwanese policing being a mixture of Japanese and American policing.

### *Taiwanese police organisation*

The Taiwanese Police is centralised into a single unit – the National Police Agency (NPA) – with 20 city/county-level police forces. NPA is the highest institution of police under the Ministry of the Interior (MOI), in charge of commanding and supervising police forces and police operations nationwide. Its core function is to determine police business such as police ranks, education, uniforms, police mandates and the draft and implementation of police ordinances and strategies (Organisational Statute of National Police Agency, 2017).

Locally, police forces at city/county-levels follow a three-tiered design, namely, headquarters, precincts and stations. The headquarters is held liable by both the local government and NPA. Under each of the headquarters sits the precincts, established in accordance with administrative jurisdictions. The lowest level is the police station - the basic operation unit. A large station in a metropolitan city may be assigned around 50 police officers, whereas a small one located in the countryside would typically contain less than 10 officers. Recent estimates are that there are 1,600 paichusuo (stations) and fenzhusuo (mini-stations) located throughout Taiwan (NPA, 2018). Each officer within these police stations would be assigned to a Jing Qin QU (operational beat), which is decided by the size of population within it (Police Duty Act, 2018).

The authority of the NPA was eroded following democratisation. After 1989, several local magistrates refused the assignments of commissioners appointed by the NPA and MOI so as to gain more control over local police administration. Their effort resulted in the ruling by the Council of Grand Justices that the NPA and MOI concede some of their personnel appointment powers to the local governments. In addition, the passing of the Local Autonomy Statue in 1999 entitled the local executives the power to veto the appointment of local police commissioners (Cao et al., 2014). Moreover, the police budgets, which were once controlled by the parliament, are

now regularly subjected to audit and reviewed by the local councils. One consequence of this power shift from central government to local councils has been that police forces now need to pay greater attention to and respond to the needs and concerns of the local area.

Although Taiwanese police is no longer an extension of the military and is constrained by the rule of law, its organisational culture is characterised by strict discipline, obedience to authority, conservatism, formalism, hierarchy and rigorous performance evaluation (Cao et al., 2015b; Lin, 1999; Ling, 2012). Obedience to authority, for example, is closely related to the centralised and hierarchical organisation of NPA that withhold the administrative power of major decision-making. Hierarchy is exemplified in the police departments that operate in a paramilitary manner and stress a superordinate-subordinate relationship. Moreover, formalism refers to police officers' or department's excessive concerns about forms of strategies and plans shown to the public rather than the content and implementation of these strategies and plans.

## **6.2 Taiwanese Police Education**

This section now turns to the development and controversies related to Taiwanese police education, as it is a system distinct from police academy training in the West. Taiwanese police education is a centralised two-track system, comprising the Taiwan Police College (TPC) and Central Police University (CPU), both of which award degrees to recruits upon graduation. TPC delivers a vocational training similar to the police academy training in the West while CPU provides a professional model of police education where liberal arts, professional modules and vocational training are mixed and delivered. Partly influenced by Confucianism, this system has been embroiled in several controversies relating to competency-based exams and the sequence of qualification, training and employment. These are discussed shortly.

The current structure of Taiwanese police education dates back to the Qing Dynasty in 1901, which was strongly influenced by German and Japanese policing models, as described in the preceding section (Cao et al., 2014). It is a two-track system,

comprising entry-level police and police cadre education. This system was adopted in Taiwan after its independence from Japanese colonisation in 1948. The entry-level police training entails a two-year training course at the TPC under the administrative jurisdiction of the NPA. The cadre police education relates to supervisor education at the CPU affiliated with MOI.

Influenced by Confucianism, police officers' educational degrees are closely connected to the level of responsibility to be assumed in Taiwanese policing (Cao et al., 2014). And they are thus linked to ranks as well as police qualification to be examined by civil exams. An associate degree is awarded after a two-year program at TPC, and after passing the civil exam (discussed later), the starting rank is at rank two of police officer (Table 6.1). By contrast, CPU awards bachelor's degrees, and the initial level for CPU cadets after winning a place through civil exams begins with rank four of police inspector.

**Table 6. 1** The Ranks of Taiwanese Police

Police superintendent	General
	Rank one
	Rank two
	Rank three
	Rank four
Police inspector	Rank one
	Rank two
	Rank three
	Rank four
Police officer	Rank one
	Rank two
	Rank three
	Rank four

*Source:* Adopted from Cao et al., 2014, p 61.

Unlike police academies in the West, Taiwanese police recruitment tilts towards liberal arts, especially at CPU. The education model in Taiwan puts liberal arts and paramilitary training together. Besides practical skills and essential knowledge for law enforcement, CPU simultaneously delivers liberal education in areas such as psychology, criminology and criminal justice. CPU thus adopts a model of

professional education that consists of 13 departments such as police administration, criminal investigation, forensic science, traffic science and fire science (Lee, Chen & Wu, 2013).

TPC provides more in the way of vocational training, preparing street-level officers to work in the field. Those officers could be promoted above inspector level only if they undertake another two-year (promotion) program at CPU and pass another civil exam. In brief, CPU, the highest police education and academic institution in Taiwan, holds four-year programs for high-school graduates, two-year promotion programs for rank-and-file officers, advanced programs such as doctoral degrees, professional programs such as personnel management and special-exam programs. The last one will be introduced later.

Another important feature of Chinese culture is the competency-based assessment – qualification by civil exams. Because these exams are based on pen-and-paper tests, the qualifying method raises controversies when applied to police qualifications. The hottest debate is that the sought-after qualities for police officers cannot be reliably tested via pen-and-paper exams. As the recruitment sequence follows training, selection and qualification (exam), the final step, exam, is factually considered as the vital point across the CPU education. The competency-based assessment thus directs police cadets' attention and resources to the exam. The situation is worsened by few requirements for the public to take the exam. The exam thus becomes fiercely competitive in the Taiwanese society where the so-called "Iron Rice Bowl" - job security - is considered crucial (Cao et al., 2015a).

Another issue concerns the fight for equal opportunities to gain police qualifications by those graduates who do not undergo the TPC or CPU education (Cao et al., 2015a). It has been argued that police education should not be monopolised by the CPU and that the recruitment sequence should shift to qualification, training, selection and employment. In response, the CPU initiated a two-year program for citizens who pass civil exams with a minimum requirement of a bachelor's degree or above in 2012. Its establishment (called the special-exam program hereafter for the avoidance of confusion) could be viewed as the significant milestone for civilianisation of police education.

Other critical issues around police education in recent decades include the proposal to merge CPU and TPC, the different sworn-in levels for cadets from those two police schools, and the recruitment process - training, selection and qualification sequentially (Chuang, 2004; Lee, 1999; M. Liu, 1998, 1999; Y. Liu, 2010; Tsai, 2010; Wu & Su, 2010). The first two issues are products of history. The two-track system was initially designed to effectively control high-ranking officers over a geographically broad nation under chaotic circumstances in mainland China in the 1920s (Chen, 2010). However, this system causes more questions and problems than advantages in Taiwan. For example, the authority conferred on street-level officers and inspectors is not based on either work experience or performance, but rather on the type of education they have undertaken. That is, those who graduate from the four-year program with little experience in police work are appointed as inspectors, whereas those street-level officers have little opportunity for promotion (Cao et al., 2015b).

The last issue aforementioned - the sequence of training, selection and qualification - is even more complicated. Currently, police cadets are first trained and selected at police schools and finally qualified by civil exams before taking up their occupation. Alternative processes are, however, limited. One suggested amendment is to shift the sequence to qualification, training and selection, which is the sequence for special-exam programs. The suggestion, however, is considered threatening to the position of police schools (Wu & Su, 2010). That is, if new recruits gain qualification before enrolment at CPU, it is unnecessary for this university to award degrees as essential requirements for qualification. Then this university is degraded as police academies or training centres rather than a higher education institution.

### **6.3 Content and contexts at CPU**

This section introduces the CPU campus where surveys were undertaken as part of this doctoral research. The focal point here is to situate the issues reviewed in C5 (e.g., influential sources in police education, lack of evaluation studies of collegiate programs in policing) in the Taiwanese settings of police education. In other words,



this section describes CPU programs in the context of the reviewed models of police education (C5) and examines the training content and contexts within each program by detailing the stated educational objectives, curricula and daily management at CPU.

As the other police school - TPC - operates a skill-training model for street-level police officers, it is not examined in this research and so is not discussed further. Before going into details, it is worth reminding the reader that there are four models of police education discussed in C5. The CPU runs two of these models (criminal justice as a professional education and police technology as a paraprofessional vocational training), via three programs (i.e., cadre, promotion and special-exam program). The professional model comprises the cadre and promotion programs, whereas the vocational training includes the special-exam program.

### *6.3.1 Objective*

The stated objective of the CPU is to provide an inclusive program that cultivates police professionals. Described in the education mission: ‘... the CPU education not only works as well as the college education but also concentrates on cadre cultivation ...’. In the education philosophy: ‘... CPU balances the professional education, liberal arts and character education ...’. In light of these claims, this school is obviously a professional education for police officers (CPU website, 2017).

According to the four models of police education by Sherman (discussed in Section 5.3; general education, criminal justice as a liberal art, criminal justice as a professional education and police technology as paraprofessional vocational education), this school is close to the third category, which emphasises descriptions of professional and policy issues, rather than the second, which centres on theoretical explanations of deviance and social control. And to some degree, CPU tilts toward the fourth model, which stresses vocational and applied skills (Sherman et al., 1978). However, in view of the objective coverage, CPU is ambitious and inclusive. It claims not only to develop those qualities anticipated by liberal arts and

skills required by occupations but also to cultivate ‘characters (personal qualities)’ as stressed by traditional Chinese education.

Considering the fact that CPU is under the administrative jurisdictions of the MOI, that recruits are state-sponsored, and that its presidents are posted by police practitioners rather than academics, this university actually emphasises police education more than academic research (Cao et al., 2014). In other words, it is part of the administrative bureaucracy, aiming to produce officers to fit the needs of police organisations.

### *6.3.2 Curricula*

Irrespective of the objectives, the impact on police cadets is in effect, primarily determined by curricula and campus experience. I will introduce the curricula of CPU here and discuss the campus experience in the next section. This section will introduce the eight components of CPU curricula and place particular emphasis on ‘jingshen education’ (similar to character education) and military training as they are influential and comparable to training contents in the West. Moreover, attention is given to the special-exam program as its curriculum is different from the other two programs (cadre and promotion program).

Curriculum types span from abstract and intellectual perspectives to vocational and pragmatic orientations following the four education models reviewed in Section 5.3. They are fulfilled by liberal education on the one end and by vocational or skill training on the other (Sherman et al., 1978). However, CPU attempts to transcend the binary distinction of liberal versus vocational education by combining them and concentrating on character cultivation. The underlying assumption is that a sound character determines and improves cadets’ qualities that in turn can lead to more intellectual and skilled performances as police officers. This assumption is highlighted by the time allocation of curriculum types (Table, 6.2; CPU education schemes 2013, 2015). Other than intellectual aspects covered in academic subjects and practical training such as skill training and internship, a large portion of curricula is taken over by the jingshen and behaviour education.

**Table 6. 2** Time Allocation of Curricula by Program

Typology	Cadre program (four-year)		Promotion program (two-year)		Special-exam program (two-year)	
	Hours	Percent	Hours	Percent	Hours	Percent
Academic subjects	2304	45.9%	1296	49.92%	1224*	40.32%
Jingshen education	1004	20%	504	19.41%	272	8.96%
Skills training	616	12.27%	288	11.09%	442	14.56%
Military training	248	4.94%	120	4.62%	170	5.6%
Internship	520	10.36%	260	10.02%	800	26.35%
Student club (optional)	256	5.1%	128	4.93%	128	4.22%
Physical education	72	1.43%	0	0	0	0
Behaviour education	Full day care		Full day care		Full day care	

\* Subjects in this program relates to specialised knowledge such as police organisation, police businesses and vocational skills such as procedures of traffic accident handling, procedures of police duties.

The curriculum at CPU consists of eight categories: 1) academic subjects, 2) jingshen education, 3) skill training, 4) military training, 5) internship, 6) scientific experiment, 7) student club and 8) physical education (CPU education scheme, 2013, 2015). The la

st three categories will not be discussed here because they are also delivered at NCCU, and so are unlikely to have a differential impact on police cadets and undergraduates across the two universities.

#### *Academic subjects*

Academic subjects consist of liberal arts and professional modules. Liberal arts' areas include Chinese, logic, interpersonal relationships, emotion and stress management, technology and life, Taiwanese movie and fiction, love and marriage, and migration and multi-culturalism (CPU education schemes 2013, 2015).

Professional modules vary depending on departments. The administration police departments, for example, comprises 16 compulsory credits covering topics such as criminology, police businesses, police ethics, crime prevention and police, crime scene and evidence management, and police and public safety, as well as 27

optional credits in areas such as civil law, police and social work, police personnel, youth delinquency, comparative policing, criminal psychology, police operation, police organisation management, and criminal investigation. Each department specialises in its own field. For example, the criminal investigation department focuses on psychology, crime scene investigation, criminology, criminal photography and telecommunication surveillance.

The time allotted for academic subjects is 2304 hours (45.9%, Table 6.2) with a liberal art to professional module ratio of 1 to 9.5 (Chang 1998; Chang, 2006). Overall, regardless of compulsory or optional credits, both the content of modules and the proportion of general to specialised modules indicate a strong orientation towards professional education.

### *Jingshen education*

'Jingshen education' is set to raise the standards of morality and behaviours in recruits, as described in the CPU education schemes (2013, 2015) '... by following the motto of honesty, jingshen education aims to engrave the core concepts of CPU - nation, justice and honour - onto cadets so as to cultivate their correct philosophy'. In effect, this education is delivered by placing recruits under detailed hierarchies of student brigades, which is similar to the depersonalisation where recruits think and interact based on ranks and status. The following section will introduce how this education is enforced via the Student Corps (CPU Code of Conduct of Student Corps; CPU Specifications for Intern Student Brigade).

Jingshen education comprises behaviour education and student activities. Behaviour education concerns learning police-appropriate attitudes, decent behaviours and gestures and the way to interact with people under different circumstances (CPU education schemes 2015). It is also designed to cultivate desirable characteristics via daily routines under close attention. On the ground, it is carried out by instructors who are qualified police officers without field experience and involves the minute control of recruits' daily activities such as bedtime, morning and evening roll calls, dress code and dormitory checks (CPU Specifications of Recruit Seniority).

Behaviour education is carried out by the Student Corps, an organisation usually enforced at military academies but not ordinary universities (Regulation of CPU Organisation). The corps has three tiers, consisting of brigades, groups and squadrons. Functionally and practically, the brigade and the group overlap considerably. A squadron comprises all recruits enrolled on each program per year. It is managed by a captain, a chief counsellor and three or four element commanders, all of whom are all called instructors here (CPU Principles of Staffing for Student Corps). They are responsible for the daily routine management of recruits, skill training and military training. There are two squadrons in the two-year programs and four in the four-year programs. The squadrons constitute a group and a brigade (overlapped, and the special-exam program is excluded) under the commands of a commander, a deputy commander and a group commander (Regulation of CPU Organisation). The corps works independently of academic faculties and is closely engaged in cadets' livings.

Similar to the Student Corps, an intern student corps operated by recruits is part of behaviour education and is set up for self-discipline (CPU Specifications for Intern Student Brigade). It operates in the same way as does the Student Corps but under the direct commands of instructors. Posts within the corps (e.g., intern commander) are held by the most senior recruits (i.e., the fourth-year recruits on four-year programs and the second-year recruits on two-year programs). Under the corps, there are intern squadrons attached to each cohort. The posts of the intern squadrons (e.g., intern instructor, captain) are held by recruits who are one- or two-year more senior than the recruits of the squadrons they hold the posts. Only the first-year recruits have no opportunities to post those positions, and candidates for those positions are selected and decided by instructors.

The business for which intern instructors are responsible is the same as that of instructors and includes dormitory checks, the gathering of morning/evening roll calls and evaluation of junior recruits (CPU Specifications for Intern Student Brigade). Theoretically, such an autonomous organisation should improve recruits' self-discipline and leadership via self-management (CPU education schemes, 2013, 2015). However, this might also immerse cadets in detailed hierarchies where

recruits think, categorise and interact with each other according to seniority and status (Chiou, 2003; CPU Code of Conduct of Student Corps). In other words, this education empowers senior recruits to correct, discipline and lecture junior recruits who make a mistake or misbehave (e.g., not showing respects toward seniors by not performing salutes), placing recruits under intensive surveillance (CPU Specifications of Recruit Seniority). Coupled with the fact that recruits are required to live in dormitories five days a week, this education in effect intensively monitors recruits' daily activities and isolates them from the public.

The second element of jingshen education - student activities - comprises moral exhortations, speeches, discussion courses, designated book study and report and tutor care (CPU schemes, 2013, 2015). Tutors are academic faculties and responsible for taking care of cadets' mental and physical health. Jingshen education occupies over a fifth of the curriculum. The two elements within jingshen education are complementary to each other because behaviour education focuses on external actions while student activities channel recruits' thinking and ideas toward an ideal model of Confucius morality.

### *Military training*

Military training aims to equip recruits with military knowledge and abilities to command and act as a leader. It is performed in two fashions: before-term and during-term training (CPU schemes, 2013, 2015). The former consists of pre-enrolment training for new recruits and three-day training for senior cadets. The pre-enrolment training (two weeks for the cadre programs, one week for the promotion programs and the special-exam programs), just like those in military academies, operates under high levels of physical and mental pressure. It functions not only as screening against those candidates incapable of accommodating future training but also as a rite of passage into group identities or belonging. Because of the strength requirements, a certain number of new recruits drop out. The three-day training is carried out right after the opening day each year. It acts as a reminder and stimulus for cadets who have just finished summer or winter vacations.

The latter – during-term training - is performed for four hours per week, and its prominence declines along with the increasing period cadets stay at CPU. It means

that the more senior recruits are, the more autonomy they enjoy (CPU Specifications of Recruit Seniority). Technically, such training includes military drills, running and swimming, occupying around 5% of all program time.

### *Practical aspects*

Besides academic subjects, jingshen education and military training, the third pillar of CPU education is the practical aspect of policing, including skill training and internships (CPU education schemes, 2013, 2015). Skill training relates to the presumed needs of law enforcement in the field such as judo, marksmanship, defensive tactics and grappling, which collectively account for around 12% of officer learning diet.

The internship is another feature of CPU designed to connect police training with practice in the field. During two summer vacations (in the second and third academic years), cadets are assigned to police stations and professional units (e.g., forensic science division, traffic brigade) according to the department with which they are affiliated. The length of each internship is around six weeks. During the internship, an officer is assigned to a cadet as their instructor (similar to FTO) and is responsible for teaching practical skills of law enforcement and evaluating recruits' performance and appropriateness into police occupations.

It is noteworthy that the internship is carried out in the second and third summer vacation (i.e., the end of the second and third year) for the cadre program, as opposed to the end of academy training in the West. That means, recruits in the cadre program experience internship until the end of the second year. For the special-exam program, there are four two-month internships evenly distributed over the two-year program, which will be discussed in the following section.

### *Special-exam program*

The special-exam program is designated for citizens with a bachelor's degree who pass civil exams of police qualification (CPU Training Plan for Recruits of Special-exams). This program differs from the promotion and cadre programs because it is considered as a pre-service training. As discussed previously, recruits on this program qualify first and then take training and selection, as opposed to the other

two programs whose recruits qualify after graduation. Therefore the training for this program is vocational.

As illustrated in Table 6.2, in spite of similar contents of curricula, the time allocation of internship for this program doubles in comparison to the other two programs. In addition, skill training and military training account for a higher percentage of the curriculum. This feature is also illustrated in how the internship operates. During the internship, interns are assessed by practitioner-instructors, and incompetent performance rated by the evaluators may result in the recruit failing their police qualifications. In contrast, the evaluations carried out for the internship of the other two programs are not considered among the criteria for graduation.

Since these recruits have already gained police qualification, the regime for them at CPU is freer than it is for those in the other two programs. For example, they enjoy an evening off during weekdays per week. Also, they enjoy more autonomy, and jingshen education is less strict. Nevertheless, they are still situated within a hierarchical and isolated campus.

### *6.3.3 Campus experience*

Campus experience refers mainly to extra-curricular activities in which police cadets take part. At universities, exposure of students to diverse groups is positively associated with social intelligence and responsibility (Park & Chang, 2015). By contrast, campus experience of CPU is characterised by hierarchy within organisations, isolation from the public and homogeneity in mindset. This campus experience is related to the idea of 'total institutions' (Goffman, 1962), where recruits study and reside, isolated from the wider community, primarily supported by jingshen education and military training at CPU.

As described above, jingshen education intensively monitors recruits' behaviour and thinking in the campus where they are isolated from the public five days a week. Coupled with military training where physical exercise, chain of command and drills are enforced, the CPU is not distinguishable from Western academies. Specifically, the campus experience at CPU is similar to the stressful training in police academies



that stress obedience, uniformity and submission in a paramilitary training context (as discussed in C4). Even though CPU claims to have recruits internalise core concepts (e.g., justice, honesty), the approach employed to exert influence is not discernible from that practised in Western academies to shape integrity and solidarity of new recruits (Chappell & Lanza-Kaduce, 2010; Conti & Doreian, 2014).

For example, the way of stripping away civilian identity and consolidating solidarity in academy training (e.g., chain of command, humiliation and mental and physical pain) is also exercised in the pre-enrolment and during-term military training at CPU. Moreover, the passing of the pre-enrolment training announces that new recruits are officially accepted by CPU. This process is similar to a series of degradations as the rite of passage that academy training uses to test new recruits (Conti & Doreian, 2014). Jingshen education is another case in point, where recruits are depersonalised via strict hierarchies as often operates in the Western police academy training (CPU Specifications of Recruit Seniority). The depersonalisation shapes the ideology of deference to authority and in-group identity, often leading to 'us versus them' mentality observed in academy training (Catlin & Maupin, 2004).

Moreover, the objective of jingshen education to establish 'correct' philosophy is, to a great extent, indoctrination. Claiming a single, absolute value is dangerous and contradictory because it is vulnerable and unfeasible in modern societies where diverse or even conflicting values co-exist (Conti & Nolan, 2005). Furthermore, as discussed, the way that jingshen education enforces the 'correct' thinking is not established via critical reflection but deference to authority and solidarity to peers. These ways of cultivation might remove diversity of thinking among recruits, channel them towards homogeneous mindsets and weaken their capacities to handle dilemmas that will be encountered on a daily basis.

#### *6.3.4 Summary*

The three elements of the educational objectives of CPU - policing academic, vocational training and character education - are seemingly supported by corresponding curricula: policing academic by academic subjects, vocational training

by skill training and internship and character education by jingshen education and military training. In light of the objectives and curricula delivered, the CPU program is based on a professional model of education that aims to bring together liberal arts, professional modules and vocational training. However, the part of the curriculum to cultivate sound personal qualities (i.e., jingshen education and military training) is not distinct to stressful training in police academy that exerted negative influences on recruits in previous research. Moreover, these curricula seem to contribute to a campus experience at CPU characterised by hierarchy within organisations, homogeneity in mindsets and isolation from the public.

According to the curricula composition, the three programs operated at CPU belong to two models of police education reviewed in C5. The cadre and promotion programs suit the criminal justice as a professional education model while the special-exam program is the police technology as a paraprofessional vocational training model. These links between programs at CPU and police education models reviewed in Section 5.3 allow those research gaps identified to be explored in CPU. First, little previous research has looked into the impact of professional education, represented by the cadre program. Second, it is unknown whether a bachelor's degree makes a difference in police training. This gap in knowledge can be examined by looking at the special-exam program in which graduate recruits undergo academy training. Finally, the examining of the promotion program responds to the gap around the role of in-service training, since via this program street-level officers can be promoted to police administrators or chief. More discussion about how this thesis takes advantage of recruits at CPU as the sample to bridge those research gaps will be presented in C7.

#### **6.4 Comparison with the Department of Criminology at NCCU**

This section introduces the comparison group – the collegiate criminology program in the Department of Criminology (DoC) at National Chung Cheng University (NCCU) and compares it with the cadre program at CPU. The setting up of a comparison group allows this research to control the effect of extraneous variables – the influence of factors other than the difference between these two programs in this

case. To do so, this section will compare the two programs regarding objectives, curriculum, students' and recruits' qualifications and academic performance, faculties and campus experience. Noticeably, those characteristics in common at the two universities, such as teaching approaches, physical education will not be discussed here.

### *Objectives*

NCCU is an institution of higher education on the list of top 20 Taiwanese universities. It consists of five schools, and the DoC is part of the education school. This department aims to educate the professionals in crime prevention based on theories, practice and daily application (NCCU website, 2017).

In effect, it is anticipated that undergraduates in this department will join criminal justice institutions such as correctional officers, counsels in prison, probation officers, juvenile probation officers, juvenile investigation officer, prosecutor investigator and police officers, at schools such as civics teachers and in social welfare institutions such as social workers (NCCU website, 2017). The difference of objectives between DoC and CPU is the range of occupations for which they prepare students and cadets. The contrast is equivalent to the disparity between the second and third models of police education in Sherman's categories (1978).

### *Comparability*

Comparability between experimental and comparison groups needs to be addressed before moving onto curricula and campus experience. Here, I considered comparability based on academic performance. As a university rated in the nation's top 20, NCCU admits students who perform competently in national exams of university entrance. In comparison, new recruits on the cadre program at CPU are equivalent to or even better than their NCCU counterparts. This situation is caused by the fact that economic recessions in Taiwan decades ago have pushed excellent high-school graduates to CPU (Liberty Times Website, 2018). This is because recruits enjoy the privilege of tuition waiver and stipends and advantages in civil exams for police qualification. Hence, typically more than half new recruits give up their admittance to the top 10 universities and enrol at CPU instead. In short, the

comparability concerning academic performance is appropriate between new undergraduates and new recruits.

Students' motivation is another factor that affects how education changes them (Wu et al., 2009). Police recruits are motivated by good salary and fringe benefits and parental influence (Tarnng et al., 2001). However, their motivations might be twisted during the process in order to win a place in civil exams. As discussed previously, the exam is fiercely competitive. This leads to recruits' energy and resources directed toward preparing for the exam rather than the development of professional knowledge or qualities cultivated by liberal arts or professional education. What makes matters worse is the miserable situation that police recruits will encounter if they fail the civil exam. Once it occurs, they have to pay back the waived tuition and stipend and to fulfil the originally exempted obligation of military service for one and half year. This civil exam is intimidating and may twist their learning motivations.

By contrast, although no research has investigated the motivations of undergraduates in DoC at NCCU, without the same pressure, they are free from the extraneous pressures placed on CPU recruits and thus might have more diverse motivations. This implies what they acquired from liberal arts and academic subjects could be better merged into their lives, incurring expected cognitive changes and quality development (Pascarella & Terenzini, 1991).

### *Curricula*

There are major differences in the respective curricula of the cadre and criminology programs. Table 6.3 illustrates that the total amount of time delivered by the cadre program (4692 hrs) is around double of that delivered by the criminology program (2448hrs). The variation is accounted for by jingshen education (comprising behaviour education and student activities), military training, skill training and internship in the cadre program. The jingshen education and military training collectively account for extra 1180 hours, and skill training and internship take up another extra 1136 hours.

**Table 6. 3** Comparisons between CPU and NCCU

<b>Institutions</b>		<b>Central Police University</b>	<b>National Chung Cheng University</b>
Features/Program		Cadre program	Criminology program
Objective		Officers in police organisations	Officers in criminal justice institutions
Model		Criminal justice as a professional education	Criminal justice as a liberal art
Curricula	Academic subjects	2304	2376
	Jingshen education	1004	N/A
	Skill training	616	0
	Military training	248	72
	Internship	520	0
	Behaviour education	Under full day care	N/A
	Total	4692	2448
Qualification		Students win admittance within the top 20 universities	Students win admittance within the top 20 universities
Motivation		Confined to civil exams and job security	Diverse
Faculty	Academic faculty	Very few with overseas degrees	Most have overseas degrees
	Instructor	In charge of daily routines, skill training and military training	N/A
Campus experience		Hierarchical, isolated, homogeneous	Open, free, pluralistic

The amount of time allocated for academic subjects are similar for these two programs. The essential threshold of credits for graduation is 132 (equating to 2376 hours) for the criminology program (DoC education scheme, 2015). Regarding modules, NCCU emphasises the criminal justice aspect rather than police science and policing at CPU. Modules delivered include criminology, criminal psychology, criminal justice policy, penology, probation and correction system, psychological counselling and social work, etc.

This criminology program suits the criminal justice as a liberal art model as defined by Sherman's (1978). This model stresses that '... a broad and multidisciplinary approach to the problems of crime and crime control can serve just as well as traditional majors to develop the general qualities of educated persons, and those qualities are expected to help them contribute to educating the police institution' (p 71). This classification is illustrated in the modules of this program which centre on behavioural and social science and concerns with explanations of human behaviours (DoC scheme, 2015).

Other than academic subjects, NCCU is a typical and free university with few behavioural constraints imposed on undergraduates such as routine management, jingshen education and dress code. Therefore, the differences between the two programs lie in jingshen and behaviour education, military training, skill training and internship. On the one hand, the extra education administered at CPU precludes recruits from taking part in extra-curricular activities and places them under intense surveillance. On the other hand, undergraduates in DoC are free or even encouraged to participate in diverse activities. This difference is related to the campus experience, which will be discussed later.

### *Faculties*

Those two programs differ in faculty composition, too. First, academic faculties constitute the backbone of DoC at NCCU, including lecturers, professors and administrators. By comparison, it is the academic staff and instructors at CPU that are jointly in charge of curriculum. The functions of the instructors at CPU have been discussed in the previous section. It is argued that their deep involvement in recruits' routine life has a significant impact on recruit socialisation (e.g., depersonalisation).

Noticeably, there is a predominant proportion of lecturers with an overseas degree at NCCU while most CPU academic faculties are alumni of that institution. It is difficult to assess the various influences brought by lecturers with/without an overseas degree, but this may reflect the closed nature of CPU.

### *Campus experience*

The aforementioned disparities between NCCU and CPU, related to the student motivation, curricula and faculty composition collectively produce different campus experiences at each institution. No matter whether the institutional objectives are of general or occupational orientation, broadly-based universities are supposed to 'inspire and cultivate the free, uninhibited and boldly inquiring mind, to foster the love of learning and knowledge for their own sake; to develop habits of employing logic, reason, and objective appraisal as the intellectual stronghold against bias and passion; to prepare, in the broadest sense, for good citizenship in a free society' (Britton, 1956, p 264). In this regard, NCCU sharply contrasts CPU. Despite liberal arts programs being delivered at CPU, the environments to breed qualities expected such as critical thinking and open-mindedness are absent there. Specifically, even though the amount of time for academic subjects of these two programs is equivalent, the extra-curricular time distinguishes and diverts them. On the one hand, police recruits are monitored and controlled by instructors in their off-module time and leisure activities. On the other hand, undergraduates at NCCU are encouraged by lecturers to develop interests, make friends from various regions and fields and participate in diverse activities. Together with the residential campus carried out at the two universities, police recruits are forced to merge into the hierarchical organisation that is isolated from the public, whereas undergraduates break down their connections with the past, and are channelled towards immersion in an open, pluralistic and free society of campus.

### *Summary*

The comparisons above show that the differences between the cadre program at CPU and criminology program at NCCU mainly lie in jingshen and behaviour education, military training, skill training and internship. Moreover, the distinct motivations, composition of curricula and faculties of these two programs reflect the different objectives for which they prepare police recruits and undergraduates. The variation in those aspects collectively contributes to the campus experience which on the one hand, is homogeneous, hierarchical and isolated at CPU, whereas on the other, is open, free and pluralistic at the NCCU. Further, NCCU is to assist

undergraduates in adapting civil societies whereas CPU is to prepare cadets for hierarchical and bureaucratic organisations. Finally, the disparities between them are expected to explain the difference, if any, observed in outcome variables.

## **6.5 Conclusion**

Democratisation after 1987 has transformed Taiwanese policing from an intelligence-led system designed to preserve the distribution of power to an agency constrained by the rule of law and responsive to the public (Brodeur, 1983, 2007; Cao et al., 2014). In terms of Taiwanese police education, however, little research has examined how police education affects the attitudes and behaviours of Taiwanese police officers, and how it might contribute to the ideals of democratic policing more generally. The review of the training content and context of the CPU reveals a university primarily interested in preparing police recruits for fitting into a hierarchical and bureaucratic organisation rather than for working in diverse and pluralistic contemporary societies.

CPU provides a professional model of police education that aims to bring together the benefits of liberal arts, professional modules and vocational training. However, this university in effect places more focus on vocational education, as shown in the time allocation of curricula. Moreover, the vocational orientation is highlighted by the inclusion of jingshen education and military training which are enforced by the hierarchical Student Corps. These elements of curricula collectively have the potential to create a campus which is characterised by hierarchy, homogeneity and isolation.

The three programs delivered at CPU align with the research gaps reviewed in Section 5.4. The cadre program responds to the absent evaluation of professional education. The changes in graduate recruits on the special-exam program address the influence of bachelor's degrees in academy training. The promotion program would show how in-service training affects police officers.

When it comes to meaningful differences between CPU and NCCU, the CPU allows for double the amount of time on curricula over a four-year program. That extra time



is used mainly to deliver jingshen education, military training, skill training and for an internship. Meanwhile, those education and training take over the extra-curricular time, the essential factor for qualities expected of undergraduates to be developed. It is argued here that this disparity distinguishes the two universities: one prepares undergraduates for open, diverse modern societies while the other prepares police cadets for hierarchical and bureaucratic organisations.

## Chapter 7 Method

This chapter covers the five research questions that guide this thesis. It also outlines the methodological approach employed here to answer these questions, covering issues of sampling, research instruments, research design and data collection. Briefly, the sample used in this study comprised six cohorts across four programs at CPU and NCCU, intended to correspond to the different police education models described in C5. The research instruments employed here include five scales designed to measure three key components of democratic policing - HR endorsement, MR and PJ levels - and police officer receptivity to EBP. The research design is longitudinal so as to cover the four phases of police socialisation. Finally, steps taken to ensure reliability and validity in data collection are discussed, such as double translation. This includes a discussion of potential sample bias caused by sample attrition, and the approach taken here to diagnose the mechanisms underlying missing data and the method used to compensate for missingness. The final section of this chapter describes the analytical strategy and how the results of this thesis will be reported.

### 7.1 Research questions

Based on a review of and identified gaps in the policing literature (see chapters 2, 3, 4 and 5), there are five research questions that will be considered in this thesis. Discussing each in turn:

1. ***How does police socialisation in Taiwan affect police officers' belief in human rights, moral reasoning, levels of prejudice and receptivity to EBP?***

Chapter 4 presented research evidence to show how each of the four stages of police socialisation (anticipatory, introduction, encounter and metamorphosis) is found to exert distinct effects on police recruits, and that

these effects can vary depending on the attributes under investigation and the contexts in which recruits are situated. Moreover, Chapter 4 also highlighted that very few studies have hitherto investigated the influence of police socialisation on democratic policing, particularly in Taiwan. It is thus unclear how these phases of police socialisation affect police recruits in Taiwan, particularly in relation to the three components of democratic policing and EBP receptivity. This question thus aims to clarify how police socialisation affects these four variables in the Taiwanese context.

**2. *How does undertaking Taiwanese police education, in comparison to studying criminology at the NCCU, affect participants' belief in human rights, moral reasoning, levels of prejudice and receptivity to EBP?***

Of the four stages of police socialisation, police education is of primary interest in this research. On the one hand, how police education influences police recruits has been a long-neglected issue in Taiwan (Section 6.2). On the other hand, there are now emerging calls in the West for new training approaches involving professional models of policing designed to better prepare recruits for policing in contemporary society. Since the Taiwanese police operate a “professional” educational model (specifically the cadre program), this research question aims to evaluate the influence of Taiwanese police education on the three components of democratic policing (i.e., belief in HR, MR, levels of PJ) and receptivity to EBP.

**3. *How does undertaking Taiwanese police academy training affect recruits with a degree, in comparison to those without a degree, in terms of participants' belief in human rights, moral reasoning, levels of prejudice and EBP receptivity?***

Whether bachelor's degrees are necessary for police officers has long been debated in American policing (Section 5.3). Research has produced mixed results. Moreover, these mixed results are further blurred by the failure in

many studies to determine whether the lack of any observable difference between graduate officers and their colleagues is attributed to police training or police work/culture (i.e., before or after fieldwork). This research question therefore aims to clarify the influence of bachelor's degrees on recruits during police academy training in terms of the three components of democratic policing (i.e., belief in HR, MR, levels of PJ) and receptivity to EBP in Taiwan.

4. ***How does undertaking Taiwanese police in-service education affect sworn officers in terms of participants' belief in human rights, moral reasoning, levels of prejudice and EBP receptivity?***

Chapter 5 indicated that very few studies have evaluated the impact of in-service police training (Huey, 2018). This research question is therefore specifically designed to address this research gap, by considering the impact of in-service training in Taiwan on the key components of democratic policing as measured herein (i.e., belief in HR, MR, levels of PJ) and receptivity to EBP.

5. ***What is the latent structure underlying EBP receptivity?***

Chapter 3 described how previous studies have investigated the specific knowledge and general understanding of EBP among police practitioners, but that few studies have attempted to tap the latent structure manifested by observable items of EBP receptivity. More research is therefore needed to probe the measurement, assessment and connection between the observable phenomena (i.e., response to items in EBP receptivity surveys) and relevant theoretical attributes (i.e., the latent structure of EBP receptivity). It is argued here that there is value in developing a scale that reliably measures police attitudes towards EBP so as to see if there are any discernible patterns that underpin police officers' thinking on research evidence.

Following the thread of research questions, the next sections will describe how this research responds to these questions through the particular samples included (Section 7.2), the research design adopted (Section 7.3), and the data collected (Section 7.4).

## **7.2 Participants**

This section describes the sampling strategy and the six cohorts used to address the above-mentioned research questions. It is worth reminding the reader that in Taiwan, police education is centralised and that there is only one department of criminology with undergraduate students. Furthermore, within the centralised police education system, there are two distinct models (comprising three programs) in operation: criminal justice as professional education (comprising the cadre and promotion programs) and police technology as a paraprofessional vocational training (special-exam program; Section 6.3). To avoid any confusion about usage of the terms education and training, the following sections will use education to describe cadre, promotion and collegiate programs, whereas training refers specifically to the special-exam program. This classification accords with the fact that the special-exam program is a pre-service training program centred on vocational training, whereas the other two programs deliver liberal arts and academic subjects, thereby placing greater emphasis on the cultivation of a police officers' character (Kratcoski & Das, 2007).

Participants for this study were drawn from police recruits and serving police officers undertaking in-service education at CPU and undergraduates studying criminology at NCCU. Table 7.1 shows the different groups that make up the study sample. There are six cohorts: 1) police new recruits, 2) cadets in the cadre program, 3) graduate recruits in the special-exam program, 4) police officers in the promotion program at CPU, 5) new undergraduates and 6) juniors in the criminology program at NCCU. Further details on each cohort are provided below.

**Table 7. 1** Sample Constituents – Model, University, Program and Cohort

<b>Model of police education</b>	<b>University</b>	<b>Program</b>	<b>Cohort</b>
Criminal justice as a liberal education	NCCU	Criminology program (4-year)	New undergraduates, Juniors
Criminal justice as a professional education	CPU	Cadre program (4-year)	New recruits, Cadets
		Promotion program (2-year)	Police officers
Police technology as a paraprofessional vocational training	CPU	Special-exam program (2-year)	Graduate recruits

First to be discussed are the four cohorts at the CPU.

- **New recruits:** These are first-year recruits enrolled on the cadre program, most of whom have just graduated from senior high school. The initial sample size was 287 as each year around 300 new recruits enrol on the cadre program at CPU.
- **Cadets:** These are fourth-year recruits enrolled on the cadre program who had previously undertaken police education at CPU for three years. The initial sample size of this cohort was 296.
- **Graduate recruits:** These are first-year recruits enrolled on the special-exam program who have a bachelor’s degree or above but are without any police experience. These individuals passed the civil exam for police qualification. The initial sample size of this cohort was 45 as there are around 50 graduates admitted to this program annually.
- **Police officers:** These are first-year recruits enrolled on the promotion program. These individuals are street-level officers who have graduated from the police college (TPC) and served in the field for some time. Police officers are allowed to enrol on this program regardless of service length. The initial sample size of this cohort was 98 as there are around 100 officers enrolling on this program per year.

The two cohorts of NCCU students are detailed as follow.

- **New undergraduates:** These are first-year undergraduates enrolled on the criminology program, most of whom just graduated from senior high school. The initial sample size of this cohort was 46 as there are around 50 students admitted to this program yearly.
- **Juniors:** These are third-year undergraduates enrolled on the criminology program who had undertaken liberal arts at NCCU for three years. The initial sample size of this cohort was 48.

These six cohorts were selected specifically, for several reasons. First, to observe how Taiwanese police socialisation affects recruits (RQ1), the sample contains two cohorts in the cadre program and tracks them over time. Moreover, to assess the influence of Taiwanese police education specifically, as opposed to police socialisation more generally (RQ2), the sample includes first- (new) and third-year (junior) undergraduates in the criminology program at NCCU, who for the purposes of this study act as comparison groups. The graduate recruits in the special-exam program are included here so as to investigate the influence of having a bachelor's degree on the outcomes of interest, namely HR, MR, PJ and receptivity to research evidence (RQ3). Since this program is for citizens in possession of a bachelor's degree, it is possible to distinguish the influence of having a bachelor's degrees by comparing participants in this program with those without a bachelor's degree in another program (i.e., new police recruits). Finally, the promotion program is included here to address the previously mentioned research gap concerning the effects of in-service police training (RQ4). As this program is designated for the promotion of sworn officers, the influence of in-service training can be observed by tracking them over time.

There are two cohorts - new recruits and cadets – taken from the CPU cadre program. Because this program extends across four years, it takes more than four years to fully observe the police socialisation process of recruits in this program. That is, it requires more than four years to cover the introduction, encounter and metamorphosis phases of this program. The time span, however, can be reduced to two years by including both the first- and fourth-year recruits on this program and by tracking them over time. In other words, data collected from new recruits will provide

information on the first half of this program, and data collected from the fourth-year recruits will provide information of the last year at CPU and the first year in the field. Collectively, the combined data from these two independent cohorts is used here to estimate the effect of all four phases of police socialisation process. It is acknowledged that the combination of observations from these two independent cohorts makes this observation not strictly longitudinal (Babbie, 2016).

The NCCU undergraduates act as the comparison group against the cadre program. The inclusion of these two cohorts is intended to provide a comparison to the first- and fourth-year police recruits (new recruits and cadets) on the cadre program in terms of education length. In terms of comparability, both the new recruits and new undergraduates had yet to experience police education and criminology programs, respectively, while the cadets and juniors had undertaken three years of police education and two years of criminology program education, respectively. Inclusion of these comparison groups is intended to deal with the weaknesses of a non-probability sampling design with respect to internal validity, namely, the equivalence of a control group (e.g., the interaction between selection and maturation; Campbell & Stanley, 1967). It is acknowledged that the match between cadets and juniors is not perfect because of accessibility where seniors, the cohort having undertaken three years of criminology program, could not be reached. The inaccessibility is due to the little willingness that seniors showed to the NCCU faculty member who assisted in organising the survey.

### **7.3 Instruments**

This section describes the research instruments used in this study. As justified in C2, for the purposes of this thesis, democratic policing is conceived as comprising of three main components: adherence to HR, morally sound decision-making and an absence of PJ. Here, I describe how those components are measured using the following instruments: the Attitude towards Human Rights (ATHR), Defining Issues Test 2 (DIT-2), Right-Wing Authoritarianism (RWA) and Social Dominance Orientation (SDO). Additionally, as this research is interested in EBP receptivity as



a contributor to democratic policing, I will also report how I constructed a new scale, informed by previous research, to measure this construct. Finally, I will report the steps taken (pilot test and double translation) to assure reliability.

### *7.3.1 Human rights*

As discussed in Section 2.2, the concept of HR refers to the fundamental rights belonging to every member of the human race. Because it is documented in various international acts, HR instruments have been developed variously depending on the acts upon which they based. As reviewed in Table 7.2, related instruments differ in terms of underpinning theories and the way in which HR is conceived and measured (e.g., some are unidimensional, whereas others are multidimensional) (Lo et al., 2015).

