

**POLICE RECRUIT TRAINING PROGRAMMES:
A Systematic Map of Research Literature**

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Abstract

This paper reports the results of a systematic review of the existing research evidence on police recruit training. The systematic search produced a large number of studies, which are presented here in the form of a map of the landscape of police recruit training literature. Our search strategy included published and grey literature in databases and libraries, using electronic and hand searching. Search terms included variations of 'police recruit training'. Initial searches produced, nearly 20,000 studies, which were screened, shortlisted, coded and ultimately 109 studies met our inclusion criteria. Six broad themes and subthemes emerged from a thematic analyses of the 109 studies. The two most prolific themes focused on 'examining academic and/or field training' and 'examining part of a programme', each containing 36 studies. Most of the studies were based in the USA, (N=67). Grey literature such as dissertations, theses, and reports made up nearly half of all included studies (N=51) and published journal articles making up the bulk of the remaining studies (N=50). Quality assessment of the studies revealed a wide variation in the nature and quality of studies: 56 studies (50%) used a quantitative design, 36 studies (33%) adopted mixed methods, and 19 studies (17%) employed a qualitative approach. The 109 studies were double-blind quality appraised using recognised quality appraisal tools. Overall the strength of the evidence was fragile; only 13 studies (12%) were of a 'strong' quality, 55 studies (50%) were 'weak', and the rest (41, i.e. 38%) were of 'moderate' quality. The report concludes with recommendations for guiding future research in police recruit training.

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1. Introduction

Recommendations for improvements in police education and training date back over fifty years, when the President's Commission on Law Enforcement and Administration of Justice (1967: 109-110) in the United States of America (USA) recommended that, "the ultimate aim of all police departments should be that all personnel with general enforcement powers have baccalaureate degrees". Since then, there has been some evidence to support the contention that officers with college degrees perform better in many areas (Jones, 2016; Paoline *et al.*, 2015; Roberg and Bonn, 2004) including use of force (Paoline and Terrill, 2007; Rydberg and Terrill, 2010). However, until as recently as 2016, with the introduction of the Police Education Qualifications Framework (PEQF) in England and Wales (College of Policing, 2016), it has still not been a requirement in any country for officers to hold Bachelor degrees. Although part of the reason for this might be because the evidence on the impact of a Bachelor degree on police officer effectiveness, attitudes, and performance is unclear (Wimhurst and Ransley, 2007; Shernock, 1992).

Nevertheless, professionalisation of the police is a recurring theme throughout global police training literature (Beckman, 1976; Cordner and Shain, 2011; Lauritz *et al.*, 2012; Interpol, 2012; Hilal *et al.*, 2013). The term *professionalisation* means transitioning to becoming a profession, with emphasis on the importance of academic qualifications to undertake the police role and research to underpin policing strategies, along with a host of other requirements of a profession (Paterson, 2011; Green and Gates, 2014; Brown *et al.*, 2018). The need, therefore, to rethink the educational requirements for entry level police officers is becoming a priority for modern states invested in providing a professional law enforcement service to society.

It is noteworthy that a uniform training programme for police recruit training does not exist across the USA, or indeed throughout the UK. There is, however, a national training curriculum known as Initial Police Learning and Development Programme (IPLDP) for England and Wales (College of Policing, 2018), requiring forces to train new recruits to specific standards, but the structure, length, and method of training differs across forces. Factors affecting variations in recruit training across police organisations could be attributed partly to the difference in structure and size of the 43 forces in England and Wales or the thousands of forces across the USA, and partly to the organisational attitude towards training and the availability of resources and funding thereof (Telep, 2017). Further, there is a lack of adequate and accessible research on police training, as a recent evaluation of the available 'evidence base' in policing, including that on training and education, reveals that it is patchy and prone to methodological weaknesses (Telep, 2016). Under the circumstances, forces in England and Wales have opted to train officers as they see fit (Belur *et al.*, forthcoming) with the initial IPLDP classroom curriculum being delivered from between 11 to 20 weeks in various forces. This raises the question of whether variations in

training produce significant variations in the end product, i.e. the trained officer, across forces.

Variation in training is not limited to the structure and content but also extends to the underpinning theories and methodologies employed by different organisations. Police recruit training has traditionally employed 'behaviourist instructional methodologies', based on the premise that learning occurs primarily through the reinforcement of desired responses (Birzer and Tannehill, 2001; Birzer, 2003). Physical activities such as firearms training, mechanics of arrest and driving are taught and tested through the behaviourist approach, as changes in recruit behaviour are highly specific and observable (Chappell, 2008). This allows trainers to conveniently assess progress in performance towards required standards (Birzer and Tannehill, 2001). Focusing training on those activities aims to ensure that, in an emergency, officers will be able to execute those physical tasks accurately and efficiently. However, acknowledgement of the increasing complexity of modern policing leads to the inevitable conclusion that in order for officers to respond to difficult and fast changing challenges in more flexible ways and serve the needs of a diverse society, greater emphasis on the development of critical thinking and problem-solving skills, as well as, softer skills such as better communication and collaboration is required.

It is important to acknowledge the distinction between 'training' and 'education'. Training focuses on imparting hard skills, such as use of firearms, driving and first aid; whereas education focuses on development of soft skills with emphasis on critical thinking and problem-solving skills. Substantial differences have been observed between the proportion of time spent on training officers, focusing on hard skills and their operational practice, and time devoted to developing softer skills. For example, some studies have found that recruits spent 90 per cent of their training time on hard skills despite those kinds of skills only being called upon 10 per cent of the time (Chappell, 2008 citing Germann, 1969 and Mayhall *et al.*, 1995). This may be due to a perception by police trainers and officers that emergencies requiring the use of hard skills, such as the use of firearms, often require the performance of those tasks to be perfect as the stress levels and risks are higher compared to a situation involving using soft skills when dealing with a civilian who needs assistance. Therefore, areas such as communication, negotiation, multi-agency working and problem solving, have reportedly been neglected within traditional training programmes (Lauritz *et al.*, 2012).

