

Evidence-based policing and police receptivity to research: Evidence from Taiwan

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Introduction

The term *evidence-based policing* (EBP) was first used by Sherman (1998) when he argued that 'police practices should be based on scientific evidence about what works best' (p. 2). Proponents of EBP call for the systematic production, appraisal and use of research evidence to inform police decisions. They argue that decisions based on current, high-quality research evidence in conjunction with professional judgement can lead to improvements in the effectiveness and legitimacy of police practices and reduce costs and unnecessary harm (Lum & Koper, 2017; Sherman, 2015).

Sherman's proposals spawned a major reform movement in policing (Piza and Welsh, 2021). Nearly a quarter of a century on from his original article, there is now increasing recognition of the importance of EBP. Societies of EBP have been established in the US, UK, Canada, Australia and New Zealand. Numerous resources have been developed both to promote EBP and to make research evidence more accessible to practitioners and policymakers, most notably the Crime Reduction Toolkit (Thornton et al., 2019), Evidence-Based Policing Matrix (Lum et al., 2011) and Global Policing Database (Mazerolle et al., 2017). Moreover, in the UK, EBP has become part of a wider police professionalisation agenda (Brown et al., 2018) and features prominently in police training.

Despite widespread support for the basic idea of EBP, research has identified numerous barriers to its effective implementation (Kalyal, 2018; Welsh, 2006). These barriers include gaps in the available evidence base (Tompson et al. 2020), disagreement about what counts as robust research evidence (Bullock & Tilley, 2009; Sidebottom & Tilley, 2020) and, most relevant to this paper, police inexperience of and in some cases resistance to using research evidence to inform police decision-making (Lum et al. 2012). In the US, for example, surveys of police officers point to a general lack of awareness of EBP, limited exposure to police-relevant research, and a tendency to privilege experience over evidence as a guide to policy and practice (Telep & Lum, 2014). These findings suggest that improvements in the availability and quality of police-relevant research may yield little direct impact on police practice if obstacles to its routine use remain.

In light of the identified challenges to implementing EBP, there is now a burgeoning body of research concerned with police officers' attitudes towards and experience of using research evidence (discussed below). However, these studies have primarily taken place in Western Europe, North America and Australia. It is unclear whether the findings from these studies are therefore generalisable to non-western settings, especially those where the notion of EBP is less developed. The goal of this paper was to explore police officer receptivity to research in Taiwan, a country characterised by low crime rates and as yet limited experience of EBP. The paper makes two original contributions to the literature on police officer receptivity to research. To the best of our knowledge, it is the first paper to (i) empirically examine police officers' openness to and use of research in an Asian setting and (ii) compare police officers' receptivity to research with those of a relevant non-police group.

The remainder of this article is organised as follows. The next section reviews the literature on police officer receptivity to research. We then describe the research questions examined in this study and the process of developing and administering our survey instrument. Next, we present the results of our survey, comparing the views and experiences of Taiwanese police officers with those of Taiwanese criminology undergraduates. The article concludes with a discussion of the implications of our findings for EBP in Taiwan.

Evidence-based policing and police officer receptivity to research

Making good on the promise of EBP requires, among other things, that the police are willing and able to locate, make sense of, and apply research evidence in everyday policies and practices. A key question relevant to the implementation of EBP is, thus: what are police officers' views on and experience of using research evidence to guide police activities. This question has motivated a series of studies which are organised chronologically in Table 1.

Insert Table 1 here

The studies presented in Table 1 employ different methods using different samples and with different ambitions. Direct comparisons between listed studies are therefore inappropriate. That said, several themes are apparent from the studies presented in Table 1. The first theme concerns the observed variation in police officer self-reported awareness of EBP. For example, in the US

reported familiarity with research evidence is found to range from 27% to 91% (Telep & Lum, 2014; Telep & Winegar, 2015).

The second theme concerns variation in police *use* of research evidence. In the national survey of American law enforcement agencies, more than three quarters of respondents claimed that they sometimes or very often used research findings to inform policy decisions (Rojek, et al., 2012). High levels of self-reported research usage were also found in sampled Canadian agencies (60%; Blaskovits et al. 2018) and among U.K. officers (71%; Hunter et al., 2015). Lower usage of research was found in Sacramento (US) (38%) (Telep, 2016) and Queensland (Australia) (34%) (Cherney et al., 2018).

The third theme concerns variations in police officer attitudes towards partnerships between researchers and practitioners. Several of the studies in Table 1 showed that police officers generally exhibited a positive attitude towards police-academic partnerships (Blaskovits et al., 2018; Telep & Winegar, 2015). For example, Telep and Winegar (2015) found that more than 70% of respondents agreed or strongly agreed with the importance of such partnerships. Even higher levels of endorsement were given by participants from Canada and Greater Manchester (85% and 80% respectively) (Blaskovits et al., 2018; Palmer, 2011). However, internal (police) researchers typically received stronger endorsements among surveyed practitioners compared to external researchers. The overall receptivity to outside and in-house researchers was 27% and 55%, respectively in the US (Telep & Lum, 2014).