It is remarkable that, to my knowledge, there is no research investigating HR attitudes among police officers nor any research instruments designed specifically for measuring HR in a policing or allied context (McPherson & Abell, 2012).

**Table 7. 2** Review of Human Rights Instruments

<b>Author</b>	<b>Theoretical grounding</b>	<b>Sample</b>	<b>Methods</b>	<b>Factors</b>
Getz (1985) Attitudes towards Human Rights Inventory (ATHRI)	Based on the US Bill of Rights	101 respondents from a pro-right group and a selective about-rights group	EFA; 112 items reduced to 30 items, 10 platitude items were added	Unidimensional
Diaz-Veizades et al. (1995) Human Rights Questionnaire (HRQ)	Based on UDHR	First sample of 365 college students, second sample of 212 college students and 42 adults	EFA (PCA with oblique rotation); 116 items reduced to 38 items	4 factors: Social Security, Civilian Constraint, Equality and Privacy
Narvaez et al. (1999) Attitudes towards Human Rights Inventory (ATHRI)	Based on the US Bill of Rights	96 respondents from a conservative religious group and a liberal church group, and 62 undergraduates from a public liberal arts university	Comparison of criterion group validity; 40 items	Unidimensional
Clemence et al. (Clémence et al., 2001)	Partly based on UDHR	1239 young people from Costa Rica, France, Italy, Romania and Switzerland aged 13–20	EFA (PCA with Varimax rotation); 20 items	5 factors: Violations of Liberties and Equality of Rights, Principle of Assistance and Protection, Issues Regarding Family Members and Spouses, two situations excluded from the realm of HR; Measures against Minorities or Deviants
Crowson (2004)	Adopted the 40-item ATHRI	236 university students	EFA (PCA with Varimax rotation); 40 items reduced to 15 items	3 factors: Personal Liberties, Civilian Constraint and Social Security

McFarland and Mathews (2005)	Adopted the 116-item HRQ	First sample of 67 students and second sample of 161 nonstudent adults and 74 upper-division college students	EFA (PFA with oblique rotation); 116 items reduced to 34 items; CFA	3 factors: HR Commitment, HR Endorsement and HR Restriction
Cohrs et al. (Cohrs et al. 2007)	Partly on existing scales, partly devised by authors	479 respondents, most were students	CFA (Amos) Maximum likelihood estimation of parameters; 19 items reduced to 17 items	3 factors: Endorsement and Importance of HR, HR Restrictions and Military Enforcement of HR
Moghaddam and Vuksanovic (1990)	Interviews with sample population and legal experts, and survey of major themes in important publications on human rights Derived through interviews and discussions with sample population and legal experts	Administered to 155 undergraduate students from Canada	21 items, No EFA or CFA conducted	No factors
Crowson (Crowson and DeBacker 2008)	Human Rights-Civil Liberties Scale-Revised Restricting human rights and civil liberties as a necessary part of the US government's war on terror	272 university students from Southern US	52 items, No EFA or CFA conducted	No factors

EFA: exploratory factor analysis; PCA: principal components analysis; CFA: confirmatory factor analysis. Source: Adapted from Lo et al., 2015, p 91.

The instrument used here is the Attitude towards Human Rights (ATHR) scale developed for HR education in Hong Kong by Leung and Lo (2012). This scale was selected for the following reasons. First, this instrument is considered to be well constructed. It is grounded in broad literature reviews and theories such as those reviewed in Table 7.2. Second, the construct validity of this instrument was tested in a representative sample which covered all Hong Kong secondary schools. Third, the construct tested by confirmation factor analysis (CFA) showed adequate model fit (CFI >.90, TFI >.90, RMSEA < .06 and SRMR <.080) (Lo et al., 2015). The fourth reason is the similar contexts between Hong Kong and Taiwan, as prior research shows that cultural norms may affect the interpretation of HR (McFarland, 2015). Both countries are Chinese countries that embrace democracy and a market economy. Eventually, those rights tested on the scale were covered in Taiwanese Constitution. That means they are fundamental and essential for Taiwanese police officers who are authorised by the Constitution to protect those rights. The scale is therefore considered to be appropriate for the Taiwanese context.

The ATHR scale comprises 26 items, covering five factors: 1) Social Welfare, 2) Civilian Constraints, 3) Personal Liberties, 4) Equality and 5) Privacy (Appendix A). The first factor concerns the government's role in offering social protection to citizens in general and to children and those in an emergency in particular. The second factor, Civilian Constraints, investigates the willingness of imposing restrictions on civil rights such as assembly rights, publication freedom and the right to a fair trial. Personal Liberties (the third factor) covers freedom of speech, religious freedom and rights to participate in political organisations and activities. The fourth factor, Equality, includes questions pertaining to equal access to information, social security and legal assistance. The fifth factor, Privacy, investigates the extent that privacy is allowed to be invaded, such as conducting drug tests among adolescent students, installing CCTV in classrooms and using fingerprints as the identification for leaving and entering schools.

### *7.3.2 Moral reasoning and DIT-2*

As discussed in Section 2.2.2, the legitimacy of police decision-making can be examined in terms of moral development theory as set out by Kohlberg (1973). The most commonly used measure of MR is the Defining Issues Test-2 (DIT-2) (Rest, Narvaez, Bebeau et al., 1999). This section will describe the DIT-2 and report on its validity and the interpretation of scores. Specifically, it examines how the four DIT-2 indexes: pre-conventional reasoning (S23), maintaining norms (4P), post-conventional (P) schemas and N2 are calculated, their validity and the index used to represent MR in this research.

The DIT-2 examines the extent to which moral judgements fall along a continuum from least to most developmentally advanced. The DIT-2 is used in the current study as a means of understanding moral judgements about police legitimacy. The assessment of when and why police should exercise force involves an individual's commitment to procedural justice and the importance placed on shared values, issues which are covered in the DIT-2.

DIT-2's predecessor, DIT-1, has been widely scrutinised (Rest et al., 1997). To respond to the criticisms about construct validity, Rest and colleagues (1997) proposed seven validity criteria: 1) differentiation of various age/education groups (e.g., moral philosophers are expected to show higher MR scores than junior high school students); 2) longitudinal gains; 3) correlation with cognitive capacity measures; 4) sensitivity to moral education interventions; 5) correlation with behaviour and professional decision making; 6) predicting political choice and attitudes, and 7) adequate reliability. Under these criteria, DIT-1 was found to exhibit adequate validity in Rest, Narvaez, Bebeau et al.'s (1999) review of over 400 published articles. For the first criterion, for example, it was found that 30 to 50% of the variance of DIT scores was attributable to the level of education. For criterion 5, the review found that out of 47 studies, 32 measures showed a statistically significant linkage between DIT-1 and prosocial behaviours and professional decision-making, as would be expected (Rest et al., 1997). Compared to its predecessor, DIT-2 offers three improvements: 1) the replacement of

obsolete languages and stories, 2) a new way to calculate the developmental score (N2), and 3) an effective way to detect bogus data (e.g., random responding, non-discrimination of items) (Rest, Narvaez, Thoma et al., 1999).

DIT-2 comprises five scenarios involving moral dilemmas (Appendix B). When completing DIT-2, respondents are requested to rate and rank the importance of issues corresponding to the stages of MR in each dilemma. After reading a scenario, respondents are first asked to choose one out of three actions that the protagonist should take (e.g., Do you favour the action of reporting the story?). Then, the central task is to assess the moral importance of 12 issues in the dilemma which are derived from intensive interviews and scoring guides (Centre for the Study of Ethical Development, 2017). For example, when responding to the dilemma of the reporter Dayton who found that the candidate for state governor was arrested for shoplifting 20 years ago, respondents are requested to assess those issues related to the considerations of whether to report the story or not. The issue *'If Dayton doesn't publish the story, wouldn't another reporter get the story anyway and get the credit for investigative reporting?'*, for example, reflects the pre-conventional (stage 2 and 3) reasoning because the concern is placed on the personal gains of credit. Another possible response, *'Isn't it a reporter's duty to report all the news regardless of the circumstances?'*, manifests the stage of maintaining norms (stage 4). The last stages can be captured by *'What would best serve society?'*. Finally, respondents are asked to rank four out of those 12 issues that best describe their understanding of how the protagonist ought to solve the dilemma.

Based on the ranking provided by participants, DIT-2 provides four indices: S23, 4P, P and N2, representing, respectively, the personal interest (stage 2 and 3), maintaining norms (stage 4), post-conventional schema and an adjusted P-score. The score calculation is based on the prioritisation of issues reflecting moral stages that respondents ranked as the top four critical issues (Rest, Narvaez, Bebeau et al. 1999).

The S23 is a measure of the personal interest schema which 'justifies a decision

by appealing to the personal stake that an actor has in the consequences of an action' (Rest, Narvaez, Bebeau al. 1999, p 305). The 4P represents the 'maintaining norm schema' which is characterised by a 'focus on maintaining the existing legal system, maintaining existing roles and formal organizational structure' (Bebeau & Thoma, 2003, p 19). The P score refers to the post-conventional schema in which individuals 'organize information for moral decision-making based on moral criteria (e.g., respect for HR) over social conventions (e.g., laws, roles, contracts); on moral ideals (e.g., shareable, open to scrutiny by others) for organizing society; and on moral purpose (e.g., the intent of a social arrangement) as the means for understanding justice, rather than the existence of the arrangement itself' (Mayhew et al., 2015, p 380). People at this stage are expected to commit to procedural justice and shared ideals and thus to be more likely to exercise force legitimately. The last score, N2, is an improved version of the P score with better reliability and validity (Rest, Narvaez, Thoma et al., 1999). It is based on the P score and adjusted by the weights of both the low rating of Stage 2 and 3 issues and prioritisation of post-conventional issues. In other words, high N2 score indicates a sharp contrast of post-conventional thinking (shared ideals and procedural justice) to pre-conventional reasoning (self-interest orientation). In this sense, the N2 score is a better corresponding indicator of procedural fairness than P score in this research.

These four indices will be applied separately in this thesis. As discussed, N2 score reflects great concern about procedural justice; it will be used in Chapter 9 where results about the influence of police socialisation and education on MR are reported. In the first half of Chapter 12 in which construct validity of democratic policing are examined, the three indices, S23, 4P and P, will be applied because this examination places emphasis on the correlations between components of democratic policing (HR, MR and PJ). Using the three indices might thus better reflect the relationship between MR and other components. In the second half of Chapter 12, all of these four indices will be used. In the first part that explores the relationship between EBP receptivity and the three components of democratic policing, the index used is N2 score as it represents the MR dimension. In the latter

part where the focus is placed on the sub-dimensions of each component of democratic policing, the indices used will include S23, 4P and P score.

It is noteworthy that, to the best of my knowledge, there has been no research investigating MR as measured by the DIT-2 among police officers.

### *7.3.3 Prejudice: RWA and SDO*

It was contended in Section 2.2.3 that the question of ‘how and against whom to exercise force?’ can be addressed by considering the absence of PJ articulated by the DPM (Duckitt & Sibley, 2009b). This section will outline the contents of the DPM – RWA (Altemeyer, 1981) and SDO (Pratto et al., 1994) - and how they are to be used in this thesis.

#### *Right-Wing Authoritarianism*

The unidimensional approach to studying PJ stems from the authoritarian personality theory (APT) proposed by Adorno et al. (1950), synthesising individual’s social, economic and political conventions in the 1950s. The theory considered authoritarianism to be the result of child-rearing practices in which parents deny and humiliate children in exchange for their immediate and unquestioning obedience. This kind of environment is thought to predispose children to thinking of human relations in terms of dominance and submission (Altemeyer, 2006). Adorno et al. (1950) found that people with an authoritarian personality tended to be more prejudiced against ethnic minorities and to have higher levels of ethnocentrism.

The APT is reconceptualised as RWA by Altemeyer (1994, p 133). He proposed three components of authoritarianism:

- Authoritarian submission - a high degree of submission to authorities who are perceived to be established and legitimate in the society in which one lives;



- Authoritarian aggression - a general aggressiveness, directed against various persons, that is perceived to be sanctioned by established authorities.
- Conventionalism: a high degree of adherence to the social conventions that are perceived to be endorsed by society and its established authorities;

Simply put, people with high levels of RWA tend to have illogical thinking, compartmentalized ideas and double standards. On the one hand, they tend to uncritically accept conclusions that are supported by authority figures. On the other hand, when dealing with the policed or the governed, they often act aggressively or hold punitive attitudes. In particular, one of the qualities of RWA - the self-righteous aggression aimed at out-groups – is problematic for criminal justice practitioners as it may lead to unequal application of the law (Altemeyer, 2006).

The RWA instrument used here is a shortened RWA scale with 13 Likert-type items developed by Zakrisson (2005; Appendix C). This scale assesses the support for conformity and submission to authority and conventional beliefs and is tested with good validity and reliability. Prior research shows that this scale sufficiently predicts prejudiced attitudes toward outgroups (Poteat & Spanierman, 2010) and is positively associated with racist views (Poteat & Spanierman, 2012) and constrained civil rights (Swami et al., 2012). Furthermore, considering the overall size of the questionnaire conducted in this thesis (5 scales), a small size is attractive as it would reduce the possibility of psychological burnout in respondents (Worthington & Whittaker, 2006).

### *Social Dominance Orientation*

SDO refers to 'a very general individual differences orientation expressing the value that people place on non-egalitarian and hierarchically structured relationships among social groups' (Pratto et al., 1994, p 61). These groups may be based on race, sex, ethnicity, religion, social class, etc. The root of SDO is unclear but is generally considered to stem from socialisation. SDO has been shown to be a reliable predictor of PJ towards often denigrated groups such as

ethnic minorities, homosexuals and immigrants (Perry et al., 2013). SDO is further refined into two dimensions (Ho et al. 2015, p 1004):

- SDO-Dominance: support for group-based dominance hierarchies in which dominant groups actively oppress subordinate groups, support for aggressive intergroup behaviours, support of overtly negative intergroup attitudes, support for negative allocations to outgroups, and the perception of group-based competition.
- SDO-Egalitarianism: opposition to group-based equality, opposition to redistributive social policies, an aversion to reducing the level of hierarchy between social groups.

The SDO scale adapted is a 16-item Likert-type attitude scale developed by Pratto in 1994 (Appendix C). It has produced good, stable reliability scores across various samples and over time, and has shown good validity by exhibiting expected correlations with appropriate personality or political measures (e.g., International Harmony and Equality Scale, IHES, political conservatism) (Ho et al., 2015).

The RWA and SDO scales comprise different items. RWA items involve beliefs in compliance and deference to authorities, in coercive social control and in conforming to conventional moral and values. SDO items, on the other hand, relate to belief in the social and economic anti-egalitarianism and the right of supreme groups to dominate inferior groups. The two scales jointly are used here in order to capture the worldviews and socio-political attitude reflected by generalised PJ. In connection to the question of interest, these two scales can comprehensively evaluate the discrimination towards certain groups and excessive use of force, which can address the question: how and against whom to use force.

#### *7.3.4 EBP receptivity*

This section will describe how I constructed a new scale designed to measure police officer EBP Receptivity (EBPR). As reviewed in table 3.1, previously-investigated issues to do with police officers' openness to research evidence have

included items on practitioner-researcher partnerships, EBP knowledge, application of research evidence in daily work, attitudes towards evaluation and science in police work, openness to new ideas and tactics, the experience-science balance in police work, carrying out practitioner-friendly research, organisational support for research evidence usage and the requirement of higher education in police careers. Presently, however, there is no research instrument that taps into the latent structure underlying EBP receptivity (RQ5). In response, for the purposes of this thesis I organised those reviewed issues above into five themes and developed a 26-item scale to measure them (Appendix D). The scale is a balanced scale with half positively and half negatively worded items. The five themes are as follows.

1. *Evaluation and research evidence in policing*: This theme is directly related to the definition of EBP, one of the common issues investigated in previous studies (e.g., Huey, et al., 2017; Lum et al., 2012; Palmer, 2011). Items in this theme enquire into the perceived effectiveness and applicability of research evidence in the decision-making of police officers and the necessity to routinely evaluate police tactics. This theme consists of 5 items (1, 2, 3, 8, 11).
2. *Science versus experience*: This theme is concerned with the prevailing opinion that personal experience outweighs research evidence in police decision-making (Cherney et al., 2018; Fleming, 2018; Jonathan-Zamir et al., 2019; Telep & Lum, 2014). Items under this theme relate to whether research evidence undermines police authority and whether police officers' judgement is sufficient to determine the effectiveness of a tactic or not. This theme comprises 8 items (5, 6, 7, 9, 10, 12, 16, 22).
3. *Researcher-practitioner partnerships*: This theme explores participants willingness to, experience of, and attitudes towards working with researchers. This theme constitutes 6 items (17, 18, 20, 23, 24, 25).
4. *Applicability of research evidence in distinct social settings*: Considering the noted variation of EBP receptivity observed in prior research, this theme enquires whether or not social or cultural settings impact the perceived

applicability/transferability of research evidence in policing (Blaskovits et al., 2018; Hunter et al., 2017; Kalyal, 2019; Telep, 2016). More specifically, it explores whether research evidence produced in western settings is seen to be applicable to and useful in the Taiwanese policing and crime reduction context. This theme includes 2 items (14, 15).

5. *Influence of police education*: This theme has not been investigated in previous research. Items under this theme specifically focus on how Taiwanese police education might influence EBP receptivity. Questions relate to the way police education is delivered and organised in Taiwan. This theme constitutes 5 items (4,13, 19, 21, 26).

### *7.3.5 Demographic predictors*

Demography in this research investigated five predictors: gender, age, police relatives, police service and work experience. According to influential factors in the anticipatory phase of police socialisation (see C4), the main concerns are placed on the last three predictors. Initially, police relatives are the main reference group, affecting recruits' decision to choose the police as a career and their generalised image of the police, which in turn is thought to affect their assimilation into police organisations (Phillips et al., 2010). Furthermore, police service is investigated because police officers in the sample have various service lengths that may influence their recognition of the police function (Oberfield, 2012). Finally, work experience is examined in order to assess the potential impact of involvement in non-police work in the graduate recruit cohort, based on the rationale that work experience may influence recruits' adaptation of organisational norms (Hopper, 1977).

### *7.3.6 Double translation and pilot test*

Taking into account potential threats of cultural and semantic factors to scale reliability and validity, I performed a double translation on all research instruments used here (Chang et al., 1999). The process was as follows: first, the original scales were translated into Chinese and then translated back to English independently by two foreign affairs police officers in Kaohsiung and Tainan Police Departments, Taiwan. Then the two versions of each scale - the original and the double-translated scales - were reviewed by the author in accordance with semantic precision, before final versions of the scales were decided upon.

Once the scales were translated, I conducted a pilot test with 24 second-year cadets at CPU. They completed each scale, after which a discussion was held to receive their feedback on their understanding of the items. Accordingly, the final version of each scale was determined after some minor revisions to wording.

## **7.4 Research Design**

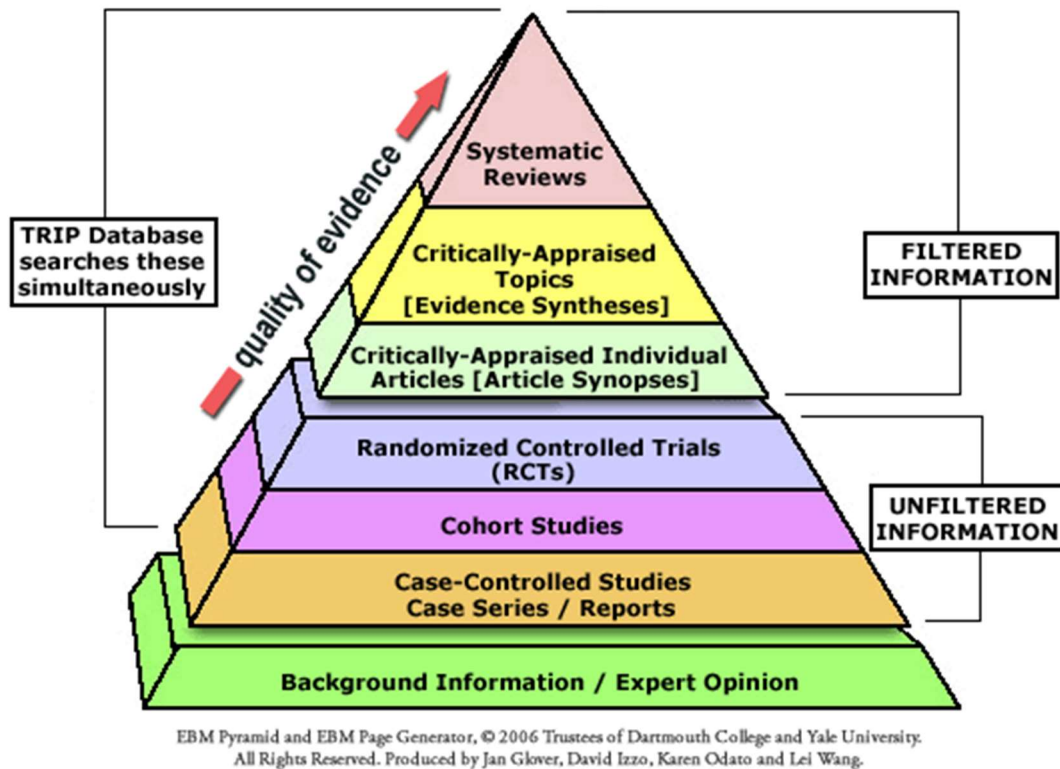
This section describes the selection and application of a longitudinal research design in this research. The selection of a longitudinal design is to respond to the dynamic process of police socialisation (i.e., anticipatory, introduction, encounter and metamorphosis) in which each phase is influenced by various factors (Section 4.1). The application relates to how these four phases of police socialisation are conceptualised in the context of Taiwanese police education. In other words, these phases are conceptualised as three events: 1) predisposition, 2) police education and training and 3) police work/culture, of which influences can be examined by three time points: 1) upon enrolment, 2) upon graduation and 3) having served as a police officer for some time. Moreover, due to the different start and end dates among the programs investigated here, the dates representing enrolment, graduation and having served for some time are adjusted for each program.

#### *7.4.1 Selection*

The literature review in C4 showed that various factors in each phase of police socialisation can exert different influences on police recruits. In order to reliably measure the influence of police socialisation, a research design has to be able to differentiate among the influences of each stage in the police socialisation process. As discussed in Section 4.3, such a design, therefore, has to be (quasi-) experimental in order to adequately cover the presumed process of police socialisation with comparison groups. These features are related to two dimensions: between- and within-subjects comparisons.

The between-subjects comparison is to identify group differences across time. In this study, this concern has been dealt with by including the comparison groups (new undergraduates and juniors) from the criminology program at NCCU. The within-subjects comparison relates to tracking participants across different stages of police socialisation, and thus the optimal design is a longitudinal study. This design allows changes in the characteristics of targets to be observed across time so as to distinguish the influence of each stage of police socialisation. Moreover, from the perspective of evidence strength, the longitudinal design is regarded as superior to a cross-sectional design because it both enables processes and causes of change within and among individuals to be identified and reduces error variance associated with individual differences (Campbell & Stanley, 1967; Kempf, 1990; Zeger & Liang, 1992).

Moreover, in the evidence hierarchy of research design (Figure 7.1) the longitudinal design is directly below the randomised control trial (RCT) and above case-control study (Hoffmann et al., 2013). Concerning why RCT is not applied here, it is infeasible to randomly assign the samples to the treatment and control cohorts/groups because the participants are undergraduates and cadets at the two universities.



Adopted from Yale University Library Subject Guides (2018)

**Figure 7. 1** Evidence Hierarchy in Medicine

Longitudinal research is, however, notoriously time- and resource-consuming and vulnerable to attrition (Babbie, 2016; Bryman, 2015; Ployhart & Vandenberg, 2010). This is evidenced by the rarity of such research in the field of police socialisation. As reviewed in Section 4.2, there have been less than 20 longitudinal studies that cover the effects of police training and fieldwork.

With regard to sample attrition, longitudinal research often suffers from the drop-out of participants, leading potentially to differential attrition in different cohorts and therefore to biased sample representativeness. That is, participants with certain characteristics might tend to drop out over the investigated period, and the results gained from those that remained might thus not represent the population of interest (Babbie, 2016). How this issue is dealt with will be reported in the section on missing data (Section 7.8).

Another concern is the initial equivalence of control and experimental groups which is common in quasi-experimental design (Bryman, 2015; Campbell & Stanley, 1967). Without random assignments, it cannot be assured that participants in both groups are on average equivalent on the measured variables at baseline. This concern was dealt with in Section 6.4, where I discussed the comparability of academic performance between new recruits at CPU and new undergraduates at NCCU. Further examination of comparability will be discussed in the later section on demography.

Based on the above considerations, this research applies a multiple-group longitudinal design. The following paragraphs will explain how the research design is applied to the four phases of police socialisation in Taiwan.

#### *7.4.2 Application*

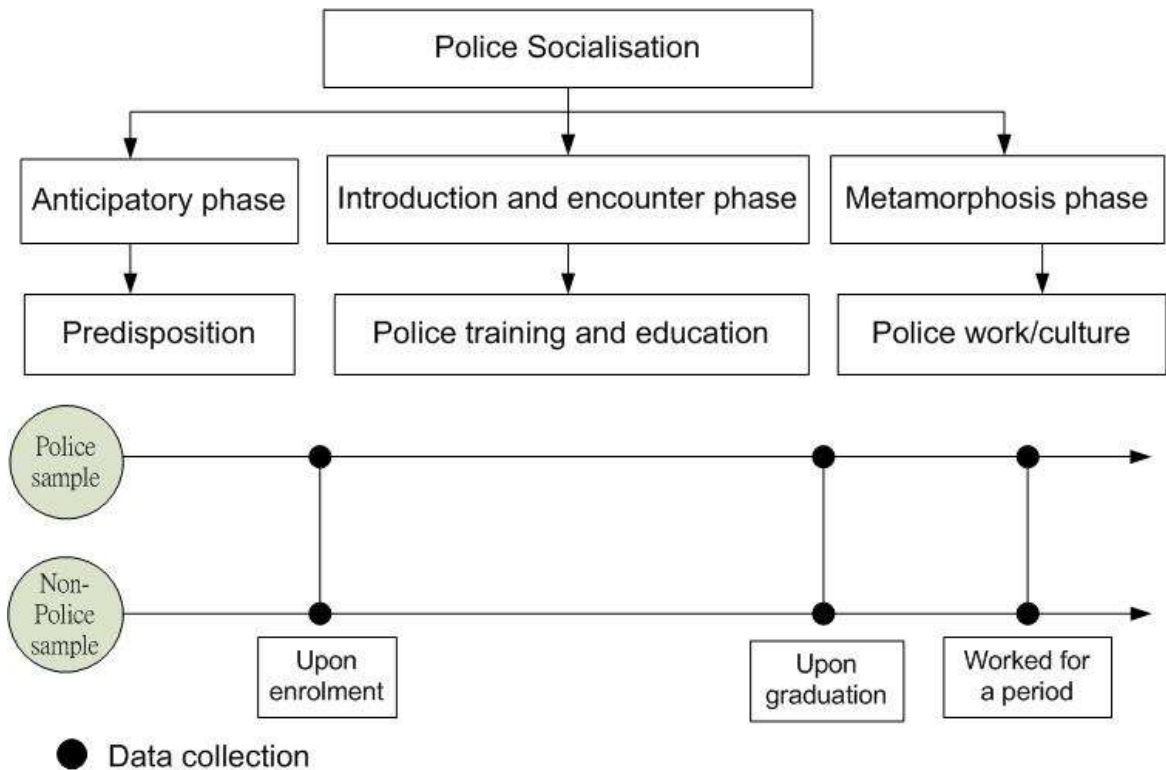
This section will describe how this thesis conceptualises the four phases of police socialisation as three perspectives: 1) predisposition, 2) police education and training and 3) police work/culture. Moreover, these perspectives are incorporated into a multiple-group longitudinal design with three data collection points in which the influence of each perspective can be examined separately.

According to police socialisation theory (C4), this socialisation process comprises four phases: anticipatory, introduction, encounter and metamorphosis phases, and within each phase, various factors play a part. These phases correspond to three time-serial events – before police education (anticipatory phase), during police education (introduction and encounter phases) and after having served as a police officer for some time (metamorphosis phase). Moreover, because Taiwanese police education did not deliver field training after formal academy training independently but incorporated two short-term internships (6 weeks) in the second and third summer vacations at CPU (see Section 6.3), the influence of the encounter phase (field training) cannot be separated from academy training



(introduction phase). The encounter phase thus is conceptualised as part of police education in this study.

In light of the source of influence (Section 4.1), these three events are labelled as predisposition, police education and training and police work/culture, respectively. These events, in turn, involve three data collection points: upon enrolment, upon graduation and having worked for some time (Figure 7.2)<sup>2</sup>. This design conceptualises police socialisation into three perspectives (predisposition, police training and education, police work/culture) with the three data collection points: 1) upon enrolment, 2) upon graduation, 3) having worked as a police officer for some time. By doing so, it is possible to differentiate among the influences of each perspective (Ployhart & Vandenberg, 2010).



**Figure 7. 2** Police Socialisation in the Longitudinal Research Design

<sup>2</sup> Figure 7.2 is an idealised, theoretical design. Due to the various length of and opening and completion dates of investigated programs, the actual dates and meaning of data collections are adjusted and detailed in the following paragraphs and figures.

First, predisposition can be tested by comparing attributes between police recruits and undergraduates upon enrolment. If the pre-dispositional account is supported, there should be significant differences in those attributes between the newcomers at CPU and new undergraduates at NCCU.

The second perspective, police education and training, entails influences from both police education (introduction phase) and field training (encounter phase). These influences can be examined by observing the changes in participants on those attributes over the period of their police education. This involves comparing responses by cadets upon graduation with the before-education baseline (upon enrolment). It is noteworthy that some actual data collections occur between enrolment and graduation, details of which have not been specified in the conceptualisation above (i.e., Figure 7.2). Because this thesis surveys participants at a year interval, the data collections thus include these dates apart from enrolment and graduation. For example, the data collections for police new recruits on the cadre program are carried out upon enrolment, the end of the first and second year of that program. These time points in the phase of police education and training aim to observe changes in participants across police/college education so as to achieve the research objective of this thesis here. Therefore, the description of data collections for respective programs (the next section) will be somewhat different (more detailed) from the idealised conceptualisation design above. With regard to participants at NCCU, they serve as comparison groups here so as to control for potentially confounding variables such as maturation.

Third, the influence of police work/culture (metamorphosis phase) can be examined by comparing responses on graduation with those who have worked in the field for some time.

As this research aims to investigate participants at three time points (i.e., upon enrolment, upon graduation and having worked for some time), the optimal timing to conduct the survey is in September, which is the opening month of a new academic year in Taiwan. Surveying at this point ensures that newcomers to the two universities have yet to experience any police/college education and that

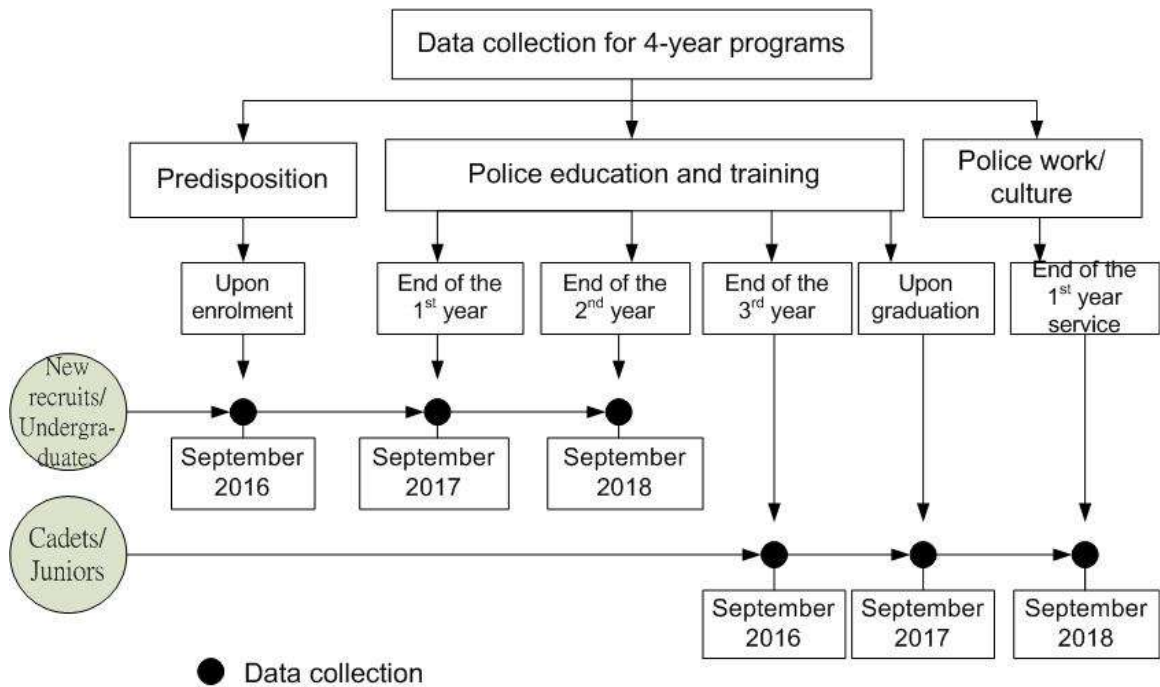
cadets and juniors have undertaken full years of police/college education. However, the data collection points are adjusted for the promotion and special-exam programs as they have different opening and completion dates, discussed below. Also, because the sample includes cohorts in the four-year programs, the conceptualisation for the data collection for them are different from those in the two-year programs. The following section will describe the adjustment and different meanings in detail by program.

#### *7.4.2.1 Four-year programs*

The two four-year programs investigated in this research are the cadre program at CPU and the criminology program at NCCU. Each program included the first-year (i.e., new recruits and new undergraduates) and fourth-/third-year (i.e., cadets and juniors) cohorts. The three data collections in the two years have different meanings for each cohort. To avoid confusion, I will explain the meanings of data collections by cohort.

##### *New recruits and new undergraduates*

For the two newly recruited/enrolled cohorts, the data collection times represent upon enrolment, the end of the first-year education and the end of the second-year education (Figure 7.3). Specifically, in September 2016, new recruits and new undergraduates just started the four-year programs at the two universities. The following two collections (in September 2017 and 2018) mean that the participants have undergone one and two years of police/college education, respectively.



**Figure 7. 3** Dates and Meanings of Data Collection for the 4-year Programs

### *Cadets and juniors*

On those four-year programs at the two universities, the fourth- and third-year cohorts (cadets and juniors) are surveyed on the same dates (i.e., September 2016, 2017 and 2018). However, the first, second and third collections mean that the fourth-year cohort (cadets) have undergone police education for three years (i.e., end of the third year), four years (upon graduation) and have worked for a year (end of the first-year service), whereas the third-year cohort (juniors) have undergone college education for two years (i.e., end of the second year), three years (end of the third year) and four years (upon graduation), respectively.

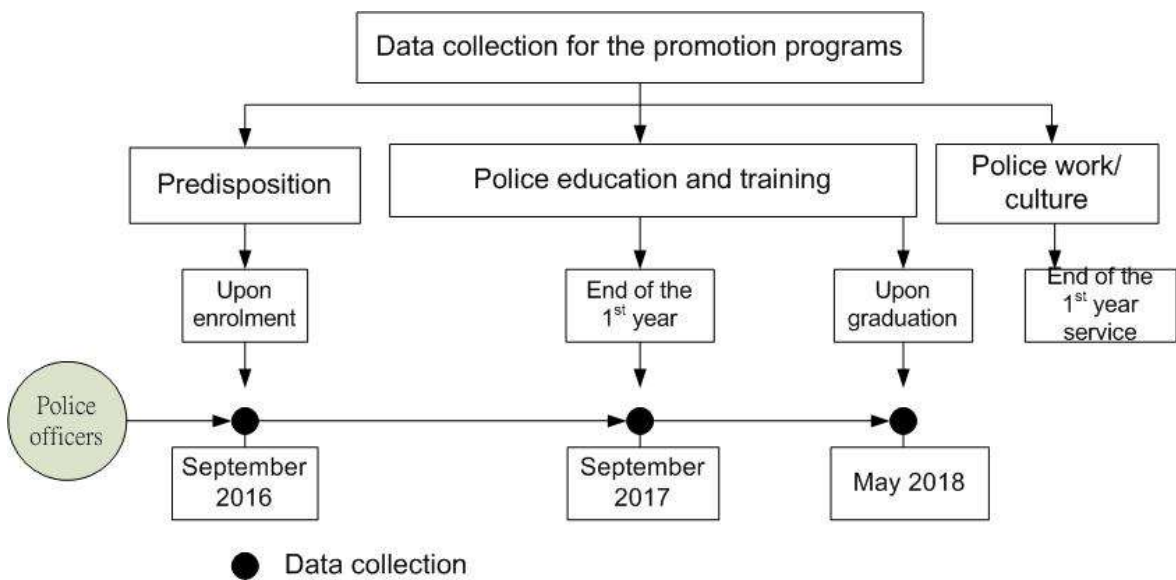
#### *7.4.2.2 Two-year programs*

The two two-year programs investigated at CPU comprise the promotion and special-exam programs. One newly recruited cohort on each program is invited: police officers and graduate recruits. The data collection dates are planned to be

uniform across all cohorts, but due to the different initial and end dates of the two programs, the administered dates were adjusted for these two cohorts.

*Police officers*

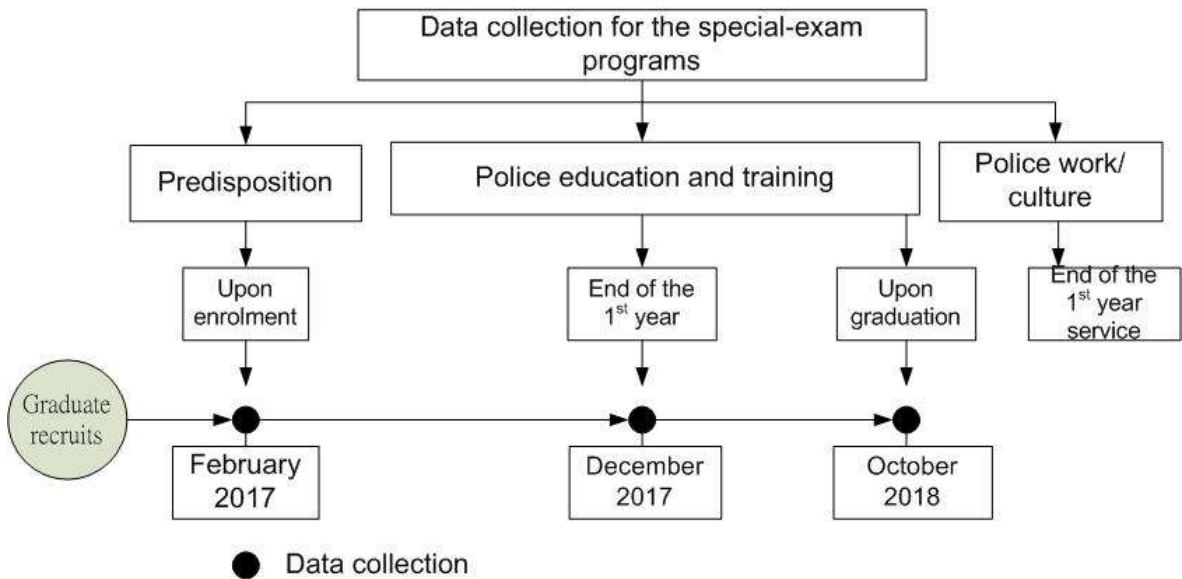
The police officer cohort has the same survey dates for the first two collections (September 2016 and 2017), but the third collection date was moved forward to May 2018 (8 months after the second collection). This is because participants of this cohort graduated in June 2018, and if the last survey is conducted after their graduation, it is expected to suffer from severe attrition. Despite the early timing for the final collection, those three collections still represent upon enrolment, end of the first year and upon graduation for them (Figure, 7.4).



**Figure 7. 4** Dates and Meanings of Data Collection for the Promotion Program

*Graduate recruits*

The data collection dates for graduate recruits on the special-exam program are quite different from other cohorts. As this program started in February 2017 and ended in December 2018, collection dates were adjusted to cover the whole program. The three collection dates took place in early February and late December 2017 and late October 2018, respectively (Figure 7.5).



**Figure 7. 5** Dates and Meanings of Data Collection for the Special-exam Program

The length of this program is around 23 months totally, and the survey is conducted in the first, eleventh and the twenty-first month with eleven-month and ten-month intervals, respectively. Those dates thus can be interpreted as upon enrolment, end of the first year and upon graduation.

### 7.5 Procedure

This section covers the procedures of data collection, including administration procedures, research ethics and data coding. The data collections use mainly pen-and-paper questionnaires, but the two cohorts, cadets and juniors, who had graduated by the second and third data collection, were reached via an online survey. Details are given below.

### *7.5.1 Data collection*

This research accesses the samples at the two universities via the president of CPU and faculties at NCCU. Primarily, the president of CPU authorised me to take advantage of the time after recruits' evening roll calls where the majority of students are gathered on a daily basis. At NCCU, the assisted faculty used the second half of her course time (1 hour) in a classroom to have the survey administered. The collecting method is pen-and-paper questionnaires that allow data to be collected on the spot.

#### *New recruits*

Data collection for new recruits was carried out at CPU in September 2016, 2017 and 2018. I accessed new recruits after their evening roll calls in a conference room. The information that a survey would be administered to them after an evening roll call on a specific date had been announced to new recruits in advance. They were also informed that they are free to leave after the roll call if they do not want to participate in the survey.

After the roll call, I introduced myself and gave an overview of the research project and the standard ethical issues around their participation (voluntariness, confidentiality, etc. – see Appendix E). Then, I distributed the consent forms and questionnaires. Once every participant had received their consent form and questionnaire, I asked their instructors and captain to leave the room to assure participants that their responses would not be accessed by people other than me. This was out of concern that instructors' and captains' presence might influence recruits' willingness to express their real opinions and attitudes.

Because of the length of this questionnaire, I separated the survey completion period into two stages with a 10-minute break between; the total time to complete all the surveys was around 50 minutes. In the first stage, participants were requested to answer the first three scales (RWA, SDO and ATHR), and the final two scales (EBPR and MR) were administered in the second stage after the break. During the break, I played laid-back music and made jokes with participants to

avoid psychological fatigue (Worthington & Whittaker, 2006). After finishing the questionnaire, participants handed them to me on the spot.

### *New undergraduates*

Data collection for new undergraduates is identical for new recruits in the data collection dates (September 2016, 2017 and 2018), method (pen-and-paper questionnaire) and process (two stages) except for the site. With the help of faculties at NCCU, I made use of new undergraduates' one hour of class time to administer the survey in a classroom. New undergraduates had also been informed of this data collection in advance and of their rights not to partake in the study. Following the first hour of class time in which faculties delivered a lecture as usual, I introduced myself and gave an overview of the research project and the standard ethical issues around their participation (Appendix E). I then distributed the informed consent forms and questionnaires. The faculty members who assisted me with access to the cohort then left after introducing me to participants. The administration process is identical to new recruits', including two stages with a 10-mins break of playing music and making jokes, assuring confidentiality, and collecting questionnaires immediately after their completion.

### *Cadets*

Data collection for cadets is somewhat different from those described above. The collection dates are the same (September 2016, 2017 and 2018). At the first data collection, cadets just started their fourth year at CPU. The procedures of data collection administered to cadet were exactly the same as those to new recruits (e.g., beforehand information, two stages, absence of instructors).

The second collection took place outside the CPU because cadets had graduated at the time of collection (September 2017). I took advantage of the one-week pre-service training that all cadets who won a place in the civil exams of police qualification were required to undergo. The training was performed at the training centre in the Fifth Special Police Corps, NPA. I was authorised by the NPA to access them using an hour of a training course. During the training course, cadets were gathered in a training hall where seating was provided. I performed the



procedures similar to those conducted for other cohorts: introducing myself, research project and standard ethical issues around their participation, absence of training instructors and collecting right after completion. The one variation was the foregoing of the 10-minutes break that could not be conducted because of the audio equipment in the training hall. Participants took around 40 minutes to finish. It is noteworthy that the sample size of this cohort was reduced at the second collection stage because some cadets failed the civil exam and could not attend this training. Moreover, cadets who studied in the departments other than police-related departments such as fire science, coast guard, and prison management did not undergo this training. Instead, I invited these cadets to participate by emailing them online survey twice with a two-week interval. Afterwards, I requested another invitation email to be sent out by one of their instructors at CPU. The email invitations were conducted from September to early October 2017.