There is, however, a recognition that the current training curricula and programmes are not adequate to support the requirements of recruit police officers as the context of their work is changing in modern societies. Growing threats of terrorism, organised crime, cybercrime and the requirements of diverse communities in an increasingly globalised world demand greater problem-solving skills from officers. This climate is further characterised by decreasing resources and cost-cutting due to the economic downturn, and the rising tide of the evidence based movement (particularly in England and Wales). Combined, this means that any reforms in training ought to be grounded in the evidence of 'what works' to equip recruit officers to face the challenges of modern policing. However, attempts to ground reforms in such an evidence base need

to acknowledge the possibility that “research on police education has yet to produce the clear, unequivocal results that many US¹ police leaders desire in order to change policy” (Gardiner, 2015: 649).

Following the *Review of Police Leadership and Training* which recommended various changes to police training (Neyroud, 2011), the UK College of Policing (CoP) is undertaking a programme of work to design the PEQF. The PEQF is “intended to support the development of policing as a profession through the provision of a coherent national approach to recognising and raising educational standards in policing” (College of Policing, 2016: n.p.), and to enable officers to obtain publicly recognised qualifications at the relevant education level.

The CoP has assessed that police constables in England and Wales are making decisions and problem solving as part of their routine work to the equivalent of a (graduate) Level 6 in the higher education qualifications framework. Following this, as part of a gradual reshaping of police recruitment, three entry routes into policing are currently proposed for new recruits. These include graduates with a Bachelor degree in policing, a degree holder’s entry programme route for all other graduates, and a higher apprenticeship route that earns the recruit a Bachelor’s degree on completion of the apprenticeship.

The CoP recognises that any reform or change in training would be best served if grounded in the evidence of ‘what works’ in training to equip recruit officers to becoming more professional. This systematic map collates the evidence base and is the first attempt to bring together existing evidence on police recruit training internationally. The review aims to assist the CoP and police forces in their endeavour to reform police education and training in England and Wales and elsewhere. The purpose of the review and systematic method are, thus, in line with the evidence based movement in policing that is currently guiding the CoP’s approach.

2. Methodology

This section describes the methods used to produce the systematic map and systematic review of the available evidence. It begins with the research question, and is followed by an overview of the search strategy, data extraction and management processes, quality appraisal, systematic mapping, and the data synthesis process.

This systematic review aims to answer the question: ‘What can we learn from the evidence on police recruit training that can inform the development of a graduate level training programme in the UK?’ In doing so, we hope to elicit best practice from what is currently documented about recruit police training and education. A more focused

¹ Although this comment is made in the context of the USA, it might well hold true of other countries as well.

systematic review will follow based on some of the more important themes emerging from the findings of this systematic mapping exercise.

Our search strategy involved keyword searches of 11 relevant electronic databases², including grey literature and dissertation databases, five hand searches³, and searches of publications by relevant government, research, and professional agencies conducted by an information specialist. Grey literature⁴ was considered potentially critical to this review, therefore the National Police Library and Rutgers University Criminal Justice Gray Literature Database were hand searched. Searching took place in May and June 2017.

The search terms centre on three concepts: the first relating to policing, the second, specifically about 'training', and the third relating to the stage at which training is delivered i.e. initial recruit training. As discussed below, the first (related to 'police') and second (related to 'training') groups of terms were used as keywords in the searches, with the third (referring to initial or recruit) group used to filter at the screening phase. See Appendix A for exact database search terms.

2.1 Inclusion criteria

We applied the following inclusion criteria when screening records for eligibility in this review:

1. The study should relate to an entry level training programme for new police recruits.
 - a. Police here refer to 'sworn' officers or public police as an executive arm of the government providing a service at the local, county, state or federal level.
 - b. "Entry level" here implies essential to be certified as capable of being deployed in public facing roles or operating independently.
 - c. Training is defined as "a planned and systematic effort to modify or develop knowledge/skill/attitude through learning experience"⁵

² The following databases were searched using a list of pre-determined search terms: Criminal Justice Abstracts, PsycINFO, Scopus, ProQuest Criminal Justice Database, Global Policing Database, Sociological Abstracts, Education Database, ERIC (Education Resources Information Centre), ProQuest Theses and Dissertations, Social Policy and Practice, CINCH

³ WorldCat, Criminal Justice Abstracts, National Criminal Justice Reference Service, Google, and Rutgers University Criminal Justice Gray Literature Database were hand searched by an information specialist, with some overlapping with electronic keyword searches.

⁴ Grey literature refers to studies with limited distribution which are often not included in electronic databases (Conn *et al.*, 2003). These include unpublished reports, dissertations, conference abstracts, policy documents, and technical reports. By searching sources of grey literature, the risk of failing to locate much of the pertinent material relating to a topic was reduced (Petticrew and Roberts, 2006).

⁵ Inspired by the European Police College (CEPOL Glossary, 2005) definitions.

2. The study should report the findings of an empirical research project on police recruit training. The data reported could be quantitative or qualitative in nature.
3. The study should cover substantive content on police training. By this we mean it should report on, at a minimum, one of the following:
 - a. Curriculum
 - b. Structure
 - c. Length/duration
 - d. Pedagogy
 - e. Mode/delivery method
 - f. Provider
 - g. Assessments of trainees
 - h. Evaluation of training (including outcomes)
 - i. Process for modernising training course
 - j. Trainee experience
4. The study must be available in English. Available resources limited our ability to search and translate non-English relevant studies.