The fourth theme relates to variations in openness to and acceptance of research in policing. Two recurrent issues were identified here: (1) the willingness to stop an existing police tactic to

test its effectiveness, and (2) the balance between science and experience when making police decisions. In relation to the former, the willingness to conduct an experiment to test the effectiveness of police strategies and tactics was endorsed by more than 95% of officers in the US and Canadian studies (Blaskovits et al., 2018; Telep & Lum, 2014). In contrast, Queensland and Manchester respondents reported a lower willingness to do so - 29% and 8%, respectively (Cherney et al., 2018; Palmer, 2011). Responses with respect to the relative weight given to science and experience, however, were relatively consistent across all sampled organisations. For example, Telep and Lum (2014) found that eight out of ten officers in the US agreed that experience should outweigh science when it comes to police decisions. This trend was similarly observed in Manchester (55%) and Canada (57%) (Blaskovits et al., 2018; Palmer, 2011; Telep, 2016).

The four themes described above are derived mainly from quantitative studies, which make up the majority of research into police officer receptivity to research (see Table 1). The less frequent qualitative studies help elaborate on these findings. More specifically, the inhibitors identified in qualitative studies help explain the observed variations in awareness of EBP, use of research evidence, attitudes towards research-practitioner partnership and openness to research in policing. Kalyal (2019), for example, found that the adoption of EBP was often prompted by the need to justify organizational decisions to external stakeholders. Also, Lumsden (2016) showed that EBP in the UK is seen to be part of a performance culture driven by political pressure. These external drivers were found to vary across police departments and countries, and thus may account for the variation of EBP awareness and of use of research evidence among departments.

Internal factors such as resources, individual characteristics, cultural resistance, and lack of confidence in external researchers might also explain the observed variation in officers' attitudes

towards research-practice partnerships and openness to research in policing. Organisational norms such as a “doomed to succeed” were believed to undermine any attempts at evaluation (Fleming & Wingrove, 2017). Possession of a master’s degree was found to be associated with higher EBP receptivity (Telep, 2016) and a greater willingness to engage in police experiments (Fleming, 2018; Palmer, 2011). Moreover, higher education is considered to be a motivating factor in supporting the uptake and dissemination of research in police agencies (Kalyal, 2019).

The Current Study

The existing evidence base presents a mixed picture of police officer receptivity to research. Although many police officers may have limited exposure to and experience of EBP, and consistently prioritise experience over science, the majority of participants nevertheless demonstrate a general openness to and interest in police-relevant research and researchers (Jonathan-Zamir et al., 2019; Telep & Somers, 2019). As alluded to above, little is currently known about whether these same patterns are observed in Asia in general and Taiwan in particular. To further explore police officer receptivity to research in Taiwan, the current study addressed the following three research questions.

First, how well does the concept of EBP transfer to Taiwan, where cultural expectations of the role and responsibilities of the police are markedly different to those in the US, UK and similar settings? Briefly, Taiwanese policing is influenced by two main principles: democracy and Confucianism, two concepts which some commentators argue are incompatible (Cao et al., 2014; He, 2016; Pye & Pye, 1985). Efforts to reconcile these two ideologies has given rise to a system of

governance known as 'particularistic democracy', where bureaucratic rules often fail to constrain individual powers (Martin, 2013, p. 623; Pye, 1999). For example, one of the core Confucian values, harmony, emphasizes conflict resolution through mediation, rather than through the application of laws to establish right and wrong in democracies (He, 2016). Such a style of conflict resolution equates to the police acting more as that of mediator rather than law enforcer, seeking to strike a balance between the legal constraints imposed on them and harmony in the community in which they police.

Second, are Taiwanese police officers more or less receptive to EBP than relevant non-police individuals? Previous research on police receptivity to research has, as the theme suggests, made use of data collected from police officers and civilian staff within police organisations. Whilst understandable, it is however unclear whether the patterns observed in such studies are a reflection of police officers and staff specifically or the wider community from which sampled police officers and staff are drawn. To overcome this limitation, in this study we compare data collected from both police and non-police samples in Taiwan.

Finally, does police training as currently delivered in Taiwan make police officers more or less receptive to EBP? Prior studies indicate that educational attainment may account for variations in EBP receptivity (Fleming, 2018; Palmer, 2011; Telep, 2016). Presently, however, research into EBP has not empirically examined the influence of police training on police officer receptivity to research evidence. In this study we address this research gap by assessing the relationship between time spent in police education and self-reported receptivity to research evidence.