The third collection for cadets was carried out by an online survey because participants were assigned to various police departments all over Taiwan, and it was not possible to gather them together or access them in person. The online survey comprised a brief introduction, informed consent form, and the questionnaires, and was carried out from the mid-August to mid-October 2018. The survey materials were sent out by me twice with a two-week interval, by one of their popular peers once two weeks after my invitation, and by one of their respected instructors once two weeks after the peer's invitation. Each invitation email was tailored based on the sender's position and the number of times that the invitation had been sent. The online survey took participants around 35 minutes on average to complete.

### *Juniors*

Similar to that for new undergraduates, the first data collection for juniors made use of one-hour class time with faculty members' help at NCCU (September 2016). The procedure was exactly the same as that for new undergraduates. However, because juniors had no compulsory courses for the last year at NCCU (the second collection) and could not be gathered together, I reached them instead using an

online survey (SurveyMonkey), which consisted of a brief introduction, a consent form and the questionnaires. This is also true for the third collection for this cohort as they graduated from NCCU and were difficult to access. I sent out the invitation email twice with a two-week interval and had their respected faculties send out for me once two weeks after my second invitation email for each of the data collection (September 2017, 2018). The collection span covered September to mid-October. Also the contents of invitation email were tweaked according to the times of invitation and the position of senders.

#### *Graduate recruits*

Except for the administered dates (February, December 2017 and October 2018), the data collection procedures for graduate recruits are identical to those for new recruits. These procedures included beforehand announcement, surveying after an evening roll call, the introduction of research ethics and projects, 10-min break and immediate collection after their completion. The time graduate recruits spent for the survey was around 50 mins, including the 10-mins break.

#### *Police officers*

The data collections for police officers were exactly the same as those for new recruits except the date of the last collection (May 2018). Police officers' responding time was 45 mins, including the 10-mins break.

### *7.5.2 Research ethics*

The research ethics application (9193/001) was approved by the UCL Research Ethics Committee in September 2016 (Appendix E).

### *7.5.3 Data coding*

To reduce data-processing errors, I coded the data using a professional grading application – GradeCam (Bryman, 2015). This application allows the answer sheets to be customised in a machine-readable manner without affecting

respondents' method of filling in the questionnaire. Each choice on the answer sheet is made in numbered circles, and all the respondents need to do is to mark the circle they choose for each item. After collection, the answer sheets can be scanned optically by any devices installed with GradeCam, and the answers are extracted in the fashion of numerical data in excel files. There is a very low risk of coding errors, compared to manual data entry.

## **7.6 Response rates and attrition in data collections**

This section covers the response rates across the three time points in which the five scales (i.e., ATHR, DIT-2, RWA, SDO, EBPR) were administered. Reasons are put forward for the observed dropouts. Overall, valid questionnaires fell from 753 in the first phase of data collection to 474 in the third wave, a retention rate of 63%. This is considered a moderate level of attrition, implying sufficient representativeness (Menard, 2002).

Table 7.3 shows the response rate for each cohort across the three phases of data collection. As would be expected, response rates varied across cohorts and, in each case, decreased over time. In the first phase of data collection, over 97% of respondents completed the survey. This fell to 88% and 75% at data collection points two and three, respectively.

**Table 7. 3** Sample Sizes, Valid Questionnaires and Eligible Rates by Collection

Groups	Cohorts	Population	First collection			Second collection			Third collection		
			Sample size	Valid questionn- -aire	Eligible rate (%)	Sample size	Valid questionn- -aire	Eligible rate (%)	Sample size	Valid questionn- -aire	Eligible rate (%)
CPU	New recruits	287	285	283	99.3	246	226	91.87	286	208	72.73
	Cadets	296	255	242	94.9	179	176	98.32	176	124	70.45
	Police officers	98	98	98	100	91	77	84.62	86	65	75.58
	Graduate recruits	45	45	45	100	45	45	100	44	42	95.45
NCCU	New under-graduates	46	43	42	97.67	42	37	88.1	40	35	87.5
	Juniors	48	45	43	95.56	40	7	17.5	0	0	0
Total		820	771	753	97.67	643	568	88.34	632	474	75

The sample size varied over time in each cohort for several reasons. First, new recruits saw a drop from 285 to 246 and then back to 286 across the three phases of collections collection. This was mainly due to the intern squadron system at CPU whereby, when recruits become senior, they are assigned as intern captains, chief counsellors, element commanders and squad leaders in those junior cohorts. They do not attend the daily evening roll calls of the originally investigated cohorts (Section 6.3). The reason that the sample size increased in the last collection is that I took advantage of a monthly evening roll call in which assigned recruits are requested to return and attend, as opposed to the daily evening roll calls that the first and second collection did.

For the cadet cohort, the initial sample size of 255 shrunk to 179 and 176 in the following two collections. This attrition can be attributed to various reasons. The first reason is the police qualification exam, in which around 20% of cadets failed and hence were no longer part of the police training program. The second reason relates to the inaccessibility of some participants who studied in departments outside the police, namely fire science, prison management and the coast guard. Because of the positions where they were assigned, unlike their peers they did not undertake the pre-career training in the training centre where the second collection was conducted. To compensate for this, I attempted to reach them via an online survey, but the response rate was low. In the last phase of data collection, this research targeted those cadets who participated in both the first two collections (sample size 176). The response rate was acceptable (70.45%), implying participants who were surveyed in the second data collection were generally also surveyed. Suggested reasons for this high response rate include close working with peers within that cohort, presenting the outcomes resulting from their continued participation and the promise to inform them of the results of this study once the research closes. These strategies seemingly contributed to achieving a relatively good response rate.

The police officer cohort saw medium attrition across the collections, starting with 98 cases, through 77 and further down to 65. This attrition was partially caused by

the intern squadron system (see the new recruits) in the second collection and unknown reasons in the final collection. It is unknown why some participants in this cohort just did not show up in the last survey but might be attributed to the closeness to the graduation date. Because police recruits enjoyed high autonomy where close to graduation, they thus might have low willingness to join activities that were not forcibly requested.

The cohort with the least attrition was the graduate recruits, maintaining at 45 valid response questionnaires (100%) in the first two waves and dropping out three cases in the last. This is because this cohort did not perform the squadron system in which senior recruits are assigned to junior cohorts as intern instructors as the new recruits and police officers did.

New undergraduates experienced a slight fall in valid responses, from 42 initially, to 38 at time point two and 35 at time point three. This loss was mainly caused by participants who dropped out of this program.

The most notable attrition took place in the junior cohort, of which none featured in the final phase of data collection. This is because juniors had no compulsory courses and had graduated by the time of the second and third collections. I attempted to reach them via email and an online survey. Despite the assistance of their faculties, the response turned out to be extremely low compared to administering the surveys in person: 7 and 0 responses for the second and third collection, respectively. This is maybe due to the loss of interests in response when close to graduation date and after starting working. Hereafter, this cohort will not be modelled in the following analysis.

## **7.7 Demographic characteristics**

Table 7.4 shows demographic information collected from the first wave for each cohort. There are two notable differences between CPU and NCCU participants. The first concerns the obvious sex imbalance, police officers being predominantly male (94.79%) whilst the non-police cohort is made up of mostly females (76.47%).

In police academy training, it is common to have a dominant percentage of males (Harris, 1973). In Taiwan, this imbalance is partly caused by the recruited quota of female and male prescribed by the MOI (Section 6.2).

**Table 7. 4** Demographic Characteristics of Each Cohort

Groups	CPU				NCCU		Sum	Per- cent
	New recruit (N=283)	Cadet (N=247)	Police officer (N=96)	Graduate recruit (N=45)	New under-graduate (N=40)	Junior (N=45)		
Gender (male/female)	211/60	187/42	91/5	20/25	9/31	8/34	526/197	72.7
Age (below/above 21)	273/8	3/228	1/95	0/45	40/0	22/16	339/392	53.6
Police relatives (yes/no)	101/179	64/162	38/58	17/28	6/34	4/37	230/498	31.5
Police service (yes/no)	0/280	0/227	91/5*	2/43	0/40	0/41	93/ 636	14.6
Work experience (yes/no)	40/240	35/192	21/75	37/8	7/33	14/27	154/575	21.1

\* a few police officers who perform excellently at the TPC are allowed to continue to study at CPU without taking police service in the field.

The second main difference relates to having relatives in the police service. Around a third (32.4%) of police respondents reported having at least one relative who is or was in the Taiwanese police, compared to about one in five in the undergraduate sample. As suggested in prior research (Goffman, 1962; Sun et al., 2009), police relatives might be accessible and immediate reference groups in seeking a police occupation. In terms of age distribution, as expected, most new undergraduates and new recruits were aged between 19 and 21, and accordingly, juniors and cadets were aged between 21 and 25.

Concerning the comparability between new recruits and new undergraduates, the difference of demography between them was similar to that between the CPU and NCCU participants. The reasons that led to the difference were described above.

In other words, except gender and having relatives in police service, new recruits and undergraduates were comparable in age and working experience.

## **7.8 Missing data and data imputation**

Missing data may threaten the reliability and validity of research studies (McKnight et al., 2007). Missing data caused by attrition are common in longitudinal research (Enders, 2010). Even though this study observed comparatively little attrition, to ensure that attrition does not introduce any bias, this section will discuss the measures taken to understand the levels and patterns of missing data. More specifically, this section diagnoses the mechanisms of missingness by examining the differences between those participants who dropped out of the study and those who remained. Finally, the section will discuss methods employed here to impute missing data: multiple imputation (MI).

### *Missing data*

Generally, in social sciences there are three mechanisms that account for missing data: 1) missing at completely random (MACR), 2) missing at random (MAR) and 3) missing not at random (MNAR) (Rubin, 1996). MACR refers to cases where the causes of attrition are random, and therefore it can be assumed that the characteristics of missing cases are similar to non-missing cases. Thus, it suggests that unobserved and observed data are independent and that there is a low systematic effect on parameter estimation. That is, the analysis performed on the data is unbiased.

MAR denotes that there is a systematic relationship between the propensity of missing values and the *observed* data, not unobserved data. In this research, the unobserved data refer to missing variables in the survey of RWA, SDO, ATHR, DIT-2 and EBPR. This mechanism, caused by a systematic process, could be modelled with the observed data in the data matrix. The first two mechanisms are usually able to be ignored, suggesting the mechanisms of missing data do not have to be modelled to produce good parameter estimates (Allison, 2009).



MNAR refers to missing data that are dependent on unobserved data. The effect of this missing data is unknown and thus is potentially dangerous in terms of the inferences that can be drawn. The first mechanism can be distinguished from the other two, but the other two cannot distinguish from each other. The call of whether the missing data are MAR or MANR often rests on the logic and understanding the reasons for missing (McKnight et al., 2007).

In this study, the missing data owing to attrition in the sample are most likely characterised as MAR. This is because, as described above, the missing data are due to dropouts in the new undergraduate cohort, failure in the qualification exams and studying in departments other than the police in the cadet cohort. These causes are unrelated to the unobserved variables (i.e., missing items in the four scales); thus the missingness mechanism is less likely to be MNAR. In other words, as the mechanism accounting for missing data relates to a systematic process, the missingness can be dealt with by data imputation (Rubin, 1996).

According to Goodman and Blum (1996), one way to diagnose missing mechanisms is to organise missing data into missing items, cases and occasions. The first refers to missing items in a questionnaire while the second refers to individuals not showing up for a study in cross-sectional research. The last is also called wave, meaning individuals may be present for some occasions of data collection and not others, as is often the case in longitudinal studies (Schafer & Graham, 2002).

The diagnosis of the missing mechanism is detailed in Appendix F. Here, I will just summarise the results. First, the missing cases accounted for a tiny portion (less than 1%), and the missing occasions took up the largest portion in every cohort. Second, the missing patterns are consistent with the drop-out reasons such as the intern squadron system in each cohort. Third, the attrition examination found no difference in independent variables (i.e., age, gender, police relatives, work experience, police service) and outcome variables (RWA, SDO, ATHR, DIT-2 and EBPR) between participants who remained and those dropped out except for the gender in the new recruit cohort and the HR and PJ in the police officer cohort. But

they are justifiable. Because female new recruits do not serve the intern squadron system, they are not assigned to junior squadrons, thereby accessible by the research. The police officers who remained are more favoured to HR endorsement and less prejudiced than those who dropped out. This is consistent with the unknown reasons that quite an amount of police officers dropped out in the last collection. This difference also suggests that the mechanism of missing data is MNAR.

In short, the missing data in this research could be caused by MCAR or MAR, except for the police officer cohort. This is because conceptually the reasons for missingness are justifiable, but also statistically it is tenable that there was no difference between those remained and dropped out in terms of demographic predictors and the outcome variables of the first wave (Goodman & Blum, 1996). That is, the diagnosis identifies the lack of bias in the sample representativeness and statistical modelling.

In other words, caused by those mechanisms, the missing data can be safely ignored, and in turn, could be appropriately dealt with by certain data imputations such as MI (Buuren, 2018; Rubin, 1996). Considering the employed method - RM ANOVA, which requests incomplete cases and missing data to be deleted, statistical power could be reduced without imputing data, especially for the cadet and police officer cohorts. Consequently, the research employed the MI to strengthen statistical power and generalizability.

#### *Data imputation*

The method adopted to impute data - MI - is widely practised when handling missing data (Allison, 2009; Little, 2013a; Schafer & Graham, 2002). This method provides generalizable estimates and recovers population variance critical to statistical inference. More importantly, it can handle both MAR and MNAR, both of which were encountered in this research (Buuren, 2018).

A MI procedure can produce immense sets of complete data using an iterative process, but it is recommended that 3-10 sets are robust enough to gain optimal estimates (McKnight et al., 2007). Those sets of complete data could produce

multiple parameter estimates, and then the means of them would serve as the best parameter estimates (Rubin, 1987). Because MI produces multiple estimates for each parameter, the increased variability can be used to adjust standard errors upward, which in turn reduces the likelihood of a Type I error. In our case, 10 sets of complete data were produced to gain the best estimates.

Special attention was given to the procedures of data imputation: the independent imputation by cohorts and research instruments and allowing datasets to be associated between the three collections (Young & Johnson, 2015). Considering the central question of interest here is the trajectory differences between cohorts, the data of each cohort were imputed separately to avoid reducing the distinct data distribution of cohorts (Little, 2013b).

Meanwhile, since the mechanism of missing data was MAR (MNAR in the police officer cohort), allowing waves of datasets to be correlated to each other would improve the accuracy of data imputation (Twisk, 2013). Hence, each scale was dealt with separately using SPSS version 25.

Furthermore, as this research is a longitudinal project with three data collections, cases with two missingness out of the three collections might hardly be decided toward which direction their trajectory head. In other words, the risks of bias are high if cases missed from two waves are pooled to be modelled with data imputation (McKnight et al., 2007). Hence, those cases joining only one wave were deleted before data imputation (identical to those dropped out in the previous examination of differential attrition).

## **7.9 Plan for presenting the results**

The results of this thesis are presented over the next five chapters (C8 - 12). The first four chapters report the results of the three components related to democratic policing (HR endorsement, MR, lack of PJ) and EBP receptivity sequentially. Within each chapter, the first section will formulate research hypotheses that address particular aspects of the aforementioned research questions. Then, the

following sections will present descriptive statistics, the results of multivariate statistical analysis, hypothesis examination and a summary of the results.

Descriptive statistics will provide an overview of the data collected. The statistics include means, standard deviation (SD), the sample size of raw data and reliability tests. The multivariate analysis applied here is the Repeated Measures Analysis of Variance (RM ANOVA), which is robust in detecting within-subjects changes. This method resonates with the research objective of identifying influential sources in police socialisation here. Following the multivariate analysis, pairwise comparisons will be performed to examine research hypotheses. Specifically, pairwise comparisons performed include t-tests of between- and within-subjects variables and contrast analysis of linear trends.

The final results chapter, C12, will cover the construct validation of democratic policing and explore the relationship between EBP receptivity and the three components of democratic policing. The former examines the conceptualisation of democratic policing using structural equation modelling (SEM). The latter explores what implications the relationship between EBP receptivity and the components of democratic policing might have using multiple linear regression (MLR). Chapter 13 then integrates the findings of these five chapters and organises them according to the five research questions that guide this thesis. The thesis then ends with a discussion of the main findings of this research, the noted strengths and limitations of this research, and the implications of the findings for future research and police policy and practice.

## Chapter 8 Results: Human rights

This chapter is the first of five results chapters in this thesis. It examines the relationship between police socialisation in Taiwan and attitudes towards HR, considered here to be one of three dimensions of democratic policing. The chapter is formed of four parts. Part one outlines the hypotheses tested in this analysis. Part two reports descriptive statistics. Part three presents the results of multivariate analysis, and part four discusses whether the research hypotheses can be accepted or rejected, based on the results reported here.

### 8.1 Research hypotheses

The hypotheses examined in this chapter derive from four of the research questions that guide this thesis. Each RQ and associated hypotheses are discussed in turn<sup>3</sup>:

*RQ1: How does police socialisation influence HR endorsement?*

The HR aspect of the police socialisation influence is examined by three hypotheses that correspond to the three perspectives of police socialisation: predisposition, police education and training and police work/culture (conceptualisation of police socialisation, see Figure 7.2). Because this question focuses on temporal changes, the prediction is based on the cadre program at CPU where new recruits and cadets are investigated. The assumption here is that police recruits enrolled on the same program should have similar qualifications and characteristics, thereby allowing for the measurement of changes across stages of police socialisation (i.e., from enrolment to the end of the first-year service).

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<sup>3</sup> It should be noted that the original RQs, outlined in section 7.1 include all 4 elements examined in this thesis - HR, MR, PJ and EBP - but for brevity only the relevant element is mentioned for each subheading here and in subsequent chapters.

The first hypothesis concerns the predisposition of police recruits. This hypothesis is examined by assessing the difference between new police recruits in the cadre program at CPU and new undergraduates at NCCU upon enrolment (data collections corresponding to police socialisation perspectives, see Figure 7.3). As mentioned previously, influential sources during the predisposition phase relate mainly to recruits' motivations (Bardi et al., 2014). As Tarng and Charing (2001) found, the majority of Taiwanese police recruits enter the CPU because of a desire for job security and due to parental influence, rather than certain qualities related to authoritarian syndromes that might lead to a 'police personality'. If this is true, then there is no reason to think that new police recruits should exhibit unfriendly attitudes towards HR. Consequently, this research predicts that there is no difference in HR scores between new police recruits and new undergraduates upon enrolment, as measured by the ATHR. Hypothesis 1 is therefore framed as follows:

**H1:** New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in HR endorsement upon enrolment.

The second hypothesis tested here relates to the influence of police education and training on police recruits' views on HR:

**H2:** New police recruits in the cadre program at CPU will become less supportive of HR between enrolment and the end of their 2<sup>nd</sup> year at CPU.

Influential sources considered to affect HR during this stage of police education and training relate mainly to conformity to departmental prescriptions. To my knowledge, no research has empirically examined the influence of police education and training on police officer attitudes towards HR. This is despite the fact that scholars have argued that people who embrace the ideology of group-based hierarchies (such as the police) tend to refuse the uniform application of HR (Cohrs et al., 2007). This argument is congruent with the police education at CPU, particularly the jingshen education and military training. Jingshen education, as described in C6, is designed to teach recruits 'correct' thinking and behaviour. It does this by shaping recruits' routine activities and placing them at the bottom of

the hierarchical Student Corps, subordinate to more senior recruits. It is argued that such a training context that places recruits in strict hierarchies might reinforce the ideology of group-based hierarchies, in turn leading to less equal an application of HR. Moreover, the other reason that jingshen education might undermine recruits' HR endorsement is the confinement of HR by routine management at CPU. Because of minute control, recruits' HR are often restricted. Dormitory checks, for example, where recruits are not allowed to keep personal belongings unless permitted are a limitation of privacy.

The military training that forms a core part of the CPU curriculum might also undermine recruits' HR endorsement. Because military training forces recruits to be assimilated into the CPU paramilitary system via chain of command structures, discipline and physical and mental pressure, recruits interact with others based solely on status or rank. This, it is argued, may contribute to recruits placing greater emphasis on obedience to authority and in-group solidarity (Harris, 1973; Lundman, 1980; Shernock, 1997), which in turn might lead to the 'us versus them' mentality and associated out-group hostility (Adlam, 2002; Conti & Doreian, 2014; Shernock, 1998). If so, this might serve to reduce recruits' belief in the importance of according HR to citizens equally.

The third hypothesis concerns the influence of police work/culture on HR endorsement. This is achieved by examining attitudes towards HR in cadets from graduation to the end of their 1<sup>st</sup> year of police service. Sources considered influential at this stage are concerned with the way recruits adjust themselves to the organisational norms and function as a member of the police organisation. According to Cao et al. (2014), little research has considered the transition of recruits to fully-fledged police officers in Taiwan, nor the influence of fieldwork. Hypothesis three is therefore based on what is known about the characteristics of police organisational norms in Taiwan. As found in previous research, the Taiwanese police culture is characterised by strict discipline, obedience to authority, conservatism, formalism, hierarchy and rigorous performance evaluation (Lin, 1999; Ling, 2012). It is predicted that cadets who work in these conditions are expected to experience a decline in HR endorsement (Cox, 1996). However, since

the training at CPU has, to some extent, prepared them for the organisational norms, it is plausible that field experience might not affect cadets significantly. Another reason for this prediction is that cadets have to respond to the public following the bureaucratic procedures of HR protection when involved in police work. It does not mean that the compliance makes them embrace HR, but they at least have a deeper understanding of HR (Bullock & Johnson, 2012).

**H3:** Cadets will not change significantly in HR endorsement between graduation and the end of their 1<sup>st</sup> year of police service.

*RQ2: How does police education influence HR attitudes?*

This question centres on the distinct effect on HR endorsement between the cadre and criminology programs. The between-programs comparison is different from hypothesis two because that compares *within-subjects* changes over time. By contrast, this hypothesis emphasises the removal of the potential impact of unmeasured variables between the control and experimental groups.

Due to the distinct training contexts of the CPU and NCCU, described in more detail in C6, new recruits and new undergraduates are expected to have distinct changes in HR endorsement over time. With little research addressing the effect of police education on HR, the scarcity persists in the influence of college education on undergraduates' HR endorsement, too. That research which is available relates mainly to the influence of secondary education on HR endorsement (McFarland, 2015; Sadruddin & Hameed-ur-Rehman, 2013). Because of the age of students taught and content delivered in secondary education, the findings of these studies are not considered relevant to the cohorts considered here. This research is thus not discussed here.

Some scholars have indeed pointed out that short-term seminars or training courses in college education can have positive impacts on undergraduate attitudes towards HR (Chen et al., 2015; Steen et al., 2016). The identified facilitators include exposure to HR principles and awareness of inequality and oppressive practices (especially related to physical punishment and the HR of sexual minorities). In this vein, college undergraduates in this study are hence expected



to see improvements in HR endorsement over time because the modules they take part in at NCCU are related to the facilitators identified in prior studies as promoting HR.

The other factor that supports this prediction is the campus experience at NCCU, which typically exposes undergraduates to a diverse and open campus. These experiences, it is argued, allow undergraduates to apply what they learn about HR to be practised and internalised in daily life. By contrast, the potential negative influence of police education on HR endorsement has been described in H2. The hypothesis is thus:

**H4:** New undergraduates at NCCU will become comparatively more supportive of HR between enrolment and the end of their 2<sup>nd</sup> year than will new police recruits at CPU.

*RQ3: How does a bachelor's degree influence HR endorsement?*

To determine the effect of a bachelor's degree on HR endorsement, this hypothesis compares HR endorsement between graduate recruits and general recruits (i.e., new recruits on the cadre program; data collections corresponding to police socialisation perspectives, see Figure 7.5). Because of the strength of the vocational orientation of this special-exam program, the prediction is that graduate recruits will experience the same changes in HR endorsement as new recruits. Besides the paramilitary training contexts at CPU, graduate recruits in this program are exposed to police work and culture, which might not be conducive to the promotion of HR endorsement (as discussed in H3). Because this program comprises a sizable proportion of the curricula dedicated to an internship (26.35%), graduate recruits experience police work and informal culture via their FTOs who have the power to fail them and interpret the existing police role and function for them (Getty et al., 2016; Skolnick, 1966). Considering the status of graduate recruits in the internships, they tend to conform to the expectations that FTOs impose on them; that is, to follow organisational norms in the paramilitary and bureaucratic organisation. Because of the contexts where graduate recruits are trained at CPU and interned in the police organisations, both of which are

hierarchical paramilitary organisations and thus considered unable to boost HR endorsement, graduate recruits might become less supportive of HR over time (Cohrs et al., 2007; Cox, 1996). This decline might lead to little difference in HR endorsement between them and new recruits. The hypothesis thus is predicted:

**H5:** Graduate recruits at CPU will not differ from new recruits in HR endorsement between enrolment and graduation.

*RQ4: How does in-service education influence HR endorsement?*

This research question will be examined by assessing temporal changes in HR attitudes of police officers across the promotion program at CPU (data collections corresponding to police socialisation perspectives, see Figure 7.4). As this program incorporated liberal arts, social and behavioural science in the curriculum, it is expected to contribute positively understandings of the police role and function in the workplace (Norman & Williams, 2017) and inductive reasoning (Lehman & Nisbett, 1990) to sworn officers. However, it is unclear how the curriculum is associated with HR endorsement. As the training context at CPU is no less hierarchical than police organisations, the possibility to engender the ideology of group-based hierarchies remains a possibility (Cohrs et al., 2007). That means police officers' HR endorsement is not expected to increase during the in-service program. Thus the hypothesis is:

**H6:** Police officers will not experience significant changes in HR endorsement between enrolment and graduation at CPU.

## **8.2 Descriptive statistics**

Before proceeding to inferential statistics, this section reports the descriptive statistics for the ATHR scale administered to Taiwanese participants. This section reports means, SD and scale reliability measures. As all questionnaires applied in this research are 7-point Likert scales, the scores reported here range between 1 and 7 (1 = strong disagreement; 4 = neutrality; 7 = strong agreement). For the purposes of analysis, all the items in the ATHR were re-coded such that higher

scores indicate a stronger endorsement of HR. The means and SD were calculated by averaging the 26 items of the ATHR scale.

As illustrated in Table 8.1, across all cohorts, participants showed slightly more positive attitudes towards HR. This can be seen in the mean scores across cohorts, which were 4.81, 4.74 and 4.71 for the first, second and third data collection phase (with 4 denoting neutrality). There is, however, no reference point available to make sense of the absolute value of these means and SDs because those studies which have used the ATHR adopt a five-point Likert scale (Leung & Lo, 2012; Lo et al., 2015).

**Table 8. 1** Means, Sample Size and SD by Cohort over time

<b>Cohorts</b>	<b>HR</b>	<b>First collection</b>	<b>Second collection</b>	<b>Third collection</b>
		<i>Upon enrolment</i>	<i>End of 1<sup>st</sup> year</i>	<i>End of 2<sup>nd</sup> year</i>
New undergraduates	Mean	5.01	4.99	5.02
	N	42	37	34
	SD	0.50	0.58	0.53
New recruits	Mean	4.87	4.74	4.64
	N	281	221	204
	SD	0.60	0.66	0.63
		<i>Upon enrolment</i>	<i>End of 1<sup>st</sup> year</i>	<i>Upon graduation</i>
Graduate recruits	Mean	4.95	4.82	4.71
	N	44	44	41
	SD	0.69	0.71	0.79
Police officers	Mean	4.67	4.55	4.54
	N	96	74	58
	SD	0.74	0.65	0.82
		<i>End of 3<sup>rd</sup> year</i>	<i>Upon graduation</i>	<i>Working a year</i>
Cadets	Mean	4.74	4.74	4.69
	N	243	171	110
	SD	0.62	0.60	0.56
Total	Mean	4.81	4.74	4.67
	N	706	547	447
	SD	0.63	0.64	0.66

The ATHR scale showed good and stable reliability across the three data collections. As illustrated in Table 8.2, the three collections achieved reliability scores (Cronbach's alpha) of 0.83, 0.84 and 0.84, respectively (Cortina, 1993).

**Table 8. 2** Reliability of ATHR

HR	First collection	Second collection	Third collection
Cronbach's Alpha	0.83	0.84	0.84

N of Items 26

### 8.3 Multivariate analysis

This section examines the hypotheses described above. It reports the results of RM ANOVA combined with pairwise comparisons and contrast analysis. The application of RM ANOVA is intended to present an overall picture of changes over time while the pairwise comparisons and contrast analysis are used in order to perform targeted, hypothesis-driven post hoc tests.

One of the methodological advantages of RM ANOVA is the sensitivity of such a test in distinguishing changes over time by having each subject act as his/her own control (Locascio & Atri, 2011). The sensitivity of this test can be improved by applying theoretically-informed covariates such as, in this research, age, police service length and college experience, all of which are considered as potentially influential on HR endorsement in the pre-dispositional perspective. However, all the potential covariates in this research violated the assumption of homogeneity of regression slopes, which indicates consistent associations between covariates and dependent variables. If there are consistent associations, applying covariates can reduce the within-group error variance explained by these covariates among cohorts systematically so as to enhance sensitivity (Pituch & Stevens, 2016). However, if this assumption is violated, the adjusted error variance increases for some cohorts and decreases for others. In other words, the violation of this

assumption indicates that means are not adjusted consistently across all cohorts. They thus are not incorporated here.

RM ANOVA is an omnibus test, which means that it is not able to identify the source of any difference, should it exist, when there are more than two levels or categories within an independent variable. When differences are observed, it is, therefore, essential to carry out pairwise comparisons to identify the location of variance (Girden, 1992). However, this often leads to an increased risk of committing a type I error, namely, the rejection of a true null hypothesis caused by repeated t-tests between subcategories. Hence, to avoid the false rejection of a hypothesis, pairwise comparisons are performed, here corrected by the conservative Bonferroni method, which is adjusted by the number of comparisons on the dependent variable (Field, 2018).

Because this research employed data imputation to compensate for missing data (see Section 7.8), there are ten sets of complete data to be analysed. This means there are ten sets of parameters generated. The ten sets of parameters are almost identical, but slight differences did exist between them. It might be confusing about which set of parameters to be reported here. These differences matter when the significance tests fluctuate around .05. However, this issue is partially handled by the Bonferroni method as the method makes  $p$  values stringent so that the chance of fluctuation is very low. If the fluctuation occurs in particular significance tests, they are reported here.

### *RM ANOVA*

Before proceeding to the results, it is important to examine the assumption of sphericity for RM ANOVA. This indicates what corrections should be applied to avoid increasing the likelihood of committing a type I error. The Mauchly's test indicated that the data used here violated the sphericity assumption ( $X^2(2) = 8.178$ ,  $p < .05$ ). Therefore, degrees of freedom were corrected by Huynh–Feldt estimates ( $\epsilon = .986$ ) of sphericity (Girden, 1992).

In the RM ANOVA model (Table 8.3), the main within-subjects variable is time. Because the sample includes cohorts in two- and four-year programs, the time (the

first, second and third data collection period) means different things for different cohorts: 1) upon enrolment, end of 1<sup>st</sup> year and end of 2<sup>nd</sup> year for new recruits and undergraduates; 2) upon enrolment, end of 1<sup>st</sup> year and on graduation for police officers and graduate recruits; 3) the end of 3<sup>rd</sup> year, on graduation and having worked for 1 year for senior cadets. Statistically, it is acceptable to fit these time points into the same model because they are relatively evenly spaced (Girden, 1992; Locascio & Atri, 2011). Conceptually, the fitting of these time points with different meanings into the same model might, however, raise concerns about the equivalence of these time points. This issue nevertheless did not influence the following analysis as the different meanings of these time points will be examined and discussed in the pairwise comparisons and contrast analysis. Each time point will be interpreted corresponding to respective hypotheses and cohorts. These conceptualisations of time for respective cohorts are identical across the RM ANOVA models in chapters 8, 9, 10 and 11. The between-subjects variables were cohort, gender and police relatives. The tested interaction effects are limited to two-way interactions to avoid high-order interactions (i.e., three or more variables interact) and thus uninterpretable effects (Girden, 1992).

**Table 8. 3** HR Significance Tests for RM ANOVA

<b>Effects</b>	<b>df</b>	<b>F</b>	<b>Partial Eta Squared</b>
<i>Within-subjects effects</i>			
Time	(1.976, 1175.72)	11.327***	0.019
Cohort by time	(7.891, 1175.72)	2.316*	0.016
Gender by time	(2, 1175.72)	7.519**	0.013
Police relatives by time	(2, 1175.72)	1.366	0.002
<i>Between-subjects effects</i>			
Cohort	(4, 588)	2.738*	0.018
Gender	(1, 588)	6.438*	0.011
Police relatives	(1, 588)	0.107	0.001

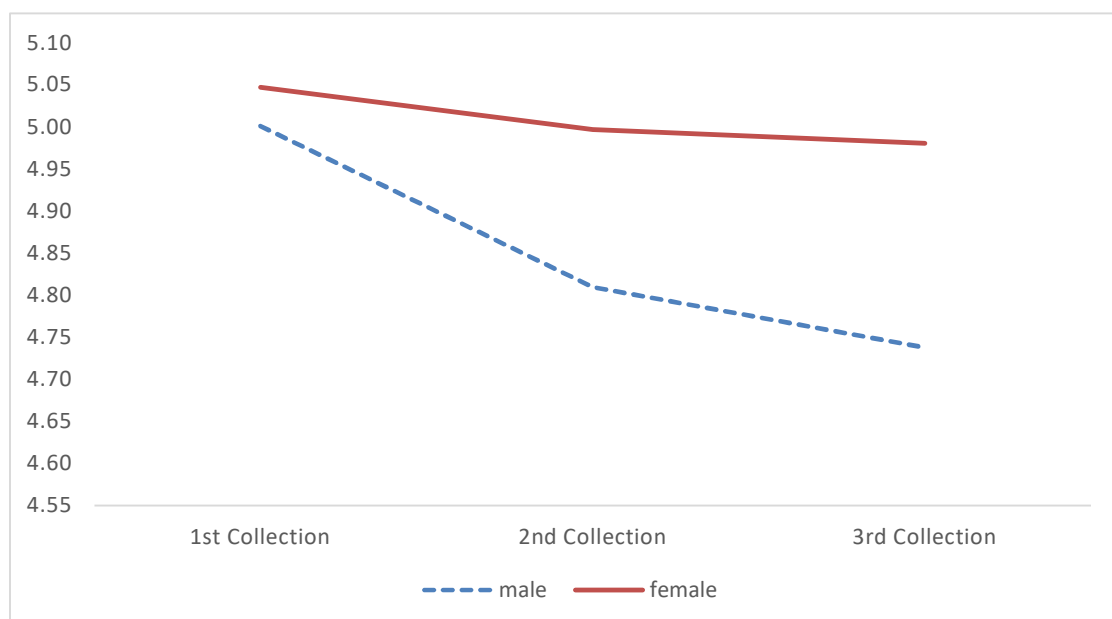
\* p< .05, \*\*p< .01, \*\*\*<.001

There were three within-subjects variables (time, cohort by time and gender by time) and two between-subjects variables (cohort and gender) that exhibit a

statistically significant impact on HR. The main effect of time on HR changed significantly across the three data collection points. This indicated a declining trend of HR endorsement, with grand estimated means overtime of 5.035, 4.904, and 4.862.

There were two significant between-subject main effects. The first was for gender. Estimated means indicated that males (4.86) were less accepting of HR than were females (5.01). The other significant main effect was for cohort. The pairwise comparisons indicated that the new undergraduates had the highest HR scores (5.14), which differed significantly from police officers who exhibited the lowest scores (4.77,  $p < .01$ ). There was no other significant difference among other cohorts.

There were two statistically significant interaction effects: between time and gender and between time and cohort. These interactions suggest that the trajectories of HR scores over time varied both between gender and between cohorts. Plotted by estimated means of males and females (Figure 8.1), the interaction illustrates a divergence between genders. This was further evidenced by the significant differences between males and females at time 2 (difference = .19,  $p < .01$ ) and time 3 (difference = .26,  $p < .001$ ) but not at time 1 (difference = -.01,  $p > .05$ ).



### Figure 8. 1 HR Trajectories by Gender

The other interaction effect, time by cohorts, indicated that the rate of change over time in HR endorsement varied among cohorts. To better understand this interaction, pairwise comparisons were performed. Simultaneously, the pairwise comparisons examined the hypotheses.

#### *The influence of police socialisation perspectives on HR endorsement*

This section examines research hypotheses 1, 2 and 3.

**H1:** New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in HR endorsement upon enrolment.

The pairwise comparison showed that there was no significant difference ( $p > .05$ ) in HR endorsement between the new recruits (estimated means = 5.06) and new undergraduates (5.2) upon enrolment. This result indicates that H1 was supported, which means the pre-dispositional mode was not supported. Put differently, upon enrolment Taiwanese police recruits at CPU did not exhibit measurably different views on HR than that of criminology undergraduates starting NCCU, as measured using the ATHR scale.

**H2:** New police recruits in the cadre program at CPU will become less supportive of HR between enrolment and the end of their 2<sup>nd</sup> year at CPU.

The HR scores of new recruits dropped significantly over the three consecutive years, with the first fall from 5.06 to 4.91 (estimated means,  $p < .01$ ) and a further drop to 4.80 ( $p < .05$ ). The drop in HR scores collectively accounted for a medium effect size, using standard conventions (Cohen's  $d = 0.482$ ). This result supports H2, implying that the first half of the cadre program was associated with an adverse effect on police recruits' HR endorsement.

**H3:** Cadets will not change significantly in HR endorsement between graduation and the end of their 1<sup>st</sup> year of service.

The cadet cohort saw a non-significant fall ( $p > .05$ ) in HR endorsement from 4.91 to 4.84 during their first year of police service. This significance test supported H3,



implying that the effects of police work/culture did not significantly affect cadets in HR endorsement in the first year of police service.

Taken together, the above three results showed that police education (H2) is more pronounced in (negatively) affecting HR endorsement than the other two perspectives of police socialisation: predisposition and police work/field. This finding is evidenced by the significant decrease in HR endorsement among new recruits from initial enrolment to the end of their second year, and by the lack of disparities between new recruits and undergraduates cohorts upon enrolment and of significant changes in rookies' first year of service.

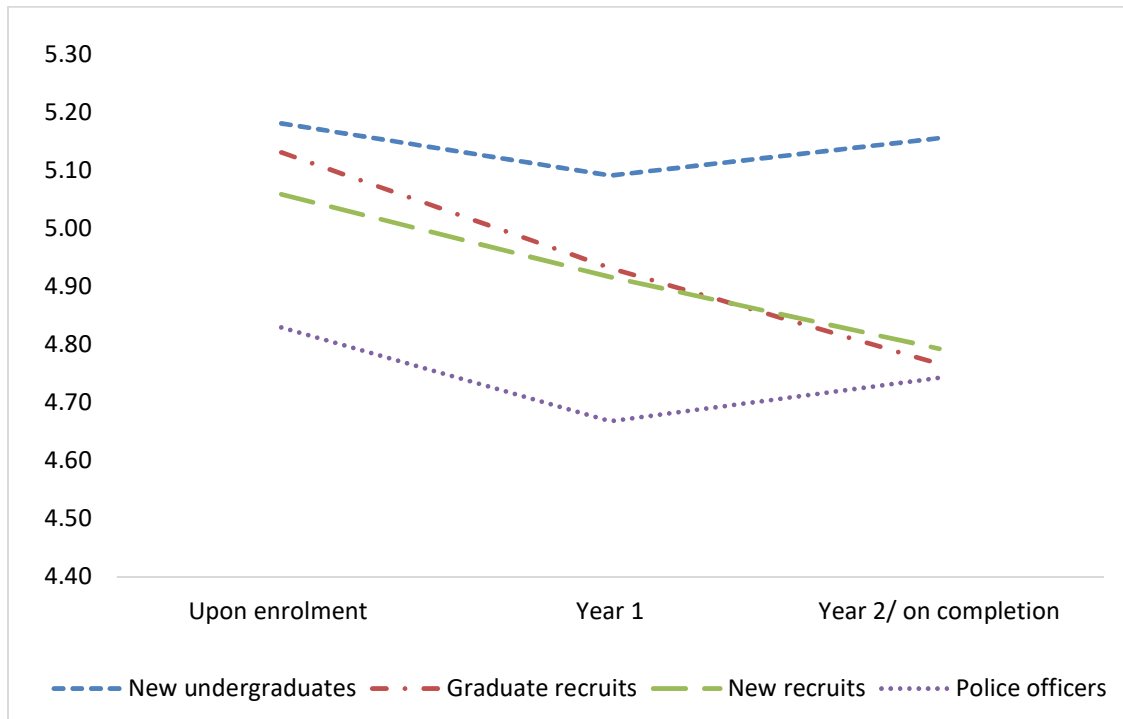
#### *The influence of police education on HR attitudes*

To examine hypotheses 4 and 5, this research uses contrast analysis. This form of analysis is a difference-in-differences approach that compares the average changes of a dependent variable between treatment and comparison groups over time (Bertrand et al., 2004; Gertler et al., 2016). To perform this analysis, each collection is given lambda weights. Here, the first, second and third data collections are hence set up as 1, 0, -1, respectively, indicating a negative linear trend (Rosenthal et al., 2000). This negative trend represents the decline of HR endorsement over time. This setup is based on the prediction that CPU education has a negative effect on HR endorsement over time.

**H4:** New undergraduates at NCCU will become comparatively more supportive of HR between enrolment and the end of their 2<sup>nd</sup> year than will new police recruits at CPU.

The contrast analysis between the two cohorts showed a negative estimate (-0.236,  $F(1,295) = 2.035$ ,  $p=.07$ ,  $r= .09$ ). This meant that new recruits' HR trend was significantly more negative than that of new criminology undergraduates. In other words, new undergraduates became significantly more supportive of HR than new recruits between enrolment and the end of their 2<sup>nd</sup> year. This result thus means that H4 was supported.

To visualise this result, Figure 8.2 plotted the estimated means. It shows that the new undergraduates saw a fluctuation in HR endorsement, whereas new police recruits declined year-on-year and to a statistically significant degree.



**Figure 8. 2** HR Trajectories of Newly Recruited Cohorts

*The influence of bachelor's degrees on HR endorsement*

Hypothesis 5 predicts that graduate recruits on the special-exam program will not behave differently when it comes to HR endorsement, compared to new recruits on the cadre program. Likewise, the contrast analysis compared changes in HR endorsement across the two cohorts over time. The hypothesis is:

**H5:** Graduate recruits at CPU will not differ from new recruits in HR endorsement between enrolment and graduation.

The contrast analysis showed a non-significant estimate of - 0.098 ( $F(1, 324) = .573, p>.05, r=.003$ ). This meant that graduate recruits' HR scores were more negative than new recruits' but not significantly so. In other words, graduate

recruits did not differ from new recruits in HR endorsement between recruitment and completion at CPU. The result thus supported H5, implying bachelor's degrees do not make a discernible difference in HR endorsement during police academy training.

#### *The influence of in-service education on HR endorsement*

**H6:** Police officers will not experience significant changes in HR endorsement between enrolment and graduation at CPU.

The within-subjects analysis showed that police officers' HR scores declined from 4.83 to 4.655 ( $p=.05$ ) in the first year and bounced back to 4.762 ( $p>.05$ ) in the second year. The overall drop was not statistically significant. This result supported H6. It implies that the promotion program at CPU did not influence sworn officers' HR endorsement to a statistically significant degree.

## **8.4 Summary**

This section summarises the results. Because little research has explored the relationship between police education and HR endorsement, the hypotheses tested here derived from the presumed effect of 1) recruits motivated by factors unrelated to authoritarian syndromes, 2) paramilitary management and vocational training at CPU and 3) the similar organisational norms between CPU and Taiwanese police organisations on HR views.