Since no restrictions were placed on study methodology, we considered all research designs so long as they met points 1-4 above.

2.2 Screening process

The citation results of the database searches were imported into EndNote and duplicate records were removed. The master dataset was then transferred into EPPI-Reviewer 4 software⁶ and a second phase of duplication removal was undertaken to produce a clean dataset of records, maximising the efficiency of the screening process. After the search results were uploaded, studies were screened on title and abstract based on our inclusion criteria. Four outcomes were possible at this point:

1. Studies were excluded from the review for not meeting our inclusion criteria;
2. Studies were retained for definitely meeting the inclusion criteria;
3. Studies were retained for possibly meeting the inclusion criteria and require reading of the full text;
4. Studies were retained for follow-up as they sign-post another potentially relevant study (such as a book or article review).

Numbers concerning points 1 to 3 above are provided in Figure 1 within the Systematic Map section. Studies which were retained for follow-up (point 4) included 73

⁶ A web-based software program developed by the Social Science Research Unit at the Institute of Education, University of London, to manage and analyse data generated from systematic reviews (<http://eppi.ioe.ac.uk/cms/Default.aspx?alias=eppi.ioe.ac.uk/cms/er4>)

documents. Any disagreements regarding eligibility were resolved by discussion between the research team. One example of a study excluded during screening on title and abstract was Wang and Zhang (2005). The study, entitled “A Qualitative Study of Chinese Police Officers' In-service Training”, did not meet the inclusion criteria as the study was not on entry-level training.

Four criteria were used to exclude studies at the ‘screening on full text’ stage. Due to the high volume of studies published from the year 2000 onwards, we used this as the first criterion to reduce the number of studies included, while also attempting to ensure some temporal relevance. The next code, “Exclude – Other (with detailed reason)” contained a variety of reasons for excluding studies, such as no implications for training, or did not contain any meaningful information about either the structure, theory or implementation of training or its impact. For example, Scott Addison’s (2000) study focused on professionalisation and comparing quantitative performance data of graduates and non-graduates in initial training, but it did not contain substantive information⁷ on the training received or how it might have impacted measured outcomes, which was the reason it was excluded. The final exclusion code at this stage was for studies we were unable to source, even after contacting information specialists at Rutgers University, the Global Policing Database, the National Police Library, and authors to help source studies.

2.3 Inter-rater reliability, data extraction and sense-checking

Full studies were coded by three researchers and inter-rater reliability (IRR) tests were conducted to resolve discrepancies and ensure consistency and quality of coding. This served to check whether coders shared a common understanding of the inclusion criteria. The initial title and abstract screening process was based on a bespoke codebook and three IRR tests were conducted at the start, midway through screening, and at the end of the screening process, to ensure coding behaviour was consistent across the team. The team met on a weekly basis to discuss progress and refine their understanding of the codebook. A decision log recorded the key decisions made and the codebook was refined and amended accordingly. This process supported consistency of application of the codebook throughout the screening process. Our goal was to learn from the evidence on police recruit training that could inform the content and development of a graduate conversion course, therefore, studies which did not provide substantive meaningful content were excluded.

The inter-rater reliability exercises (which consisted of a randomly selected sample of 100 studies each time) provided an opportunity to discuss the reasons why researchers made certain decisions. The agreement rates for the three exercises (52%, 68%, 87%) indicated that despite clear cut inclusion criteria, screening involved

⁷ We acknowledge that the term ‘substantive information’ is subjective, but there was shared understanding within the coding team as to what constituted ‘substantive’ in this context.

a great deal of subjectivity, especially since abstracts were often ambiguous or provided inadequate information to make an informed decision. Additionally, the three members of the team had different levels of expertise in the field and in conducting systematic reviews which can affect decision making (Belur *et al.*, forthcoming). However, the final agreement figure of 87% was considered adequate as coders tended to be more inclusive than stringent in the application of the inclusion criteria and it was decided that non-relevant studies would be identified and excluded in the next round of screening or coding.

The codes for data extraction were constructed to capture key information necessary to conduct a realist evaluation. Realist evaluation is an evaluation paradigm which facilitates a deep understanding of the *setting* within which change occurs, precisely *how* change occurs, and the *outcomes* produced (Pawson and Tilley, 1997). Using realist evaluation terminology, codes were used to capture information relating to three areas: context (the conditions necessary to trigger mechanisms to produce outcomes), mechanism (what it is about a policy, programme, or intervention that brings about its effect), and outcome (the effects produced by the mechanism within the context). This detailed coding provided the basis for making sense of the available evidence in terms of emerging themes and sub-themes and was used extensively for a more focused systematic review of some of the themes identified (see Belur *et al.*, forthcoming).

Sense checking exercises were conducted at the beginning and the end of the coding process. The team met twice a week to discuss specific studies and difficult coding decisions as well as to ensure whether codes were being applied consistently. Sense checking also involved double blind coding six studies which revealed a fair degree of consistency across the coders' behaviour.

2.4 Quality appraisal of studies

Quality appraisal of the evidence that forms the basis of recommendations is considered critical if findings from systematic reviews are to inform practice and policy (Munn *et al.*, 2014). This study utilised three quality appraisal tools, one for each of the research design types: qualitative, mixed methods, and quantitative.

The Mixed Methods Appraisal Tool (MMAT) (Pluye *et al.*, 2011) was chosen as the tool to appraise mixed methods studies. This tool was designed to appraise qualitative, quantitative, and mixed methods studies, however, we decided to use this tool for mixed methods studies only. We found using design-specific tools more accurate for appraising since, for example, the MMAT tool uses ten questions to appraise a mixed methods study but uses only four questions to appraise a qualitative or quantitative study.

The CASP (2017) Qualitative Checklist was chosen as the tool to appraise qualitative studies. We decided to implement scoring in order to group studies according to their

strength. A different scoring system to that recommended by authors was implemented for use with both the CASP and MMAT tools⁸.