Method

Survey instrument: development and validation

We developed and piloted a scale to measure police receptivity to research evidence. Informed by previous research (reviewed above), we created a pool of 26 questions (half positively worded and half reversed items) that covered five aspects of EBP (described below). The first four aspects correspond to the four recurrent themes emerging from the EBP literature. The fifth aspect addressed the research question concerned specifically with the role of police education on receptivity to research. These five themes are:

(1) *On research evidence in policing*: This theme relates to the definition and perceived role of EBP, as is commonly investigated in germane studies (e.g., Huey, et al., 2017; Lum et al., 2012; Palmer, 2011). Survey items under this theme capture the perceived value and applicability of research evidence in policing and whether the police should routinely evaluate police tactics.

(2) *Science versus experience*: This theme is concerned with the prevailing opinion that personal experience is a better guide than research evidence when it comes to police decisions and practices (Cherney et al., 2018; Fleming, 2018; Jonathan-Zamir et al., 2019; Telep & Lum, 2014). This theme covers, for example, whether research evidence undermines police authority and whether police officers' judgement is sufficient to, say, determine whether a tactic is or is not effective.

(3) *Research-practitioner partnerships*: This theme explores participants' willingness to, experience of and attitudes towards working with external (non-police) researchers.

(4) *Applicability of research evidence in distinct social settings*: Considering the observed variation in police officer receptivity to research, this theme explores whether or not social or cultural factors are seen to impact the perceived applicability and transferability of research evidence in policing (Blaskovits et al., 2018; Hunter et al., 2017; Kalyal, 2019). More specifically, survey items under this theme explore whether research evidence produced in western settings is seen to be applicable to and useful in the Taiwanese policing context.

5) *Influence of police education*: As mentioned above, this theme is seldom investigated in previous EBP research. Items under this theme specifically focus on how Taiwanese police education is seen to influence receptivity to research.

Responses for each question in our survey were measured using a 7-point Likert scale where 1 denoted strong disagreement and 7 denoted strong agreement.

In devising our scale, we were mindful of the potential threats posed by cultural and semantic differences. To address this, we performed a double translation exercise (Chang et al., 1999) whereby the original scale was produced in English, then translated into Chinese and finally translated back to English independently by two foreign affairs police officers in Taiwan. The two versions of the scale - the original and the double-translated - were then reviewed by the authors to ensure consistency.

Once satisfied that the questionnaire content was suitable for a Taiwanese audience, we conducted a pilot test with 24 second-year police cadets at the Central Police University (CPU) in Taiwan, selected using opportunistic sampling. Upon completion of the questionnaire, we asked participants to confirm orally that they understood what was being asked of them and to comment

on the structure and process of completing the questionnaire. Some minor adjustments were made in response to their feedback.

After administering the questionnaire to the final sample (described below), and in an effort to confirm the presumed factor structure of the questionnaire, we performed a Principal Component Analysis using SPSS version 24 (Osborne, 2014). This revealed that most items loaded onto a single factor and that no interpretable factor structure emerged. It was therefore decided to use the Cronbach reliability test to identify (and remove) redundant survey items. The Cronbach test resulted in the removal of items which made the least contribution to reliability each time until the highest levels of reliability were obtained. Reliability peaked at 0.823 (α), which is considered to be an excellent level, when 14 items were retained (Cortina, 1993). The final 14-item scale was then balanced so as to contain half positively worded and half reversed items (Watson, 1992). A copy of the final scale is provided in Appendix A.

Sample

In selecting participants for this study, we took advantage of two features of the Taiwanese education system. The first feature is that Taiwan operates a two-track centralised police education system whereby street-level officers (constables) are trained at the Taiwan Police College (TPC) and police officers above certain ranks (Inspector Rank Four) attend the Central Police University (CPU) based in Taoyuan. CPU runs three education programs: promotion (lasting two years), special-exam (lasting two years) and the cadre (lasting four years) program. The promotion program is for street-level officers who have graduated from TPC, and enrolment is contingent on passing an internal exam. The special-exam programme is for citizens with a

bachelor's degree or above (in any subject) but with no police experience and who score highly on the civil exam of police qualification. The cadre programme is for individuals who wish to join the police immediately after completing senior high school, and enrolment depends on the results of their national college entrance examinations.

The second feature relevant to this study is that only one university in Taiwan runs an undergraduate criminology programme: National Chung Cheng University (NCCU) based in Chiayi County. The program at NCCU is a liberal arts course which aims to prepare students for careers in the criminal justice field. Entry to the NCCU criminology program is comparable to that of the CPU as students admitted by both universities perform similarly in a national entrance exam.

Six cohorts thus participated in this study. The three police cohorts from the CPU were:

- **New police recruits:** First-year recruits to the cadre programme, most of whom had just graduated from senior high school. All had no police experience;
- **Cadets:** Fourth-year students on the cadre programme who by definition had received police education at CPU for three years.
- **Police officers:** Sworn officers enrolled on the promotion programme, who were in their first year at CPU and had around 7 years of police experience.