These inferences above seem justifiable as the hypothesis examinations are all supported (Table 8.4). The first three tests showed that police education is more influential in affecting HR endorsement in the process of police socialisation, whereas predisposition and police work/culture had no discernible effect among the sample in this study. However, the influence of police education is negative as indicated by the negative trend of new recruits, compared to new undergraduates'.

**Table 8. 4** Summaries of Hypothesis Examination

Hypothesis	Contents	Status
H1	New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in HR endorsement upon enrolment.	Supported
H2	New police recruits in the cadre program at CPU will become less supportive of HR between enrolment and the end of their 2 <sup>nd</sup> year at CPU.	Supported
H3	Cadets will not change significantly in HR endorsement between graduation and the end of their 1 <sup>st</sup> year of service.	Supported
H4	New undergraduates at NCCU will become comparatively more supportive of HR between enrolment and the end of their 2 <sup>nd</sup> year than will new police recruits at CPU.	Supported
H5	Graduate recruits at CPU will not differ from new recruits in HR endorsement between enrolment and graduation.	Supported
H6	Police officers will not experience significant changes in HR endorsement between enrolment and graduation at CPU.	Supported

Even though the entry status is raised to bachelor's degrees, graduate recruits did not differ from new recruits in the observed decline of HR endorsement during police academy training (H5). The final hypothesis (H6) upheld that the integration of liberal arts and social science into the promotion program where paramilitary management and vocational training was delivered had no effect on sworn officers' HR endorsement.

As these hypotheses were examined from the perspective of statistical significance, the next step is to determine the meaningfulness of any observed difference; that is, the practical significance. Among the six hypotheses listed above, two of them signal a statistically significant difference: H2 and H4. The former is concerned with the change of new recruits in HR endorsement over the first two years of the cadre program. The change was, as standardised, 0.482 (Cohen's *d*), which is a medium effect size (Lakens, 2013). This magnitude of effect size is generally considered to be practical significance (Ellis, 2010). A

similar effect size is observed for H4. Upon enrolment, new undergraduates scored higher than new recruits in HR by 0.227 (Cohen's  $d$ ), but the gap enlarged to 0.727 at the end of the second year. This means a medium effect occurs over the two years, which is again considered to be an effect of practical significance.

## Chapter 9 Results: Moral reasoning

This chapter reports the second set of analyses, this time concerned with police officers' MR (delineated by N2 score) as measured by the DIT-2. As with C8, this chapter begins by setting out the research hypotheses that will be tested in this chapter. It then reports descriptive statistics, the results of multivariate analysis and finally whether the stated hypotheses were supported or rejected.

### 9.1 Research hypotheses

The research hypotheses tested here relate to four research questions, discussed below.

*RQ1: How does police socialisation influence MR?*

This research question explores the influence of the three perspectives of police socialisation - predisposition, police education and training and police work/culture - on MR (conceptualisation of police socialisation, see Figure 7.2). This question is correspondingly examined via three hypotheses. The first hypothesis is concerned with the predisposition perspective of police socialisation. Here, comparisons are made between new police recruits at CPU and new undergraduates at NCCU data collections corresponding to police socialisation perspectives (see Figure 7.3). As influential sources considered in this perspective are concerned with recruit motivations and personalities, the prediction regarding this perspective is based on recruits' motivations (Bardi et al., 2014). As revealed by Tarnig et al., (2001), police recruits were motivated by job security and parental influence rather than authoritarian syndromes which potentially lead to low willingness to abide by procedural justice, thereby generating lower scores on MR. Consequently, this hypothesis predicts that there is no difference in N2 scores between new recruits and new undergraduates upon enrolment, as measured by DIT-2.

**H7:** New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in MR upon enrolment.

The second hypothesis is concerned with the influence of police education and training on MR. Influential sources considered in this perspective are mainly related to conformity to departmental prescriptions (Charman, 2017). So far, this issue has been rarely researched. To my knowledge, there is no research investigating MR among police officers. However, three studies have looked into the relevant variable - ethics – as both MR and ethics are related to what stances to take when encountering dilemmas (i.e., Alain & Grégoire, 2008; Blumberg et al., 2015; De Schrijver & Maesschalck, 2015). All three of these studies investigated the effect of police academy training on recruits' self-reported integrity at the beginning and end of academy training. The results were similar across each study: academy training was found to have no (statistically significant) effect on measures of integrity, suggesting that the observed lack of influence is attributed to the failure of academy training to sufficiently teach recruits how best to address moral dilemmas.

Generally, post-conventional MR is found to be positively associated with participation in higher education. For example, King and Mayhew (2002) reviewed over 500 studies on the relationship between DIT and college students and found that the advancement of post-conventional MR is related to the intellectual environment of colleges that encourages the free exchange of ideas, exposure to multiple viewpoints, truth-seeking and cautious reasoning in academic or institutional values of academic integrity and personal responsibility. In this regard, an environment with these facilitators contrasts with the training context at CPU, as was described in C6. Specifically, these facilitators might be inhibited by the major source of influence at this stage of police socialisation: obedience to organisational rules and solidarity, both of which resonate with the maintaining-norms scheme (stage 4) (Conti, 2011; de Albuquerque & Paes-Machado, 2004; Rest et al., 2000). In other words, these two qualities brought about by CPU training prioritise the established social order and promote its maintenance as a moral obligation rather than promoting shared ideals and openness to scrutiny (the

perspective of post-conventional reasoning; Thoma, 2014). That means police recruits may advance in the maintaining-norms scheme (stage 4) but not post-conventional MR. Taken together, it is predicted that the cadre program has no effect on MR scores over time.

**H8:** New police recruits in the cadre program at CPU will not change significantly in MR between enrolment and the end of their 2<sup>nd</sup> year at CPU.

The third hypothesis is concerned with the influence of police work/culture by examining changes in cadets between graduation and the end of their 1<sup>st</sup> year of police service. Some researchers have argued that rookie officers' ethical principles are strongly influenced by peer group pressures, personal self-interest and the emotional challenges associated with enforcement encounters (Pollock & Becker, 2005; Sherman, 1982). Empirical research has shown, however, mixed effects of police work on new officers in ethical issues. De Schrijver and Maesschalck (2015), for example, found that field training did not affect new officers' reasoning skills significantly, whereas Alain and Grégoire (2008) revealed police work lowered rookies' ethical standards.

No research has investigated the relationship between police work/culture and MR in Taiwan. It is therefore not known how cadets' MR is affected by their first year in police service in Taiwan. This prediction of cadets' post-conventional reasoning is based on two observations: the similarity of organisational norms between CPU and Taiwanese police organisations and the moral dilemmas that cadets often have to face when involved in police work. To expand, first, the paramilitary training at CPU, as discussed in H8, might not advance recruits' MR as the training context constrains recruits from exposure to intellectual stimulation. Moreover, Taiwanese police organisational culture is characterised by strict discipline, obedience to authority, and conservatism, which might also impose constraints on MR (Lin, 1999; Ling, 2012). That is, both CPU and the Taiwanese police do not allow for an environment that stimulates recruits to challenge established norms, and so their MR is not expected to grow after graduation. Moreover, as the CPU has primarily



prepared cadets for hierarchical and paramilitary police organisations, it is thus expected that fieldwork will not impact rookie officers significantly in MR.

The other reason is the complexity of moral dilemmas that cadets have to face in routine police work, as opposed to being educated at CPU. That is, the increasing complexity and frequency of moral dilemmas encountered might stimulate cadets' advancement of post-conventional thinking, which represents the consistent and logical way of handling social conflicts (Thoma, 2014). Otherwise, at least compared to the obedience prioritised at CPU, cadets' MR may, arguably, not decrease significantly.

**H9:** Cadets will not change significantly in MR between graduation and the end of their 1<sup>st</sup> year of service.

*RQ2: How does police education influence MR?*

This question of the influence of Taiwanese police education on MR is addressed by comparing the average changes of N2 scores between new recruits and new undergraduates from enrolment to the end of their second year. The limited studies on the relationship between police training and ethical issues (as discussed in H8) showed that no relationship existed between these variables. However, King and Mayhew's (2002) review revealed that numerous studies supported the view that undergraduates' MR was positively associated with collegiate contexts that foster the exchange of ideas, exposure to diverse perspectives, academic values of critical thinking and constructive peer interaction.

In this case, new undergraduates at the NCCU are expected to experience a growth in post-conventional reasoning because their criminology program delivers liberal arts, social and behavioural science, encouraging undergraduates to apply science and think critically and independently. That is to say, NCCU is a classical university where those contributors of collegiate contexts identified in previous research should stimulate undergraduates' capacity for MR. By contrast, CPU might not have the same influence because of the two absent elements of curricula at NCCU: jingshen education and military education. Although the objective of jingshen education is to educate recruits the 'correct' thinking and behaviour, it

reinforces in-group solidarity via all sorts of disciplinary actions such as repetitive exercises, minute control of activity. This solidarity 'makes up' the identity of recruits as a member of CPU where a form of collective knowledge is shared among members (Adlam, 2002). The 'making up' of identity and thus collective knowledge particularly contradicts with the facilitators of post-conventional reasoning - exposure to diverse perspectives - as this 'making up' implies a homogeneous mindset among recruits (Mayhew et al., 2012).

Military training that shapes recruits' obedience to authority and in-group solidarity (as discussed in H8) might not stimulate recruits' growth in MR (Conti, 2011). The obedience to authority is mainly regulated by chain of command where a subordinate-superordinate relationship is established between recruits and instructors. This top-down relationship might discourage recruits from challenging intellectually. Moreover, solidarity engendered by group punishments and rewards would encourage recruits to be mutually supportive so as to avoid punishments and win rewards rather than reflective. These qualities moulded by military training would thus preclude recruits from intellectual stimulation, thereby advancement of MR.

In light of the differences in training contexts between the two universities, the hypothesis predicts:

**H10:** New undergraduates at NCCU will become comparatively more advanced in MR between enrolment and the end of their 2<sup>nd</sup> year than will new police recruits at CPU.

*RQ3: How does a bachelor's degree influence MR?*

This question is concerned with the influence of bachelor's degrees on MR. It is assessed by comparing the average changes of N2 scores between new recruits with baccalaureate degrees in the special-exam program and those without degrees in the cadre program between enrolment and graduation (data collections corresponding to police socialisation perspectives, see Figure 7.5). As discussed in H10, new recruits in the cadre program might not progress in the capacity of MR because of constraints of intellectual stimulation imposed by CPU training contexts

such as jingshen education and military training (McNeel, 1994; Pascarella & Terenzini, 1991).

Likewise, graduate recruits in the special-exam program are not expected to progress in post-conventional reasoning because of the following two reasons. First, the curriculum for graduate recruits is dominated by prescriptive and technical subjects where intellectual challenges are limited (Cummings et al., 2001). That is, what is taught related to the role and function of police in the program is technical and skill-oriented, implying theoretical and reflective aspects are absent.

Furthermore, besides jingshen education and military training, graduate recruits are exposed to a large proportion of internship opportunities where FTOs influence and assess them, often leading to the steady transfer of existing patterns of behaviour and thinking (Getty et al., 2016). The learning flow seemingly pushes graduate recruits to conform to the existing practice, precluding them from provoking their own morality (Rest, 1988). Despite their previous college experience, it is argued that graduate recruits might not be stimulated intellectually to progress in MR due to the training contexts described above. Thus, the hypothesis is:

**H11:** Graduate recruits at CPU will not differ from new recruits in MR between enrolment and graduation.

*RQ4: How does in-service education influence MR?*

This research question examines the changes of police officers in MR across the promotion program at the CPU (data collections corresponding to police socialisation perspectives, see Figure 7.4). Because this program incorporates liberal arts, social and behavioural science, it is of interest to find whether or not this program improves officers' post-conventional thinking. However, as argued throughout this thesis, it is claimed that the CPU is not a stimulating environment in which sworn officers are provoked to work out their own ideas about morality. Consequently, it is expected that police officers will not progress in post-conventional reasoning (Rest, 1988). As discussed in H9, jingshen education and

military training that bring about collective knowledge, obedience, and solidarity might impede recruits to challenge intellectually (Conti & Nolan III, 2005). In other words, these training contexts might neutralise the liberalising effect of liberal arts and social and behavioural science. The hypothesis is:

**H12:** Police officers will not experience significant changes in MR between enrolment and graduation at CPU.

## 9.2 Descriptive statistics

This section reports descriptive statistics for DIT-2, including means and SD of the N2 scores. To reiterate what was outlined in Section 7.3, N2 scores range from 0 to 95, where higher scores denote a greater level of post-conventional thinking when encountering dilemmas.

Table 9.1 shows the N2 scores for each cohort across the three periods of data collection. Based only on visual inspection, police officers scored much lower than other cohorts on MR as the N2 means of police officers is lower than the grand means across data collections. Although little research has investigated police officers' MR using DIT-2, to make sense of the N2 scores in this research, it is helpful to compare the results found here with those of undergraduates reported in studies conducted recently. For example, O'Flaherty and Gleeson (2014) tracked 689 undergraduates at an Irish university over four years (three collections with two-year intervals) with 259 completing all three data collections. The means of N2 scores (no SD reported) for the first, second and third collection were 20.42, 27.02 and 29.78, respectively. Compared to these Irish data, participants of this present research scored much higher. Moreover, the mean variations seem comparable with the Irish study as here new undergraduates scored 41.16, 47.75 and 46.24 (1-year interval). In another study, which surveyed 831 undergraduates (freshmen, sophomores, juniors and seniors mixed) in a Chinese university, the means and SD were 32.6 and 10.6, respectively (Zhang & Thoma, 2017). Besides police officers who scored similarly to those in that Chinese research, other

participants in this study score explicitly higher in N2 scores.

**Table 9. 1** Means, Sample Size and SD by Cohort over Time

Cohorts	N2	First collection	Second collection	Third collection
		<i>Upon enrolment</i>	<i>End of 1<sup>st</sup> year</i>	<i>End of 2<sup>nd</sup> year</i>
New undergraduates	Mean	41.16	47.75	46.24
	N	42	36	35
	SD	11.80	9.50	7.93
New recruits	Mean	43.52	41.36	42.54
	N	281	201	163
	SD	11.10	11.41	13.68
		<i>Upon enrolment</i>	<i>End of 1<sup>st</sup> year</i>	<i>Upon graduation</i>
Graduate recruits	Mean	43.20	42.60	43.96
	N	45	43	34
	SD	11.67	13.82	12.09
Police officers	Mean	33.50	37.73	35.69
	N	88	64	56
	SD	12.83	11.77	13.55
		<i>End of 3<sup>rd</sup> year</i>	<i>Upon graduation</i>	<i>Working a year</i>
Cadets	Mean	40.09	43.08	43.22
	N	237	146	85
	SD	12.90	12.34	13.77
Total	Mean	40.91	41.98	42.14
	N	693	490	373
	SD	12.43	12.02	13.36

### 9.3 Multivariate analysis

This section reports significance tests using RM ANOVA and hypothesis examination using pairwise comparisons and contrast analysis. To avoid the increased risk of making a type I error, pairwise comparisons were corrected by Bonferroni, a conservative method that makes p value more stringent (Field, 2018).

#### *RM ANOVA*

Preliminary analysis revealed that the assumption of RM ANOVA sphericity was violated in this model, as indicated by the Mauchly's test ( $X^2(2) = 28.979, p < .01$ ). Given the estimates of sphericity ( $\epsilon = 0.95$ ), the suggested method is to adjust the

degrees of freedom using Huynh–Feldt (Girden, 1992), as was done in the analyses that follow.

The RM ANOVA model (Table 9.2) consists of the main within-subjects variable - time – and the between-subjects - cohort, gender and police relatives. Because of the various length of sampled programs, the main variable, time, is different for different cohorts: 1) upon enrolment, end of 1<sup>st</sup> year and end of 2<sup>nd</sup> year for new recruits and undergraduates; 2) upon enrolment, end of 1<sup>st</sup> year and on graduation of education for police officers and graduate recruits; 3) end of 3<sup>rd</sup> year, on graduation of education and having worked for one year for cadets. The tested interaction effects include cohort by time, gender by time and police relatives by time.

**Table 9. 2** N2 Significance Tests for RM ANOVA

<b>Effects</b>	<b>df</b>	<b>F</b>	<b>Partial Eta Squared</b>
<i>Within-subjects effects</i>			
Time	(1.926, 1005.319)	2.497	0.005
Cohort by time	(7.704, 1005.319)	3.805***	0.028
Gender by time	(1.926, 1005.319)	1.061	0.002
Police relatives by time	(1.926, 1005.319)	0.042	0.001
<i>Between-subjects effects</i>			
Cohort	(4, 522)	5.965***	0.044
Gender	(1, 522)	11.555**	0.022
Police relatives	(1, 522)	0.384	0.001

\* p< .05, \*\*p< .01, \*\*\*<.001

The N2 significance tests showed that two between-subjects (cohort and gender) and one within-subjects (cohort by time) variables exhibited statistically significant effects on MR. The first statistically significant main variable was cohort, suggesting that the grand means of cohorts differed from one another. As illustrated in Table 9.3, police officers differed significantly from the other cohorts, clustering around an N2 score of 43. Specifically, within the cluster, cohorts did not differ from each other, but the police officers differed significantly with every other

member of the cluster, producing a markedly lower mean N2 score.

**Table 9. 3** Grand Means of N2 by Cohort

Cohort	Means
New undergraduates	43.67
Graduate recruits	42.22
New recruits	43.36
Cadets	43.32
Police officers	37.39

The other significant main effect was gender, implying that males and females differed significantly in their N2 scores. The pairwise comparison showed that male participants (mean = 40.23) scored significantly lower than their female counterparts (43.75).

Of the three interaction effects, only the cohort by time exhibited statistically significant effects, indicating that N2 trends of cohorts over time differed from one another. The exact differences between cohorts over time were examined by pairwise comparisons, described below.

*The influence of police socialisation perspectives on MR*

The influence of police socialisation on MR is examined via three hypotheses: H7 (predisposition), H8 (police education and training) and H9 (police work/culture). Discussing each in turn:

**H7:** New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in MR upon enrolment.

The pairwise comparison showed no difference ( $p > .05$ ) in N2 scores between new recruits (estimated means = 44.33) and new undergraduates (39.6) upon enrolment. The lack of difference indicated that H7 was supported. The pre-dispositional perspective is not upheld here. Put differently, upon enrolment Taiwanese police recruits at CPU did not exhibit any measurable difference in MR scores compared to newly enrolled criminology undergraduates at NCCU.

**H8:** New police recruits in the cadre program at CPU will not change significantly in MR between enrolment and the end of their 2<sup>nd</sup> year at CPU.

New recruits saw a fluctuation in N2 scores over the two-year period following enrolment, with an initial fall from 44.33 to 42.07 ( $p < .05$ ) and a bounce back to 43.68 ( $p > .05$ ). The overall drop was non-significant. This meant new recruits' MR did not change significantly, and thus H8 was supported. This implied that police education, at least as delivered at CPU in years one and two, does not have a significant effect on MR.

**H9:** Cadets will not change significantly in MR between graduation and the end of the 1<sup>st</sup> year of service.

Cadets witnessed a non-significant fall in N2 scores from 44.1 to 43.02 during the first year of police service. This result supported the H9 that police work/culture did not affect cadets' MR significantly in the first year of police service.

All in all, the three examinations above suggested that none of the three perspectives of police socialisation had a significant influence on police recruit MR, as measured herein. Specifically, upon enrolment new recruits did not differ from new undergraduates in their MR levels, and their MR levels were not affected to a statistically significant degree in the first half of the cadre program and the first year of their time in the police service.

#### *The influence of police education on MR*

The next two hypotheses (H10, 11) were tested using contrast analysis. The setup of lambda weights is different from those for HR as H10 predicts that new undergraduates will become more advanced in post-conventional reasoning, whereas new recruits will not change. So the lambda weights are set as -1, 0, 1, indicating a positive trend (Gertler et al., 2016; Rosenthal et al., 2000). The setup of lambda weights for H11 is the same as that for H10 even though the examined two cohorts are expected to have non-significant changes over time.

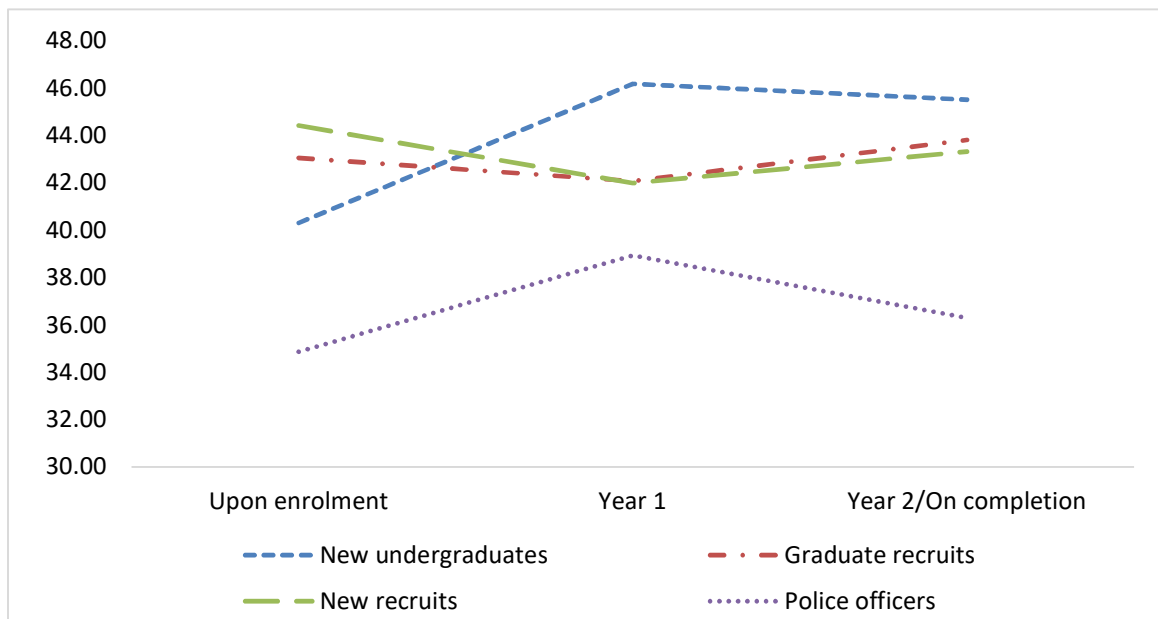
**H10:** New undergraduates at NCCU will become comparatively more advanced in MR between enrolment and the end of their 2<sup>nd</sup> year than will new police recruits



at CPU.

The contrast analysis showed a positive estimate of 6.708 ( $F(1,263) = 3.558$ ,  $p < .05$ ,  $r = .11$ ) between new recruits and new undergraduates. This indicated that new undergraduates' trend of N2 scores was significantly more positive than new recruits'. That is, new police recruits became significantly less developed in MR compared to new criminology undergraduates between enrolment and the end of their 2<sup>nd</sup> year at CPU. Therefore, this significance test supported H10.

The estimated means are plotted in Figure 9.1. Obviously, new undergraduates experienced an upward trend in N2 scores between enrolment and the end of their 2<sup>nd</sup> year, whereas new police recruits saw a slight decline.



**Figure 9. 1** MR Trajectories of Newly Recruited Cohorts

*The influence of bachelor's degrees on MR*

**H11:** Graduate recruits at CPU will not differ from new recruits in MR between enrolment and graduation.

This hypothesis was tested by assessing the average change of N2 scores between graduate recruits on the special-exam program and new recruits on the

cadre program using contrast analysis. The result showed that the estimate was not statistically significant ( $1.238, F(1, 324) = 0.207, p > .05, r = .004$ ). This result suggested the N2 trend of graduate recruits was more positive, but not to a significant degree, compared to that of new recruits. As illustrated in Figure 6.3, there was a crossover between the lines of the two cohorts, but their patterns of N2 scores were identical. The result thus supported H11.

#### *The influence of in-service education on MR*

**H12:** Police officers will not experience significant changes in MR between enrolment and graduation at CPU.

Police officers' N2 scores rose from 35.47 to 38.95 in the first year and dropped back to 37.76 in the second year. Both the rise and drop were not significant ( $p > .05$ ). The significance test thus supported H12, implying the promotion program did not have significant impacts on sworn officers in MR.

## **9.4 Summary**

This section summarises the results of hypothesis examination related to MR. As seen in Table 9.5, the examined six hypotheses are all supported. That means that the predictions on police socialisation, education, the influence of bachelor's degrees and in-service education are upheld. Specifically, the post-conventional reasoning is not improved across the stages of police socialisation, which is examined by H7, 8, and 9. Compared to the cadre program, the criminology program at NCCU exerts a positive influence on new undergraduates N2 scores (H10). Like the cadre program, the special-exam program was shown not to enhance the post-conventional reasoning of recruits with a bachelor's degree (H11). Likewise, the promotion program was shown to have no effect on sworn officers' MR (H12).

**Table 9. 4** Summaries of Hypothesis Examination

Hypothesis	Contents	Status
H7	New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in MR upon enrolment.	Supported
H8	New police recruits in the cadre program at CPU will not change significantly in MR between enrolment and the end of their 2 <sup>nd</sup> year at CPU.	Supported
H9	Cadets will not change significantly in MR between graduation and the end of the 1 <sup>st</sup> year of service.	Supported
H10	New undergraduates at NCCU will become comparatively more advanced in MR between enrolment and the end of their 2 <sup>nd</sup> year than will new police recruits at CPU.	Supported
H11	Graduate recruits at CPU will not differ from new recruits in MR between enrolment and graduation.	Supported
H12	Police officers will not experience significant changes in MR between enrolment and graduation at CPU.	Supported

Among the six hypotheses above, H10 confirmed that there is a statistically significant difference in MR scores between the cadre and criminology programs. The difference between these two programs has yet to be identified as practical significance, however. The N2 trajectories of these programs cross each other between enrolment and the end of the second year. Upon enrolment, new recruits outscored new undergraduates in N2 by 0.325 (Cohen's d), but the scores were reversed at the end of the first and second year: new undergraduates outperformed their counterparts by 0.738 and 0.298, respectively. In other words, the impact of the first and second year of cadre/collegiate programs divert new recruits and undergraduates to a large and medium magnitude in MR, respectively, which are usually considered practical significance (Ellis, 2010; Lakens, 2013).

## Chapter 10 Results: Prejudice

This chapter reports the third set of data analysis. It focusses on PJ levels as measured by RWA and SDO, considered here to be the third component of democratic policing. The chapter covers five parts: 1) formulation of research hypotheses, 2) descriptive statistics, 3) multivariate analysis modelled by RM ANOVA, 4) hypothesis examination using pairwise comparisons and contrast analysis and 5) summary of hypothesis examination with a focus on practical significance.

### 10.1 Research hypotheses

This section will discuss how the research hypotheses tested in this chapter were formulated so as to address the research questions 1 - 4.

*RQ1: The influence of police socialisation perspectives on PJ levels*

This research question, concerning the influence of the three perspectives of police socialisation on PJ, is examined by three hypotheses: H13 (predisposition), H14 (police education and training) and H15 (police work/culture) (conceptualisation of police socialisation, see Figure 7.2). PJ, one of the most researched dimensions of the supposed “police personality”, has been given considerable attention in the police literature since the 1950s, but one of the unresolved issues concerns causation: whether PJ is a pre-existing psychological trait or the product of group socialisation among police officers (Balch, 1972; Gatto et al., 2010; Twersky-Glasner, 2005). The first hypothesis to be tested in this chapter, H13, relates to the predisposition question: whether individuals predisposed to PJ select policing as an occupation (data collections corresponding to police socialisation perspectives, see Figure 7.3). In this case, previous research involving Taiwanese police recruits found that they were motivated to select CPU primarily by financial security and parental influence, rather than by those qualities that are associated with high levels of PJ (Tarng & Charing, 2001). This research suggests that police recruits

should not be particularly prejudiced, compared to the public. It is therefore expected that new police recruits at CPU should not manifest higher levels of PJ than new undergraduates at NCCU upon enrolment, as measured by RWA and SDO. Hence, the first hypothesis tested here runs against the pre-dispositional police assumption:

**H13:** New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in PJ levels upon enrolment.

The second hypothesis is concerned with the second perspective of police socialisation: the influence of police education and training on, in this chapter, PJ levels. Previous research has found various factors in academy training that might plausibly reinforce PJ including administrative depersonalisation, the ambiguity surrounding the future police role, the conflict with outgroups and so on (Gatto et al., 2010; Van Maanen, 1973; Wortley & Homel, 1995). Considering that a major concern of recruits at this stage of police socialisation is to conform to organisational prescriptions (Harris, 1973; Van Maanen, 1974), the depersonalisation that is embedded in the paramilitary academy training should be particularly influential. The paramilitary context dictates the way recruits interact with each other according to their respective status, leading them to often categorise persons and issues into black-and-white terms (Harris, 1973; Heaven & Quintin, 2003). These categorisations, in turn, form (and cement) the in-group and out-group ideologies, which are often manifested by intolerance of people belonging to out-groups and by irrational support of members of the in-group.

In this regard, the CPU as a university incorporated with paramilitary management (i.e., the Student Corps) might reinforce recruits' PJ. As described in Section 6.3, the Student Corps, a three-tiered squadron system, places recruits in detailed hierarchies and regulates their interaction in line with their ranks and status. Within this structure, coupled with chain of command operated in the military training, police recruits experience depersonalisation and are channelled towards the in-group and out-group ideologies that lead them to support authoritarian submission and aggression, and group-based hierarchy (Aldam, 2002; Conti & Doreian, 2014;

de-Albuquerque & Paes-Machado, 2004; Gatto et al., 2010). Based upon the above discussion, the hypothesis is:

**H14:** New police recruits in the cadre program at CPU will become more prejudiced between enrolment and the end of their 2<sup>nd</sup> year at CPU.

The third hypothesis concerns the perspective of police work/culture, which is examined by tracking cadets' changes in the levels of PJ during the first year of police service. On the one hand, research has found that field experiences negatively affected officers' levels of RWA (Genz & Lester, 1976; Wortley & Homel, 1995). Factors to explain this finding include the work-related danger (Skolnick, 1966) and particular policing experiences (e.g., stationed districts; Wortley & Homel, 1995).

On the other hand, SDO is found to be associated with forces such as institutional rules, organisational incentives, and peer pressures in a normative police environment (Gatto & Dambrun, 2012; Haley & Sidanius, 2005). In other words, police organisations are considered as a type of hierarchy-enhancing institution that facilitates the disproportionate allocation of socially positive value (e.g., high income, prestigious jobs) to dominant social groups and of negative value to subordinate social groups. These rules, incentives and peer pressures would attenuate police officers' egalitarian beliefs, thereby leading to high levels of SDO.

These factors related to police work/culture above would jointly reinforce police recruits' PJ. However, how these issues affect police officers' PJ in Taiwan has been rarely researched so that we cannot be assured that these findings in the West are automatically applicable to the Taiwanese context (Cao et al., 2014). However, considering work-related danger is common in police work, cadets should encounter similar experiences when involved in the fieldwork in Taiwan. Moreover, Taiwanese police organisation is a typical hierarchy-enhancing institution characterised by strict discipline, obedience to authority, conservatism, formalism, hierarchy and rigorous performance evaluation, and thus reinforces cadets' support of group-based ideology (Cao et al., 2015b; Lin, 1999; Ling, 2012).

Taken together, Taiwanese police work and organisation can be expected to increase cadets' levels of PJ.

Another consideration is the training context of CPU (discussed in H14). Because the CPU prepares recruits for a hierarchical and isolated organisation by paramilitary management, it may be that there is little difference between CPU and working in the field in their negative effect on PJ. In other words, police recruits may have become more prejudiced at CPU and, may not become further prejudiced once involved in the police work because the organisational norms are similar in both locations. Hence, cadets might not change significantly in the level of PJ in their first-year fieldwork.

**H15:** Cadets will not change significantly in the levels of PJ between graduation and the end of the 1<sup>st</sup> year of service.

*RQ2: The influence of police education on the levels of PJ*

This analysis conducted to address this question examines the influence of police education by comparing the average change of PJ between new undergraduates and new recruits between enrolment and the end of the 2<sup>nd</sup> year. Many of studies have shown that PJ decreases with the increasing exposure to higher education, particularly the notable factor of the egalitarian relationship between university students, faculties and professors (e.g., Pascarella et al., 1996; Sinclair et al., 1998). In this case, as NCCU is a university where few constraints are imposed on undergraduates, and student-faculty relationship is relatively egalitarian, it is thus expected that new undergraduates would experience a decline in PJ over the investigated period.

By contrast, as discussed in H13, new police recruits nevertheless are likely to become more prejudiced due to the training contexts at CPU. Specifically, the distinct trends of PJ between undergraduates and police recruits might be explained by the disparities between the two universities: jingshen education and military training. On the one hand, jingshen education administered by the Student Corps, in effect, places recruits in strict hierarchies where recruits of higher ranks constantly watch over those of lower ranks in their daily routine at CPU. On the

other hand, those components of military training, such as chain of command, superior-subordinate relationship also contribute to recruits being depersonalised, thereby encouraging intolerance of out-groups and supporting group-based hierarchies. The prediction for the influence of police education is:

**H16:** New police recruits at CPU will become comparatively more prejudiced between enrolment and the end of their 2<sup>nd</sup> year than will the new undergraduates at NCCU.

*RQ3: The influence of bachelor's degrees on the levels of PJ*

This question concerns the influence of degrees on the levels of PJ, comparing the average change of PJ between police recruits with a bachelor's degree and those without a degree between enrolment and graduation (data collections corresponding to police socialisation perspectives, see Figure 7.4). No previous research, to my knowledge, has investigated this issue so far. It is predicted that graduate recruits would not perform differently from recruits without a degree in PJ, based on the following considerations. First, the training context at CPU where graduate recruits are involved does not differ from those experienced by recruits without a degree. That is, the detrimental factors, jingshen education and military training, would exert the same negative effect on graduate recruits as they do to recruits without a degree. Second, because graduate recruits will experience a certain amount of police work/culture via their internship, those factors contributing to increases in PJ in police work/culture (e.g., work-related danger and normative influence; as discussed with respect to H15) may reinforce their PJ scores (Gatto et al., 2010; Skolnick, 1966).

In light of the similar training context experienced by graduate recruits and new recruits, coupled with graduate recruits' exposure to police work/culture, it is expected that these two cohorts will not perform differently in their levels of PJ over time. In other words, previous college experience and the qualities cultivated of graduate recruits are not likely to make a difference in the paramilitary training.

The hypothesis is:



**H17:** Graduate recruits at CPU will not differ from new recruits in PJ between enrolment and graduation.

*RQ4: The influence of in-service education on the level of PJ*

This research question will be examined by assessing temporal changes in PJ of police officers across the promotion program at CPU (data collections corresponding to police socialisation perspectives, see Figure 7.4). As sworn officers on this program have experienced academy training at TPC and fieldwork, they may start with high PJ upon enrolment. It is expected, however, that they will not become more prejudiced during their in-service education because of the similar organisational norms shared by CPU and police organisations (as discussed in H15). Those resultant elements of hierarchy-enhancing environments (e.g., normative influence) do exist in both of them and thus are not conducive to the reduction of PJ (Gatto & Dambrun, 2012). Despite the exposure of police officers to liberal arts and social and behavioural science, their effect is likely to be outweighed by the hierarchy-enhancing environment. Thus the hypothesis is:

**H18:** Police officers will not experience significant changes in PJ between enrolment and graduation at CPU.

## **10.2 Descriptive statistics**

This section reports descriptive statistics for PJ as measured by the RWA and SDO scales. Both scales are 7-point Likert scales (ranging from 1 = disagree strongly to 7 = agree strongly). All items have been re-coded into positive directions so that the high scores denote less prejudiced views. There is a total of 29 items covered in this chapter, with 13 and 16 items in the RWA and SDO scales, respectively.

Overall, participants in this research scored 4.47, 4.20 and 4.25 (4 denotes neutrality) in RWA and 4.68, 4.56 and 4.53 in SDO for the three collections (Table 10.1). For reference, these data are compared to the longitudinal research by Asbrock et al., (2010) that surveyed 369 and 209 new undergraduates for the first and second semester (a 6-month interval) in terms of RWA and SDO. That

research showed that the means of RWA were 4.89 (SD = 1.05) and 4.87 (0.94) for the first and second collections respectively, while the means of SDO were 5.56 (1.05) and 5.49 (0.99), respectively. Compared to that research, this present research shows lower scores and larger mean variations. Similarly, these two characteristics (low score and large mean variation) persist in another cross-sectional research by Gatto et al., (2010) that investigated 58 newly recruited police officers and 69 officers who just finished the training. The new recruits scored 4.97 of SDO upon enrolment (no SD reported) while the other police scored 5.03 after a year of academy training.

**Table 10. 1** Means, Sample Size and SD by Cohort over Time

Cohorts	Scale		First collection	Second collection	Third collection
			<i>Upon enrolment</i>	<i>End of 1<sup>st</sup> year</i>	<i>End of 2<sup>nd</sup> year</i>
New undergraduates	RWA	Mean	4.62	4.54	4.67
		N	42	37	35
		SD	0.52	0.53	0.66
	SDO	Mean	4.85	4.97	4.99
		SD	0.64	0.59	0.66
New recruits	RWA	Mean	4.54	4.19	4.21
		N	283	221	207
		SD	0.63	0.57	0.57
	SDO	Mean	4.67	4.42	4.37
		SD	0.76	0.76	0.72
			<i>Upon enrolment</i>	<i>End of 1<sup>st</sup> year</i>	<i>Upon graduation</i>
Graduate recruits	RWA	Mean	4.43	4.20	4.33
		N	45	45	41
		SD	0.77	0.71	0.65
	SDO	Mean	5.08	4.78	4.70
		SD	0.95	0.95	0.85
Police officers	RWA	Mean	4.20	3.92	4.04
		N	98	78	59
		SD	0.59	0.50	0.47
	SDO	Mean	4.78	4.50	4.57
		SD	0.69	0.68	0.87
			<i>End of 3<sup>rd</sup> year</i>	<i>Upon graduation</i>	<i>Working a year</i>
Cadets	RWA	Mean	4.47	4.26	4.28
		N	239	173	121
		SD	0.58	0.53	0.57
	SDO	Mean	4.56	4.61	4.57
		SD	0.70	0.73	0.70
Total	RWA	Mean	4.47	4.20	4.25
		N	707	554	463
		SD	0.62	0.58	0.59
	SDO	Mean	4.68	4.56	4.53
		SD	0.75	0.76	0.76

Cronbach's Alpha tests showed that RWA achieved poor reliabilities for the three data collections. These reliabilities were around .6 (Table 10.2). The modest level of reliability is, arguably, acceptable for research purposes (Taber, 2017). By contrast, SDO displayed good and steady levels of reliabilities (Cortina, 1993). All waves of data surpassed .8.

**Table 10. 2** Reliability of RWA and SDO over Time

Reliability Statistics			
Cronbach's Alpha	First collection	Second collection	Third collection
RWA	0.64	0.57	0.59
SDO	0.83	0.84	0.84

N of RWA Items 13; N of SDO Items 16

### 10.3 Multivariate analysis

This section analyses the results of PJ scores measured by RWA and SDO by RM MANOVA and examines research hypotheses H13-H18 using pairwise comparisons and contrast analysis. The RM MANOVA examines the effect of between- and with-subjects variables (e.g., gender, time) on the outcome variables while pairwise comparisons and contrast analysis are employed to specifically examine the research hypotheses.

#### *RM MANOVA*

Before proceeding to the RM MANOVA, it is important to examine the statistical assumption for RM MANOVA – sphericity. The examination showed the Mauchly's test was 5.462 ( $X^2(2)$ ,  $p > .05$ ) for RWA and 16.1 ( $X^2(2)$ ,  $p < .05$ ) for SDO, suggesting the assumption for SDO was violated. With the estimates of sphericity at 0.973 ( $\epsilon$ ), the research adopted the recommended method of Huynh–Feldt to adjust the degrees of freedom (Girden, 1992).

In the RM MANOVA model (Table 10.3), the main within-subjects variable is time. Because the sample includes cohorts in two- and four-year programs, the time (the first, second and third collection) means different for them: 1) upon enrolment, end of 1<sup>st</sup> year and end of 2<sup>nd</sup> year for new recruits and undergraduates; 2) upon enrolment, end of 1<sup>st</sup> year and on graduation for police officers and graduate recruits; 3) the end of 3<sup>rd</sup> year, on graduation and having worked for 1 year for senior cadets. The between-subjects comprise cohort, gender and police relatives.

**Table 10. 3** PJ Significance Tests for RM MANOVA

<b>Effects</b>	<b>Variable</b>	<b>df</b>	<b>F</b>	<b>Partial Eta Squared</b>
<i>Within-subjects effects</i>				
Time	Multivariate	(4, 579)	14.167***	0.088
	RWA	(2, 8.227)	23.76***	0.037
	SDO	(1.947, 4.919)	8.835***	0.017
Cohort by time	Multivariate	(16, 1769.512)	2.824***	0.018
	RWA	(8, 3.778)	2.727**	0.017
	SDO	(7.787, 9.282)	4.168***	0.026
Gender by time	Multivariate	(4, 579)	1.208	0.007
Police relatives by time	Multivariate	(4, 579)	1.221	0.007
<i>Between-subjects effects</i>				
Cohort	Multivariate	(8, 1162)	7.086***	0.44
	RWA	(4, 17.552)	7.001***	0.044
	SDO	(4, 24.035)	5.644***	0.034
Gender	Multivariate	(2, 581)	8.761***	0.032
	RWA	(1, 6.5)	10.37**	0.02
	SDO	(1, 13.437)	12.621***	0.022
Police relatives	Multivariate	(2, 581)	0.446	0.001
* p< .05, **p< .01, ***<.001; only significant univariate F is reported				

The significance tests revealed that there were three main effects and one interaction effect with statistical significance on both RWA and SDO. The first main effect exhibiting significant effects on RWA and SDO was time, implying grand

means of RWA and SDO changed significantly over time. Indeed, the pairwise comparison of time showed that RWA fell from 4.47 to 4.25, followed by a bounce to 4.31 and that SDO declined from 4.85 to 4.68 and then bounced back to 4.72. Another main effect, gender, also demonstrated significant effects on RWA and SDO, suggesting differences in measured PJ between males and females. The pairwise comparison of gender revealed that female participants were significantly less prejudiced than their counterparts (4.42 vs 4.27 in RWA and 4.86 vs 4.64 in SDO).

The last main effect with significant effects on PJ was cohort, indicating the grand means of cohorts in RWA and SDO significantly differed from one another. The pairwise comparison revealed that new undergraduates had the highest scores in both RWA (4.57) and SDO (4.92), representing lower levels of PJ. By contrast, the lowest cohorts were the police officers (4.12) in RWA and new recruits (4.54) in SDO, implying higher levels of PJ. Also, the gaps between new undergraduates and the two lowest cohorts exhibited statistical significance (both  $p < .01$ ).

The interaction with significant effects on PJ was cohort by time, suggesting cohorts' PJ trends (both RWA and SDO) changed differently over time. To locate the difference, the following paragraphs will describe pairwise comparisons and examine the research hypotheses at the same time. As the significance tests and trend of RWA and SDO were very similar, for parsimony the following examinations will use the combined scores of RWA and SDO (combined alpha, 0.8, 0.79, 0.82) as the representation of PJ.

#### *The influence of police socialisation perspectives on the levels of PJ*

Three hypotheses examined the influence of different police socialisation stages on PJ (H13, 14 and 15).

**H13:** New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in PJ upon enrolment.

The pairwise comparison between new recruits (estimated mean = 4.67) and new undergraduates (4.73) showed no significant difference upon enrolment. This

indicated that H13 was upheld, and thus the pre-dispositional perspective was not supported here.

**H14:** New police recruits in the cadre program at CPU will become more prejudiced between enrolment and the end of their 2<sup>nd</sup> year at CPU.

New recruits witnessed consecutive drops in PJ scores over the two years. Over the first year, PJ scores fell significantly from 4.67 to 4.37 ( $p < .001$ ) while over the second year they did not drop significantly further (4.35,  $p > .05$ ). The decline collectively (T1 to T3) accounted for a medium effect size ( $p < .001$ ; Cohen's  $d = 0.607$ ). The significance test supported H14, implying police education has a statistically significant adverse effect on PJ.

**H15:** Cadets will not change significantly in PJ between graduation and the end of their 1<sup>st</sup> year of service.