	MMAT	CASP
Weak	0-11	0-9
Moderate	12-21	10-15
Strong	22+	16+

Table 1: Score boundaries for quality rating

The Effective Public Health Practice Project (2017) (EPHPP) Quality Assessment Tool was chosen to appraise quantitative studies. The research designs used in public health were broadly similar to the studies of interest to this review, meaning that it was readily transferable.

To facilitate the appraisal process using the three tools above, a bespoke instrument was created, using functionality in Microsoft Excel, to standardise the data input and logic rules to automate the ultimate quality scores⁹. The double-blind quality appraisal process produced quality ratings for each of the 109 studies, which are provided in Appendix C.

3. Findings

A total of 413 studies made it through to the stage of full-text screening for eligibility. Figure 1 shows the flow diagram which provides a breakdown of the studies found through our search strategy, screened on title and extract, screened on full text for eligibility, and subsequently coded for data extraction. Duplicate information was removed throughout the process¹⁰.

⁸ 'Yes' answers received two points and 'no' and 'can't tell' answers received zero points for both tools. For the CASP tool, it was decided that from question five onwards, scoring would be changed slightly to allow the very robust studies to rate higher than studies which technically met the minimum criteria to answer each question. The 'yes' answer was changed in favour of 'yes, substantive' (giving two points) and 'yes, mentions' (giving one point).

⁹ This instrument is available from the authors on request.

¹⁰ Many conference papers, for example, were found as a result of our search strategy which went on to be developed into articles which were published in journals. The decision of which document to mark as a duplicate depended on the document reporting the most detailed information.

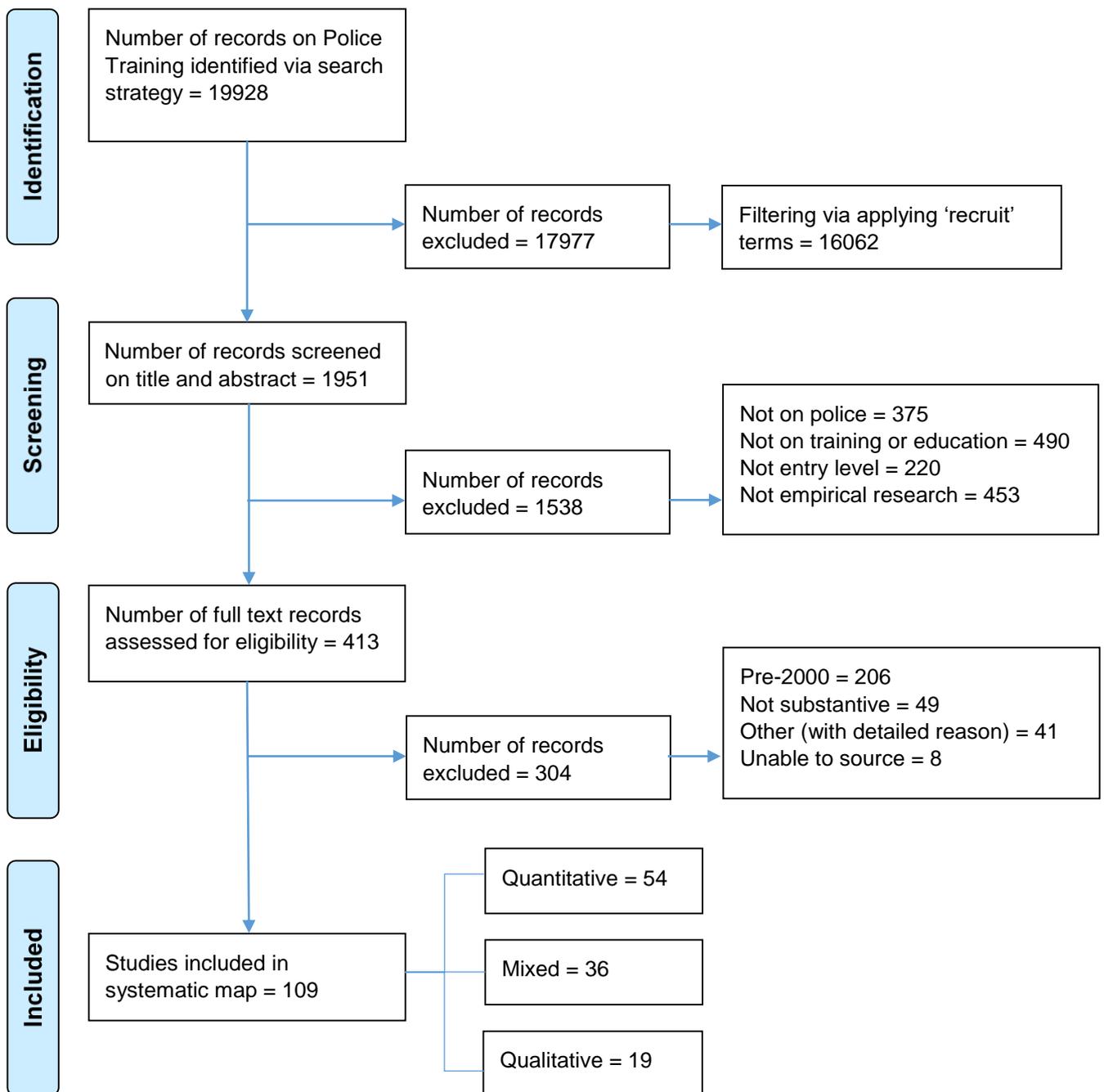


Figure 1: Flow diagram of study selection

All of the above processes led to the retention of a final sample of 109 studies on police recruit training included in this review. A systematic map of the relevant studies is presented below.