The non-police group consisted of:

- **First-year undergraduate students** in the Department of Criminology at NCCU;
- **Third-year undergraduate students** in the Department of Criminology at NCCU;

- **Citizens:** First-year recruits in possession of a bachelor’s degree and enrolled on the special-exam program at CPU. While these participants are destined to become police officers, at the time this study took place, they were considered citizens since they had no police experience.

We make clear at this point that our non-police sample was not intended to be representative of the general population of Taiwan. Instead, we sought to collect data from a group that had a demonstrable interest in and some knowledge about criminal justice but who had no experience of either police education in Taiwan or working as a police officer. In doing so we hoped to investigate whether time spent in the Taiwanese policing environment was associated with changes in self-reported receptivity to research evidence.

As shown in Table 2, the sample size for this study varied across the six cohorts, reflecting the variation in the typical number of entrants to the different programs.

Insert Table 2 here

Procedure

A paper-based survey was administered in September 2016. This coincided with the start of term in both the CPU and NCCU. It is when all new police recruits (CPU) and undergraduates (NCCU) had yet to receive any police/college education. At CPU, we were authorised by the CPU president to access all four cohorts after their daily roll calls in a conference room. Recruits were informed in advance that a survey would be conducted after the roll call, and they were free to leave if they

wished not to participate. After the roll call of each cohort (on four separate days), one of the authors (KL) explained the objectives of the survey, the conditions of participation and then distributed informed consent forms and questionnaires. Recruits were allowed to spend 20 minutes to complete the questionnaire, but most of them spent around 15 minutes. Questionnaires were collected by the author upon completion. We requested that their captains and instructors leave the room whilst the survey was being completed so as to prevent any potential influence from senior officers.

At NCCU, we accessed undergraduates via faculty members. Even with their help, we could not gain the agreement to participate in this project from our ideal target group – fourth-year undergraduates, who spent the same length of time in the college as the cadets did. Instead, we succeeded in gaining access to third-year undergraduate criminology students. We used half an hour of course time to conduct the survey in the classroom. The procedures followed were the same as those at CPU (e.g., notification beforehand, informed consent). Overall, the response rate and eligibility rate were high in all cohorts. As illustrated in Table 2, all the eligible percentages from returned surveys were above 95%. The final sample consisted of 756 valid questionnaires.

Ethics

This study was approved by the research ethics committee at [unnamed university].

Results

Sample Characteristics

Table 3 displays the demographic characteristics of the six cohorts used in this study. There are two notable (but unsurprising) differences between the police and non-police groups which completed our survey. The first difference concerns a sex imbalance: police officers are predominantly male (82%) whilst the non-police cohort is mostly female (71%). The second main difference relates to having relatives in the police service. Around one third (32%) of respondents in the police group reported having relatives in the police service compared to about one in five of the undergraduate non-police sample. This is consistent with previous research in Taiwan which argued that having police relatives is a key influence affecting decisions to be a police officer (Sun et al., 2009). In terms of age distribution, as expected, most first-year criminology undergraduates and new recruits were aged between 19 and 21, and third-year undergraduates and cadets were aged between 21 and 25.

Insert Table 3 here

Receptivity to research among the Taiwanese police

To address the first research question - how is EBP understood in Taiwan? - we list 6 of the 14 scale items (Table 4) that relate to the use of research in policing. Responses are aggregated for those respondents who reported that they mildly agree, agree and strongly agree, and for those

who mildly disagree, disagree and strongly disagree with a statement, thereby creating three response categories (agree, neutral and disagree). For each question and for each group, we display the distribution of answers across these three categories.

Insert Table 4 here

Overall respondents across both groups reported a general openness to research and police-researcher partnerships. For example, when asked about the perceived usefulness of research evidence in police work (items 1 and 3), around 90% of respondents in both the police or non-police group answered positively. Likewise, 92% and 85% of respondents in the non-police and police groups, respectively, disagreed that *'effective police work is all about experience'* (item 7). Similarly, around three quarters of all respondents did not agree with the statement that *'police judgement alone is sufficient to determine the effectiveness of implemented strategies'* (item 10). On the topic of police-researcher partnerships (items 12 and 14), nine out of ten respondents agreed that collaboration between these two groups is important.

Comparing receptivity to research between police and non-police cohorts

To address our second research question and compare police and non-police samples, we organised the six cohorts into three pairs: (1) new police recruits vs first-year undergraduates, (2) cadets vs third-year undergraduates and (3) police officers vs citizens. The cohorts in these pairs are comparable in terms of time spent in police/college education and experience in police/non-

police work. To reduce the possibility of committing a type I error by running multiple t-tests, we applied the conservative Bonferroni method here and in the following section (Armstrong, 2014).