The pairwise comparison revealed that cadets did not change significantly in PJ over the period of interest, with estimated means of 4.51 on completion of the cadre programs and 4.5 at the end of the first year of service. This indicated that H15 was supported. Hence, the combination of police work/culture did not affect cadets' PJ scores significantly during the first year of police service.

All in all, the examinations of police socialisation perspectives above showed that police education exerted a statistically significant influence on police recruits in terms of their measured levels of PJ, whereas the predisposition and police work/culture did not. These results implied that from upon enrolment to the end of their first year of police service, police education dominated the observed changes in PJ among police recruits.

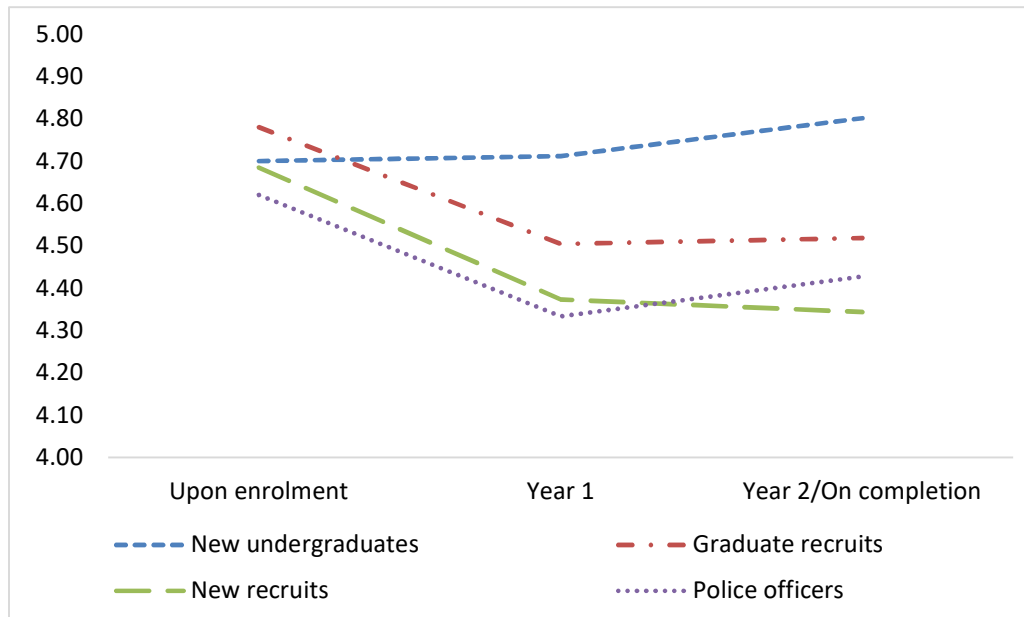
#### *The influence of police education on the levels of PJ*

The following two hypotheses are examined by contrast analysis where the focus is on average changes over time. Consistent with the analysis reported in previous chapters, each collection is given lambda weights with 1, 0, -1 (the first, second and third collections, respectively), indicating a negative linear trend (Rosenthal et al., 2000). The negative trend represents the increase of PJ over time.

**H16:** New police recruits at CPU will become comparatively more prejudiced between enrolment and the end of their 2<sup>nd</sup> year than will new undergraduates at NCCU.

The contrast analysis showed a negative estimate (-0.402,  $F(1,289) = 11.52$ ,  $p < .001$ ,  $r = .2$ ) between new undergraduates and recruits. This implies that the trend of the former was significantly less negative than that of the latter. Put differently, new recruits became significantly more prejudiced than new undergraduates between enrolment and the end of their 2<sup>nd</sup> year at CPU. Therefore, H16 was supported.

Figure 10.1 visualises the difference by plotting the estimated means. The trajectory of new recruits declined significantly, whereas new undergraduates' rose slightly over time.



**Figure 10. 1** PJ Trajectories of Newly Recruited Cohorts

*The influence of bachelor's degrees on the levels of PJ*

Examination of this hypothesis centres on the average changes between graduate recruits and new recruits in PJ between enrolment and completion. Likewise, the



contrast analysis is applied to compare the increase of PJ in the two cohorts over time. The hypothesis is:

**H17:** Graduate recruits at CPU will not differ from new recruits in the levels of PJ between enrolment and graduation.

The contrast analysis showed that the average changes between the two cohorts were not significant (estimate = 0.081,  $F(1, 324) = .584, p > .05, r = .025$ ). This meant PJ trends of the two cohorts had similar patterns of decline. The result thus supported H17. This suggests that recruits with bachelor's degrees experienced similar changes of PJ as those without degrees during academy training did.

#### *The influence of in-service education on the levels of PJ*

**H18:** Police officers will not experience significant changes in PJ between enrolment and graduation at CPU.

This hypothesis was examined by the within-subjects analysis of the police officer cohort over time. The result showed that police officers saw a decline from 4.6 to 4.34 ( $p < .001$ ) in the first year and a bounce to 4.44 ( $p > .05$ ) in the following year. This overall fall accounted for a medium effect size fall ( $p < .05$ , Cohen's  $d = 0.554$ ). The significance test failed to support H18. That is, contrary to expectations police officers became more significantly prejudiced over the promotion program.

## **10.4 Summary**

This section summaries the results described above. The pairwise comparisons and contrast analysis support all the research hypotheses except for the in-service education (H18, Table 10.4). Regarding police socialisation stages (H13, 14, 15), police education is shown to account for the greatest influence in PJ scores from enrolment to the end of the first year of police service. When taking account of whether the influence is limited to police education or not (H16), the cadre program indeed had a distinct impact on new recruits, compared to the NCCU criminology program on new undergraduates. Concerning the influence of bachelor's degrees

(H17), graduate recruits showed no difference in PJ levels compared to those without a bachelor's degree.

**Table 10. 4** Summaries of Hypothesis Examination

Hypothesis	Contents	Status
H13	New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in PJ upon enrolment.	Supported
H14	New police recruits in the cadre program at CPU will become more prejudiced between enrolment and the end of their 2 <sup>nd</sup> year at CPU.	Supported
H15	Cadets will not change significantly in PJ between graduation and the end of their 1 <sup>st</sup> year of service.	Supported
H16	New police recruits at CPU will become comparatively more prejudiced between enrolment and the end of their 2 <sup>nd</sup> year than will new undergraduates at NCCU.	Supported
H17	Graduate recruits at CPU will not differ from new recruits in the levels of PJ between enrolment and graduation.	Supported
H18	Police officers will not experience significant changes in PJ between enrolment and graduation at CPU.	Rejected

The only exception lies in the in-service education (H18), which is evidenced by the significantly negative influence on PJ. This is surprising because the assumption is that police officers who have experienced police organisations and fieldwork before enrolling at CPU should not become more prejudiced in the promotion program where liberal arts and social and behavioural science are delivered. This unexpected finding will be discussed in further detail in Section 13.2.

Among the six hypotheses, there are three hypotheses that confirm statistically significant differences between tested parties: H14, H16 and H18, all of which

imply practical significance as well. H14 shows that the increase among new recruits in PJ during the first two years of the cadre program accounted for a medium effect (Cohen's  $d = 0.607$ ). H16, the gap between new recruits and undergraduates, reveals an even larger effect. Upon enrolment, new undergraduates outscored new recruits by 0.245 (Cohen's  $d$ ), and the gap was enlarged at the end of the first (0.965) and second year (1.126). This suggests that the cadre program exerts a discernible negative influence in PJ scores among new recruits to the extent of a large size, compared to the criminology program on new undergraduates. H18 is related to the temporal changes of sworn officers in PJ. The increase of PJ accounted for a medium effect (Cohen's  $d = 0.554$ ), which is of practical significance (Ellis, 2010; Lakens, 2013).

## **Chapter 11 Result: Evidence-based policing receptivity**

This chapter reports results concerning the relationship between police socialisation in Taiwan and receptivity to EBP, as measured by the newly developed scale – EBPR. Specifically, the chapter covers four sections. The first section discusses the formulation of research hypotheses that respond to research questions. The second section reports descriptive statistics that covers the factor analysis of EBPR (RQ5), namely means, SD and reliability measures. The third section reports multivariate analysis modelled by RM ANOVA and hypothesis examination using pairwise comparisons and contrast analysis. The final section concludes with summaries of hypothesis examination and practical significance.

### **11.1 Research hypothesis**

This section formulates research hypotheses that address the following four research questions.

Existing research on EBP receptivity has hitherto not examined the influence of police education and training. As reviewed in C3, existing studies mainly centre on the specific knowledge of published research and attitudes towards research evidence more generally (Table 3.1). Given the limited evidence on police education and its effect on police officer openness to EBP, the predictions below follow the logic that to embrace research evidence in policing requires an open-to-debate environment that encourages and/or allows for police officers to challenge or be reflective of existing strategies or policies (Brown et al., 2018; Kalyal, 2018). It is contended here that a hierarchical organisation that stresses a superordinate-subordinate structure or chain of command leaves little space for officers or cadets to question established ways of working and to think innovatively.

*RQ1: How does police socialisation influence EBP receptivity?*

This research question examines the influence of the three perspectives of police socialisation on EBP receptivity: predisposition, police education and training and police work/culture (conceptualisation of police socialisation, see Figure 7.2). The first hypothesis relates to the role of predisposition and is examined by comparing the baseline receptivity to EBP of new police recruits at CPU and undergraduates at NCCU (data collections corresponding to police socialisation perspectives, see Figure 7.3). In this perspective, the motivations and personalities are considered influential in their acceptance of EBP. Regarding the association between personal characteristics and EBP receptivity, previous research found two characteristics to be influential: race and educational attainment (Telep, 2016). These characteristics, however, might not be applicable in Taiwan. As Taiwan is a homogeneous society where over 95% of the population is accounted for by Han ethnicity, ethnicity is unlikely to be a significant variable in the composition of police recruits. Additionally, because the majority of Taiwanese police recruits at CPU and undergraduates at NCCU enter their universities right after senior high school, education attainment is equivalent between them. Furthermore, in Taiwan, police recruits are primarily motivated by job security and parental influence rather than motivations related to close-mindedness (Tarng & Charing, 2001). Moreover, the review of comparability between police recruits and undergraduates (Section 6.4) showed these two cohorts have similar academic performance. Therefore, it is contended here that police recruits should not differ from undergraduates in their EBP receptivity as measured by EBPR upon enrolment.

**H19:** New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in EBP receptivity upon enrolment.

The second hypothesis relates to the role of police education and training. Influential sources considered in this perspective involve formal training contents and recruits' obedience to departmental prescriptions and solidarity (Conti, 2011; Van Maanen, 1974). Concerning formal training contents, CPU differs in several ways from police academies in the West. For example, and as described in

Chapter 6, CPU delivers not only skill training but also modules on liberal arts and social and behavioural science. The curricula of CPU are not limited to vocational skills and thus might facilitate recruits' application and appreciation of science in policing, thereby leading to a positive influence on receptivity to EBP.

By contrast, training contexts that shape recruits' obedience and solidarity might not be conducive to receptivity to EBP as these expected qualities are achieved by physical training, harsh discipline, group punishments, and a ritualistic concern for detail (de Albuquerque & Paes-Machado, 2004; Hodgson, 2001). These measures might, therefore, restrict recruits from enquiring into or challenging existing routine management in general, and police operations or strategies in particular. In light of this, the training context at CPU is likely to reduce recruits' EBP receptivity over time.

As previous research showed the liberalising effect of academic subjects, and liberal arts is outweighed by the overall campus experience, the same situation might be applicable here (Brown et al., 2018; Cox & Kirby, 2018). Despite liberal arts and professional modules being delivered at CPU, the CPU training context, that emphasises the importance of hierarchy and conformity, might sabotage recruits' open-mindedness brought about by academic subjects.

**H20:** New police recruits in the cadre program at CPU will become less receptive to EBP between enrolment and the end of their 2<sup>nd</sup> year at CPU.

The third hypothesis concerns the role of police work/culture by observing the changes of cadets in EBP receptivity between graduation and the end of their 1<sup>st</sup> year of service. Influential sources considered for this perspective include organisational norms and culture. In the West, identified inhibitors of EBP receptivity included a lack of communication about EBP, cultural resistance, and a lack of confidence in external researchers (Kalyal, 2018, 2019; Telep, 2016). By contrast, in Taiwan EBP receptivity is an issue that has been rarely researched. However, it may be assumed that those factors hindering police officers from using research evidence in the West will also be present in Taiwan (Cao et al., 2014). Moreover, research on Taiwanese police culture has revealed that Taiwanese

policing is characterised by strict discipline, obedience to authority, conservatism, formalism, hierarchy and a rigorous performance evaluation (Lin, 1999; Ling, 2012). All of these features are likely not conducive to an open-to-debate environment in which police officers are allowed to challenge ideas or be reflective about existing strategies or policies (Brown et al., 2018; Kalyal, 2018). Thus the first-year of police service is expected to reduce cadets' EBP receptivity.

However, because of the similar organisational norms between CPU and police organisations (e.g., concerns with hierarchy and paramilitary management), both institutions should exert negative influences on EBP receptivity (as discussed in H20). That is, after being educated at CPU, recruits should register a lower EBP receptivity score before they begin work. Thus, starting work in the police organisation that has a similar structure to CPU might not further deteriorate their EBP receptivity. It is predicted, therefore, that cadets will not change significantly in the scientific application in police work after swearing-in.

**H21:** Cadets will not change significantly in EBP receptivity between graduation and the end of their 1<sup>st</sup> year of service.

*RQ2: How does police education influence EBP receptivity?*

The question of whether police education influences EBP receptivity will be examined by comparing the average changes of EBP receptivity between new police recruits at CPU and undergraduates at NCCU. As there is no existing research looking into the influence of police education on EBP receptivity, the prediction here is based on the assumption that a training context that stresses the homogeneity of thinking and behaviour is not likely to improve police officers' acceptance and application of science to policing (Brown et al., 2018; Kalyal, 2018).

As discussed in Section 6.3, compared to NCCU, CPU provides a homogeneous training context that advocates 'correct' thinking - 'honesty' (*cheng*) - in jingshen education. The 'honesty' is factually interpreted as 'loyalty' to peers and to the university, and is reinforced via the strict hierarchies of the Student Corps. Intellectually, police recruits are regulated to think 'correctly' (loyally) by conforming

to the expectations of the university and of peers via routine activities such as daily roll calls, and dormitory checks. Behaviourally, recruits are subjected to nuanced regulations that ensure that only 'correct' questions are appropriate to raise. These characteristics, internally and externally, restrict recruits' truth-seeking and work against an open-to-debate environment in which science application is facilitated.

By contrast, EBP receptivity is found to be positively associated with officers who have master's degrees; however, presently there is no evidence that collegiate programmes give rise to increases in police officer receptivity to research evidence (Telep, 2016). Moreover, increasing exposure to research is positively correlated to science application in police work. This association, coupled with the open, diverse campus of NCCU, suggests that the criminology program delivering social and behavioural science might encourage or at least not hinder new undergraduates from embracing science and research evidence for future work in the criminal justice system. The hypothesis thus predicts:

**H22:** New undergraduates at NCCU will become comparatively more receptive to EBP between enrolment and the end of their 2<sup>nd</sup> year than will new police recruits at CPU.

*RQ3: How does a bachelor's degree influence EBP receptivity?*

This question is concerned with whether bachelor's degrees make a difference in police academy training or not and is examined by comparing graduate recruits and recruits without degrees in EBP receptivity over time (data collections corresponding to police socialisation perspectives, see Figure 7.5). It is predicted that new recruits with a bachelor's degree will experience the same decreasing pattern of EBP receptivity as those without a degree. There are two reasons for this prediction. First, both of these cohorts share the same campus in which jingshen education is delivered. As discussed in H22, this education is detrimental to EBP receptivity because it instils in recruits loyalty to the university and to peer groups as 'correct' thinking via minute control over activities. Moreover, graduate recruits are exposed to police administration and fieldwork via internships, where factors such as police culture, lack of confidence and politics may inhibit EBP



receptivity (Kalyal, 2018, 2019). These factors should collectively result in the decline of EBP receptivity among graduate recruits. Thus it is expected that there will be little difference between graduate recruits and new recruits in EBP receptivity.

**H23:** Graduate recruits at CPU will not differ from new recruits in EBP receptivity between enrolment and graduation.

*RQ4: How does in-service education influence EBP receptivity?*

This question concerns the effect of in-service education on police officers' receptivity to EBP (data collections corresponding to police socialisation perspectives, see Figure 7.4). As police officers had experienced vocational training at TPC and in their fieldwork, they are familiar with Taiwanese police work and practice. After entering CPU, whose organisational norms are similar to those of the police organisations in which police officers had served (i.e., emphasis on hierarchical, paramilitary management), it is proposed that police officers may not be further affected by in-service training. In other words, because of the similar environments of the police organisation and CPU, both of which are not conducive to science application to policing, there is little reason to expect police officers to change significantly in EBP receptivity after they enrol at CPU. Moreover, as discussed in H22, the liberalising effect of academic subjects delivered as part of curricula for police officers might be neutralised by the hierarchical and homogeneous campus. Thus the hypothesis is:

**H24:** Police officers will not experience significant changes in EBP receptivity between enrolment and graduation at CPU.

## **11.2 Factor analysis and descriptive statistics**

This section covers the results of a factor analysis of the newly developed EBPR instrument and presents descriptive statistics and reliability results. The factor analysis is employed to address the psychometric properties of EBP receptivity

(RQ5) using EFA. The descriptive statistics report means, SD and reliabilities across data collections.

*The latent structure of EBP receptivity (RQ5)*

As discussed in Section 3.2, this research created and developed a scale of EBP receptivity (EBPR) with 26 items based on five themes. To explore how those items cluster, this research applied EFA in SPSS v25 to discover which variables form coherent subsets that are relatively independent of one another. Generally, this method is used to reduce a large number of observed variables to a smaller amount of factors or to provide an operational definition for an underlying process by using observed variables (Tabachnick & Fidell, 2019). Here the attempt is to explore the potential factors underlying EBP receptivity.

The factor analysis reported here used only the data collected from the first wave. To determine the number of factors, the research applied two methods: 1) thresholds of greater Eigenvalue than one and 2) the scree test (Bruce, 2004). Using these recommended methods, the research tried extracting three, four and five factors, but none of them exhibited interpretable clusters. The three respective results showed that factor loadings were high and that cross loadings were not a serious issue; however, their clustered items were not conceptually sensible. When applying three factors, for example, clustered items could hardly be interpreted (Table 11.1). Cultural items (item 14, 15) were clustered with items of researcher-practitioner partnership (item 19). This implies EBP receptivity might be unidimensional (Costello & Osborne, 2005).

**Table 11. 1** Factor Loadings Using Three Factors and Eigenvalues and Explained Variance

Item No.	Item contents	Factor		
		1	2	3
18	Practitioners can provide researchers with real cases and data, and in return, researchers can feedback some good suggestions.	0.802	0.146	-0.068
17	Because of the complexity of real-world policing, it would be advantageous for the police and researchers to work together.	0.733	0.070	-0.058
20	Partnership between practitioners and researchers would facilitate the police to work professionally.	0.719	0.069	-0.026
3d	Police tactics should be routinely evaluated to determine whether they are effective.	0.567	0.037	0.058
8d	Suggestions from research evidence about the effectiveness of traditional police operations should be taken into account when deciding if these operations should be continuously implemented.	0.554	0.153	0.002
23d	Only senior police officers need to cooperate with researchers. *	-0.499	-0.052	0.316
1	In police work, it is useful to consult the research evidence when making decisions such as preventing spree killing cases.	0.473	-0.068	0.087
2	Policing is too complex to be the subject of scientific research. *	-0.420	0.162	0.209
11d	The police would be more effective at reducing crime if they chose tactics that are supported by research evidence.	0.401	-0.006	0.004
6	When deciding how best to deal with a crime problem, it is better to find solutions from prior solved cases or experienced colleagues than search the research evidence. *	0.359	-0.124	-0.080
25	My police colleagues would frown on me if I worked on policing jointly with universities. *	-0.309	0.060	0.123
13	Often what is described in academic textbooks is unrealistic, compared to real police work. *	0.059	0.575	0.120
19d	Police education in Taiwan emphasizes researcher-practitioner partnership.	0.187	-0.537	0.306
21d	University researchers have little to offer the police on how best to deal with crime. *	0.002	0.514	0.073
14d	Most research evidence comes from the US and Europe, it is therefore of little relevance to policing in Taiwan. *	-0.141	0.468	0.127

4d	Police education in Taiwan encourages me to think like a scientist - understanding what strategies or tactics work or not in police duties.	0.219	-0.423	0.221												
26	Common-sense knowledge is valued more highly than academic knowledge in the police in Taiwan. *	0.233	0.406	0.106												
15	Asian societies are very different from those in North America and Europe. What worked to reduce crime in those settings is unlikely to work in Taiwan.	0.166	0.365	-0.004												
7d	Police work is like craft which is required of repeated practice and experience passed on from seniors, and on which science has little effect*	-0.285	0.140	0.509												
24	Given the opportunity, I would like to be more involved in academic research on policing.	0.006	0.179	0.502												
10d	The judgement of police officers is sufficient to determine whether a police tactic has been effective. *	-0.188	-0.026	0.443												
5d	Good police officers don't think like scientists. *	0.021	0.020	0.397												
12	Scientific research on policing undermines the authority and expertise of police officers. *	-0.331	0.014	0.382												
16d	Wisdom from experienced and high-ranking supervisors is the most valuable assets for police to manage policing.	0.351	-0.215	0.371												
22	It is best that decisions about how best to deal with crimes are left to the police. *	-0.008	0.251	0.336												
9d	Obedience to regulations is more important than thinking creatively. *	-0.195	-0.087	0.332												
<table border="1"> <thead> <tr> <th>Factor number</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>Eigenvalue</td> <td>2.12</td> <td>1.26</td> <td>1.04</td> </tr> <tr> <td>Explained variance (%)</td> <td>8.14</td> <td>4.71</td> <td>3.98</td> </tr> </tbody> </table>					Factor number	3	4	5	Eigenvalue	2.12	1.26	1.04	Explained variance (%)	8.14	4.71	3.98
Factor number	3	4	5													
Eigenvalue	2.12	1.26	1.04													
Explained variance (%)	8.14	4.71	3.98													
<p>Kaiser-Meyer Olkin (KMO = 0.894) suggested factorable sample, and Bartlett's test of sphericity (<math>\chi^2(91) = 2560.220, p &lt; .001</math>) indicated no violations of assumptions (Kim &amp; Mueller, 1978).  Extraction Method: Maximum Likelihood. Rotation Method: Oblimin with Kaiser Normalization.  * Reversed items.  d Deleted items after reliability test.</p>																

To improve this scale, this research adopted a reliability test instead. This test involves progressively dropping off items shown to have minimal or negative contributions to scale reliability each time until the reliability reaches a peak. The scale reliability peaked at .823 (Cronbach's Alpha) with 14 items remaining. This

14-item scale (EBPR) is the final scale adopted with half positive and reverse items (Appendix D).

*Descriptive statistics*

The EBPR is a 7-point Likert scale in which 1 denotes strong disagreement, 4 denotes neutrality, and 7 denotes strong agreement. Overall, the means of EBPR receptivity among participants suggested positive attitudes towards the application of science in policing as the means of all cohorts over time exceeding 5 (agreement) (Table 11.2).

**Table 11. 2** Means, Sample Size and SD by Cohort over Time

<b>Cohorts</b>	<b>EBP</b>	<b>First collection</b>	<b>Second collection</b>	<b>Third collection</b>
		<i>Upon enrolment</i>	<i>End of 1<sup>st</sup> year</i>	<i>End of 2<sup>nd</sup> year</i>
New undergraduates	Mean	5.41	5.49	5.74
	N	42	37	34
	SD	0.51	0.67	0.51
New recruits	Mean	5.61	5.34	5.13
	N	283	221	200
	SD	0.61	0.79	0.88
		<i>Upon enrolment</i>	<i>End of 1<sup>st</sup> year</i>	<i>Upon graduation</i>
Graduate recruits	Mean	5.72	5.55	5.24
	N	45	44	42
	SD	0.53	0.80	0.92
Police officers	Mean	5.29	5.18	5.26
	N	98	77	64
	SD	0.59	0.82	0.87
		<i>End of 3<sup>rd</sup> year</i>	<i>Upon graduation</i>	<i>Working a year</i>
Cadets	Mean	5.36	5.43	5.29
	N	244	173	108
	SD	0.68	0.73	0.77
Total	Mean	5.47	5.37	5.25
	N	755	552	448
	SD	0.63	0.78	0.85

The reliability tests exhibited good levels of internal consistency of EBPR over time. All the Cronbach Alpha scores for the three periods of data collection

surpassed .8 (Table 11.2). In particular, the last wave's was close to .9, which is an excellent level (Cortina, 1993). This is consistent with the intention of the reliability test used in the factor analysis to improve this scale.

**Table 11. 3** Reliability of EBPR over Time

EBP	First collection	Second collection	Third collection
Cronbach's Alpha	0.828	0.875	0.891

N of Item =14

### 11.3 Multivariate analysis

This section reports the significance tests of EBP receptivity modelled by RM ANOVA and hypothesis examination tested by pairwise comparisons and contrast analysis. In sequence, the results comprise examination of statistical assumption, RM ANOVA model, pairwise comparisons and hypothesis examination. Pairwise comparisons are corrected by Bonferroni to reduce risks of committing a type I errors (Field, 2018).

#### *RM ANOVA*

Assumption examination of RM ANOVA showed that the assumption of sphericity was violated by rejecting the Mauchly's test ( $X^2(2) = 16.75, p < .001$ ). With the estimates of sphericity at 0.971( $\epsilon$ ), the research adopted the recommended method of Huynh–Feldt to adjust the degrees of freedom (Girden, 1992).

In the RM ANOVA model, the main within-subjects variable is time which represents 1) upon enrolment, end of 1<sup>st</sup> year and end of 2<sup>nd</sup> year for new recruits and undergraduates; 2) upon enrolment, end of 1<sup>st</sup> year and on completion of education for police officers and graduate recruits; 3) end of 3<sup>rd</sup> year, on completion of education and having worked for 1 year for cadets. The between-subjects variables included cohort, gender and police relatives.

In the RM ANOVA model, there were two main effects (time and gender) and one interaction effect (cohort by time), signalling significant effects on EBP receptivity (Table 11.3). Time showed a significant negative effect on the outcome variable as illustrated by the grand means of 5.5, 5.43 and 5.33 for T1, T2 and T3, respectively. The other main effect, gender, revealed a significant gap in the EBP receptivity between male and female participant. Pairwise comparisons demonstrated that the male (5.34) has lower receptivity than their counterpart (5.5).

**Table 11. 4** EBP Receptivity Significance Tests for RM ANOVA

<b>Effects</b>	<b>df</b>	<b>F</b>	<b>Partial Eta Squared</b>
<i>Within-subjects effects</i>			
Time	(1.965, 1152.69)	6.932**	0.012
Cohort by time	(7.862, 1152.69)	7.025***	0.046
Gender by time	(1.965, 1152.69)	2.83	0.005
Police relatives by time	(1.965, 1152.69)	0.036	0.001
<i>Between-subjects effects</i>			
Cohort	(4, 584)	1.084	0.007
Gender	(1, 584)	6.566*	0.01
Police relatives	(1, 584)	0.005	0.001

\* p< .05, \*\*p< .01, \*\*\*<.001

The interaction effect of cohort by time revealed that the trends of EBP receptivity of each cohort differed over time. The difference can be located by performing pairwise comparisons which will also examine the research hypotheses.

*The influence of police socialisation perspectives on EBP receptivity*

The effect of police socialisation is proposed in the three hypotheses: H19, H20 and H21.

**H19:** New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in EBP receptivity upon enrolment.

The pairwise comparison showed that new recruits (estimated mean = 5.63) did not differ significantly from new undergraduates (5.4) in EBP receptivity ( $p > .05$ ) upon enrolment. This indicated that the H19 is supported, and thus the pre-dispositional perspective is not supported here.

**H20:** New police recruits in the cadre program at CPU will become less receptive to EBP between enrolment and the end of their 2<sup>nd</sup> year at CPU.

New police recruits showed consecutive falls in EBPR in the first half of the cadre program. Both falls were significant with the first from 5.63 to 5.41 ( $p < .001$ ) and a further to 5.16 ( $p < .001$ ). The two drops jointly amounted to a medium effect size (Cohen's  $d = 0.65$ ). The pairwise comparison supported H20, suggesting that police education was negatively associated with EBP receptivity.

**H21:** Cadets will not change significantly in EBP receptivity between graduation and the end of their 1<sup>st</sup> year of service.

Cadets' score of EBP receptivity fell from 5.5 to 5.32 ( $p < .05$ ) during the first year of service (Cohen's  $d = 0.18$ ). This result rejected H21, suggesting the perspective of police work/culture significantly reduced cadets' EBP receptivity in their first year of police service.

In brief, the results of the examination of these three hypotheses revealed that both police education and police work/culture exerted significant negative influences on EBP receptivity in the process of police socialisation. Moreover, police education showed a medium to large effect size where police work/culture had a small one on EBP receptivity.

#### *The influence of police education on EBP receptivity*

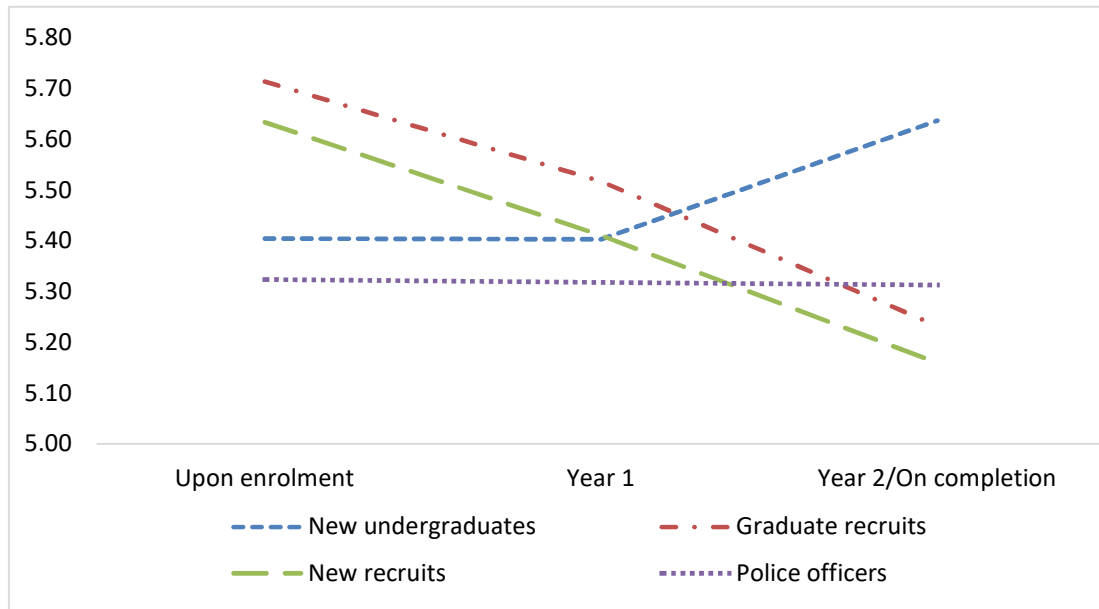
The next two hypotheses (H22, 23) will be examined by a contrast analysis, which compares the average changes of EBP receptivity between the treatment and comparison groups over time so as to reveal the overall influence of education models on police recruits and undergraduates (Bertrand et al., 2004).



**H22:** New undergraduates at NCCU will become comparatively more receptive to EBP between enrolment and the end of their 2<sup>nd</sup> year than will new police recruits at CPU.

The contrast analysis between new undergraduates and police recruits showed a negative estimate (-0.675,  $F(1,285) = 15.682$ ,  $p < .001$ ,  $r = .23$ ). This implies the trend of new undergraduates declined less significantly than did that of new police recruits. Simply put, new recruits' EBP receptivity became significantly lower than new undergraduates' between enrolment and the end of 2<sup>nd</sup> year at CPU. Therefore, the significance test supported H22.

The estimated means of four cohorts were plotted in Figure 11.1. New police recruits fell over the investigated period, whereas new undergraduates saw a rising pattern.



**Figure 11. 1** EBP Receptivity Trajectories of Newly Recruited Cohorts

*The influence of bachelor's degrees on EBP receptivity*

This hypothesis predicts that graduate recruits on the special-exam program will not differ in EBP receptivity from new police recruits on the cadre program.

**H23:** Graduate recruits at CPU will not differ from new recruits in EBP receptivity between enrolment and graduation.

The contrast analysis showed an estimate of 0.03 ( $F(1, 321) = .34, p > .05, r = .005$ ) between graduate recruits and new recruits. This result indicated the trajectories of graduate recruits and new recruits did not differ significantly. As illustrated in Figure 11.1, the trajectories of these cohorts almost paralleled: declined over time. The result thus supported H23.

*The influence of in-service education on EBP receptivity*

**H24:** Police officers will not experience significant changes in EBP receptivity between enrolment and graduation at CPU.

The within-subjects analysis showed that police officers' trajectory of EBP receptivity was flat over the promotion program. This flat pattern started at 5.32, stayed at precisely the same score of 5.32 in the following year and dropped slightly to 5.31 on completion. This pattern implies that the in-service education at CPU has no impact on police officers in EBP receptivity. H24 was thus supported.

## **11.4 Summary**

This section summarises the outcomes of hypothesis examinations (Table 11.4). All examinations are supported except for H21 (which will be discussed in C13). Regarding police socialisation, both police education and police work/culture manifested significant negative effects on EBP receptivity, whereas pre-dispositional perspective (H19) did not. Compared to the comparison group, the cadre program (H22) showed a negative impact on new police recruits over time. Similarly, these adverse effects were observed among graduate recruits on the special-exam program (H23), too. By contrast, police officers were found to be less susceptible to these influences when enrolled on the in-service education (H24).

**Table 11. 5** Summaries of Hypothesis Examination

Hypothesis	Contents	Status
H19	New police recruits in the cadre program at CPU do not differ from new criminology undergraduates at NCCU in EBP receptivity upon enrolment.	Supported
H20	New police recruits in the cadre program at CPU will become less receptive to EBP between enrolment and the end of their 2 <sup>nd</sup> year at CPU.	Supported
H21	Cadets will not change significantly in EBP receptivity between graduation and the end of their 1 <sup>st</sup> year of service.	Rejected
H22	New undergraduates at NCCU will become comparatively more receptive to EBP between enrolment and the end of their 2 <sup>nd</sup> year than will new police recruits at CPU.	Supported
H23	Graduate recruits at CPU will not differ from new recruits in EBP receptivity between enrolment and graduation.	Supported
H24	Police officers will not experience significant changes in EBP receptivity between enrolment and graduation at CPU.	Supported

Concerning practical significance, the examination of the results for hypotheses H20, H21 and H22 reveals gaps in EBP receptivity between compared parties. For H20, which refers to the decline of new recruits in EBP receptivity over the two years, results show a medium effect (0.65, Cohen's d) (Ellis, 2010). For H21, which relates to the fall in receptivity among cadets in the first-year of service, results show a small effect (0.18). For H22, which examines the change over time between new recruits and undergraduates, results show a medium and large effect at the end of the first and second year, respectively. Upon enrolment, new recruits outscore new undergraduates by 0.32 (Cohen's d) whereas, quite the opposite, the former is outscored by the latter by 0.18 and 0.69 at the end of the first and second year, respectively. This indicates that the cadre program exerts a medium

and large effect on new recruits in EBP receptivity in the first and second year respectively, compared to the criminology program on new undergraduates (Lakens, 2013).

## **Chapter 12 Construct validation of democratic policing and its relation with EBP**

Two tasks are undertaken in this final results chapter: 1) the construct validation of the democratic policing concept and 2) examination of the relationship between democratic policing and EBP, as measured herein. The first task involves the empirical examination of the argument that democratic policing comprises three distinct components, namely adherence to HR, the exercise of sound MR and an absence of PJ. This topic is examined using SEM.

The second task involves the examination of the relationship between democratic policing and police receptivity to research evidence, considered here to be a proxy measure for openness to EBP. The chief purpose of this exploration is to better understand how the dual framework of democratic policing adopted in this thesis (see C1) - effectiveness (represented by EBP receptivity) and fairness (represented by HR, MR and PJ) - correlate over time. The relationship between these constructs is examined using MLR.

The chapter is organised as follows. The first section covers construct validation and comprises five steps: 1) model specification, 2) parcel scheme, 3) confirmatory factor analysis, 4) explanation of goodness of model fit and 5) assessing construct validity. The second section explores the relationship between democratic policing and EBP. It is formed of two parts: 1) the relationship between HR, MR, PJ and EBP receptivity and 2) the relationship between EBP receptivity and the sub-dimensions of these three elements of democratic policing.

### **12.1 Construct validation**

This section describes the construct validation of democratic policing using SEM. This validation process relates mainly to argument of this thesis, namely that democratic policing can be conceptualised as being formed of three components:

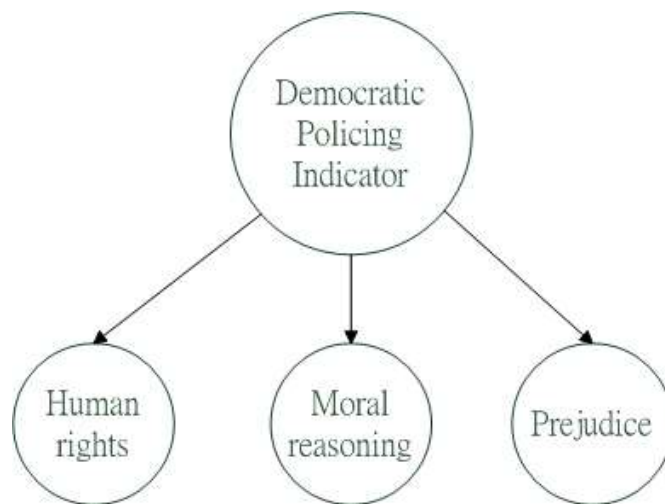
adherence to HR, the exercise of sound MR and an absence of PJ. As having been demonstrated in previous chapters, these constructs were measured in this research using four well-established scales (ATHR, DIT-2, RWA and SDO). The rationale for this process of construct validation is as follows: if indeed democratic policing is formed of three distinct components, then the relationship among these three dimensions should be recognised via statistical modelling (i.e. not just conceptually). This chapter therefore describes efforts to produce such a statistical model, covering topics such as model specification, parcelling, model evaluation and construct validity.

SEM is a statistical technique used to specify latent variable models that provide separate estimates of relations among latent variables and their manifest indicators (Bollen, 1989). Latent variables (or constructs) are variables that are not directly observed but are inferred from other variables that are directly measured (manifest indicators). SEM is usually applied when testing theory, to help explain the relationships among a group of variables. For example, recently SEM has been applied in research related to police legitimacy (e.g., Bradford & Quinton, 2014), organisational justice (Myhill & Bradford, 2013) and police confidence (Cao, Zhao, et al., 2015). In this study, SEM is used to test the extent to which the three components believed to make up democratic policing correlate with each other.

Generally, SEM constitutes three steps: 1) defining the individual constructs, 2) specifying the measurement model and 3) assessing the measurement model validity (Kline, 2011). The first step was covered in C2, which set out, for the purposes of this thesis, the definitions of HR, MR and PJ. The second and third steps are to specify and evaluate the representation in the form of a structural equation model. In sequence, the next section will specify the conceptual framework of democratic policing and then describe the parcel scheme that is used here to enhance model estimation. Then the next step is to verify the number of factors and items in the specified model and evaluate its model fit using confirmatory factor analysis. The focal point then moves to construct validity, which assesses the extent to which a set of measured items actually reflects the theoretical latent construct that those items are designed to measure.

### *Model specification*

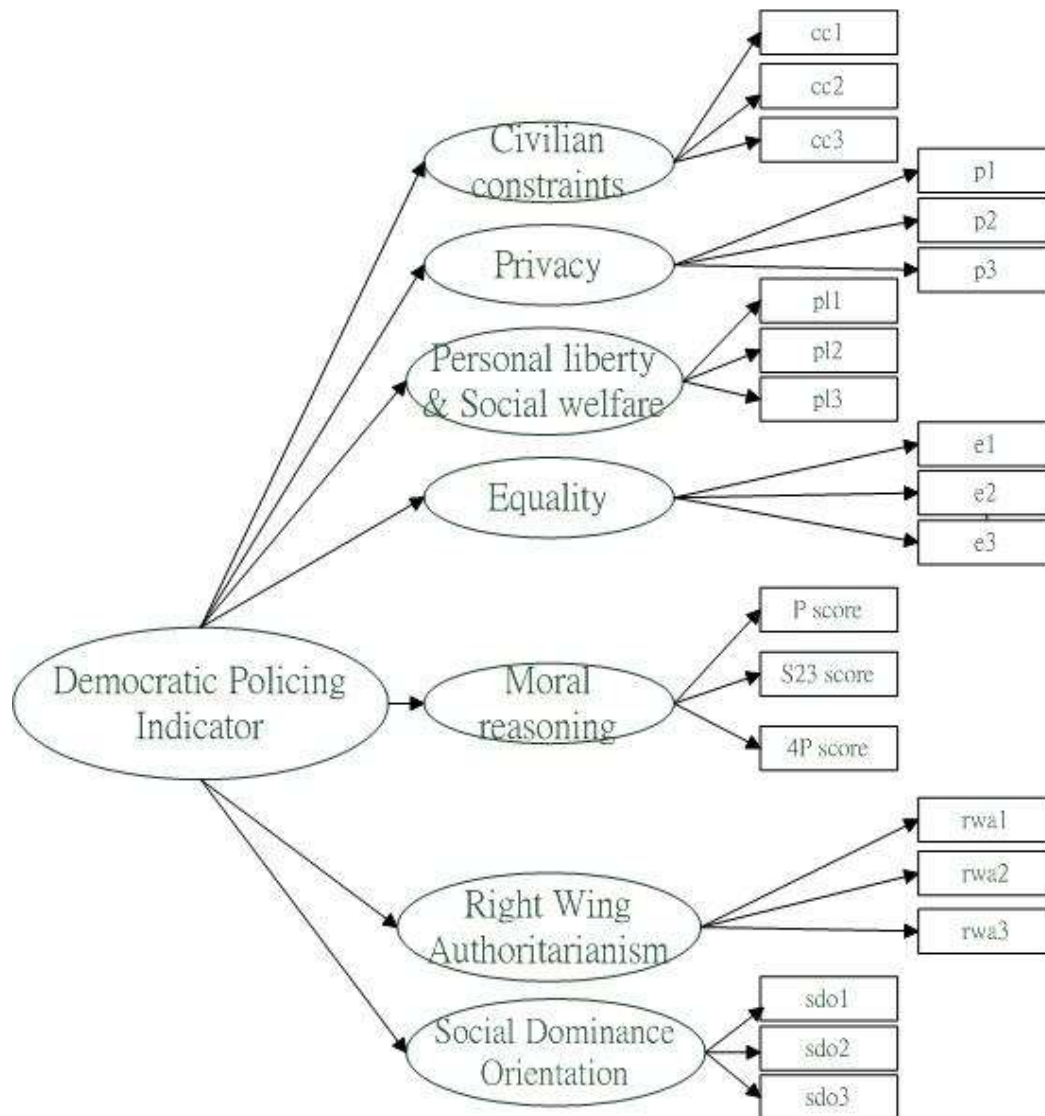
The conceptual framework of democratic policing used in this thesis is shown in Figure 12.1. To recap, the figure presents democratic policing as a latent variable comprised of three key factors: HR, MR and PJ. Before proceeding to the specification of the model of democratic policing, some technical details warrant mention. First, the data used here to test this model are the same as those used in the previous result chapters (i.e. participants who joined at least two out of the three waves of data collection). Because this section examines the relationships between HR, MR and PJ, to be included here each case had therefore to respond to all four scales (i.e., RWA, SDO, ATHR and DIT-2) in the first data collection phase. Keeping to this second criterion led to some attrition in the data, with a reduction in sample size from 585 to 525; although these 60 removed cases were present in at least two waves of data collection, responses to one of the four scales was missing. Second, the modelling reported here is performed in AMOS built into SPSS (v 25). Finally, the method applied here to estimate parameters is maximum likelihood estimation, an approach that provides minimum variance (i.e., reducing sample error) and is robust with respect to many violations of statistical assumptions (Kline, 2011).