4. Systematic Map

This systematic map provides an overview of literature on police recruit training. Producing a 'map' documenting the systematic identification of empirical evidence is a way to help identify research trends and the nature of available evidence (Schucan Bird *et al.*, 2016).

4.1 Study focus themes

To make sense of the considerable spread of evidence on police training with studies focused on the whole or particular aspects of training - from measuring officer performance to officer satisfaction; from measuring attitude change to culture change - we decided to group the studies into six themes. These themes were generated from the aims of the study specified by the study authors, and the broad topics which reoccurred throughout the literature. Figure 2 shows the final 109 studies that met the inclusion criteria, divided into six themes and several sub-themes.

Due to the volume of studies and breadth of information within each of the six broad themes, sub-themes were identified to group studies together sensibly on specific topics. For example, while 'how recruits learn' emerged as an important theme, they focused on two separate types of learning, via academic learning and education, and socialisation with police officers and other recruits. Further, multiple themes were often found within one study. Therefore, the focus of the measurement(s) within the study, usually related specifically to one theme, was used as the primary theme to categorise the study. This helped ensure studies with similar or comparable outcomes were grouped together. Note the 'recruit attitudes' theme did not contain any sub-themes, as these studies were closely related.

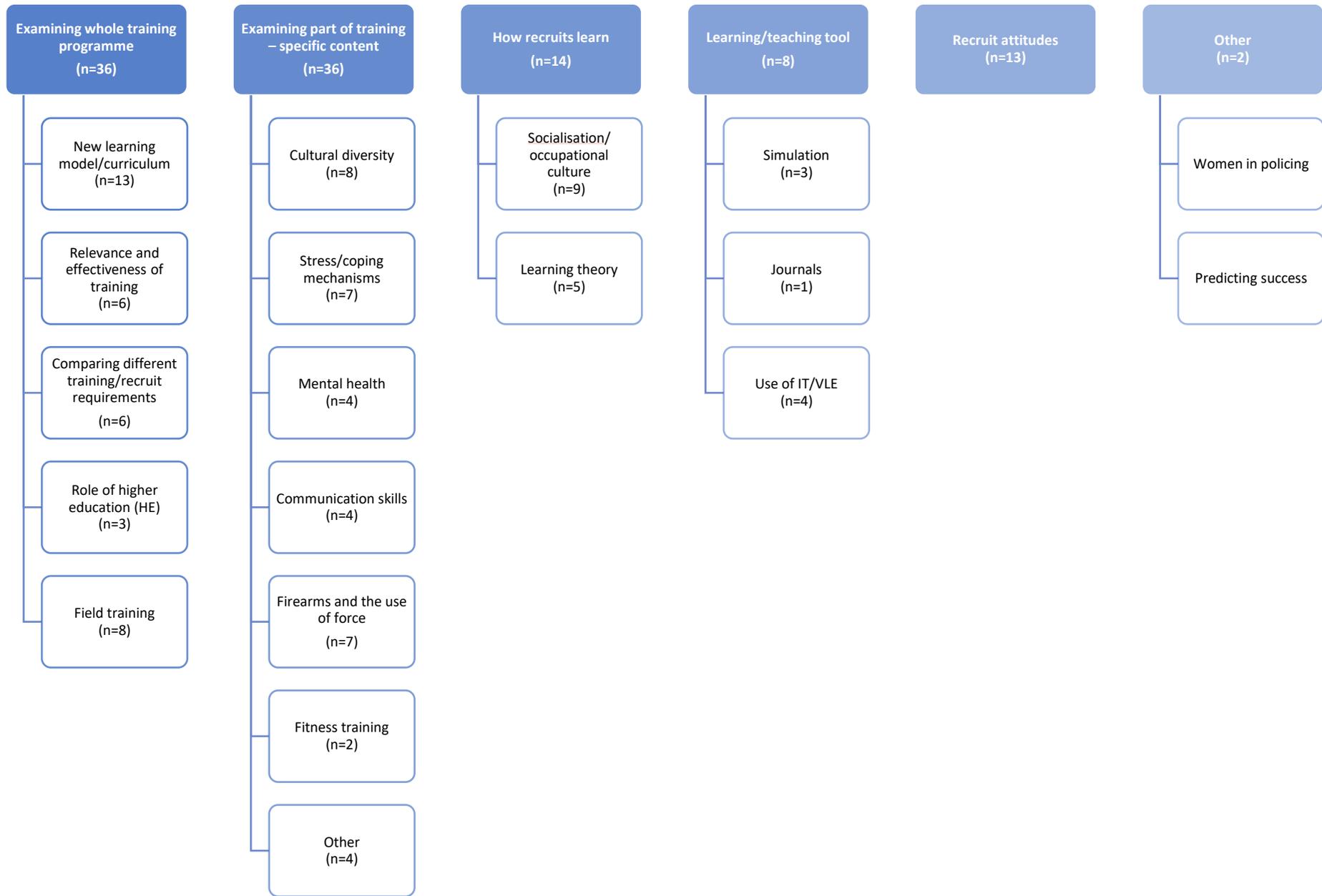


Figure 2: Study Themes

The distribution of study focus theme is illustrated in Figure 3. From this, it is clear that the dominant themes were examining whole s and/or their field training, and examining part of a training programme. We can also see that very few (n=2) studies were not appropriate to fit within any of the five broad themes and thus forced a creation of 'other' as a broad category.