For this analysis, we computed a single receptivity to research measure. This was generated by accumulating the item scores where reversed items are turned positive. The t-tests revealed that only the last pair (police officers vs citizens) exhibited statistically significant differences with respect to our measure of receptivity to research ($p < .01$), with a large effect size (Cohen's $d = 1.36$). Table 5 shows that the mean of citizens (5.49) is higher than police officers (5.13).

Insert Table 5 here

To indicate where EBP scores of a cohort fall, relative to those of other cohorts, Figure 1 shows the results of Table 5 in a slightly different way. Here we transformed cohort means into Z-scores: standard scores that show how many standard deviations a data point is from the grand mean. In this case, a Z-score of 0 represents scores equal to the mean, whereas a Z-score of ± 1 represent scores 1 standard deviation greater/lesser than the mean. Consistent with the results of the pair comparisons, Figure 1 illustrates that the third pair (citizens vs police officers) exhibit the largest discrepancy.

Insert Figure 1 here

On the influence of police education

We now turn to our third research question and examine the influence of policing education on self-reported receptivity to research evidence. Before looking into this question, we examine which variables, other than time spent in police education, are associated with differences in self-reported receptivity to research. To do this, we performed a univariate analysis of variance (ANOVA) to explore differences between cohorts and the demographic variables of gender, having relatives who work in the police, time in the police service, and non-police work experience, all of which are variables found to affect police socialisation (Oberfield, 2012; Phillips et al., 2010).

The model with the best level of fit is presented in Table 6. It shows that only one variable was found to have a statistically significant association with receptivity to research: cohort. None of the other interactions between the independent variables exhibited meaningful differences (Olejnik & Algina, 2003). This cohort effect suggests that different cohorts included in our sample scored differently on our measure of receptivity to research. The lack of significant difference in demographics rules out the potential effects of gender, having police relatives and police/work experience on participants.

Insert Table 6 here

To further explore the influence of police/college education, we carried out within-group comparisons. Among the three cohorts within the non-police group, there were no statistically significant differences. By contrast, within the police group, new recruits scored significantly higher than both the fourth-year cadets ($p < .001$, Cohen's $d = 0.41$, medium) and the serving police officers ($p < .001$, Cohen's $d = 1.28$, large) (Olejnik & Algina, 2000). This finding suggests that more time spent in police education and/or in doing police work is associated with lower self-reported receptivity to research evidence in policing.

Discussion

In many countries, EBP is on the rise (Piza & Welsh, 2021). Inexperience of and a reluctance to use research evidence in policing is identified as a significant barrier to the implementation and spread of EBP, and by extension the realisation of EBP's proposed benefits. Presently, research and practice associated with EBP has largely concentrated on western industrialised countries. It is therefore unknown whether the obstacles and enablers of EBP identified in prior research are generalisable to alternative settings where EBP is less-established.

This study set out to investigate self-reported receptivity to research among police officers in Taiwan, using a scale informed by prior research (most notably Lum and Telep). The main findings of this study are (1) police officers in Taiwan are generally positive about the role of research evidence in policing, however (2) there is a noticeable difference in receptivity to research between the police and the public, with non-police participants expressing a greater openness to the use of research in policing than police; and (3) there was a negative correlation between time spent in police education and self-reported receptivity to research. Put differently, the longer

respondents had been in the police service, the less value they saw in research evidence as a guide to police policies and practices.

Police and public attitudes towards research evidence

The police cohorts included in this research generally reported a positive view of the role of research evidence in policing in Taiwan, albeit they were significantly less receptive to research evidence than our sampled members of the public. Moreover, the overall measure of police receptivity to research computed here is generally higher than that reported in comparable studies conducted in the West, albeit we acknowledged that our measure of receptivity is not perfectly comparable to that used elsewhere, an issue that is common in cross-cultural studies such as this (Bryman, 2015). That said, and as reported above, we did put measures in place to maximise comparability by deriving scale items from common themes from previous studies and through conducting a double translation exercise.

It is somewhat surprising that respondents in the sampled police group expressed such high levels of receptivity to research compared to similar samples from previous Western studies. It is surprising because, unlike those Western settings, EBP has hitherto been little adopted and advocated in Taiwan. Consequently, it was expected that Taiwanese police officers would show less support for research evidence in the service of policing, instead placing greater value on authority and experience. Moreover, prior research comparing Taiwanese policing to American policing suggests that Taiwanese police officers were often less accepting than their US counterparts of legal restrictions on how to carry out their role (Chu & Sun, 2007). Such findings were interpreted as indicating that Taiwanese police officers place great value in the importance

of discretion when determining the appropriateness of interventions and police tactics, from which we might infer that Taiwanese police officers might similarly be less willing for their actions to be subjected to or informed by research evidence. That this was not found to be the case is considered to be an important finding of this research. Moreover, if generalisable, this finding also suggests that the current conditions in Taiwanese policing may be conducive to the introduction of EBP. For example, it may be possible to capitalise on the relatively high levels of EBP receptivity among our respondents, especially the citizens, and use it as an opportunity for Taiwanese police to establish their professional status. The findings of this study suggest that the public prefers the police to make decisions grounded in reliable scientific evidence rather than traditional, less transparent ways. These external expectations may push or facilitate police leaders to set forth more evidence-based departmental policies and encourage non-governmental organisations to launch public awareness campaigns for the better incorporation of research evidence into policing decision-making.