**Figure 12. 1** Conceptual Framework of Democratic Policing

A formal measurement model of democratic policing was specified, as shown in Figure 12.2. This model consists of seven sub-dimensions, each of which is measured by three indicators. This model is somewhat different from the conceptual framework shown in Figure 12.1, in which the democratic policing indicator (DPI) is reflected by the three dimensions. This is because PJ and HR constitute two (RWA and SDO) and four (CC, P, PL&SW, E) sub-dimensions, respectively. If these two dimensions (PJ and HR) are introduced into the model, it becomes a third-order model in which the relationship between DPI and those sub-dimensions are moderated by them (PJ and HR). In the following analysis, both second- and third-order models will be examined to determine which one best fits the data.





**Figure 12. 2** The Specified First-order Model Loaded on by Sub-dimensions of HR (CC, P, PL&SW and E), MR and PJ (RWA and SDO)

Among the seven constructs, HR consists of civilian constraints (CC), privacy (P), personal liberty and social welfare (PL & SW) and equality (E), while PJ comprises RWA and SDO. MR has no sub-dimensions and is measured by three observed indicators. Note, DPI is specified as a second-order construct without direct measures.

*Parcel scheme*

As can be seen, the number of indicators of each construct is different from the

numbers of items in each respective scale (e.g., RWA, SDO). This is because this thesis adopts the statistical technique – parcelling – that aggregates individual items into one or more parcels and uses those parcels, instead of items, as the indicator(s) of the target latent construct (Matsunaga, 2008). Parcelling can reduce sampling variability and bring about smaller nuisance parameters (e.g., loadings), and thus reduce the results of correlated residuals and dual factor loadings in a given model (Little et al., 2013).

When properly applied, parcel-level solutions generally outperform item-level ones in two aspects: psychometric characteristics and model estimation (Little et al., 2013; Sass & Smith, 2006). The former includes higher reliability, greater commonality, a higher ratio of common-to-unique factor variance, a lower likelihood of distributional violations and tighter and more-equal intervals. The latter relates to fewer parameter estimates, a lower indicator-to-sample size ratio, a lower likelihood of correlated residuals and dual factor loadings and reduced sources of sampling error (Little et al., 2002). When an inappropriate parcelling scheme is applied, it can, nevertheless, mask model misspecifications, resulting in biased estimates of model parameters in that item properties (e.g., cross-loading) may be difficult to detect when items are folded into a parcel, particularly (Bandalos, 2002; Sass & Smith, 2006).

The goal of the modelling reported here is to evaluate how these three factors (HR, MR and PJ) correlate and reflect the democratic policing. That is, the goal of this analysis centres on better understanding the latent construct (DPI) and its relation to other constructs (e.g., RWA), as opposed to the relations *between* the items and the constructs they purport to measure. This goal is considered appropriate in using parcel-level modelling (Little et al., 2002; Little et al., 2013). Moreover, in view of the small sample size of certain cohorts (i.e., new undergraduates, graduate recruits and police officers), parcelling could reduce the impact of sampling error by lowering the ratio of respondents to parameters (Matsunaga, 2008). Parcelling is thus applied here so as to optimise the measurement structure of constructs.

To determine which items are to be parcelled together, a univariate balancing approach was applied. This approach is robust in reducing specific variances by matching a high-loading item with a weak-loading item, so as to create a set of tau equivalent or parallel parcels (Landis et al., 2000; Rogers & Schmitt, 2004). The thresholds of high/weak-item loadings are calculated by averaging loadings across the three waves of data collection.

As illustrated in Table 12.1, 13 items of RWA were ranked by the average loadings on RWA of the three-wave surveys. The items 2, 4 and 10 were shown to have negative average loadings, denoting poor reliabilities and validities, given that all other items are in the positive direction. Hence, these three items were deleted. The 10 items retained were grouped into 3 parcels according to the principle that the item with the highest item-scale correlation is paired with the lowest one, and the second-highest goes with the second-lowest and so on. The fourth-, fifth- and sixth-lowest join the third, second and first parcel, respectively, and the principle goes on until all items are assigned to a parcel. Following this pattern, the first and second parcel comprised 3 items while the third comprised 4.

**Table 12. 1** Balancing Parceling of RWA Scale

Items	First wave	Second wave	Third wave	Average	Ranking	Parcel
12	0.28	0.118	0.097	0.165	1	1
6	0.404	0.118	0.072	0.198	2	2
3	0.34	0.204	0.112	0.219	3	3
5	0.407	0.291	0.124	0.274	4	3
9	0.479	0.437	0.209	0.375	5	2
7	0.396	0.424	0.327	0.382	6	1
13	0.459	0.513	0.46	0.477	7	3
8	0.353	0.47	0.623	0.482	8	3
1	0.493	0.505	0.665	0.554	9	2
11	0.429	0.668	0.595	0.564	10	1
10	-0.191	-0.297	-0.321	-0.270	Deleted	
2	-0.007	-0.165	-0.385	-0.186	Deleted	
4	0.123	-0.207	-0.352	-0.145	Deleted	

The balancing parcel scheme was also applied to the SDO and HR scales. The 16

items of SDO were ranked by the average loadings and matched by the same principle as that used in the RWA parcelling (Table 12.2). Finally, the third parcel included 6 items while the first and second parcels contained 5.

**Table 12. 2** Balancing Parcelling of SDO Scale

Items	First wave	Second wave	Third wave	Average	Ranking	Parcel
8	0.248	0.299	0.327	0.291	1	1
5	0.243	0.375	0.272	0.297	2	2
3	0.352	0.364	0.235	0.317	3	3
15	0.4	0.349	0.273	0.341	4	3
16	0.356	0.342	0.39	0.363	5	2
4	0.378	0.431	0.328	0.379	6	1
2	0.343	0.401	0.42	0.388	7	3
1	0.357	0.381	0.476	0.405	8	2
6	0.426	0.455	0.43	0.437	9	1
7	0.439	0.474	0.534	0.482	10	3
9	0.567	0.545	0.462	0.525	11	2
14	0.642	0.6	0.685	0.642	12	1
10	0.711	0.649	0.628	0.663	13	3
11	0.652	0.675	0.674	0.667	14	3
13	0.724	0.733	0.747	0.735	15	2
12	0.727	0.714	0.784	0.742	16	1

Table 12.3 demonstrated the parcelling in the HR factor. In this case, there are four sub-dimensions to consider. The two items, 13 and 16, were dropped out because of the weak item-scale correlations (0.17 and 0.09, average). The rest of the 24 items within the four sub-dimensions were paired by the balancing principle, and finally, there were three parcels within each sub-dimension, for a total of 12 parcels.

**Table 12. 3** Balancing Parcelling of HR Scales

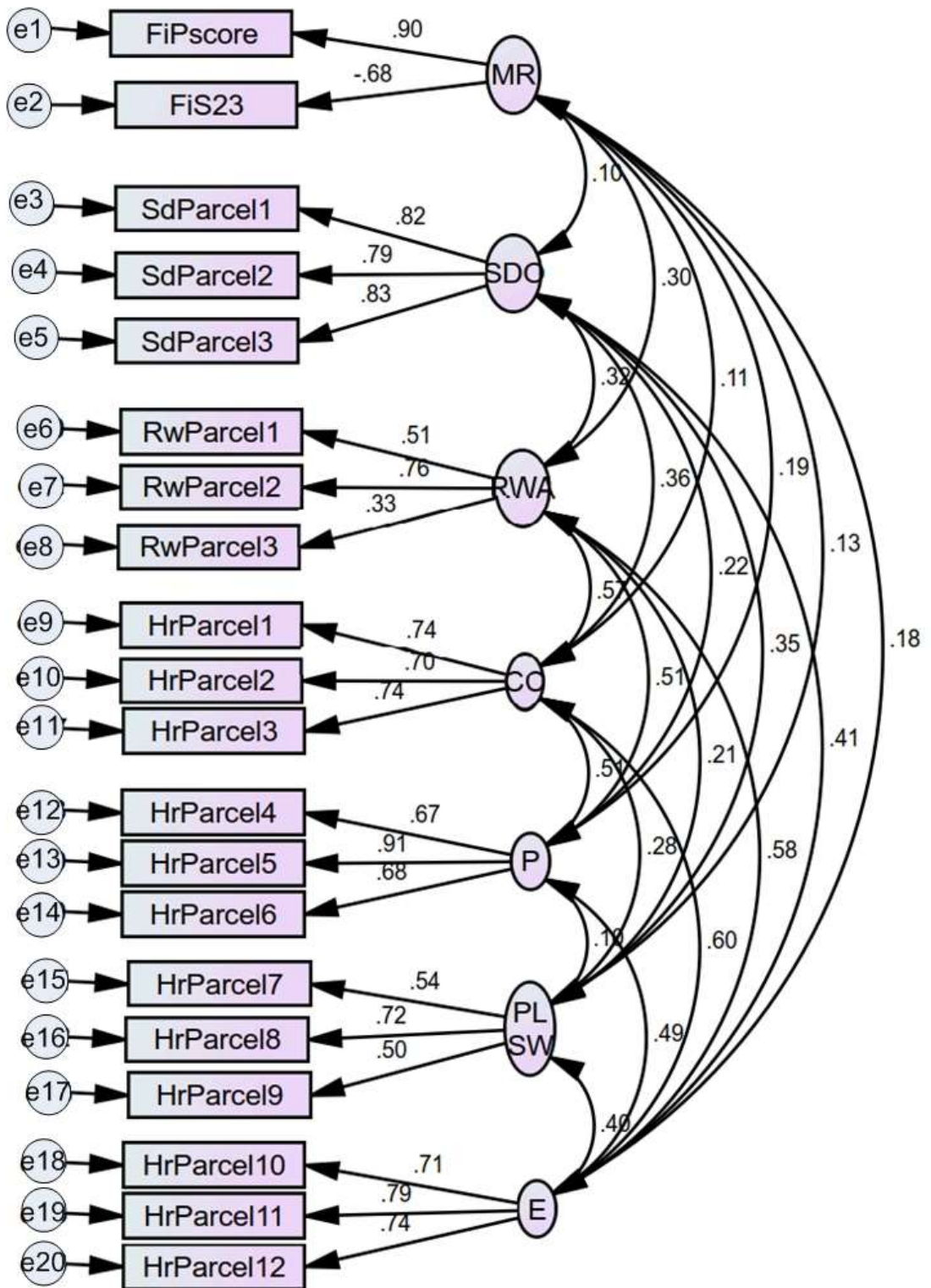
Items	Sub-dimension	First wave	Second wave	Third wave	Average	Ranking	Parcel
16		0.056	0.086	0.139	0.09	Deleted	
13		0.15	0.152	0.2	0.17	Deleted	
9	CC	0.374	0.37	0.37	0.37	1	1
5		0.448	0.466	0.498	0.47	2	2
10		0.493	0.53	0.538	0.52	3	3
8		0.434	0.568	0.604	0.54	4	3
7		0.473	0.587	0.652	0.57	5	2
6		0.517	0.594	0.666	0.59	6	1
12	PL & SW	0.174	0.096	0.243	0.17	1	4
14		0.165	0.306	0.42	0.30	2	5
1		0.213	0.213	0.507	0.31	3	6
2		0.21	0.306	0.458	0.32	4	6
3		0.262	0.363	0.543	0.39	5	5
15		0.347	0.439	0.607	0.46	6	4
19	E	0.275	0.215	0.186	0.23	1	7
18		0.438	0.412	0.329	0.39	2	8
17		0.388	0.393	0.431	0.40	3	9
11		0.553	0.526	0.551	0.54	4	9
21		0.581	0.552	0.565	0.57	5	8
20		0.603	0.585	0.552	0.58	6	7
28	P	0.251	0.269	0.292	0.27	1	10
23		0.503	0.358	0.228	0.36	2	11
26		0.398	0.413	0.417	0.41	3	12
22		0.508	0.463	0.336	0.44	4	12
24		0.658	0.697	0.563	0.64	5	11
25		0.674	0.67	0.578	0.64	6	10

CC, civilian constraints; P, privacy; PL& SW, political liberty and social welfare; E, equality.

### *Confirmatory Factor Analysis*

Since the measurement model of DPI with item parcels was specified in Figure 12.3, the next step is to analyse model fit using CFA. Doing so is important in order to verify the number of factors in the model and the pattern of items – i.e. factor loadings (Brown, 2015). However, the generated DPI model failed to converge due to identification problems in the MR construct. This identification problem is

diagnosed by constraining the loadings of the three indicators of MR to be equal. The problem turned out to be an example of what is known as Heywood cases (i.e., negative indicator error variances) whereby the 4P score produced a negative error variance (Hair et al., 2014). Considering construct validity, this research adopts the suggested solution to delete the offending indicator - 4P (Brown, 2015). After removing the 4P score, the model (Figure 12.3) converged with good model fit indices (Chi-square  $X^2=314.358$ ,  $X^2/df = (2.11/149)$ ,  $p<0.001$ , CFI=0.951; GFI= 0.943; AGFI=0.919; TLI= 0.937; RMSEA= 0.046 (CI 90% 0.039-0.053)). This means the specified model effectively reproduces the observed covariance matrix among the indicators. In other words, the goodness of model fit suggested that the specification fit the data well and thus was tentatively supported. Moreover, Figure 12.3 showed that most of the seven constructs were sufficiently loaded onto by respective parcel-level items. The detailed description of these correlations and factor-loadings will be discussed in the model fitness and construct validity sections.



CC: civilian constraints; P: privacy; PL& SW: political liberty and social welfare; E: equality.

Figure 12. 3 The CFA Model of DPI

### *Explanation of goodness of model fit*

Evaluation of the goodness of model fit concerns two aspects: global and local aspects. The former provides the overall ability of a model to reproduce the input covariance matrix while the latter involves specific information about the acceptability and utility of this solution (Brown, 2015). This section will discuss the global model fit first and then the local aspect.

Evaluation of global model fit is generally based on multiple criteria. There are three broad categories of indices considered in previous research: 1) absolute-fit, 2) incremental-fit, and 3) parsimonious-fit measures (Hair et al., 2014). The first category is the direct measure of how well the hypothetical relationships between variables match the observed relationships. Popular indices of absolute-fit include the  $X^2$  figure, the  $X^2/\text{degree of freedom}$  ration ( $X^2/df$ ), the goodness-of-fit index (GFI), the standardised root mean residual (SRMR), and the root mean square error of approximation (RMSEA) (Byrne & Gavin, 1996; Hoyle, 1995).

The incremental-fit indices compare how well the estimated model fits relative to some alternative baseline model. It assesses the improvement in fit offered by the specification of related multi-item constructs (Hair et al., 2014). Popular incremental-fit indices include the normed fit index (NFI), Tucker-Lewis index (TLI), and comparative fit index (CFI). Finally, the parsimonious-fit index is about 'which model among a set of competing models is best, considering its fit relative to its complexity' (Hair et al., 2014, p 580). This last category includes the adjusted goodness-of-fit index (AGFI). The suggested thresholds for each of these indices of goodness of fit are listed in Table 12.4 (Hu & Bentler, 1999).



**Table 12. 4** Goodness of Fit Indices of the Two Models

Model	Results of Goodness-of-Fit measures of DPI model									
	Absolute-Fit Measures						Incremental-Fit Measures			Parsimonious-Fit Measures
	X <sup>2</sup>	P	df	GFI	RMR	RMSEA	CFI	NFI	TLI	AGFI
First-order CFA	314.36	.001	149	.943	0.049	0.046	.951	.911	.937	.919
Second-order CFA	354.7	.001	161	.936	0.056	0.048	.942	.9	.932	.917
Fit index					Shorthand		General rules for acceptable fit			
Chi-square					X <sup>2</sup>		Ratio of X <sup>2</sup> to df <3			
Goodness of fit					GFI		≥.9			
Root mean square residual					RMR		≤.08/.06			
Root mean square error of approximation					RMSEA		≤.08/.05, CI≤.08			
Comparative fit index					CFI		≥.9			
Normed fit index					NFI		≥.9			
Tucker-Lewis index					TLI		≥.9			
Adjusted GFI					AGFI		≥.9			

Researchers disagree on appropriate cut-off values for fit indices (Hair et al., 2014). Some consider .9 to be acceptable (Hu & Bentler, 1999), whilst others argue that .95 be the standard (Hoelter, 1983) as anything lower than this might lead to potentially false models being accepted. Some scholars have suggested that the cut-off value should vary according to sample size and model complexity. That is, simpler models and smaller samples should be subject to stricter evaluation, and hence a higher threshold, compared to models based on larger sample sizes (Marsh et al., 2004). In this research, the sample size is more than 250 and the number of indicators are between 12 and 30. The reasonable fit indices include significant X<sup>2</sup>, CFI or TLI above .92, SRMR less than .08 and RMSEA less than .07 (Hair et al., 2014). These criteria were all met in the two models (Table 12.4).

Overall, both first- and second-order models generated here demonstrated sufficient indices of model fit. But the goodness of model fit declined in the second-order CFA, compared to the first-order. The GFI, for example, fell from 0.943 to

0.936. Usually, the difference in chi-square is used to test which model has a better fit (Byrne, 2010). The gap of chi-square ( $X^2$ ) of the two models is 40.34 with the gap of *df* by 12. The  $X^2$  difference test is significant ( $p < .001$ ), suggesting the first-order model is a better solution than the second-order model. Thus, the model adopted in this research is the first-order model in which the sub-dimensions of the three factors load on the DPI directly without mediation. Therefore, the following inspection will only focus on the first-order model.

The following paragraphs will examine the two aspects of local fit evaluations: localised strain and parameter estimates (Brown, 2015). The former, localised areas strain, examines whether the relationship among certain indicators in the sample data has been reproduced adequately even though the overall goodness-of-fit indices suggest an acceptable fit. It could be dealt with by inspecting the residual matrix, which reflects the difference between the sample and model-implied matrices.

In the model, the standardised residual matrix was not problematic. Suggested by rules of thumb, the absolute values of standardised residuals should not exceed 4, and those between 2.58 and 4 deserve some attention (Kline, 2011; Makransky et al., 2017). In the matrix, there were 8 out of 190 values larger than 2.58 that were scattered around the matrix, and no values were larger than 4 (Table 12.5). This indicated the absence of localised areas of ill fit in this solution.

**Table 12. 5** Standardised Residuals Exceeding the Absolute Value of 2.58

Negative Standardised Residuals	
HrParcel 1 and HrParcel 3	-2.77
RwParcel 1 and HrParcel 9	-2.694
SdParcel 3 and HrParcel 8	-2.867
Positive Standardised Residuals	
SdParcel 2 and HrParcel 9	2.945
RwParcel1 and HrParcel 8	3.11
RwParcel1 and HrParcel 7	3.982
SdParcel 2 and HrParcel 4	2.685
RwParcel 1 and HrParcel 2	3.119

Hr, human rights; Rw, right-wing authoritarianism; Sd, social domination orientation.

Turning to parameter estimate examination, here the aim is to inspect the direction, magnitude, significance and substantive sense of parameter estimates (Hair et al., 2014). In the model (Table 12.6), there was only one indicator with negative correlations, S23. It was negatively loaded on MR (-0.679), which is substantively consistent with the argument that advanced MR should accompany with low S23 scores (self-interest). All indicators were re-coded into positive directions so that the directions of those factor loadings were consistent with the rationale: higher levels of MR, as measured herein, is associated with higher levels of endorsement of HR and lower levels of PJ.

**Table 12. 6** Factor Loadings within Each Construct

Standardised Regression Weights					
RWA	Parcel3	0.333	P	Parcel4	0.671
	Parcel2	0.758		Parcel5	0.915
	Parcel1	0.509		Parcel6	0.681
SDO	Parcel1	0.821	PL& SW	Parcel7	0.542
	Parcel2	0.786		Parcel8	0.722
	Parcel3	0.834		Parcel9	0.503
CC	Parcel1	0.738	E	Parcel10	0.712
	Parcel2	0.699		Parcel11	0.792
	Parcel3	0.738		Parcel12	0.742
MR	S23	-0.679			
	Pscore	0.895			

CC, civilian constraints; P, privacy; PL& SW, political liberty and social welfare; E, equality.

Regarding the size of path estimates, rules of thumb suggest the measurement relationships between indicators and constructs should be at least 0.5 and ideally 0.7 or higher (Hair et al., 2014). Loadings of this size or higher confirm the indicators strongly load on their associated constructs and are one indication of construct validity (Hair et al., 2014). In the model (Table 12.6), almost all loadings surpassed the suggested thresholds except for the third parcel of RWA (0.333). This low loading suggested that the three items (3, 5, and 8) collectively accounted for around 11% of variance by the RWA construct.

The other construct with slightly weak relations was PL&SW, in which two of the three parcels were barely higher than 0.5. Other than these, all parcels are loaded on to the corresponding constructs significantly ( $p < .0001$ ). So far, the first-order model of DPI has succeeded in the global and local tests with adequate goodness of fit, absence of localised areas of ill fit and substantive parameter estimates.

### *Construct validity*

After examining both global and local goodness of model fit, the next step is to find specific evidence of construct validity. Construct validity denotes the extent to which a set of measured items actually reflect the theoretical latent construct that those items are designed to measure (Hair et al., 2014). In the context of this research, construct validity relates to whether the four scales (i.e., ATHR, DIT-2, RWA and SDO) adequately measure the concept of democratic policing. In simple terms, construct validity deals with the accuracy of measurement in this thesis.

Generally, construct validity is made up of four components, namely, 1) convergent, 2) discriminant, 3) face, and 4) nomological validity. The next paragraphs cover each kind of construct validity in turn, except that of face validity, which relates to the understanding of the meanings or contents of each item. This kind of validity check has already been performed during the selection of those three scales (see Section 7.3).

Convergent validity refers to a high proportion of variance in common to be shared by indicators of a specific construct, or indicators of theoretically similar or overlapping constructs to be strongly interrelated (Hair, 2017). It can be tested by two indices: composite reliability (CR) and average variance extracted (AVE). As illustrated in Table 12.7, in this study, each construct, on the one hand, showed sufficient CR (0.7 or above) except for the PL & SW (0.618) and RWA (0.555). The former but not the latter was still acceptable, implying weak internal consistency within this construct.

**Table 12. 7** The CR, AVE, MSV and Correlations between Constructs

	CR	AVE	MSV	E	RWA	SDO	CC	P	PL& SW	MR
E	0.793	0.562	0.360	<b>0.749*</b>						
RWA	0.555	0.315	0.336	0.580	<b>0.561</b>					
SDO	0.855	0.662	0.171	0.414	0.322	<b>0.814</b>				
CC	0.769	0.526	0.360	0.600	0.567	0.356	<b>0.725</b>			
P	0.805	0.584	0.260	0.493	0.510	0.217	0.508	<b>0.764</b>		
PL& SW	0.618	0.356	0.158	0.398	0.209	0.345	0.283	0.098	<b>0.597</b>	
MR	0.771	0.631	0.090	0.180	0.300	0.098	0.106	0.187	0.134	<b>0.794</b>

CR, Composite Reliability; AVE, Average Variance Extracted; MSV, Maximum Shared Variance; CC, civilian constraints; P, privacy; PL& SW, political liberty and social welfare; E, equality; \* **bold** numbers on the diagonal are the square roots of AVE.

On the other hand, rules of thumb suggest if the AVE is lower than 0.5, it indicates that more error remains in the indicators than the variance explained by the latent factor structure imposed on the measure (Campbell & Fiske, 1959). Again those two constructs with low reliabilities fell below the threshold. The RWA accounted for around 31.5% of the variance in the construct on average, while the PL & SW explained 35.6%. Other than these, all constructs demonstrated adequate extracted variances. Along with the unacceptable reliability, RWA exhibited poor convergent validity.

By contrast, discriminant validity indicates the extent to which a construct is genuinely distinct from other constructs, implying a construct is unique and captures some phenomena other measures do not. According to the Fornell-Larcker criterion (Fornell & Larcker, 1981), adequate discriminant validity should meet the criteria:

- Maximum shared variance (MSV) should be smaller than the AVE
- Square root of AVE should be greater than inter-construct correlations

These criteria indicate that a latent construct should explain more of the variance in its item measures than it shares with another construct. In Table 12.7, the bold numbers on the diagonal were the square roots of AVE while the numbers below the line were the correlations between constructs. All constructs demonstrated

sufficient discriminant validity except for the RWA. It was evidenced by the MSV (0.336) larger than the AVE (0.315) and by the failure of the square root of AVE (0.561) to exceed its correlation with E (0.58) or CC (0.567). Apart from this, other constructs met both criteria, indicating adequate discriminant validity.

The fourth kind of validity, nomological validity, refers to whether the correlations among the constructs in a measurement theory make sense or not (Hair et al., 2014). It can be examined by the correlation matrix of latent variables (Table 12.7). In this study, it can be seen that there were weak to moderate positive correlations between all constructs, consistent with the assumption that high adherence to HR and advanced MR and low levels of PJ should positively associate with each other. These results suggest that nomological validity is sufficient in this model. Also the moderate to weak correlations suggested little likelihood of second-order factors.

In short, the latent factors demonstrated adequate construct validity except for RWA. Specifically, the RWA construct failed in the examination of convergent and discriminant validity, suggesting that this construct is poor in internal consistency and unique representation. The other construct with minor problems was PL&SW, exhibiting acceptable reliability and discriminant validity but poor convergent validity. This implied that PL&SW captured a unique dimension reliably but not sufficiently. Overall, the construct of democratic policing exhibited adequate construct validity and thus supported the research question that the three components of democratic (adherence to HR, advanced MR and lack of PJ) sufficiently measured the concept of democratic policing.

### *Summary*

The results of the construct validation described above provide quantitative support for the argument that democratic policing can be conceptualised as comprising three distinct components pertaining to HR endorsement, MR and absence of PJ. Specifically, the model generated here succeeded in passing tests of goodness of model fit, localised areas strain, substantive examination and construct validity with a minor problem in RWA. These findings suggest that the tripartite variable of democratic policing could adequately be captured by the four

research instruments (ATHR, RWA, SDO and DIT-2) applied in this research. In other words, the conceptualisation of democratic policing is supported in terms of the unidimensionality of the four measures and in the way the constructs relate to other measures (Hair et al., 2014).

## **12.2 Relations between democratic policing and EBP**

This section explores the relations among the three dimensions underlying democratic policing (i.e., HR endorsement, MR and lack of PJ) and EBP receptivity using MLR. This analysis examines how the components of the dual framework of democratic policing - fairness and effectiveness - (C1) correlate with each other.

The following section comprises two parts: 1) examining the relations of the three dimensions in democratic policing with EBP receptivity over time and 2) exploring the relations among their sub-dimensions. In each part, the issues reported will first cover the means and SD of these four dimensions and correlations among them, so as to provide an overview of the data modelled. Then, the next section will report the results of MLR.

MLR is a statistical technique often used to assess the relationship between a dependent variable and several independent variables (Keith, 2015). Its objective is to predict the criterion (dependent) variable on the basis of one or more independent variables. This method is consonant with the intention to probe the correlations between the three dimensions of democratic policing (independent variables) and EBP receptivity (dependent variable).

Before proceeding, the data utilised here need explanation. Data from each of the three waves of data collection are analysed. Those data used are raw data without imputation because this exploration aims to find out the relations between the three dimensions of democratic policing and EBP receptivity reported by participants originally. With data imputation, it is unknown how the exploration might be influenced by the imputed data.

*HR, MR and PJ as predictors of EBP receptivity*

Table 12.8 shows the original means and SD of each outcome variable over time. EBP and HR had similar decreasing patterns over time. For MR, the reverse was true; it saw a rising pattern over the surveyed period.

**Table 12. 8** Means and SD over Time by Dimension

Descriptive statistics						
Dimensions	First collection (N=680)		Second collection (N=478)		Third collection (N=342)	
	Mean	SD	Mean	SD	Mean	SD
EBP	5.50	0.61	5.45	0.74	5.34	0.80
HR	4.98	0.67	4.90	0.69	4.88	0.72
MR	40.96	12.37	41.81	11.98	42.30	13.37
PJ	4.59	0.55	4.41	0.53	4.44	0.58

The correlation matrix (Table 12.9) provides clues to statistical assumptions and overall correlations between variables, shedding light on the issues of multi-collinearity and correlation strength over time. First, the small to medium correlations among the four variables suggests little likelihood of multi-collinearity (i.e. high correlations between independent variables, Hair et al., 2014). If two independent variables do correlate closely (as a rule of thumb, over .9), it means that they are too-similar measures of the same thing, potentially leading to inaccurate predictions of the dependent variable. From a modelling perspective, a regression model with collinearity indicates that there are redundant variables which inflate the size of error terms and weaken the analysis (Tabachnick & Fidell, 2019). As illustrated in Table 12.9, the highest correlations observed here are between HR and PJ, ranging from .53 to .59 over time. This lack of multicollinearity means a core statistical assumption is not violated.



**Table 12. 9** Correlations between Dimensions over Time

Correlation	Dimension	EBP	HR	MR	PJ
First collection	EBP	1			
	HR	.34	1		
	MR	.20	.17	1	
	PJ	.27	.56	.18	1
Second collection	EBP	1			
	HR	.43	1		
	MR	.14	.20	1	
	PJ	.24	.53	.20	1
Third collection	EBP	1			
	HR	.56	1		
	MR	.22	.28	1	
	PJ	.31	.59	.23	1

All values in the cells are statistically significant ( $p < .001$ ).

Another relevant finding shown in the correlation matrix (Table 12.9) concerns the changes in correlations over time. For example, the correlations between HR and EBP are found to increase consistently across the three waves of data collection, starting at .34, via .43 and ending at .56. The other associations between MR and EBP and between PJ and EBP are low. Noticeably, all bivariate correlations in the table were statistically significant.

The results of MLR are illustrated as Table 12.10. The R square value increased from .142, via .184 to .313 across the three models, indicating an increasing percentage of total variation explained by the regression models. The overall model fit was tested as significant in the three models, evidenced by the F-test. This means that the independent variables used as predictors in the regression model here significantly reduce the error in predicting the dependent variable, EBP receptivity (Keith, 2015).

**Table 12. 10** Regression Analysis of EBP Receptivity by Collection

Dimension	First collection		Second collection		Third collection	
	B	$\beta$	B	$\beta$	B	$\beta$
HR	0.23	0.25***	0.44	0.41***	0.62	0.55***
MR	0.01	0.14***	0.00	0.05	0.00	0.07
PJ	0.11	0.10*	0.02	0.02	-0.04	-0.03
R/R <sup>2</sup>	0.377/0.142		0.429/0.184		0.599/0.313	
F	(3, 679) =37.242***		(3, 477)=35.617***		(3, 341)=51.225***	

\*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

In the model produced using data from the first wave of data collection, all three variables exhibited statistically significant and positive predictive determination in relation to EBP receptivity. HR showed the strongest prediction. In the second and third models, HR was the only predictor that exhibited a strong and statistically significant association. This indicates that HR is incrementally correlated with EBP receptivity during the surveyed period. By contrast, MR saw weak prediction in EBP receptivity in the second and third phase of data collection. Unexpectedly, PJ was shown to start by exhibiting a positive prediction in the dependent variable, and then this turned into a negative association by the final phase of data collection.

In short, the results presented in Table 12.10 indicate that HR is the steady and incremental predictor of EBP receptivity over time. The reason for this, however, is not clear. In an attempt to clarify this relationship, the following section will probe the relationship between EBP receptivity and the sub-dimensions underlying these three factors using MLR. Also considering the exploratory nature of this regression and the attempt to maximise the prediction using the minimum variables, the sequential search method - stepwise - will be applied in the following models (Tabachnick & Fidell, 2019).

*Relations between EBP receptivity and sub-dimensions of three democratic policing factors*

Table 12.11 details the original means and SD of each sub-dimension of HR, PJ and MR over time. Within HR, the SW and PL saw relatively high scores (over 5.5 in all collections), compared to other sub-dimensions using a 7-point Likert scale.

**Table 12. 11** Means and SD by Sub-dimension over Time

		Descriptive statistics					
Dimension	Sub-dimension	First collection (N=680)		Second collection (N=478)		Third collection (N=342)	
		Mean	SD	Mean	SD	Mean	SD
EBP		5.50	0.61	5.45	0.74	5.34	0.80
HR	CC	4.87	1.02	4.74	1.08	4.71	1.10
	P	4.40	1.12	4.43	1.14	4.34	1.13
	SW	5.95	0.86	5.84	0.90	5.84	0.97
	PL	5.80	0.92	5.54	1.01	5.61	1.02
	E	4.89	1.06	4.86	1.01	4.82	0.97
PJ	RWA	4.47	0.62	4.21	0.57	4.29	0.57
	SDO	4.69	0.74	4.58	0.75	4.56	0.78
MR	S23	23.99	11.90	21.92	12.16	21.63	12.58
	P score	42.47	12.93	41.88	12.20	42.07	14.37
	4P	25.27	10.16	28.59	10.08	28.20	10.66

CC, civilian constraints; P, privacy; PL, political liberty; SW, social welfare; E, equality; S23, personal interest schema; 4P, maintaining norm schema; P score, post-conventional reasoning.

Table 12.12 shows the correlation matrix between EBP receptivity and those sub-dimensions over time. The correlations between EBP receptivity and the sub-dimensions within HR rose across collections. The marked ones were those with SW and PL, starting with .33 and .40 at time 1, growing to .45 and .43 at time 2 and further to .57 and .54 at time 3 (all  $p < .001$ ) respectively. The other three sub-dimensions within this factor also experienced mild to medium growth in correlations.

**Table 12. 12** Correlations between Sub-dimensions over Time

Correlation	Dimension	EBP	CC	P	SW	PL	E	RWA	SDO	S23	P Score	4P
First collection	EBP	1										
	CC	.20** *	1									
	P	.12** *	.43** *	1								
	SW	.33** *	.15** *	.10**	1							
	PL	.40** *	.22** *	.07*	.30** *	1						
	E	.25** *	.47** *	.43** *	.25** *	.24** *	1					
	RWA	.23** *	.45** *	.39** *	.08*	.21** *	.43** *	1				
	SDO	.20** *	.28** *	.21** *	.32** *	.18** *	.34** *	.26** *	1			
	S23	-.13** *	-.04	-.13** *	.01	-.04	-.14** *	-.15** *	-.06*	1		
	P Sco	.18** *	.08**	.15** *	.05	.08*	.14** *	.22** *	.10**	-.63** *	1	
	4P	-.03	-.05	-.07*	-.06	-.03	.02	-.10** *	-.06	-.32** *	-.41** *	1
Second collection	EBP	1										
	CC	.23** *	1									
	P	.19** *	.48** *	1								
	SW	.45** *	.13**	.07	1							
	PL	.43** *	.19** *	.06	.35** *	1						
	E	.30** *	.50** *	.42** *	.23** *	.25** *	1					
	RWA	.24** *	.43** *	.41** *	.04	.10*	.40** *	1				
	SDO	.16** *	.30** *	.20** *	.29** *	.11**	.34** *	.21** *	1			
	S23	-.10*	-.11**	-.13** *	-.06	-.04	-.18** *	-.16** *	-.13** *	1		
	P Sco	.09*	.13** *	.17** *	.05	.04	.20** *	.20** *	.13** *	-.63** *	1	
	4P	.07	.05	-.03	.03	.03	.03	-.01	.01	-.45** *	-.27** *	1
Third collection	EBP	1										
	CC	.37** *	1									

P	.20** *	.49** *	1								
SW	.57** *	.32** *	.08	1							
PL	.54** *	.28** *	.10*	.51** *	1						
E	.45** *	.55** *	.41** *	.35** *	.34** *	1					
RWA	.26** *	.43** *	.39** *	.06	.21** *	.39** *	1				
SDO	.27** *	.47** *	.29** *	.35** *	.25** *	.42** *	.40** *	1			
S23	-.10*	-.14**	-.15*	-.02	-.08	-.17**	-.24**	-.10*	1		
P Sco	.21** *	.24** *	.18** *	.09*	.13*	.26** *	.26** *	.14**	-.66**	1	
4P	-.08	-.08	-.03	-.05	-.02	-.08	-.08	-.07	-.29**	-.43**	1

CC, civilian constraints; P, privacy; PL, political liberty; SW, social welfare; E, equality; S23, personal interest schema; 4P, maintaining norm schema; P score, post-conventional reasoning.

By contrast, the two sub-dimensions within PJ had relatively fixed correlations with EBP receptivity. Both correlations of RWA and SDO with the dependent variable fluctuated between .16 and .27. Yet the three sub-dimensions of MR had relatively weak associations with the dependent variable over time. The 4P correlations over time were close to 0 (-0.03, 0.07 and -0.08, respectively) without significance. The other two also saw weak to small correlations with EBP receptivity over time. Noteworthy, the overall small to medium correlations between the dependent and independent variables implied not only a little likelihood of multicollinearity but also redundant variables (Keith, 2015).

Table 12.13 displays regression models of each collection. All of these models showed good overall model fit, as evidenced by the significance (all  $p < .001$ ) using the F-test. This indicated that the incorporated independent variables in the model reduce the error in predicting EBP receptivity significantly (Field, 2018). Also the R square increased across the models, beginning at .24, up to .34 and further to .46. This meant in the last collection, the incorporated independent variables (i.e., PL, SW and E) accounted for 46% of the variance in EBP receptivity. Compared to the model constituting HR, MR and PJ, the explained variance increased markedly

from .14 to .24, from .18 to .34 and from .31 to .46 in each collection respectively, implying the sub-dimension model had better predictive power (Keith, 2015).

**Table 12. 13** Regression Analysis of EBP Receptivity by Collection

Dimension	First collection		Second collection		Third collection	
	B	$\beta$	B	$\beta$	B	$\beta$
PL	0.19	0.29***	0.20	0.28***	0.21	0.27***
SW	0.15	0.21***	0.27	0.32***	0.29	0.36***
RWA	0.10	0.10*	0.21	0.17***	0.15	0.11***
P Score	0.01	0.12**				
E	0.04	0.08*	0.07	0.09*	0.16	0.19*
R/R <sup>2</sup>	0.494/0.24		0.579/0.34		0.678/0.46	
F	(5, 679) = 43.587***		(4, 477) = 59.533***		(4, 341) = 71.716***	

\* p<.05, \*\*p<.01, \*\*\*p<.001

PL, political liberty; SW, social welfare; P score, post-conventional reasoning; E, equality.

There are four sub-dimensions consistent in significantly predicting the EBP receptivity over time: the three sub-dimensions within HR - PL, SW and E - and one within PJ - RWA. In the first model, five sub-dimensions entered and exhibited significant prediction on EBP receptivity. Among them, the PL and SW witnessed considerable correlations (.29 and .21 respectively). In the following two models, the P score was dropped out due to poor predictive power, but the other four sub-dimensions stood.

The most noticeable independent variables with strong prediction were the PL and SW, with around .3 standardised coefficients over the three collections. The third variable showing a significant contribution to the prediction was the RWA with .1, .17 and .11 in the sequential models. The last variable with consistent prediction over time was the E with .08 and .09 in the first and second models and with .19 in the final one.

The results showed that sub-dimensions underlying the HR (PL, SW, E) and PJ (RWA) steadily and significantly correlate with EBP receptivity over time. These correlations imply that participants who care about personal liberty, social welfare

and equality and are less authoritarian, tend to embrace science in policing. The negative correlations between HR and RWA were documented in previous studies such as Moghaddam and Vuksanovic (1990), Cohrs et al. (2007), McFarland (2010) and McFarland, Webb, and Brown (2012), but the correlations of EBP receptivity with HR and RWA are not clear. In particular, the outperformance of HR over RWA in association with EBP receptivity is really intriguing.

### *Summary*

The exploration using MLR reveals that among the three dimensions of democratic policing, HR endorsement is constantly positively correlated with EBP receptivity over time. Down to the sub-dimension levels, the two subdimensions of HR - PL and SW – still significantly predict the receptivity to EBP. The underlying mechanism is not clear. A possible explanation is that HR endorsement and EBP receptivity are affected by other unobserved variables. In this regard, certain factors within police socialisation might affect both HR and EBP receptivity simultaneously. Furthermore, the two concepts have mutually supportive rather than trade-off relationships. More discussion will be detailed in the following chapter.

## Chapter 13 Discussion and conclusion

This chapter summarises and discusses the main findings of the research presented in this thesis. Findings are reported according to the order in which the relevant research questions appeared. The first section therefore discusses the first research question, related to the influence of police socialisation. The second section of this chapter covers the three research questions concerned with the influence of police education (RQ2), of bachelor's degrees (RQ3) and of in-service education (RQ4). The third section addresses the psychometric properties of the EBP receptivity scale produced herein (RQ5), the construct validation of democratic policing, and the relationship between democratic policing and EBP receptivity. The remaining sections of this chapter discuss key issues arising from this thesis, such as notable research gaps related to police education (Section 13.4), implications of the findings for policy (Section 13.5), a critical reflection of the strengths and limitations of the research reported here (Section 13.6) and finally, some suggestions for future research (Section 13.7).

### *A Summary*

This research investigated how Taiwanese police education, as a factor in police socialisation, contributes to democratic policing and police officer openness to EBP. By applying a novel multiple-group longitudinal design, this research covered both three models of police education (criminology program, professional education and academy training) *and* different stages of police education, from enrolment to the end of the first-year of police service. It is the author's contention that the study produced six principal findings. First, among the police socialisation perspectives examined here - predisposition, police education and training and police work/culture - police education and training were shown to have a negative association with all the outcome variables considered here. That is to say, there was no significant effect observed for both the predisposition and police work/culture on outcome variables concerning MR, HR, PJ and EBPR. Second, this relationship persisted even when the effects of police education (professional



education) were compared to that of an undergraduate criminology programme (i.e. the NCCU comparison group). Third, police recruits with bachelor's degrees were shown to exhibit no statistically significant differences from police recruits without degrees in all outcome variables. Fourth, sworn officers did not change significantly on any outcome variable during in-service education except for measures of PJ. Fifth, components of police education and training that contributed to the adverse effects on police recruits were related to jingshen education and military training. Finally, the conceptualisation of democratic policing proposed herein withstood the construct validity test, implying that this concept is adequately captured by the three components of democratic policing: namely adherence to HR, MR and the absence of PJ.

### **13.1 Police socialisation**

This section responds to

RQ1: How does police socialisation in Taiwan affect police officers' belief in human rights, moral reasoning, levels of prejudice and receptivity to EBP?

The question is responded to by examining the influence of the three perspectives of police socialisation on new police recruits in the cadre program. The results showed that the process of police socialisation in Taiwan was negatively affected by police education and training and thereafter maintained or reinforced by police work/culture.

The socialisation process for Taiwanese police was conceptualised as comprising three perspectives: predisposition, police education and training and police work/culture. For the predisposition perspective, there are three factors considered influential: 1) reference groups, 2) motivation, and 3) personal characters. As to police education and training, influential factors considered include 1) academic subjects, 2) paramilitary management, 3) vocational training and 4) campus experience. The police work/culture perspective involves three influential sources:

1) reality shocks, 2) police organisation and 3) cultural norms. Each perspective will be discussed respectively in the following section.

*Predisposition*

There were no significant differences found between new recruits at CPU and new undergraduates at NCCU for any of the four outcome variables (Table 13.1). In other words, upon enrolment these two cohorts showed no difference in terms of HR endorsement, MR, PJ levels and EBP receptivity. The pre-dispositional hypothesis is hence not supported. This result is consistent with research that examined new recruits' motivation to study at CPU. That research showed that the promise of job security and the influence of parents were key motivations, rather than any particular personal characteristics - such as the desire for adventure or authoritarian attitudes - that are consistent with classic conceptualisations of the 'police personality' (Tarnng et al., 2001). Furthermore, this result was supported by the fact that the independent variables (e.g., police relatives and work experience before enrolment), were found to have no statistically significant effect, despite prior research identifying such variables as potentially influential determinants in the pre-entry stage (Bardi et al., 2014; Conti, 2009; Sollund, 2008; Van Maanen, 1973).