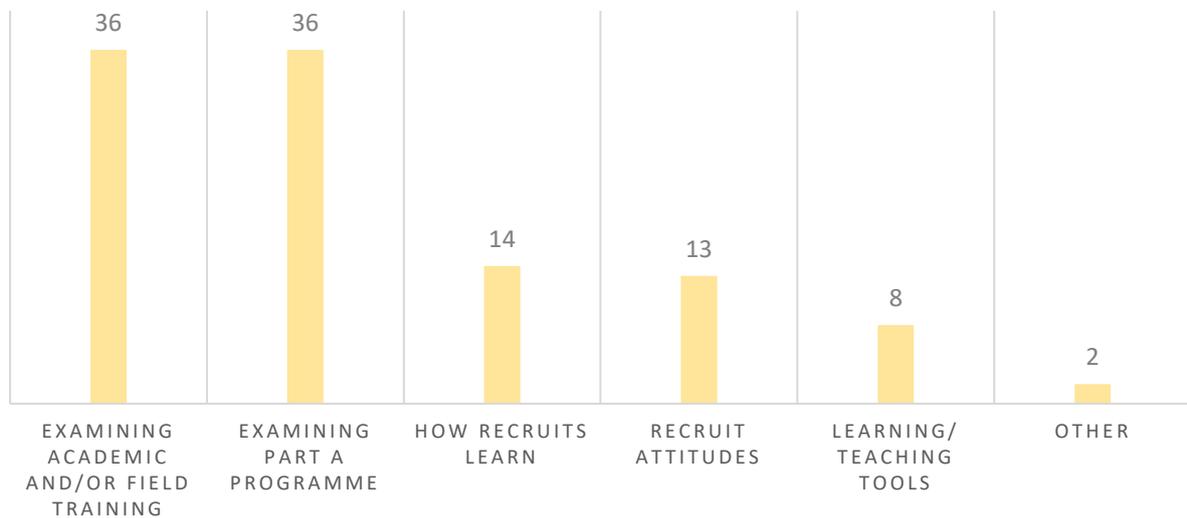


Figure 3: Study themes by volume

4.2 Data collection locations

As noted in the inclusion criteria, we restricted our studies to those written in English but not by study location. Wooden and Nixon (2014) carried out a study across Australia, Canada, and China, and some other studies also took place across multiple locations. Therefore, data was collected in 115 locations across all studies. See Appendix D for a geographic map of studies.

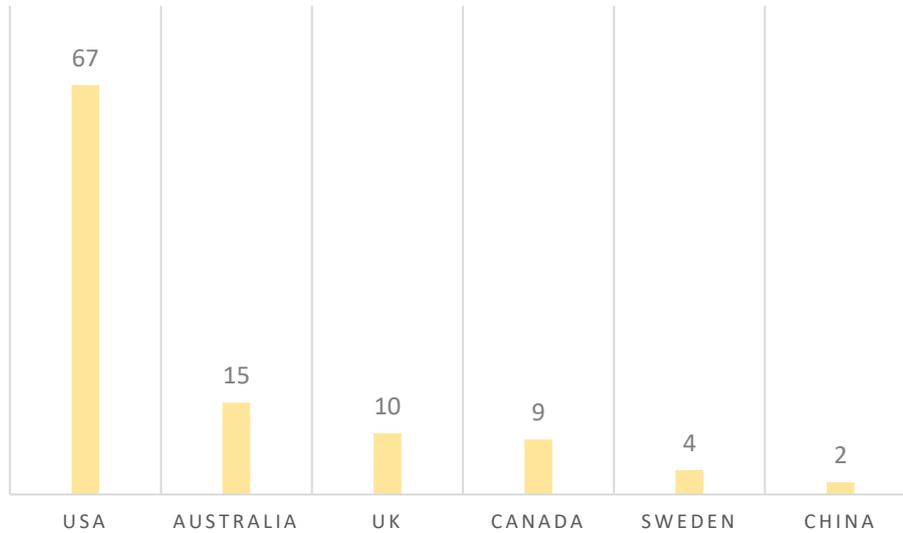


Figure 4: Volume of data collection location (where location >1)

Figure 4 displays countries that were represented in two or more studies. From this we see that the USA predominates, with other Anglo based countries also common. Data was collected in the following countries once each: Ireland, India, South Africa, Saint Lucia, Cyprus, The Netherlands, Belgium, "south and southeast Asia" (countries not specified).

4.3 Publication types

As shown in Figure 5, journal articles accounted for almost half of the studies (46%). However, grey literature such as dissertations, theses, and reports similarly made up a large proportion (47%) of the included studies. Eighteen documents (17%) were sourced through the Police National Library in hard copy, which highlights the importance of not solely depending on the convenience of online sources.

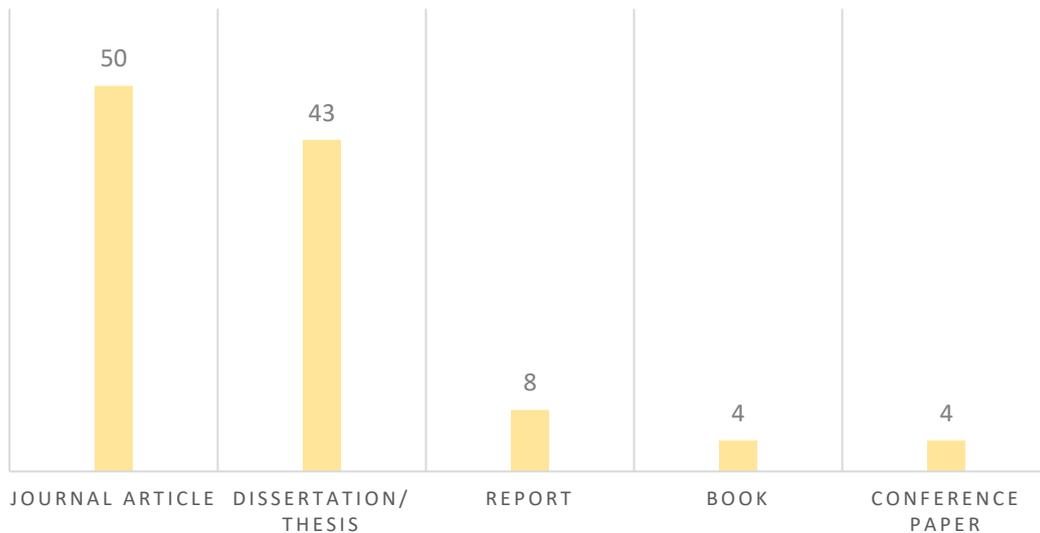


Figure 5: Studies by publication type (raw count)

4.4 Quality of studies

Of the 109 studies, 56 studies (50%) collected quantitative data, 36 studies (33%) employed a mixed method design, resulting in quantitative and qualitative data, and 19 studies (17%) produced qualitative data.