On Taiwanese police education and self-reported receptivity to research

A further key finding in this study is that Taiwanese police education was found to be negatively associated with police officer receptivity to research. This association is most clearly seen in the significantly lower scores of cadets in EBP receptivity compared to new police recruits, and likewise that no difference was found both between new police recruits and first-year undergraduates and between first-year and third-year undergraduates. The results imply that upon enrolment to the police service, there are no meaningful differences between new recruits and first-year undergraduates with respect to openness to research evidence; however, cadets who experienced three years of police education report a significantly lower EBP receptivity than new recruits

whereas the control cohort, third-year undergraduates, maintain the same level of receptivity as first-year undergraduates. To the best of our knowledge, this is the first time that the influence of police education on receptivity to research has been demonstrated in this way.

The mechanism(s) underpinning the apparent negative effect of police education on receptivity to research is unclear. This finding may be attributed to CPU's educational context, particularly its disparities with NCCU (Cao et al., 2015; Lin, 2020). Such a training context is typically characterised by detailed hierarchies where police recruits experience depersonalisation. Within the hierarchies, police recruits' are regulated by strict discipline, group punishments and tight controls of their activities (Adlam, 2002; Cao et al., 2015; Chappell & Lanza-Kaduce, 2010). These measures often result in depersonalisation in which police recruits categorise and interact with each other according to their respective ranks or status (Harris, 1973). Once depersonalised, it is argued that recruits tend to manifest a greater intolerance of attitudes and behaviours that differ from one's own (Harris, 1973), as well as exhibit higher levels of aggressiveness (Paes-Machado & De Albuquerque, 2002), obedience to authority (Conti & Nolan III, 2005) and support of excessive use of force (Albuquerque & Paes-Machado, 2004). All of these characteristics are not conducive to open-mindedness and critical thinking, and with it receptivity to research evidence. Moreover, EBP receptivity is positively correlated with 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). In this regard, although CPU is a professional education that delivers professional modules, liberal arts and paramilitary training, the detailed hierarchies, however, leave little space for recruits to be challenging and reflective.

Further research is needed to fully understand how police education negatively affects police recruits' EPB receptivity. Future research may take methods such as interviewing with or observing police recruits regarding elements of police training that obscure their acceptance to EBP. To gain a fuller picture of EBP receptivity in the course of police occupation, future research may take the perspective of police socialisation that covers the process of police making-up from the pre-entry of police academy, through academy training, field training, official assignment to retirement or quitting.

In short, despite the overall positive attitudes of our respondents towards EBP, there is an explicit receptivity gap between police officers and citizens. Coupled with the negative effect of police training, it is reasonable to argue that the resistance to research evidence starts with police training and remains until police service. In other words, police recruits views of research evidence in the service of policing may be affected by a paramilitary training context to think in black-and-white terms, and then are not inspired to utilise research evidence in daily work when constrained by police culture in general and Confucianism in particular.

Limitations

This study has two main limitations. The first concern is the generalisability of and comparability between police officers and citizens. We could not ensure that our participants in these two cohorts represent the general population of the police and the public because they are enrolled at CPU depending on internal and civil exams, respectively. That is, sample error might be large in these two cohorts, and thus could not be generalised to Taiwanese police and the public (Bryman, 2015). Second, police officers sampled generally had served in the field for 7 years, whereas

citizens surveyed had 3 years of non-police work experience. The comparison between these cohorts is not perfect but probably the most comparable for which we can collect data.

Conclusion

Realising the proposed benefits of EBP requires that police officers are, amongst other things, willing and able to locate, interpret and make use of research evidence to inform police practices. Prior research identifies several challenges associated with this process, including a lack of police-relevant research and a tendency to value experience over evidence as a guide to police decisions. Presently, research on police officer receptivity to EBP is mainly limited to Western settings. It is therefore unclear the extent to which police officers in other parts of the world are open to the principles and practices of EBP. This study sought to address this gap in the context of Taiwan. Drawing on survey data from a sample of police and non-police participants, we found that police officers in Taiwan were generally receptive to research evidence, albeit less so than the surveyed members of the public. Moreover, our findings indicate that resistance to EBP increased with time spent in the Taiwanese police service, suggesting that the nature of police training and the experiences of being a police officer acted as a barrier to evidence-based ways of working. Failure to counter this effect will likely pose challenges for the implementation of EBP in Taiwan.