**Table 13. 1** Significant Effect of Police Socialisation Perspectives on the Four Outcome Variables

Stage/ Indicator	Predisposition		Police education and training		Police work/culture	
	Hypothesis	Effect	Hypothesis	Effect	Hypothesis	Effect
HR	H1	None	H2	Yes	H3	None
MR	H7	None	H8	None	H9	None
PJ	H13	None	H14	Yes	H15	None
EBP receptivity	H19	None	H20	Yes	H21	Yes

Previous research concerned with the pre-dispositional aspect of police socialisation has shown mixed results in relation to the so-called "police

personality". This research does not support the idea of predisposition on all outcome variables examined. No pre-existing psychological traits were found that might determine new recruits' attitudes toward HR endorsement, MR, levels of PJ and EBP receptivity in Taiwan. The make-up of police officers sampled here appears to be largely the product of organisational or group socialisation, as opposed to any pre-existing qualities (Balch, 1972; Brown & Willis, 1985; Reiner, 1982; Turner, 2003).

Despite the absence of any significant differences between the comparison and experimental cohorts upon enrolment, and absent significant effects of police relatives and work experience, some may argue that police personality is shared among criminology majors (i.e., new undergraduates) and not limited to police recruits. That is, people who seek careers in the criminal justice system or study crime-related fields might have similar inclinations in these outcome variables. This argument, however, cannot withstand the finding that police education and training did indeed distinguish new police recruits and undergraduates in terms of the outcome variables, as will be discussed in the next section. If the predisposition should be shared by police recruits and new undergraduates, then they would not differ from each other significantly under the influence of police and college educations.

### *Police education and training*

The second perspective of police socialisation theory concerned police education and training, here referring to the influence of academy training and field training. Influential sources considered were 1) training contents and contexts, 2) reference group (instructors and FTOs), 3) reality shocks and 4) establishing recognition of the police function in a given social setting, all of which contribute to conformity to these organisational prescriptions (Chappell & Lanza-Kaduce, 2010; Conti, 2011; de Albuquerque & Paes-Machado, 2004; Field, 1988; Ford, 2003). However, this section will primarily centre on the learning through conformity, and discussion specific to training contents and contexts will be left until the next section.

Table 13.1 shows that police education and training significantly influenced new recruits' HR endorsement, PJ levels and EBP receptivity. No effect was observed for MR. Specifically, between enrolment and the end of the second year at CPU, new recruits became significantly less supportive of HR, had higher levels of PJ and were less receptive to EBP. These results might be explained by the de-socialisation that occurs in a 'total institution', which imposes a series of degradations, deprives recruits of civilian identity and channels them towards the police occupation characterised by the 'formal, mechanical and arbitrary bureaucratic features' via rigorous physical training, chain of command, group punishments, moral relativism, humiliation and sacrifice (Berg, 1990; Chappell, 2008; Conti, 2011; Fielding, 1988; Little, 1990; Van Maanen, 1974, p 88).

It is argued here that the training content and context employed to socialise recruits at CPU are largely responsible for the negative effects on these three outcome variables. First, as discussed in Section 8.1, HR endorsement is negatively associated with a hierarchy-enhancing environment that supports group-based hierarchies and the domination of 'inferior' groups by 'superior' groups (Gatto et al., 2010; Sidanius et al., 2003). In light of the routine management at CPU where part of recruits' HR are restricted, and only senior recruits are entitled to be free from restrictions, this university by nature is a hierarchy-enhancing agency that might, therefore, reduce recruits' endorsement of HR.

Second, the non-effect of police education on MR might be explained by the paramilitary training structure at CPU that stresses absolute obedience to authority and loyalty to the cohort affiliated via chain of command structures (Kappeler et al., 1998; Sherman, 1980). These measures may facilitate the development of the maintaining-norms scheme (stage 4) but restrict abilities to think beyond social conventions (e.g., laws, roles, contracts) and to work out personal ideas about morality, thereby inhibiting the development of post-conventional thinking (Rest Narvaez, Bebeau, et al., 1999). This explanation accords with previous research that investigated the relationship between personal values and MR among 599 undergraduates in Finland (Myyry et al., 2010). Its findings revealed that the two personal values - conformity (e.g., restraint of actions) and security (e.g., harmony

and the stability of society, of relationships) – positively predicted the maintaining norms schema.

Third, the observed increase in PJ scores might be due to both the strict hierarchies enforced by the Student Corps at CPU and/or the deprivation of civilian identity via group punishments (de-Albuquerque & Paes-Machado, 2004; Ford, 2003). The highly structured hierarchies at CPU regulate how recruits interact with others according to status or rank and may reinforce the recognition of group-based dominance hierarchies and submission to authority (Altemeyer, 2006; Chappell & Lanza-Kaduce, 2010). The deprivation of civilian identity and replacement with elite roles of police often result in ‘us and them’ mentality and in turn, may reinforce aggressiveness towards outgroups (Conti & Doreian, 2014; Pratto et al., 1994). All of these recognitions are positively related to RWA and SDO.

Finally, the decline in EBP receptivity might be accounted for by the homogeneity of thinking and behaviour regulated by obedience to authority and loyalty to group solidarity in the paramilitary training at CPU. As EBP receptivity is related to the willingness to challenge and evaluate established practices, these challenges and evaluation are feasible and encouraged only if the environment inspires and allows for critical thinking, truth-seeking and tolerance of diverse perspectives (Brown et al., 2018). CPU is, arguably, not an environment that supports such openness. Solidarity shaped via group punishments at CPU, for example, value mutual support over challenging others and accordingly suggesting improvements.

#### *Police work/culture*

The police work/culture perspective refers to how police officers assimilate into the police organisation and function following the normative beliefs of the group after swearing-in. The influential sources considered include organisational norms and culture, such as ‘lay low’, ‘value the team’ (Alain & Baril, 2005; Van Maanen, 1974). The contents of these sources, however, vary depending on the department within which police officers are affiliated (Hopper, 1977; Van Maanen & Schein, 1977). Because little research has looked into these organisational and cultural issues in

Taiwan, the influential sources proposed here are mainly inferred from the reality shock between the CPU campus experience and Taiwanese police organisations (Cao et al., 2014). In other words, the impact of this perspective is seen to be the results of the gap between CPU education and general understanding and expectations of Taiwanese policing, insights about which are mainly drawn from Martin's (2006, 2007, 2013) ethnographic studies and Cao et al.'s (2014) monograph on Taiwanese policing.

As illustrated in Table 13.1, police work/culture demonstrated no impact on the outcome variables measured here other than EBP receptivity. The first year of service in the field had no significant impact on rookie officers in terms of their HR endorsement, MR and PJ levels. This lack of influence might be explained by the lack of a reality shock rookies encounter after graduation because CPU had prepared recruits for police fieldwork and organisations since their enrolment. That is, what recruits have experienced at CPU, which is characterised by homogeneity, hierarchy and isolation, is similar to those experiences in the Taiwanese police work and organisation, whose characteristics are described as strict discipline, obedience to authority, conservatism, formalism, hierarchy and rigorous performance evaluation (Cao et al., 2014; Lin, 1999; Ling, 2012).

Specifically, the lack of influence of police work/culture on HR endorsement might be explained by the hierarchy-enhancing environment shared by both the CPU and police organisations (Gatto et al., 2010). Yet rookies have to respond to citizens who report cases to or seek help from them following the bureaucratic rules and procedures around the protection of HR, a context that does not exist at CPU. These interactions might bring rookies a deeper understanding of HR protection in practice, irrespective of whether they personally embrace HR or not (Bullock & Johnson, 2012). This understanding might stop rookies from falling back in their HR endorsement.

Likewise, the lack of influence of police work/culture on MR might be attributed to the increasing dilemmas faced in fieldwork that required rookies to work out their own ideas about morality (Rest, 1988). Once working in the field, rookies have to

make tough moral choices frequently in their routine work. Compared to CPU, where dilemmas are rarely encountered, police work might stimulate rookies' thinking and reasoning in handling the complexities of social conflicts, forcing them to think beyond social conventions, down to the rationale and principles underlying these social conventions. In turn, these thinking and contemplation thus enhance rookies' advanced MR or at least do not wither their post-conventional thinking (Blumberg et al., 2015).

The absent effect on PJ levels might be attributed to the similarities between the training contexts at CPU and working conditions in the police organisations. These similarities characterised by hierarchy, homogeneity and isolation existing both at CPU and in the police organisation have a negative correlation with PJ such as social isolation of recruits and officers (Skolnick, 1966) and normative training/police environments (e.g., institutional rules, organisational incentives) (Gatto & Dambrun, 2012; Haley & Sidanius, 2005). In other words, because those factors contributing to high PJ levels do not change much after recruits work in the field, their PJ levels would not change significantly.

The exception concerns EBP receptivity. The reason for this finding is presently unclear, but might be explained by the reality shock that there were few opportunities for the knowledge and analytic skills learnt at CPU to be applied to police work. To be accepted by and to assimilate themselves into the police organisation, rookies need to follow organisational norms rather than challenge the established practice (Waddington, 1999; Reiner, 2000). In addition, as rookie officers do not undertake field training before swearing-in, they are new to police practice and thus tend to observe and learn how police work operates on the ground rather than propose innovative strategies.

### *Summary*

The current findings present a picture that among the three perspectives on police socialisation, police education and training is mainly responsible for shaping police officers in terms of the three components of democratic policing and EBP receptivity. During the period from enrolment to the end of the first-year service,

CPU education was shown to have had a significant influence on recruits in terms of indices of democratic policing. These observed changes in the sampled recruits fostered by CPU education were mainly maintained and reinforced by police work/culture. To locate the major influential sources within police education, the following section will focus on specific education components delivered at CPU by comparing the currently delivered education at CPU with the criminology program at NCCU.

### **13.2 Police education**

Since police education and training mainly determine Taiwanese police socialisation, this section will specifically look into the details of Taiwanese police education received at CPU. To locate the influential sources of police education, this section compares findings from those at the CPU with those studying at the NCCU. This comparison is related to

RQ2: How does undertaking Taiwanese police education, in comparison to studying criminology at the NCCU, affect participants' belief in human rights, moral reasoning, levels of prejudice and EBP receptivity?

The results showed that the professional model of police education was associated with recruits' lower endorsement of HR, lower MR, higher levels of PJ and lower receptivity to EBP, compared to the criminology program at NCCU.

Besides RQ2, there are two more questions about police education discussed here:

RQ3: How does undertaking Taiwanese police academy training affect recruits with a degree, in comparison to those without a degree, in terms of participants' belief in human rights, moral reasoning, levels of prejudice and EBP receptivity?



RQ4: How does undertaking Taiwanese police in-service education affect sworn officers in terms of participants' belief in human rights, moral reasoning, levels of prejudice and EBP receptivity?

The results for RQ3 indicated that recruits with a degree did not perform differently from those without a degree in academy training in terms of the four outcome variables. The results for RQ4 indicated that in-service education at CPU did not significantly affect sworn officers in those outcome variables except for PJ. These three questions above are discussed in turn below.

*The influence of Taiwanese police education*

Taiwanese police education was shown here to yield negative effects on recruits, compared to the influence of the criminology program at NCCU on undergraduates, in terms of the indices of democratic policing and receptivity to EBP (Table 13.2). Specifically, new recruits became less supportive of HR endorsement, score lower on assessments of MR, become more prejudiced and become less receptive to EBP between enrolment and the end of the second year at CPU, compared to their NCCU counterparties. Based on the review on the disparities between the two universities (Section 6.4), which mainly lie in their respective provision of jingshen education, skill training, military training and internship, the following section will discuss the influence of these disparities on the four outcome variables.

**Table 13. 2** Results of Hypothesis Examination in Democratic Policing and EBP receptivity

New undergraduates score significantly lower than new recruits in the listed indicators between enrolment and the end of the second year.		
Dimension	Hypothesis	Result
HR endorsement	H4	Supported
MR	H10	Supported
PJ levels	H16	Supported
EBP receptivity	H22	Supported

As reviewed previously, few studies have investigated the association between college or police education and HR endorsement. Only one of the previous studies suggested that the ideology of group-based hierarchies was negatively correlated with the equal application of HR (Cohrs et al., 2007). According to this suggestion, this research considers the two elements of CPU police education might be responsible for the decrease in HR endorsement by recruits: jingshen education and militaristic training.

Jingshen education is to teach 'correct' thinking and high moral standards through close control of routine activities, discipline, group punishments, ritualistic concerns for details, and repetitive exercises (e.g., drill, recitation) (Adlam, 2002; CPU education scheme, 2013, 2015; Shernock, 1998). This education, operated by the Student Corps, actually puts recruits under intense surveillance where their HR are often restricted. Dormitory checks where recruits are not allowed to keep personal belongings unless permitted, for example, impinge upon their privacy. Another example is the application of group punishments, which breach the HR of equality because innocent recruits suffer punishments for mistakes they do not make. These training contexts might plausibly impede recruits from internalising HR standards prescribed in textbooks and lectured about in courses. Moreover, because the rigorousness of jingshen education becomes less strict when recruits become seniors, this seniority system might facilitate the ideology of group-based hierarchies, potentially leading to recruits' decline of HR endorsement (Gatto et al., 2010).

Militaristic training is the other source considered here to reduce recruits' adherence to HR because of its punitive orientation through a chain of command and the dispensing of discipline. The chain of command forms a 'superordinate-subordinate' relationship between recruits and instructors that instils recruits' obedience and solidarity (Chappell & Lanza-Kaduce, 2010; Conti & Doreian, 2014). These emotions, however, often fail to evoke the questioning of inequality and awareness of oppressive practices (Chen & Tang, 2019; Chen et al., 2015). Recruits might thus become less willing to endorse HR over time.

Moving to the effect of police education on MR, there is only one previous study investigating the effect of police academy training on ethical decision-making, and it revealed no effect (Blumberg et al., 2015). By contrast, numerous studies have found that college education is positively correlated with responses that are consistent with post-conventional reasoning (McNeel, 1994; Pscarella & Terenzini, 1991). Elements of college education identified to contribute to this association include the general intellectual milieu of colleges that fosters the exchange of ideas, exposure to multiple perspectives regarding social issues, academic values of critical thinking and truth-seeking and institutional values of academic integrity and personal responsibility (Pscarella & Terenzini, 1991).

These facilitators of MR are generally related to intellectual stimulation in higher education institutions. Although liberal arts and academic subjects are delivered at CPU, the environment of this university does not allow for these facilitators, such as the free exchange of ideas and airing of multiple perspectives. The inhibiting sources of this environment may be linked to the two measures administered ground at CPU: jingshen education and military training. As jingshen education is preoccupied with the 'correct' thinking via intense surveillance, students are not encouraged or inhibited to work out their own ideas about morality. Coupled with the stress of deference to authority in military training, CPU may form an environment that precludes intellectual stimulation, leading to low development in post-conventional reasoning (King & Mayhew, 2002; Rest, 1988). Moreover, as CPU is part of administrative bureaucracies that generally take the stance to maintain the status quo, it may leave little space for recruits to be exposed to multiple perspectives regarding social issues.

When it comes to the influence of police training on PJ levels, previous research has produced mixed results. Research mainly connects the negative effect of police education on PJ with administrative and job-related depersonalisation, the ambiguity surrounding the future police role, the drive towards professionalism as a disguise for the isolation, and hostility from the public and the conflicting encounter with outgroups (Bennett, 1984; Britz, 1997; Harris, 1973; Wortley & Homel, 1995). Of those factors, administrative depersonalisation and

professionalism as a disguise for the isolation from the public, particularly resonate with the training contexts of CPU. Administrative depersonalisation, for example, is fulfilled by both the student and intern student brigades by placing recruits under strict hierarchies in which recruits interact with others according to their status and ranks. Another example is the professionalism as a disguise for the isolation from the public where CPU pushes professionalisation by encouraging recruits' feeling of specialness and moral superiority and by instilling in them a conservative and respectful appearance and demeanour via discipline, group punishments and strict hierarchy (Harris, 1973). Those images established are, however, superficial to the original meaning of professionalism - being flexible and thinking independently (Green & Gate, 2014). What factually this image means for recruits is compliance with authority and intolerance of other people's way of thinking or acting, leading to the superior in-group identity and inferiority of out-groups.

By contrast, a college education is positively correlated with the absence of PJ (Pascarella et al., 1996; Sinclair et al., 1998). Identified facilitators of college education include the openness to new information, cognitive sophistication, the egalitarian relationship between undergraduates and faculties. In this regard, these facilitators are plentiful at NCCU, an open, free and diverse university where few restraints are imposed on undergraduates such as routine management, jingshen education and dress code at CPU.

The effect of police education on EBP receptivity aligns with the research hypothesis that Taiwanese police education is negatively associated with EBP receptivity, compared to the criminology program at NCCU (Table 13.2). With little previous research probing the relationship between police education and EBP receptivity, this research discusses the finding, drawing mainly from the proposed reasons in the hypothesis formulation section: open-to-debate environments that encourage police officers to challenge existing strategies or policies (Brown et al., 2018; Kalyal, 2018). In this regard, recruits are not expected to grow in receptivity to EBP in that they are subject to strict hierarchies of the Student Corps and thus can hardly doubt or challenge the effectiveness of existing measures taken by superordinates. Despite liberal arts and academic subjects being delivered there,

the qualities expected by these subjects such as critical thinking, problem-solving skills should be ruled out by the homogeneity of thinking preoccupied by jingshen education.

By contrast, undergraduates at NCCU are educated and encouraged to think critically and develop independently over the collegiate program. Moreover, these qualities and skills are supported and allowed to be practised in the open, free and diverse campus. Undergraduates thus can assimilate and test knowledge, contributing to reflective practice – the integration of theory and practice (Glover et al., 2002; Paterson, 2011).

In short, the findings confirm that Taiwanese police education cannot promote all the three aspects of democratic policing and EBP receptivity. Furthermore, this failure is plausibly linked to the training content and context, particularly jingshen education and military training at CPU, in comparison to NCCU. Accordingly, some policy implications will be discussed in the following section.

#### *Whether bachelor's degrees make a difference in police academy training*

This section will discuss whether or not police recruits with a bachelor's degree perform differently in police academy training, compared to those without a degree (RQ3). All the research hypotheses relating to this question are supported (Table 13.3), indicating that no difference existed between graduate recruits and new recruits from enrolment to the end of the second year in the four outcome variables. The lack of difference between these two cohorts over time implies that a bachelor's degree has little impact on graduate recruits in the three components of democratic policing and EBP receptivity. That is, raising the entry status to a bachelor's degree does not make a difference in academy training in the outcome variables.

**Table 13. 3** Results of Hypothesis Examination in Bachelor’s Degrees

Graduate recruits do not differ from new recruits between enrolment and on completion.		
Dimension	Hypothesis	Result
HR endorsement	H5	Supported
MR	H11	Supported
PJ levels	H17	Supported
EBP receptivity	H23	Supported

The facilitators and inhibitors of police and college education for the outcome variables have been discussed in the previous section. Because the special-exam program does not differ much from the cadre program in training content and context, those facilitators and inhibitors discussed previously should be applicable here. Specifically, even though the special-exam program is oriented toward vocational training, those influential sources considered in the cadre program (i.e., jingshen education and military training) still play a part in this program. That is, graduate recruits are influenced by inhibitors such as the chain of command, strict hierarchies, minute control, lack of stimulating and open-to-debate environments, and administrative depersonalisation (Adlam, 2002; Conti & Doreian, 2014; Harris, 1973).

Moreover, because graduate recruits in this program spend more than a quarter of program time in internships, their FTOs should play a part in shaping their attitudes towards those outcome variables, especially since their FTOs have the power to fail them. As FTOs at this stage are the main influential source that interprets police function, informal norms and organisational culture for interns, FTOs’ interpretation maintains a steady transmission of established police recognition and behaviour to interns (Charman, 2017; Getty et al., 2016). As discussed in the preceding section about police socialisation perspectives, police work/culture maintains or reinforces the low levels of all outcome variables. Internships, thus, would not have a positive impact on graduate recruits in the outcome variables. Hence, the effect of both internships and those inhibitors of

training contexts would jointly negatively influence graduate recruits' HR endorsement, MR, levels of PJ and receptivity to EBP.

The other point to be discussed here is the mixed results of graduate officers' performance in comparison with their general colleagues' in previous research (Brown, 2018; Paterson, 2011). The mixed results are further blurred by the uncertainty of whether the influence occurs before (police training) or after police work (police work/culture). This research identifies that the influence takes place in police academy training. In other words, at the end of police academy training, graduate recruits are not distinguishable from general recruits in the outcome variables used here, and thereafter there might be no difference between graduate officers and their colleagues when investigated in the field in the previous research.

Specific to EBP receptivity, the decline of graduate recruits in openness to research suggests that academic knowledge and analytical skills learnt in the previous college education may struggle to survive a hierarchical, homogeneous, isolated campus experience. This struggle might be contributed to by the lack of chance to apply these skills in such campus. That is, the overall campus experience might outweigh the qualities cultivated by academic subjects and liberal arts in previous college experience (Brown et al., 2018; Cox & Kirby, 2018).

#### *The influence of in-service education*

This section will discuss the influence of in-service education on the outcome variables. The hypothesis formulation is based on the similarities of hierarchy, homogeneity and isolation between police organisations where sworn officers have experienced and the training context at CPU. All hypotheses examined are supported except that concerning PJ level (Table 13.4). That means in-service education has no significant effect on sworn officers on the promotion program in terms of HR endorsement, MR and EBP receptivity. The one exception is that the sworn officers become more prejudiced over the course of this education.

**Table 13. 4** Results of Hypothesis Examination in In-service Education

Police officers do not change significantly between enrolment and graduation.		
Dimension	Hypothesis	Result
HR endorsement	H6	Supported
MR development	H12	Supported
PJ levels	H18	Rejected
EBP receptivity	H24	Supported

Those factors that contribute to the adverse effects on the three components of democratic policing have been discussed in the preceding section. As the curriculum of the promotion program is identical to that of the cadre program, those factors should still have a depressing effect on HR endorsement, MR and EBP receptivity despite the potential positive effect brought about by academic subjects and liberal arts delivered in this program. The only significant change lay in the increase of PJ, which might reflect not only the paramilitary management at CPU but also the mind-set of sworn officers. The former is related to administrative depersonalisation and professionalism as a disguise for the isolation from the public (as discussed in the preceding section) while the latter might particularly explain this change. Specifically, the sworn officers will be promoted to police inspector rank four or above, a jump from their original ranks (Section 6.1). The rank change from subordinates to superordinates, together with the hierarchical environment of CPU, would, arguably, alter sworn officers' mindset, enabling them to uphold group-based hierarchies and authoritarian aggression (Cohrs et al., 2007; Conti & Doreian, 2014).

The other point here is whether exposure to liberal arts and social and behavioural science improves EBP receptivity. In previous research where officers attended degree programs (BSc or MSc) in Policing in the UK, they showed positive attitudes toward EBP receptivity (Heslop, 2011; Jones, 2015; Lee & Punch, 2004). But in this research, the incorporation of those courses does not affect sworn officers in terms of their EBP receptivity. This may be due to the general lack of open debate in the CPU environment (Brown et al., 2018; Kalyal, 2018).



Specifically, the liberalising effects of liberal arts and social science might be sabotaged by the hierarchical, homogeneous, isolated campus of CPU.

### *Summary*

Based on the results of this study, it was concluded that the current model of police education as delivered at CPU is not associated with positive changes in HR endorsement, MR, levels of PJ and receptivity to EBP, commonly thought to be key elements of democratic policing. The influential sources might be linked to the training contents and contexts at CPU: jingshen education and military training. These two components of training might also be primarily responsible for the lack of difference between graduate recruits and general recruits in these outcome variables. Moreover, the similarities between police organisations and CPU campus experience might suppress potential liberalising effects of liberal arts and social science in these outcome variables except for PJ. The increase of PJ levels might be explained by the changed mindset brought about by promotion.

### **13.3 Construct validation of democratic policing and EBP receptivity**

This section will cover three themes:

RQ5: What is the latent structure underlying EBP receptivity?

What are the essential characteristics of democratic policing?

Exploration of associations between the concept of democratic policing and EBP receptivity.

RQ5 was responded to by exploring the psychometrics of EBP receptivity as measured herein and reported in Section 11.2, where no explicit structure was found underlying EBP receptivity. The second theme was addressed by examining the construct validity of democratic policing in Section 12.1. The results showed adequate goodness of model fit. The third theme was examined in the second half of C12. It was revealed that one of the components of democratic policing - HR endorsement - was constantly and positively associated with EBP receptivity over time.

### *EBP receptivity psychometrics*

This section will discuss the results of the factor analysis of EBP receptivity. Informed by previous studies, I developed a 26-item scale to measure EBP receptivity, covering five themes: 1) evaluation and research evidence in policing, 2) science versus experience, 3) research-practitioner partnerships, 4) applicability of research evidence in distinct social settings and 5) influence of police education (Section 7.3.4). However, survey items did not cluster conceptually well using EFA, suggesting that EBP receptivity is unidimensional (Costello & Osborne, 2005).

This unidimensionality might be attributed to the fact that items developed in this thesis focused on general attitudes towards science application in policing rather than EBP specifically. These items had to be written to take into account both the sample, most of whom had no experience in police service, and the research site where EBP had been rarely introduced, advocated and disseminated. Due to these two considerations, it would not be appropriate to develop items concerned with technical or practical issues, which had been used to investigate police officers in the previous research. For example, the factor 'organisational support for evidence-based policy', considered by Hunter et al. (2015) as one of the three factors loading on EBP audit tool, was not applicable here as most participants in this research did not work in the police organisation.

In this regard, EBPR might tap into participants' open-mindedness and capacity for reflection more generally, rather than knowledge specific to and attitudes towards certain police tasks (Brown et al., 2018). The qualities that the scale measured might reflect the capacity to integrate theory into practice and to make changes through evaluation. From the viewpoint of police socialisation and education, these qualities might better reflect the changes in participants' recognition of and attitudes toward science application in policing. However, to gain an overview of receptivity to EBP among police officers in the fieldwork, it would be informative to use research instruments covering factors concerning practical aspects of police work. In other words, it is likely that psychometrics of EBP receptivity displays certain underlying structures if it is measured among

sworn officers using a research instrument that covers technical, organisational and cultural aspects of police work.

### *Construct validity of democratic policing*

As explained in C1, this thesis adopted a fairness-effectiveness framework where effectiveness is represented by EBP, and fairness is conceptualised by incorporating diverse definitions of democratic policing (Skogan & Frydl, 2004). It was argued that democratic policing comprises three components: HR endorsement, MR and absence of PJ. To validate the conceptualisation, Section 12.1 examined the construct validity of democratic policing using SEM, and it was found that the combination of these three specified components (measured by four scales: RWA, SDO, ATHR and DIT-2) showed sufficient goodness of model fit and construct validity. In other words, the conceptualisation of democratic policing is supported in terms of the unidimensionality of the four measures and in the way the constructs relate to other measures (Hair et al., 2014). Put differently, these four measures capture the critical feature of democratic policing.

The conceptualisation has implications in two areas: the distinction between democratic and non-democratic policing and the centring on police officers rather than citizens. First, as few studies have looked into the measurement of democratic policing (Marenin, 2005), this thesis adopted the dual framework of fairness-effectiveness, where fairness is conceptualised as democratic policing indexes with three components. This approach is distinct from the existing policing research related to fairness, which principally accords with the process-based legitimacy (Tyler, 2006). As discussed in Section 2.2, the process-model legitimacy proposed that the perceived procedural fairness of the police affects the level of public compliance with the police. This model of legitimacy is, however, found to be applicable in authoritarian countries such as China where non-democratic policing is enforced (Jackson & Bradford, 2019; Sun et al., 2018). That is, process-based legitimacy is shared between democratic and non-democratic policing.

By contrast, this thesis conceptualised democratic policing based on the commonalities of definitions from various perspectives such as history,

jurisprudence, practical guideline and political philosophy, proposing a three-components model (i.e., HR endorsement, advanced MR and absence of PJ). In particular, the stress placed on HR as the core of democratic policing has avoided the controversies of process-based legitimacy, as described above, which cannot distinguish democratic policing from non-democratic policing. Thus, this proposed model better captures the critical feature of democratic policing. In particular, recent decades have witnessed an unprecedented global effort to reform police following 'democratic' principles in which HR are fundamental (Bayley, 2015). This conceptualisation thus reflects these features unique to democratic policing.

Second, the process-based model measures police legitimacy by investigating citizens' perceived procedural fairness while this thesis focused on the police side, looking into officers' capacity to make morally sound decisions and to follow due process. Just like the two sides of the same coin, citizens' perception of procedural justice is closely related to the willingness and capacities of police officers to comply with due process, but the previous research overwhelmingly centres on the citizen's side (Mazerolle et al., 2013). This thesis innovatively draws on moral development theory, in which due process is prioritised at advanced moral stages, measuring police officers' extent of prioritisation of procedural justice and shared ideals over self-interest using DIT-2 (Kohlberg, 1984; Thoma & Dong, 2014). In other words, the conceptualisation offers a distinct approach to measuring police legitimacy.

#### *Relation between democratic policing and EBP receptivity*

This section will discuss the relation between the three components of democratic policing and EBP receptivity. As fairness and effectiveness are considered to be the most challenging missions that contemporary police forces face (Skogan & Frydl, 2004), it is crucial to find out their relationship. This research found that HR endorsement went hand in hand with EBP receptivity over time. Even though the mechanism underlying this correlation is unclear, the correlation suggests that police officers' adherence to HR is positively associated with their considerations of the effectiveness of police decision-making.

More specifically, the three subdimensions of HR belief – social welfare, personal liberties and equality - were positively associated with EBP receptivity. Considering the contents enquired in these subdimensions (Section 7.3.1), social welfare concerns the basic standard of living that the government should support citizens while personal liberties relate to the protection of freedom of religion, speech, publication and political participation. Equality refers to equal access to legal service and education and to equal treatment under the law. In this regard, participants who are more concerned about wellbeing, personal liberties and fair access to opportunities regardless of individual difference tend to hold more positive views towards the application of research evidence in police decision-making.

It is, however, difficult to connect HR endorsement with open-mindedness to science in policing. The HR concept, as reviewed by Stenner (2011), can be categorised into five types of understanding: 1) grounded universals, 2) radical activist politics, 3) socio-political construction, 4) rights and responsibilities and 5) religious commitment to the community. None of these understandings are obviously connected to an open-mindedness that underlies receptivity to research evidence. Arguably, the most plausible explanation is that HR endorsement and EBP receptivity are affected by a third variable simultaneously.

Here, I discuss this positive correlation between HR endorsement and EBP receptivity using the relationship between organisational justice and work-related outcome (Cohen-Charash & Spector, 2001; Myhill & Bradford, 2013). The assumption is that police recruits who undergo depersonalisation and restriction of HR at CPU as a form of organisational justice might thus exhibit a low concern of the effectiveness of police strategies and practice. This assumption seems consistent with a recent exploratory study where organizational justice is positively associated with perceived skill acquisition such as rapport building, self-control (Wolfe et al., 2019). In other words, how police recruits are treated within an organisation might affect not only how they interact with the public (procedural fairness) but also how they care about the scientific effectiveness of police operation (open-mindedness).

For police socialisation, the positive correlation between HR endorsement and EBP receptivity is enlightening. It implies that unless police education providers and police organisations commit to improving wellbeing, personal liberties and equalities of police officers and citizens, it is unlikely that they will have police officers accept the application of science in police decision-making and vice versa. For CPU, those components potentially undermining recruits' HR endorsement might also preclude their receptivity to EBP. The components of police education will be discussed in the following section.

Moreover, this finding of a HR-EBP relationship responds to the long-held belief that due process and crime control are inevitable trade-offs (Packer, 1968). The original idea of this trade-off between effectiveness and equality in policing concerns whether effective strategies must be selected with less concern about the equitable outcome, police have to sacrifice some effectiveness. Engel and Eck (2015) argued that this trade-off between effectiveness and equality is implausible. Intriguingly, this research resonates with their contention. That is, concerns about effectiveness of police strategies do not conflict with, but mutually support, concerns about individual rights and their equal application.

### **13.4 Models of police education**

This section speaks to the question: What is the optimal model of police education? It is argued that the prevailing model that criminology programs and police academy training operate in parallel fails to prepare police recruits for contemporary society (Cordner, 2018; Weisburd & Neyroud, 2011). Moreover, a professional model outperforms the prevailing model in that it will bring together the benefits of criminology programs and academy training. Because this thesis includes discussions of all these three models of police education (i.e., criminal justice as a liberal art, criminal justice as a professional education, and police technology as a paraprofessional vocational training; more details see Section 5.3), it is possible to examine the advantages and drawbacks of these models by

comparing the components of these education models and the effect they have on police recruits and undergraduates.

As detailed in Section 6.4, these three models were compared in terms of their objectives, curricula and campus experience in Taiwan. Furthermore, the curricula of these models were classified into academic subjects, paramilitary management and vocational training so as to facilitate comparison. This section will discuss how the components of police education models influence undergraduates and police recruits in outcome variables.

#### *Criminal justice as a liberal art - criminology program*

This section will discuss the model, criminal justice as a liberal art, related to a research gap that very few studies have investigated the influence of criminal justice degree. This model is represented by the criminology program at NCCU, which exhibited neutral effects on HR, PJ and EBP receptivity and positive effects on MR (Table 13.5). Meanwhile, this model consisted of academic subjects (the combination of liberal arts and career education) in the curriculum and an open, free and pluralistic campus.

There is not much information about the first model with respect to which component contributes to the positive effect on MR. Nevertheless, this positive effect, compared to the negative effect of the cadre program, might be attributed to the main difference between this model and the criminal justice as a professional education. As the cadre program comprises mixed academic subjects and a small portion of vocational training, the main component contributing to the different effect of MR might rest with the intense paramilitary management. That is, the intense paramilitary management should mainly inhibit the development of post-conventional reasoning of new recruits in the cadre program. The management might in effect impede those stimulating factors such as exposure to multiple perspectives regarding social issues, academic values of critical thinking and truth-seeking (King & Mayhew, 2002; McNeel, 1994).

**Table 13. 5** Effects of Police Education Models in Democratic Policing Indices and EBP Receptivity

Model	Curricula			Campus experience	HR	MR	PJ	EBP receptivity
	Academic subjects	Paramilitary management	Vocational training		Effect/ Magnitude	Effect/ Magnitude	Effect/ Magnitude	Effect/ Magnitude
Criminal justice as a liberal art (Criminology program)	General	N/A	N/A	Open, Free, Pluralistic	Positive/ Small	Positive/ Large*	Positive/ Small	Positive/ Medium
Police Technology as a paraprofessional vocational training (Special-exam program)	Vocational	Less intense	Intense	Homogeneous, Hierarchical, Isolated	Negative/ Medium*	Negative/ Small	Negative/ Small*	Negative/ Medium*
Criminal justice as a professional education (Cadre program)	Mixed	Intense	Slight	Homogeneous, Hierarchical, Isolated	Negative/ Medium*	Negative/ Small	Negative/ Medium*	Negative/ Medium*

\* Statistical difference over time ( $p < .05$ ); Magnitude is based on Cohen's d.



The positive effect of this model on MR partially supports the argument that police education should develop the general qualities in educated people, a broad and multidisciplinary approach to crime and crime control (Brown, 1974; O'Leary, 2009). Indeed, the curricula of this criminology program at NCCU involves a broad and multifaceted social problem along with society's response to that problem such as laws, policies, individual and collective behaviour, and various institutions such as police, prosecution, courts, prisons and parole (DoC education scheme, 2015). Coupled with liberal campus experience, this program encourages intellectual challenges, potentially leading to the advancement of post-conventional reasoning, whose core lies in openness to debate and logical consistency (Gautschi & Jones, 1998; Ritter, 2006; Myyry & Helkama, 2002). In this regard, this model might thus broaden undergraduates' explanations and understandings of human behaviour.

Besides positive effects on MR, this model shows no significant influence on the other three outcome variables. The lack of effect is related to another argument that criminal justice as a liberal art is too broad for police education so that it reinforces a narrow understanding of policing (Cordner, 2016, 2018; Goldstein, 1977). As the curriculum of this model is spread widely, primarily related to all forms of crime and disorder. However, much of policing is not related to crime but the whole range of human and community problems with which police have to deal. With few police courses, this model might not influence students in their understanding of critical police issues. This model, for example, displayed no effect on PJ - the most researched issue in policing in recent decades (Skonga & Frydl, 2004). Likewise, the usefulness of research evidence specific to policing is not given much attention in this model.

#### *Police technology as a paraprofessional vocational training - police academy*

This section will discuss the model of police technology as paraprofessional vocation training. This model is delineated by the special-exam program that delivers mainly technical task-related knowledge and skills. This model sits at one end of the general-vocational spectrum with the first model at the other end. The curriculum of this model involves highly police-related, prescriptive lectures, many exposures to internship and certain levels of paramilitary management. The campus experience is characterised by hierarchy, homogeneity and isolation (Table 13.5). This model exhibits opposite

effects on outcome variables: neutral effect on MR and negative effects on other outcome variables, compared to the first model.

The distinct effects between this model and the first model might be attributed to their disparities: 1) vocational subjects, 2) medium intense paramilitary management, and 3) intense vocational training. Specifically, the influential sources, as discussed in the preceding section, involve administrative measures, the ideology of group-based hierarchies in a paramilitary training context and FTOs, encounters with citizens, work-related danger, police role's vagueness and police organisations' depersonalisation in an internship (Cohrs et al., 2007; Cox & Kirby, 2018; Heslop, 2011; Van Maanen, 1975; Westley, 1970). The effect of this model speaks to the conflicting results of academy training (e.g., Bennett, 1984; Wortley & Homel, 1995), as pointed out in Section 5.3. The mixed results might reflect the training contents delivered and contexts in which recruits situated. As those measures of depersonalisation in a 'total institution' are administered in this program, those drawbacks are also reflected by the outcome variables (Goffman, 1962). That is, the common drawbacks incurred by typical stressful training (e.g., excision of civilian identity causing elitism or insulation) are exhibited in the reduced endorsement of HR, growing levels of PJ and declined open-mindedness to research evidence in policing (Adlam, 2002; Chappell & Lanza-Kaduce, 2010; Conti & Doreian, 2014).

The combination of the first and second models is the prevailing model of police education administered in the US. This combination seemingly reflects the dilemma that the first model fails to improve students' understanding of critical policing issues and once joining police forces, the second model works against these qualities expected of democratic police officers. The dilemma brings up the question of whether it is possible to base police education on the intellectually rigorous knowledge and an open-to-debate training context or not (Cordner, 2018, 2019). Whether a professional model can bring together both the benefits of criminology program and police academy training will be discussed in the following section.

### *Criminal justice as a professional education - professional education*

This section will discuss the criminal justice as a professional education. This model is represented by the cadre program at CPU. This program is expected to bring

together the strengths of criminology programs and police academy training - intellectually rigorous knowledge and vocational skills and physical strength. This program, however, shows the same effects on police recruits as the police academy does: adverse effects on all the outcome variables except MR (Table 13.4). Considering the primary difference between this model and the criminology program lies in the intensive paramilitary management, this component is likely to be responsible for the gaps in outcome variables between these two models.

Specifically, paramilitary management, comprising jingshen education and military training, should explain the negative effects on HR endorsement, PJ levels and EBP receptivity and absent effects on MR. In other words, the variations of effects should be attributable to the institutes (e.g., Student Corps) and administrative measures (e.g., minute control of activity, chain of command), which collectively create a hierarchical, homogeneous, isolated campus experience. That is, the campus experience outweighs academic knowledge and analytic skills in the outcome variables (Cox & Kirby, 2018; Heslop, 2011).

These factors associated with the adverse effects on outcome variables have been discussed in the previous section. Attention here is given to a profound debate: which educating/training approach - paramilitary or academic – is optimal to prepare police recruits for contemporary society (Chappell & Lanza-Kaduce, 2010; Fry & Berks, 1983; Weinblatt, 1999). Despite advocacy that these two approaches should be blended, this is not an easy task. As illustrated in some projects of community policing incorporated in academy training that aim to cultivate officers with problem-solving, community engagement techniques and other 'soft skills', these critical minds and soft skills expected did not take place because of the dominant militarism and warrior mentality underlying academy training (Chappell, 2007; Marenin, 2004; Paes-Machado & De Albuquerque, 2002).

Here is a deeper question: Are these two approaches compatible? On the one hand, a paramilitary training context stresses 'co-ordination through superior command and control' (Waddington, 1998, p 353) whereas on the other hand, an environment that instills critical and open mind is supported by openness to debate and challenges to and reflection of established knowledge and practice (Brown et al., 2018). Is it possible for these two approaches that inherently contradict with each other to be

fused? The answer is unknown. In the case of CPU, the programme fails to strike a balance between paramilitary management and the liberalising context required of academic subjects. Moreover, none of the existing research has looked into this issue. However, this fusion of these two approaches is an issue to address as the call for a professional model of police education to prepare officers for complex contemporary society has been rising (Cordner, 2016, 2018; Sherman, 2013; Weisburd & Neyroud, 2011).

In conclusion, even though these police education models are spread on the continuum between general and vocational orientation, the effects of them on the outcome variables are dichotomized. The criminology program shows the opposite effect on the outcome variables in comparison with both the special-exam and cadre programs. It seems the combination of paramilitary management and vocational training, which result in the homogeneous, hierarchical and isolated campus experience, outweighs other factors. However, an open, free and pluralistic university that encourages intellectual stimulation, critical thinking and tolerance is conducive to the qualities that are expected of police officers under democratic policing and professionalism. The reconciliation of these two distinct approaches is not easy, as shown in the professional model of police education. These potentially viable measures as an attempt to merge these two approaches will be discussed in the following section.

### **13.5 Policy implications**

This section will consider the policy implications arising from this thesis. These implications relate mainly to three aspects of the CPU campus experience, namely: 1) hierarchical structure, 2) homogeneous culture, and 3) isolated existence. As the findings show that the negative influence of police education might be attributed to jingshen education and military training, which collectively contribute to the overall campus experience of CPU characterised by hierarchy within organisations, homogeneity in mindset and isolation from the public. In turn, these characteristics were shown to outweigh the liberalising effect of liberal arts and academic subjects. The policy implications suggested here will thus correspond to these three

characteristics. That is, the education components contributing to these three aspects are the targets to change.

### *Hierarchical aspect*

The hierarchical aspect of the CPU experience primarily results from the Student Corps and intern student brigade. In these corps, cadets interact with instructors and faculties according to their respective status or ranks (depersonalisation) or based on the seniority system. These measures are responsible for the observed adverse effects on HR and PJ, as discussed in the preceding section. The measures needed to respond to this aspect thus centre on two themes. The first theme is to improve equality on the CPU campus by removing the units that engender hierarchies, such as the Student Corps and intern student brigade. The Student Corps can be replaced by a tutorial system led by instructors or faculty members. The new system would focus on regular, very small group teaching sessions in which students orally communicate, analyse and criticise others' and their own ideas (Palfreyman, 2001). This system would allow recruits to work independently and learn analytical and critical skills under the circumstance that fellowship with instructors/faculties is built via conversations. Meanwhile, the abolition of the unit would reduce the negative impact by instructors and senior recruits on cadets' identity and self-determination. It is hoped that the relatively equal relationship between recruits and instructors/seniors would radically change the hierarchy-enhancing management at CPU, leading to an increase in HR endorsement and decrease in PJ among cadets.

Similarly, the intern student brigade could be replaced by autonomous organisations such as student associations, where cadets learn to govern themselves. This association can provide recruits with practice in democratic processes where they can have their say on social and political issues both within the institution and outside the campus. This suggestion takes advantage of the concept proposed by Berkley (1969) and Sklansky (2005) that democratic norm and principles should be embraced inside police organisations.

The second theme, related to the hierarchical nature of police education, is to improve cadets' recognition that police work entails dealing with conflicts that arise from the breakdown of social consensus in democracies. Police education, in turn, should

prepare recruits to handle the conflicts in an acceptable manner within a particular society (Berkley, 1969). In this regard, there are two measures to be administered: 1) learning 'soft' skills such as communication skills and leadership and 2) working with police-related organisations such as victim associations and police rights associations.

Initially, instead of interacting with citizens in the way conditioned in hierarchy-enhancing organisations, cadets should learn the soft skills that facilitate their relationship with citizens in democratic societies (Hajek et al., 2008). Communication skills, for example, would improve cadets/officers' understanding of the sophisticated human dynamics during police-public encounters, leading to high levels of public confidence (Rosenbaum & Lawrence, 2017; Tyler & Hou, 2002). This skill, in turn, may lead to the development of more equal relationships between recruits, instructors, senior recruits and citizens.

Moreover, it is recommended that cadets should be engaged in police-related organisations. The engagement is expected to enhance cadets' understanding of what is expected of the police by stakeholders, especially by those social activist groupings that advocate fair, HR-based equitable policing (Fleming et al., 2006). The engagement would have recruits/police officers rethink their current identities and positions in democracies from diverse viewpoints.