Each of the 109 included studies were double-blind quality appraised and studies were given quality ratings based on the three aforementioned quality appraisal tools. Figure 6 shows the breakdown of study method orientations and their quality ratings. Strikingly, we see in Figure 6 that the majority of quantitative studies were 'weak', significantly more so compared to mixed methods or qualitative studies. The gold standard for quantitative experimentation is using randomised control trials, and therefore studies which did not use that design found it difficult to achieve a 'strong' or even 'moderate' rating.

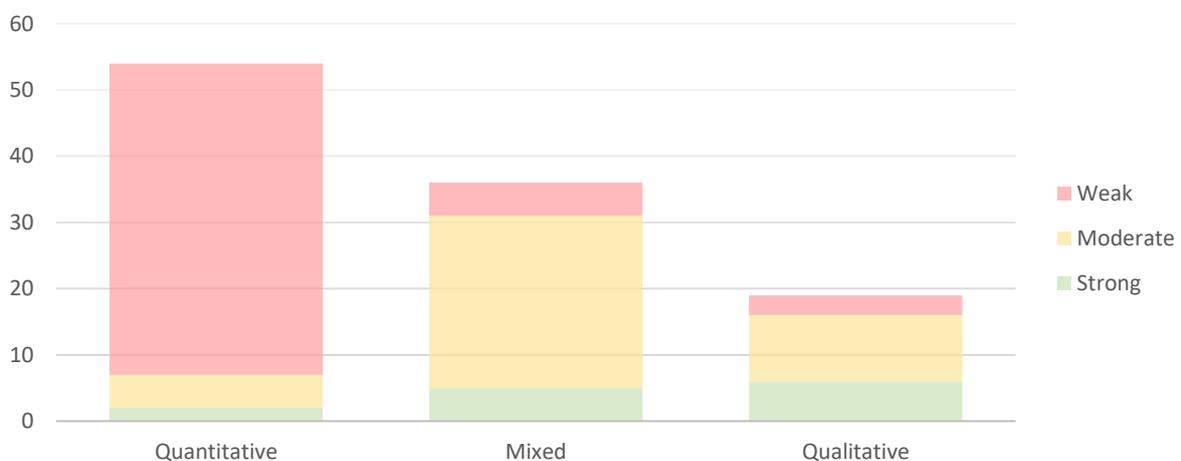


Figure 6: Study methods and QA strength

Further breaking down quantitative studies by design, Figure 7 indicates that nearly half of the quantitative studies (n=25) were without a counterfactual (i.e. a comparable control group), or had a single measurement point. The EPHPP appraisal tool rated studies without a comparable control group lowly; the majority of those studies received a weak rating. All random control trial studies (7) examined part of a training programme. Most quasi-experimental studies (3) also examined part of a training programme, while one examined a whole programme or field training aspect.

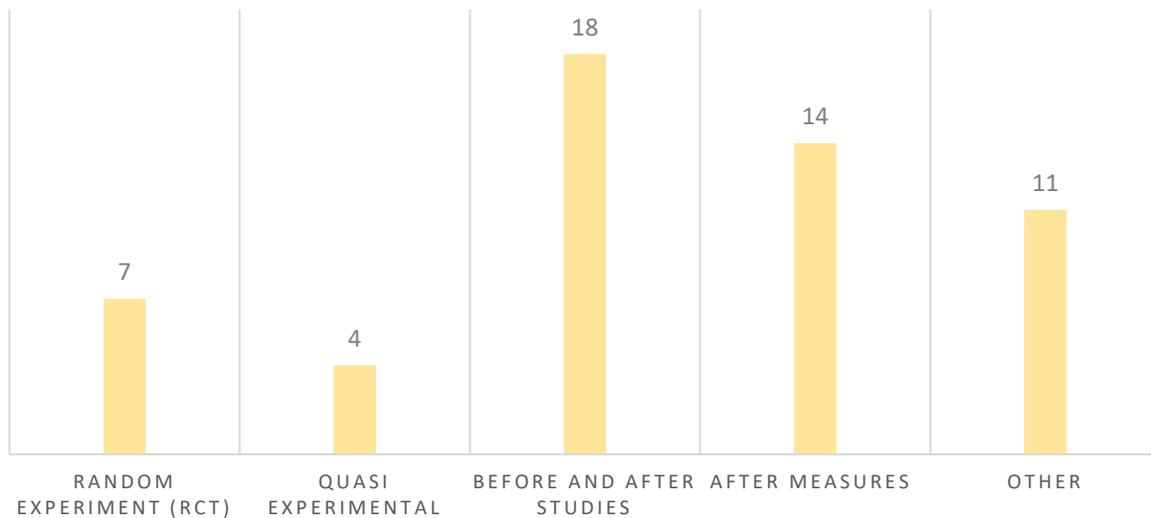


Figure 7: Quantitative studies by design (raw count)

5. Thematic Breakdown of the Evidence Base

This section provides findings of thematic analyses of the included 109 studies. Five broad themes, and one ‘other’ category, are defined below and an overview of studies within each sub-theme is provided.