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Table 1. Review of EBP Receptivity Research

Author(s) and date	Study setting	Population	Participants	Sample size	Method	Reported purpose of research
Palmer, 2011	UK	Great Manchester Police	Inspectors and Chief Inspectors	153	Quant.	Personal approach to professional updates and tactical evaluation, knowledge of scientific methods and experience of experimentation, willingness to engage in scientific methods
Rojek, Alpert & Smith, 2012	US	Random stratified sample take from all state and local law enforcement agencies	Agency-based (executives)	849	Quant.	The utilisation of research by the police
Rojek, Smith & Alpert 2012	US	As above	Agency-based (executives)	849	Quant.	Police practitioner-researcher partnerships
Steinheider et al., 2012	US	Four criminal justice and policing related organisations in Oklahoma	Police officers & criminal justice researchers	411 researchers & 190 practitioners	Quant.	Philosophical orientations (pragmatic, intellectual, or humanistic) of police operations
Lum et al., 2012	US	Sacramento, California, Police Department	Police officers	523	Quant.	Knowledge of EBP, use of research resources, knowledge of research findings on effective practices, receptivity toward researchers and analysts, willingness to engage in research, digestible research
Telep & Lum, 2014	US	Sacramento, California; Richmond and Roanoke County, Virginia, Police Department	Police officers & civilian staff	523, 343 and 94	Quant.	The same as the research by Lum et al., 2012
Telep & Winegar, 2015	US	Oregon Association Chiefs of Police; Oregon State Sheriffs' Association	Police chiefs and sheriffs	45	Quant.	The same as the research by Lum et al., 2012

Telep, 2016	US	Sacramento, California; Richmond and Roanoke County, Virginia; Reno, Nevada, Police Department	Police officers	523, 276, 71 and 122	Quant.	The same as the research by Lum et al., 2012
Lumsden, 2016	UK	Police forces in Midlands, victim' support organisations, Magistrates' Courts, College of Policing	Police practitioners with research experiences	15	Qual.	Receptivity to research and EBP, context driving definitions of EBP, meanings of research, what type of research work
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)	49 for interview and 655 for online survey	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
Hunter et al., 2017	UK	Institutions invited are the same as the previous one.	the same as Hunter et al., 2015	40 for interview and 67 for online survey	Mixed	The same as the research by Hunter et al. 2015.
Hunter et al., 2019	UK	Institutions invited are the same as the previous one.	the same as Hunter et al., 2015	59 for interview and 589 for online survey	Mixed	The same as the research by Hunter et al. 2015.
Huey, et al., 2017	Canada	Seven Canadian city police agencies	Sworn officers, civilian employees	276 officers, 64 citizens	Qual.	The extent to which police professionals believe their agencies adapt EBP
Grieco, 2016	US	Two police academies	New recruits	259 and 156	Quant.	How the attitudes of police recruits towards EBP are shaped in police academies

Fleming, 2018	UK	Police training institution	Police officers	97	Qual.	Officers' beliefs about, and understanding of evidence-based practice generally and how they thought it might be implemented
Jonathan-Zamir, et al., 2019	Israel	Israel National Police	Superintendents or above	227	Quant.	Based on the receptivity questionnaire by Lum et al., 2012.
Kalyal, 2018	Canada	Police organisations with a membership of Canadian Society for Evidence-based Policing	Police officers, civilian executives	38	Qual.	The reasons behind resistance towards EBP in Canada
Kalyal, 2019	Canada	The same of the preceding	The same of the preceding	38	Qual.	The motivating factors behind the agency's adoption of EBP
Coli et al., 2018	Australia	not specified	Police officers	47	Mixed	Revised from EBP questionnaire in the medical field (Weng et al., 2013)
Blaskovits et al., 2018	Canada	Seven Canadian city police agencies	Police officers and civilian staff	589	Quant.	The same as the research by Lum et al., 2012
Cherney et al., 2018	Australia	Queensland Police Service	Police officers	117	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.
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	428	Quant.	Definition of EBP

Table 2. Sample size and response rate of each cohort

Groups	Cohorts	Population	Sample size	Valid questionnaires received	Eligible surveys
Police	New recruits	287	285	283	99.3%
	Cadets	296	255	245	96.08%
	Police officers	100	98	98	100%
Non-police	First-year undergraduates	46	43	42	97.67%
	Third-year undergraduates	48	45	43	95.56%
	Citizens	46	45	45	100%
Total		823	771	756	98.05%

Table 3. Demographic information of Taiwanese police and non-police sample (n = 756)

Group	Police			Non-police			Total
	New recruits (N=283)	Cadets (N=245)	Police officers (N=98)	First-year undergraduates (N=42)	Third-year undergraduates (N=43)	Citizens (N=45)	
Gender (male)	78%	76%	93%	21%	19%	44%	73%
Age (below 21) ^a	96%	1%	1%	98%	40%	0%	46%
Police relatives (yes)	36%	26%	39%	17%	7%	38%	32%
Police service (yes)	0%	0%	93% ^b	0%	0%	0%	13%
Work experience (yes)	14%	14%	21%	19%	30%	82%	21%

^a below: 18-21; above: 22-28

^b a few officers who performed excellently at the TPC were allowed to continue to CPU directly without serving in the field.