### *Homogeneous aspect*

The homogeneous aspect is related to jingshen education designed to deliver ethical training. The importance of ethical education cannot be over-emphasised, but it is argued that the delivery method needs to be changed. Instead of inculcating the single absolute value (i.e., honesty) in the 'Platonic cave', CPU should establish an open campus which encourages recruits to think critically and to be reflective (Conti & Nolan III, 2005). This may be realised, for example, by hosting debate competitions on social issues or group discussions in the tutorial system, as discussed above. The point here is to have cadets be mindful of the morality they embrace and to tolerate those different ones embraced by others (Conti, 2009; Marenin, 2004).

It is suggested that there are two measures that would reduce the homogeneity in mindset: involving recruits in research projects and having them visit police forces

situated in culturally diverse areas. Rigorous research projects often require researchers to be open to uncertainties, prudent in the interpretation of the data and critical in formulating conclusions, all of which are attributes that may facilitate heterogeneity in mindset. Research projects involving problem-oriented policing, for example, can encourage recruits to think about new and innovative ways to solve crime problems (Eck, 2011). Through their involvement such projects, recruits will be trained to be cautious and objective in their approach and to challenge taken-for-granted opinions.

The other way to reduce homogeneity in cadets may be to have them experience distinct working contexts such as visiting British or American police forces. A police force responds to and is conditioned by the cultural norms of a society in which it is situated (Gingerich & Chu, 2006). By observing the various ways other police forces respond to crime, and the underlying philosophies they adopt, recruits may develop a broader worldview of policing (Shimmi, 2014). This measure can be achieved by inviting visiting scholars/police officers from foreign countries or supporting police recruits to visit foreign police forces.

#### *Isolation aspect*

The isolation aspect refers to the residential campus of the CPU that potentially alienates cadets from the public and excludes them from participating in extra-curricular activities. To help neutralise the isolation, it is suggested that CPU take two measures: overseas student exchange and openness to local communities. First, to have police recruits study overseas would bring benefits such as abilities to confront challenges outside a familiar support network, to develop connections with people from diverse background and to become flexible in unfamiliar environments (Messer & Wolter, 2007). With these abilities, it is hoped that cadets would better understand that they cannot be isolated from the evolving society to which they are expected to respond.

The other measure is to have CPU open to local communities, reducing the isolation of recruits from citizens. This measure takes advantage of the concepts of community policing that increase community engagement and solve local problems can reduce fear of crime and forge good relationships with citizens (Maguire & Mastrofski, 2000).

This measure can be fulfilled by providing community service to local communities. The experience would, in turn, improve cadets' capacity of understanding the complexity of crime and interpersonal relationship, problem analysis and moral development, reduce stereotypes and reshape personal identity (Eyler & Giles, 1999).

### **13.6 Strength and limitations**

This thesis joins the handful of longitudinal studies that track police recruits across stages of their occupation (e.g., Brown & Willis, 1985; Catlin & Maupin, 2004; Fielding, 1988; Wortley, 1992; Van Maanen, 1975). It exhibits several strengths over previous studies, such as greater sample representativeness and the inclusion of comparison groups. Expectedly, however, it is also subject to limitations that are both common to longitudinal studies and unique to the present research. These issues are discussed in this section.

#### *Strengths*

It is the view of the author that this thesis has six main strengths: 1) high sample representativeness, 2) inclusion of multiple models of police education, 3) detailed curriculum comparisons of sampled programs, 4) data imputation, 5) statistical methods specifically responding to research hypotheses and 6) adopting a theory-driven perspective. Discussing each in turn.

First, sample representativeness is strong in this thesis. Because Taiwanese police education is centralised with only one police university, CPU, the sample representativeness implies that the findings of this thesis have good generalisability in Taiwan. By contrast, most previous studies related to police socialisation investigated police recruits in departmental or local training academies (e.g., Catlin & Maupin, 2004; Oberfield, 2012).

Second, as most of the previous longitudinal studies tracked one model of police education (mostly academy training), it might not exclude the possibility of maturation effects rather than police socialisation that causes the changes of police recruits over time (Campbell & Stanley, 1967). By including a comparison group, undergraduates



at the NCCU, this thesis proposes convincing evidence that the differing trajectories of police recruits and undergraduates with respect to the outcome variables can be attributed to variations in the education/training contents and contexts undergone. Moreover, by including three different models of police education, this thesis allows comparisons between the prevailing and the professional models of police education.

Third, the detailed comparisons of curricula and campus experience between various models of police education help ensure that the observed disparities in outcome variables can be interpreted precisely and appropriately. Rarely have previous longitudinal studies connected the influence of training contents and contexts to outcome variables (e.g., Christie et al., 1996; De Schrijver & Maesschalck, 2015).

Fourth, due to the creative strategies applied to engage participants (e.g., having enthusiastic participants persuade their peers, see Section 7.6), this study successfully retained most participants and thereby experienced minimal attrition, far less than is usual for these sorts of studies (e.g., Christie et al., 1996; De Schrijver & Maesschalck, 2015). Moreover, to enhance statistical power, this thesis used a recently developed method to compensate for missing data, a method which has not yet been utilised in previous longitudinal studies on police education. As missing data are common in longitudinal studies, adopting an advanced method to overcome the weakness is one of the strengths of this thesis.

Fifth, this thesis applied contrast analysis that compares the average changes between experimental and comparison groups so as to specifically examine research hypotheses. Compared to the common methods used in previous longitudinal studies that determine the difference over time by comparing the mean difference between time points using t-test, the contrast analysis is strong in capturing the effect of treatment (Bertrand et al., 2004).

Sixth, this thesis is theory-driven. Based on the theory of police socialisation, this thesis not only unveils the transformational relationships between treatment (e.g., training content) and outcome but also outlines contextual factors (e.g., campus experience) under which the transformation processes occur (Chen & Rossi, 1989). By contrast, most of the existing longitudinal studies are method-oriented, primarily concerned with the relationship between input and output of an academy program or

field experience. The thesis thus provides a better understanding of how to change and improve the police education.

### *Limitations*

Despite the abovementioned strengths of this thesis, some limitations should be taken into account. These relate to 1) construct equivalence, 2) applicability of research findings, 3) sample comparability, and 4) the investigated study period. The first three limitations are unique to this thesis, whereas the last one is common to all longitudinal research.

The first limitation, construct equivalence, is a common methodological issue in cross-cultural research. It relates to issues of equivalent meaning and significance of research construct in different contexts (Bryman, 2015; Buil et al., 2012). As the applied research construct and instruments in this research were mainly created, developed and validated in western countries, it is not clear whether the interpretation of these constructs measured by these instruments are applicable to Taiwan or not. That is, those measured concepts might be understood and explained differently by participants in Taiwan whose culture is distinct from that of the West.

For example, Dien (1982) contended that moral development from Kohlberg's perspective is distinct from that in Chinese culture where the optimal way to solve human conflict is through reconciliation and collective decision-making, as opposed to individual choice, commitment and responsibility which pervades Western thought. This might result in Kohlberg's ideal development not being applicable to Taiwan. However, as Taiwan has embraced democracy, some universal values underpinning it such as due process and shared ideals should be taken up by police officers who are on the front line of democratic policing (Gibbs et al., 2007). Moreover, the best endeavour has been performed here to deal with these issues: both double-translation of research instruments to make sure semantic precision and discussion with participants in the pilot test to make sure investigated constructs understandable (Section 7.3.6).

The equivalence in cross-cultural research raises a second limitation: whether or not and to what extent the findings of this thesis are generalisable and applicable to Western countries. This issue is common among cross-cultural studies. On the one

hand, as this thesis is the first research that explores the influence of police socialisation on HR endorsement, MR, PJ and receptivity to EBP in Asia, it expands the boundaries of knowledge to various regions and culture, promoting international and intercultural exchange and understanding (Buil et al., 2012). On the other hand, with this strength comes the limitation: applicability of research findings due to the various contextual factors in different cultures (Matsumoto & Van de Vijver, 2010). For example, this thesis found that police education is primarily responsible for shaping police officers in the process of police socialisation and that among the potentially influential sources, jingshen education and military training yielded the greatest effects. Moreover, this thesis links these two influential sources to stressful and paramilitary training in police academy training in the West, as discussed in Section 6.3. However, from the perspective of culture, the implementation of jingshen education and military training reflects the position of police education in Taiwan: a Confucian ideal of character education (as discussed in Section 6.2). The findings and policy implications proposed to address the adverse effect brought about by these two influential sources accordingly might thus not be applicable to countries where police and police education have to respond to their own policing ideals, such as policing by consent in the UK.

The third limitation concerns the comparability of samples. It was originally planned that seniors (the fourth-year undergraduates) at NCCU would act as the comparison group against cadets at CPU. Yet because I could not gain their agreement to take part, the sampling strategy failed. If this cohort had remained, the analysis could have made a clear comparison between seniors who study at NCCU in the last year and work in occupations other than police and cadets who have their last year at CPU and work in the police organisations a year. Instead, this thesis investigated juniors (the third-year undergraduates); however, this cohort experienced serious attrition at the second data collection.

Due to the lack of access to seniors and the dropout of juniors at NCCU, cadets are not fully comparable in the last year of police/college education and the first year of police/non-police work. Unlike the comparison between new recruits and new undergraduates, the analysis cannot compare cadets with seniors in terms of the last year at CPU/NCCU and the first year after graduation. This limitation, however, is not

a major concern since this research primarily focused on police education. Police socialisation can still be explained adequately without the comparison group.

The last concern relates to the time period covered in this study, that is, from recruitment to the first year in the field. It is possible that this time period is insufficient to reliably measure the effects of police socialisation. This concern is twofold. One is that the investigated time period only covers the first half of the four-year programs (i.e., the cadre program and criminology program). The results thus may not explain the full process of police education. The other is the influence of longer-term police socialisation beyond the first year of fieldwork. That is, the research can offer limited explanations of issues such as police organisation, leadership and work, all of which are considered influential in the career-long police socialisation (Arnatt & Beyerlein, 2014; Rus et al., 2012).

### **13.7 Suggestions for future research**

This section discusses four suggested topics for future research: 1) insightful interpretation from insiders, 2) the linkage between attitudes and practice, 3) the blend of paramilitary and academic training and 4) the relationship between HR and receptivity to research evidence.

The first suggestion is to interpret the findings from insiders' viewpoints such as recruits, faculty members and instructors. Because of the cultural differences, as discussed in the research limitations, the results observed here might be explained differently by participants in Taiwan, as opposed to participants in Western contexts. That is, how police education affects cadets might be perceived differently by, say, Taiwanese police recruits and instructors. Therefore, one suggestion for future research is to interview police recruits, instructors and faculty members in order to discover their views on how Taiwanese police education influences cadets, based on the results reported here.

Second, further research could be conducted to determine the practical significance of the (attitudinal) results observed here. Put differently, to what extent do the changed beliefs in HR, MR, PJ levels and EBP receptivity, as found here, affect

participants' *actual* behaviour? An example is whether or not recruits who expressed higher PJ or lower HR endorsement tend to, say, use force in a more discriminatory way against minorities or certain groups. By investigating the gap between attitude and behaviour, it may be possible to outline the process of how police officers' psychological dimensions shaped during education impact the fulfilment of police mandates in practice. This linkage research can be carried out, for example, by comparing the general attitudes towards certain attributes (e.g., HR) of police officers with their records of citizen complaint or their ways of enforcing law (e.g., citation, arrest) in the form of experiments, simulation and so forth.

The third suggestion is related to the blend of paramilitary and academic training. A police education that brings together benefits of general education and vocation training has been given more attention recently; however, it is not easy to merge these approaches that have sharply contrasting education/training philosophies, contents and contexts. More recently, some higher education institutes have established criminal justice-related programs of undergraduate degree designated for police officers as the way to expose them to college experience (Cox & Kirby, 2018). Another way to merge the two approaches is to change police academy training by minimising strict hierarchies, removing the physical pain and humiliation used to socialise police recruits, and introducing those measures that facilitate intellectual simulation, advanced MR and so forth. Specifically, rather than just introducing new curricula, it is the training context that should be radically changed. The evaluation of police education and training that mix the paramilitary and academic approaches might find out an optimal approach to prepare police officers and should be given more attention in the near future.

Fourth, future research could explore the relationship between HR endorsement and receptivity to research evidence. As shown in the positive relationship between HR endorsement and EBP receptivity in C12, and as discussed in the preceding section, organisational justice might be associated with both procedural fairness and receptivity to research evidence. That is, how police recruits are treated during training – perceived fairness or not – affects the way they regard work performance – research evidence in policing. Future research might therefore usefully look into the correlation between perceived fairness pertaining to respect for HR among trainees

and attitudes and acquired skills related to EBP. In other words, whether programs that introduce knowledge and analytic skills concerning EBP can successfully change their attitudes might be influenced or mediated by their perceptions of fairness in the training context.

### **13.8 Conclusion**

Democratic policing has been the subject of considerable research in recent decades, albeit mainly limited to Western industrialised settings. Despite widespread support for the notion of democratic policing, the concept has proven difficult to define and to realise in practice. Informed by previous theory and research, this study adopted a fairness-effectiveness framework, measuring the concept of democratic policing using four indicators: HR endorsement, MR, levels of PJ and receptivity to EBP. Using well-established and purpose-written scales, and based on a multiple-group longitudinal study design, this thesis measured the impact of three perspectives of police socialisation - predisposition, police education and police work/culture – on the four outcomes stated above. To the author's knowledge, this is the first study of its kind in Asia and one of the most rigorous and comprehensive longitudinal studies on police anywhere.

The research presented here is timely. Police education in Taiwan has changed little in the last half-century, but Taiwanese politics and society have radically transitioned from authoritarianism to democracy over this period. It is therefore important to examine empirically the effect of the prevailing police education model on police officer attitudes as they relate to the generally sought-after model of democratic policing.

From the perspective of police socialisation theory, the findings presented here suggest that police education yields the greatest impact on measures of democratic policing and EBP receptivity. Further, Taiwanese police education (the professional model) has a significantly negative impact on recruits scores on these four outcome variables over time, compared to that of students enrolled on a criminology program. The same effect is observed when raising the entry level to a bachelor's degree.

Focusing on the specific elements of different education models, academic subjects are found to be outweighed by the campus experience in Taiwan that is collectively contributed by jingshen education and military training. This is evidenced by the failure to boost recruits' indices of democratic policing by incorporating liberal arts or social science into the curricula at a homogeneous, hierarchical and isolated campus. Similarly, the graduate recruits with previous college experience cannot withstand the adverse effects of those components in academy training. In brief, this implies it is the actual campus experience, rather than the knowledge learnt or modules attended, that determines the educational outcome.

Based on the examination described above, this research found that Taiwanese police education had an adverse effect on the measurements of democratic policing and receptivity to EBP. Specifically, although the centralised police education institute - CPU - managed to incorporate traditional moral education and modern police science into a holistic education, its realisation in effect is nevertheless not far from academy training.

The capacity to handle the use of force goes hand in hand with the willingness to apply science in policing. Specifically, the positive attitudes toward personal liberty, social welfare and equality and negative attitudes toward authoritarianism correlate with high EBP receptivity. This suggests that EBP is more acceptable in those people who care about freedom, its equal application and social well-being and who are resistant to conformity to the authority. Again this illustrates that HR endorsement and effectiveness are not trade-offs but are mutually supportive.

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## Appendix A

### ATHR scale

#### A. Social Welfare

1. The government should provide social protection to all children.
2. The government should provide adequate standards of living to citizens.
3. The government should provide security to people who lose their means for making a living due to circumstances beyond their control.

#### B. Civilian Constraints

4. In times of crisis, the government should have the right to arrest those whose political views would affect social stability.\*
5. The government should have the right to deny those who would affect public security the right to vote.\*
6. The government should have the right to ban Falun Gong-related activities.
7. For political considerations, the government should have the right to restrain citizens' freedom to enter or leave Taiwan.\*
8. The government should have the right to stop a peaceful assembly due to mild physical conflicts.\*
9. The government should have the right to ban the publication of books and other materials which would be a threat to public interest.\*
10. The government should have the right to refuse to provide costly legal assistance to people who are 100% sure guilty.\*

#### C. Personal Liberties

11. Citizens should have the right to manifest his religion or belief in public.
12. Professors should have the right to teach any theory or belief in university.
13. Political organisations or bodies in Taiwan should have the right to establish ties with foreign political organisations or bodies if it would not harm national security or public order.
14. Citizens should have the right to publish articles criticizing the Chinese Government in the media.

#### D. Equality

15. The government should include Internet charges in Comprehensive Social Security Assistance.

16. The government should provide Comprehensive Social Security Assistance to new immigrants who reside at Taiwan for less than 7 years.
  17. Illegal immigrants who commit crimes in Taiwan should have the right to legal assistance.
  18. The government should provide illegal immigrant children with the same right to study as local children.
  19. In some special circumstances, such as combating Triad activities, the use of secret torture by the police to obtain evidence is acceptable.\*
  20. Courts can accept illegally collected evidence to convict people for whom it is 100% certain they are guilty.\*
- E. Privacy
21. Schools should have the right to force students under 18 to take a drug test if their parents consent.\*
  22. For combating with drug abuse, the government should have the right to require schools to hand over drug testing results to the law enforcement departments.\*
  23. For enhancing management, schools should have the right to ask for fingerprints as identification when teachers enter and leave schools.\*
  24. For enhancing management, schools should have the right to ask for fingerprints as identification when students enter and leave schools.\*
  25. Schools should have the right to install security cameras in classrooms.\*
  26. If an employee applies sick leave for more than five days per month, the employer should have the right to ask for all his/her medical records.\*

\* reversed items. The response scale was 1 = *very negative* to 7 —*very positive*.

## Appendix B

DIT-2

Famine— (Story 1)

The small village in northern India has experienced shortages of food before, but this year's famine is worse than ever. Some families are even trying to feed themselves by making soup from tree bark. Mustaq Singh's family is near starvation. He has heard that a rich man in his village has supplies of food stored away and is hoarding food while its price goes higher so that he can sell the food later at a huge profit. Mustaq is desperate and thinks about stealing some food from the rich man's warehouse. The small amount of food that he needs for his family probably wouldn't even be missed.

What should Mustaq Singh do? Do you favour the action of taking the food?

@ Should take the food @ Can't decide @ Should not take the food

Rate the following 12 issues in terms of importance (1-5)

1. Is Mustaq Singh courageous enough to risk getting caught for stealing?
2. Isn't it only natural for a loving father to care so much for his family that he would steal?
3. Shouldn't the community's laws be upheld?
4. Does Mustaq Singh know a good recipe for preparing soup from tree bark?
5. Does the rich man have any legal right to store food when other people are starving?
6. Is the motive of Mustaq Singh to steal for himself or to steal for his family?
7. What values are going to be the basis for social cooperation?
8. Is the epitome of eating reconcilable with the culpability of stealing?
9. Does the rich man deserve to be robbed for being so greedy?
10. Isn't private property an institution to enable the rich to exploit the poor?
11. Would stealing bring about more total good for everybody concerned or wouldn't it?
12. Are laws getting in the way of the most basic claim of any member of a society?

Rank which issue is the most important (item number).

Most important item



Second most important

Third most important

Fourth most important

Reporter— (Story 2)

Molly Dayton has been a news reporter for the Gazette newspaper for over a decade. Almost by accident, she learned that one of the candidates for Lieutenant Governor for her state, Grover Thompson, had been arrested for shoplifting 20 years earlier. Reporter Dayton found out that early in his life, Candidate Thompson had undergone a confused period and done things he later regretted, actions which would be very out-of-character now. His shop-lifting had been a minor offence and charges had been dropped by the department store. Thompson has not only straightened himself out since then but built a distinguished record in helping many people and in leading constructive community projects. Now, Reporter Dayton regards Thompson as the best candidate in the field and likely to go on to important leadership positions in the state. Reporter Dayton wonders whether or not she should write the story about Thompson's earlier troubles because in the upcoming close and heated election, she fears that such a news story could wreck Thompson's chance to win.

Do you favour the action of reporting the story?

@ Should report the story @ Can't decide @ Should not report the story

Rate the following 12 issues in terms of importance (1-5)

1. Doesn't the public have a right to know all the facts about all the candidates for office?
2. Would publishing the story help Reporter Dayton's reputation for investigative reporting?
3. If Dayton doesn't publish the story wouldn't another reporter get the story anyway and get the credit for investigative reporting?
4. Since voting is such a joke anyway, does it make any difference what reporter Dayton does?

5. Hasn't Thompson shown in the past 20 years that he is a better person than his earlier days as a shop-lifter?
6. What would best serve society?
7. If the story is true, how can it be wrong to report it?
8. How could reporter Dayton be so cruel and heartless as to report the damaging story about candidate Thompson?
9. Does the right of "habeas corpus" apply in this case?
10. Would the election process be more fair with or without reporting the story?
11. Should reporter Dayton treat all candidates for office in the same way by reporting everything she learns about them, good and bad?
12. Isn't it a reporter's duty to report all the news regardless of the circumstances?

#### School Board— (Story 3)

Mr. Grant has been elected to the School Board District 190 and was chosen to be Chairman. The district is bitterly divided over the closing of one of the high schools. One of the high schools has to be closed for financial reasons, but there is no agreement over which school to close. During his election to the school board, Mr. Grant had proposed a series of "Open Meetings" in which members of the community could voice their opinions. He hoped that dialogue would make the community realize the necessity of closing one high school. Also, he hoped that through open discussion, the difficulty of the decision would be appreciated and that the community would ultimately support the school board decision. The first Open Meeting was a disaster. Passionate speeches dominated the microphones and threatened violence. The meeting barely closed without fist-fights. Later in the week, school board members received threatening phone calls. Mr. Grant wonders if he ought to call off the next Open Meeting.

Do you favour calling off the next Open Meeting?

@ Should call off the next open meeting @ Can't decide @ Should have the next open meeting

Rate the following 12 issues in terms of importance (1-5)

1. Is Mr. Grant required by law to have Open Meetings on major school board decisions?
2. Would Mr. Grant be breaking his election campaign promises to the community by discontinuing the Open Meetings?
3. Would the community be even angrier with Mr. Grant if he stopped the Open Meetings?
4. Would the change in plans prevent scientific assessment?
5. If the school board is threatened, does the chairman have the legal authority to protect the Board by making decisions in closed meetings?
6. Would the community regard Mr. Grant as a coward if he stopped the open meetings?
7. Does Mr. Grant have another procedure in mind for ensuring that divergent views are heard?
8. Does Mr. Grant have the authority to expel troublemakers from the meetings or prevent them from making long speeches?
9. Are some people deliberately undermining the school board process by playing some sort of power game?
10. What effect would stopping the discussion have on the community's ability to handle controversial issues in the future?
11. Is the trouble coming from only a few hotheads, and is the community in general really fair-minded and democratic?
12. What is the likelihood that a good decision could be made without open discussion from the community?

#### Cancer— (Story 4)

Mrs. Bennett is 62 years old and in the last phases of colon cancer. She is in terrible pain and asks the doctor to give her more pain-killer medicine. The doctor has given her the maximum safe dose already and is reluctant to increase the dosage because it would probably hasten her death. In a clear and rational mental state, Mrs. Bennett says that she realizes this; but she wants to end her suffering even if it means ending her life. Should the doctor give her an increased dosage?

Do you favour the action of giving more medicine?

@ Should give Mrs. Bennett an increased dosage to make her die @ Can't decide @  
Should not give her an increased dosage

Rate the following 12 issues in terms of importance (1-5)

1. Isn't the doctor obligated by the same laws as everybody else if giving an overdose would be the same as killing her?
2. Wouldn't society be better off without so many laws about what doctors can and cannot do?
3. If Mrs. Bennett dies, would the doctor be legally responsible for malpractice?
4. Does the family of Mrs. Bennett agree that she should get more painkiller medicine?
5. Is the painkiller medicine an active heliotropic drug?
6. Does the state have the right to force continued existence on those who don't want to live?
7. Is helping to end another's life ever a responsible act of cooperation?
8. Would the doctor show more sympathy for Mrs. Bennett by giving the medicine or not?
9. Wouldn't the doctor feel guilty from giving Mrs. Bennett so much drug that she died?
10. Should only God decide when a person's life should end?
11. Shouldn't society protect everyone against being killed?
12. Where should society draw the line between protecting life and allowing someone to die if the person wants to?

Demonstration — (Story 5)

Political and economic instability in a South American country prompted the President of the United States to send troops to "police" the area. Students at many campuses in the U.S.A. have protested that the United States is using its military might for economic advantage. There is widespread suspicion that big oil multinational companies are pressuring the President to safeguard a cheap oil supply even if it means loss of life. Students at one campus took to the streets, in demonstrations, tying up traffic and stopping regular business in the town. The president of the university demanded that the students stop their illegal demonstrations. Students then

took over the college's administration building, completely paralyzing the college. Are the students right to demonstrate in these ways?

Do you favour the action of demonstrating in this way?

@ Should continue demonstrating in these ways @ Can't decide @ Should not continue demonstrating in these ways

Rate the following 12 issues in terms of importance (1-5)

1. Do the students have any right to take over property that doesn't belong to them?
2. Do the students realize that they might be arrested and fined, and even expelled from school?
3. Are the students serious about their cause or are they doing it just for fun?
4. If the university president is soft on students this time, will it lead to more disorder?
5. Will the public blame all students for the actions of a few student demonstrators?
6. Are the authorities to blame by giving in to the greed of the multinational oil companies?
7. Why should a few people like Presidents and business leaders have more power than ordinary people?
8. Does this student demonstration bring about more or less good in the long run to all people?
9. Can the students justify their civil disobedience?
10. Shouldn't the authorities be respected by students?
11. Is taking over a building consistent with principles of justice?
12. Isn't it everyone's duty to obey the law, whether one likes it or not?

## Appendix C

### RWA scale

1. Our country needs a powerful leader, in order to destroy the radical and immoral currents prevailing in society today.
2. Our country needs free thinkers, who will have the courage to stand up against traditional ways, even if this upsets many people.\*
3. The “old-fashioned ways” and “old-fashioned values” still show the best way to live.
4. Our society would be better off if the research showed tolerance and understanding for untraditional values and opinions.\*
5. God’s laws about abortion, pornography and marriage must be strictly followed before it is too late, violations must be punished.
6. The society needs to show openness towards people thinking differently, rather than a strong leader, the world is not particularly evil or dangerous.\*
7. It would be best if newspapers were censored so that people would not be able to get hold of destructive and disgusting material.
8. Our forefathers ought to be honoured more for the way they have built our society, at the same time the research ought to put an end to those forces destroying it.
9. There are many radical, immoral people trying to ruin things; the society ought to stop them.
10. It is better to accept bad literature than to censor it.\*
11. Facts show that the research have to be harder against crime and sexual immorality, in order to uphold law and order.
12. The situation in the society of today would be improved if troublemakers were treated with reason and humanity.\*
13. If the society so wants, it is the duty of every true citizen to help eliminate the evil that poisons our country from within.

### SDO scale

1. Some groups of people are simply inferior to other groups.

2. In getting what you want, it is sometimes necessary to use force against other groups.
  3. It's OK if some groups have more of a chance in life than others.
  4. To get ahead in life, it is sometimes necessary to step on other groups.
  5. If certain groups stayed in their place, the research would have fewer problems.
  6. It's probably a good thing that certain groups are at the top and other groups are at the bottom.
  7. Inferior groups should stay in their place.
  8. Sometimes other groups must be kept in their place.
  9. It would be good if groups could be equal.\*
  10. Group equality should be our ideal.\*
  11. All groups should be given an equal chance in life.\*
  12. the research should do what the research can to equalize conditions for different groups.\*
  13. Increased social equality.\*
  14. the research would have fewer problems if the research treated people more equally.\*
  15. the research should strive to make incomes as equal as possible.\*
  16. No one group should dominate in society.\*
- \* *reversed* Items.

## Appendix D

### EBPR scale

1. In police work, it is useful to consult the research evidence when making decisions such as preventing spree killing cases.
2. Policing is too complex to be the subject of scientific research. \*
- 3d. Police tactics should be routinely evaluated to determine whether they are effective.
- 4d. Police education in Taiwan encourages me to think like a scientist - understanding what strategies or tactics work or not in police duties.
- 5d. Good police officers don't think like scientists. \*
6. When deciding how best to deal with a crime problem, it is better to find solutions from prior solved cases or experienced colleagues than search the research evidence. \*
- 7d. Police work is like craft which is required of repeated practice and experience passed on from seniors, and on which science has little effect\*
- 8d. Suggestions from research evidence about the effectiveness of traditional police operations should be taken account when deciding if these operations should be continuously implemented.
- 9d. Obedience to regulations is more important than thinking creatively. \*
- 10d. The judgement of police officers is sufficient to determine whether a police tactic has been effective. \*
- 11d. The police would be more effective at reducing crime if they chose tactics that are supported by research evidence.
12. Scientific research on policing undermines the authority and expertise of police officers. \*
13. Often what is described in academic textbooks is unrealistic, compared to real police work. \*



- 14d. Most research evidence comes from the US and Europe, it is therefore of little relevance to policing in the Taiwan.
15. Asian societies are very different to those in North America and Europe. What worked to reduce crime in those settings is unlikely to work in Taiwan.
- 16d. Wisdom from experienced and high-ranking supervisors are the most valuable assets for police to manage policing.
17. Because of the complexity of real world policing, it would be advantageous for the police and researchers to work together.
18. Practitioners can provide researchers with real cases and data, and in return, researchers can feedback some good suggestions.
- 19d. Police education in Taiwan emphasizes researcher-practitioner partnership.
20. Partnership between practitioners and researchers would facilitate the police to work professionally.
- 21d. University researchers have little to offer the police on how best to deal with crime. \*
22. It is best that decisions about how best to deal with crime are left to the police. \*
- 23d. Only senior police officers need to cooperate with researchers. \*
24. Given the opportunity, I would like to be more involved in academic research on policing.
25. My police colleagues would frown on me if I worked on policing jointly with universities. \*
26. Common-sense knowledge is valued more highly than academic knowledge in the police in Taiwan. \*

\* reversed items. The response scale was 1 = *very negative* to 7 —*very positive*.

d Deleted items after reliability test.

## Appendix E

**UCL RESEARCH ETHICS COMMITTEE  
ACADEMIC SERVICES**



5<sup>th</sup> September 2016

Professor Richard Wortley  
Department of Security and Crime Science  
UCL

Dear Professor Wortley

**Notification of Ethical Approval**

**Re: Ethics Application 9193/001: Toward democratic policing in Taiwan and police education**

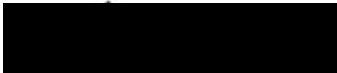
I am pleased to confirm in my capacity as Chair of the UCL Research Ethics Committee that I have ethically approved your study until 20<sup>th</sup> September 2018.

Approval is subject to the following conditions.

1. You must seek Chair's approval for proposed amendments to the research for which this approval has been given. Ethical approval is specific to this project and must not be treated as applicable to research of a similar nature. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing the 'Amendment Approval Request Form': <http://ethics.grad.ucl.ac.uk/responsibilities.php>
2. It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator ([ethics@ucl.ac.uk](mailto:ethics@ucl.ac.uk)) immediately the incident occurs. Where the adverse incident is unexpected and serious, the Chair or Vice-Chair will decide whether the study should be terminated pending the opinion of an independent expert. The adverse event will be considered at the next Committee meeting and a decision will be made on the need to change the information leaflet and/or study protocol.
3. For non-serious adverse events the Chair or Vice-Chair of the Ethics Committee should again be notified via the Ethics Committee Administrator ([ethics@ucl.ac.uk](mailto:ethics@ucl.ac.uk)) within ten days of an adverse incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Chair or Vice-Chair will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

On completion of the research you must submit a brief report of your findings/concluding comments to the Committee, which includes in particular issues relating to the ethical implications of the research.

Yours sincerely

  
**Professor John Foreman**  
**Chair of the UCL Research Ethics Committee**

Cc: Dr Aiden Sidebottom & Keng-Hui Lin

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## **We Need Your Help!**

**Toward Democratic Policing in Taiwan and Police Education.**

Hi, my name is Keng-hui Lin and I would like to invite you to take part in our research study. Before you decide whether you would like to take part, it is important for you to know why the research is being done and what it will involve. Please take time to read this information sheet carefully. If there is anything that is not clear, or if you would like more information, please feel free to contact me. My email address can be found at the end of this document.

### **What is this study about?**

The aim of this study is to investigate how police education in Taiwan affects individuals' attitudes toward police work. We want to understand how education in different circumstances - general university and police academy - can affect the way individuals react to social issues over time.

### **Why is this study being done?**

We hope that this research will inform the education of future police recruits in Taiwan to better prepare them for their career. Also if the public order is maintained by the police who are more responsive to any requests from you, general wellbeing will be improved.

### **What will happen if I take part?**

If you agree to be in this study, you will spend about 1 hour with me in your school and fill out a questionnaire with a pen. You will, for example, tick a favorable action for the role after reading a story. These tasks are designed to be thought-provoking but not difficult. This questionnaire consists of four parts. You will need to read all the items in the questionnaires and select the response which best describes your attitude. You will also be asked to answer some questions about your background such as age and work experience at the end of the questionnaire. Be assured that, the questionnaire is designed to observe your reply changes over time, and you are required to write your name on it. However, to have your name on a questionnaire is only for statistical coding, and no personal information will be revealed in the research results or publicly. All information will be kept in the strictest confidence.

By participating in this study, we will also try to get in touch with you again two more times over the next two years (once per year). We are interested in seeing how similar or different your responses

are to the questionnaires over time. You do not have to decide now whether you want to take part again and we will get in touch with you then to see if you would like to see us again later.

**Are there any risks taking part in this study?**

We do not anticipate any risks to those taking part in this study. We will talk to your directors to make sure that you do not miss any lessons that your directors believe are important for you to attend. It is important for you to know that no one else apart from the researchers in this study will have access to the questionnaire you have completed. We will not give this information to anyone else.

**What are the potential benefits?**

We hope that with your help and that of other students, we will develop better ways to cultivate those essential characters of police officers that could improve our society. Although there may be no immediate benefit for the students taking part in this study, we hope that their participation will be beneficial to other students and all members of our society in the future. On the other hand, this questionnaire is not an exam so that no incentives or prizes will be given according to the scores of your answers. Therefore, selecting the answers that best reflect your attitudes rather than correct answers would provide us most help and in turn do good contribution to the goal that this research attempts to. Also, we hope that you will find the experience fun and interesting.

**Do I have to take part in this study?**

It is up to you whether or not you take part in this study. If you do decide to take part, you will be asked to tick a consent form. If you decide now, or at a later date, that you do not wish to participate in this research you are free to stop at any time, without giving a reason. We want to make sure that everyone is happy when taking part in our project!

**Will information about me be available to anyone?**

The information that we collect from you is confidential and anonymous and will remain so unless required by law. Because you name on the questionnaire will be only used to identify coding data from a specific person over three data collection, and after the coding, all information are just anonymous and non-traceable. Also only members of our research team will be able to access this information. Your school or your directors will not have access to the information we collect. In our findings we will discuss the results of many students - we do not and can not single out or name any one participant. This project has been approved by the UCL Research Ethics Committee.

**How to contact the researchers**

You can ask any questions that you have about the study. If you have a question that you didn't think of now, you can ask it later. You can contact me at UCL or by email at [keng-hui.lin.15@ucl.ac.uk](mailto:keng-hui.lin.15@ucl.ac.uk) if you need any more information about the study. If for some reason you cannot reach me, you can call [REDACTED] or contact Dr. Aiden Sidebottom at [a.sidebottom@ucl.ac.uk](mailto:a.sidebottom@ucl.ac.uk)

***Thank you for taking the time to read this  
information sheet. Your help  
makes our research possible!***



Please tick (✓) appropriate box:

**Yes**, I would like to participate in this study.

**No**, I do not want to participate in this study.

---

**If Yes, please complete the following:**

I have read the Information Sheet.

I understand that I am free to withdraw from the study at any time without giving a reason.

I give consent to be contacted directly by the research team in the future at the details given by me on this form.

I have had the opportunity to ask any questions I wish to ask.

I have the names and telephone numbers of the research team in case I have any queries in the future.

---

I have realized and agreed the information aforementioned.

Agree     Disagree    Name: \_\_\_\_\_

Date: \_\_\_\_\_

***Thank you!***

## Appendix F

### *Missing patterns in the HR, MR and PJ*

The graduate recruits exhibited the least missingness as it has had just three cases dropping out in the final collection (Table 1, pattern E). Noticeably, seven cases did not respond to the MR questionnaires (pattern B). Only one case failed to respond to the MR in the second and third collections (pattern C). As the dropout rate was very low (6.67%), it is not necessary to examine the differential attrition.

**Table 1.** Graduate recruits' Missing Patterns

Patterns	First collection			Second collection			Third collection			Count	Percent
	HR	PJ	MR	HR	PJ	MR	HR	PJ	MR		
A										33	73.33%
B										7	15.56%
C										1	2.22%
D										1	2.22%
E										3	6.67%

Blank area means missingness

The cohort with mild missingness was the new undergraduates with 30 complete cases out of 44 (Table 2). The most serious loss was pattern D with 5 participants missed in both the second and third collections. There were two participants skipping in the second wave (pattern C). Also, there were two participants who failed to join the first collection but responded in the second and third (pattern F). Even though the research knew the dropout reason, the loss of 5 participants (pattern D) still needed further examination.

**Table 2.** New undergraduates' Missing Patterns

Patterns	First collection			Second collection			Third collection			Count	Percent
	HR	PJ	MR	HR	PJ	MR	HR	PJ	MR		
A										30	68.18%
B										1	2.27%
C										2	4.55%
D										5	11.36%
E										4	9.09%
F										2	4.55%

Blank area means missingness

The new recruit cohort experienced medium loss of missing data. Around half of the participants (144 out of 283; pattern A; Table 3) completed the three waves of surveys. In contrast, there were 28 cases (9.89%) disappeared since the second wave (pattern G) and 30 participants (10.6%) skipping the second collection (combination of pattern H and I). Totally the last wave suffered from 73 lost cases (25.79%, combination of pattern E, F and G). Even though the causes of the missingness was the assignment as cadres in junior squadron, the research still carried out the examination between those remained and those dropped out since the second wave to detect differential attrition.

**Table 3.** New Recruits' Missing Patterns

Patterns	First collection			Second collection			Third collection			Count	Percent
	HR	PJ	MR	HR	PJ	MR	HR	PJ	MR		
A										144	50.88%
B										26	9.19%
C										4	1.41%
D										6	2.12%
E										36	12.72%
F										9	3.18%
G										28	9.89%
H										20	7.07%
I										10	3.53%

Blank area means missingness

The cohort suffering the most serious loss was cadet with 78 complete cases out of 242 (pattern A; Table 4). Around a third of participants (73, the combination of pattern

F and G) merely joined the first wave while there were 8 and 3 cases responding merely to the second and third collections respectively. The major loss - second wave - was caused by the police qualification exam and the departments with which cadets were affiliated. However, further examination using Chi-square and t-test was conducted to probe the possible differential attrition.

**Table 4. Cadets' Missing Patterns**

Patterns	First collection			Second collection			Third collection			Count	Percent
	HR	PJ	MR	HR	PJ	MR	HR	PJ	MR		
A	█	█	█	█	█	█	█	█	█	78	32.23%
B	█	█	█	█	█	█	█	█	█	6	2.48%
C	█	█	█	█	█	█	█	█	█	3	1.24%
D	█	█	█	█	█	█	█	█	█	21	8.68%
E	█	█	█	█	█	█	█	█	█	4	1.65%
F	█	█	█	█	█	█	█	█	█	67	27.69%
G	█	█	█	█	█	█	█	█	█	6	2.48%
H	█	█	█	█	█	█	█	█	█	8	3.31%
I	█	█	█	█	█	█	█	█	█	38	15.70%
J	█	█	█	█	█	█	█	█	█	8	3.31%
K	█	█	█	█	█	█	█	█	█	3	1.24%

Blank area means missingness

The cohort experiencing the most complicated missing data was police officers with 13 patterns of missingness (Table 5). This also implied the missingness was unstructured and thus random (McKnight et al., 2007). There were 40 cases with complete data across the three collections (pattern A). By contrast, the second wave saw 19 missing cases (the combination of pattern H, I, J, K, L, M and O) while 33 cases were missing in the last collections (combination of pattern L, N, O, P, Q, R and S).



**Table 5.** Police Officers' Missing Patterns

Patterns	First collection			Second collection			Third collection			Count	Percent
	HR	PJ	MR	HR	PJ	MR	HR	PJ	MR		
A										40	40.82%
B										4	4.08%
C										2	2.04%
D										3	3.06%
E										1	1.02%
F										2	2.04%
G										1	1.02%
H										2	2.04%
I										2	2.04%
J										1	1.02%
K										1	1.02%
L										6	6.12%
M										6	6.12%
N										1	1.02%
O										1	1.02%
P										2	2.04%
Q										3	3.06%
R										16	16.33%
S										4	4.08%

Blank area means missingness

Even though the second wave loss was caused by the squadron system, the causes of loss for the final collection nevertheless were not clear because they were not assigned to junior squadrons at the time when the last survey administered the last survey. This might have resulted from the high autonomy they enjoyed in the last year at the CPU. To probe the mechanism underlying this missingness, further examination in demographic predictors and outcome variables was carried out between participants who dropped out since the second wave (combination of pattern I, J, K, L, M, N, O and P) and the rest in the following section.

*Attrition examination*

Two types of statistical tests were utilised to examine differences between participants who did and did not drop out of the study. Chi-square tests were used to test the dichotomous variables of gender, police relatives, marriage (only for police officers) and work experiences while t-tests were employed for the continuous

variables of age, work experience, police service (only for the police officers) and the dependent variables of first wave (HR, MR and PJ).

The results, presented in Table 6, show no statistically significant differences between participants who remained and those who took part in only one wave of the study in demographic factors and the outcome variables in the new undergraduate and cadet cohorts. The result corresponded with the dropout reasons in the Section 7.6. Interestingly, in the new recruit cohort, gender signals significant effects, indicating there are imbalanced dropout rates between males and females. This might be due to the lack of the intern squadron system in the female management at CPU so that female cadets are not assigned to junior squadron, thereby out of the reach.

**Table 6.** Chi-square and t-test for participants in each cohort of sample who remained and dropped out in demographic predictors and outcome variables

Chi-square Tests between dropped-out and remained participants								
Demographic features	New undergraduates		New recruits		Senior recruits		Police officers	
	df	value	df	value	df	value	df	value
Gender	1	1.324	1	4.547*	1	1.79	1	0.685
Police relatives	1	1.293	1	0.038	1	0.027	1	0.484
Work experience/ Marriage†	1	0.001	1	0.016	1	0.094	1	0.737
T-tests between dropped-out and remained participants								
Demographic features	df	t	df	t	df	t	df	t
Age	42	-0.546	279	-0.943	243	-0.612	94	0.87
Work experience/ Police service † (Year)	42	-0.22	278	-0.42	226	0.431	94	0.629
Outcome variables (First wave)	df	t	df	t	df	t	df	t
HR	40	-0.129	279	-0.439	236	-0.482	94	-2.577*
MR	40	1.105	279	-0.522	230	-1.873	86	-1.518
PJ	40	-0.256	280	0.524	232	-0.249	96	-2.103*

\*  $p < .05$ , \*\*  $p < .01$ , † only police officers are tested in marriage and police service.

The only cohort with suspicious differential attrition is police officers who exhibit a significant difference in the HR and PJ. Specifically, the police officers who remained are more inclined to HR and less prejudiced than those who dropped out. This is

consistent with the unknown reasons that quite an amount of police officers dropped out in the last collection. This difference also suggests that the mechanism of missing data is MNAR.

In short, the missing data in this research could be caused by MCAR or MAR except for the police officer cohort because conceptually the reasons of missingness are justifiable, but also statistically it is tenable that there was no difference between those remained and dropped out in terms of demographic predictors and the outcome variables of the first wave (Goodman & Blum, 1996). That is, it assures the lack of bias in the sample representativeness and the statistical analysis. In other words, caused by those mechanisms, the missing data are ignorable, and in turn could be appropriately dealt with by certain data imputations such as MI (Buuren, 2018; Rubin, 1996).