Table 4. Taiwanese police and non-police receptivity to research in policing

Item 1	<i>In police work, it is useful to consult the research evidence when making decisions.</i>		
	Disagree	Neutral	Agree
Non-police	3.8	7.7	88.5
Police	5	8	87
Item 3	<i>Police tactics should be routinely evaluated to determine whether they are effective.</i>		
Non-police	2.3	4.6	93
Police	3.5	5.4	91.1
Item 7	<i>Police work is a craft which requires repeated practice and experience passed on from seniors; science has little effect. *</i>		
Non-police	91.6	4.6	3.9
Police	84.9	7.7	7.5
Item 10	<i>The judgement of police officers is sufficient to determine whether a police tactic has been effective. *</i>		
Non-police	73.9	13.8	12.3
Police	75.1	12	12.9
Item 17	<i>Because of the complexity of real world policing, it would be advantageous for the police and researchers to work together.</i>		
Non-police	0	1.5	98.5
Police	2.5	6.5	91.1
Item 20	<i>Partnerships between practitioners and researchers would help the police to work more professionally.</i>		
Non-police	1.5	5.4	93.1
Police	3.1	5.4	91.6

* Reversed items.

Table 5. Means and SD of EBP receptivity scale

Groups	Non-Police			Police			Total
Cohorts	First-year undergraduates	Third-year undergraduates	Citizens	New recruits	Cadets	Police officers	
Mean ^a	5.2	5.23	5.49	5.43	5.23	5.13	5.31
SD	0.44	0.52	0.46	0.54	0.61	0.53	0.56

^a Mean is the average of item scores with reverse items turned positive.

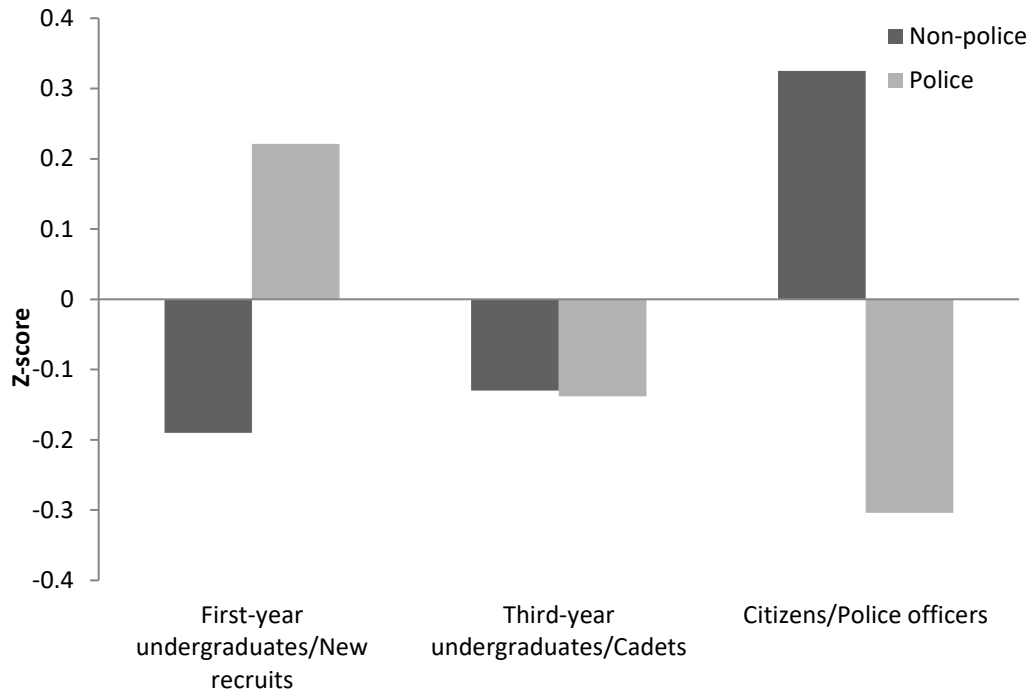


Figure 1. Z-Score of receptivity to research evidence among three pairs selected for comparisons

Table 6. Determinants of receptivity to research evidence in Taiwan

Tests of Between-Subjects Effects				
Independent variables	df	F	Partial Eta Squared	Observed Power
Cohort	(5,726)	6.89***	0.046	0.99
Gender	(1,726)	1.01	0.001	0.17
Police relatives	(1,726)	0.24	0.000	0.08
Police experience	(1,726)	3.7	0.005	0.48
Work experience	(1,726)	0.79	0.001	0.14

$R^2 = .060$ (Adjusted $R^2 = .048$); Levene's test, $F=0.871$, $p>.05$
*** $p<.001$