5.1 Examining academic and/or field training (n=36)

The focus of the studies in this group was examining or evaluating either the academic component of the recruit training programme (e.g. the curriculum), the field training component (e.g. the tutor phase) or the entire training programme (both academic and field components). The specific areas contained within this theme were: a new learning model/curriculum (13 studies), field training (eight studies), comparing different training/recruit requirements (seven studies), relevance and effectiveness of existing training (six studies), and the role of higher education (two studies). See Figure 8 for the number of studies within this theme, by study design and quality rating.

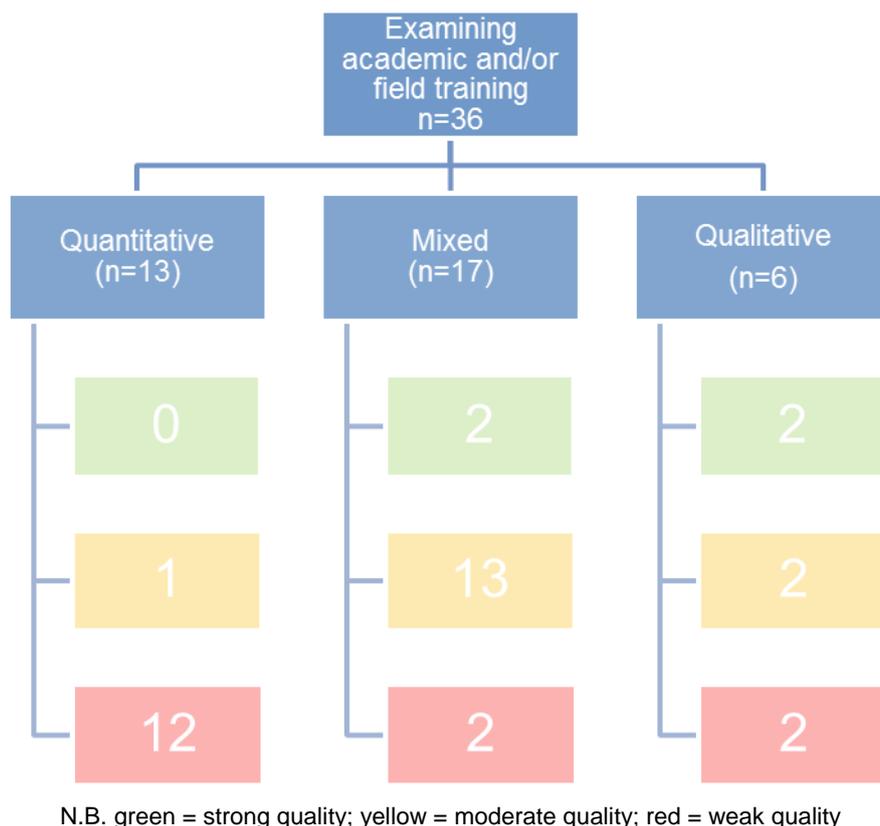


Figure 8: Examining academic and/or field training quality breakdown

5.1.1 New learning model/curriculum

Comparing an old (traditional, lecture-based) learning model or curriculum with a new model was the focus of five studies (Poradzisz, 2004; Vander Kooi, 2006; Chappell, 2008; Hess, 2014; Wong, 2014). Studies reported generally positive findings, that new models (community-focused and/or problem-based) were in some way effective in developing recruits compared with the traditional models (Poradzisz, 2004; Vander Kooi, 2006; Hess, 2014; Wong, 2014), and Chappell (2008) found significant predictors of success (white, more educated recruits, and those who held a special status). However, Chappell explicitly stated that results cannot be generalised to other training centres.

Police trainers were highlighted across numerous studies as pivotal, and possibly problematic, when teaching using student-centred approaches (Vander Kooi, 2006; King Stargel, 2010; Shipton, 2011; Lettic, 2016). King Stargel (2010) examined problem-based learning¹¹ (PBL) implemented in a police academy and found that both

¹¹ “Problem-based learning employs an experiential activity-based format designed to take advantage of an adult learner’s level of cognitive development ... Problem-based learning promotes collaboration, builds teamwork skills, and develops leadership abilities through cooperative work-group experiences” (Glenn *et al.*, 2003: 55 cited in King Stargel, 2010).

recruits and police trainers had mixed views on the learning methodology. King Stargel argued this was caused by a lack of understanding about how PBL works; the trainers and trainees should both understand the purpose of the methodology in order for it to at least have the chance to be effective. Lettic (2016) also examined PBL as a primary delivery method across three countries and found a mix of positive and neutral satisfaction with the methodology. Like King Stargel's study, Lettic (2016: 95) emphasised the importance of police trainers to fully understand and "buy in" to PBL. Vander Kooi (2006) found that students taught using a problem based learning method felt more satisfied with their training than those taught in a traditional programme, however, this difference was not statistically significant. Studies within this sub-theme indicate the importance of selecting police trainers who understand PBL, how it works, and how to effectively train recruits using a student-centred approach.

Shipton (2011) considered the teaching style of police trainers through surveying police and university teaching staff delivering a foundation degree in police practice. The impetus of the study was this particular police college implementing problem-based learning and taking an active role in developing staff to use learner-centred teaching approaches. Contradictions within the open and closed questions of the survey findings were highlighted when responses to closed questions indicated a preference towards learner-centred approaches, while responses to open-ended questions suggested trainers tend to be more teacher-centred. Shipton (2011: 13) explains that this contradiction might be caused by trainers attempting to choose the "right" answer which skews towards a preference for new methodologies. Alternatively, Shipton states that there may be an inherent contraction between the theory and their own practice of teaching. This study highlights the importance of training teachers and trainers to deliver the curriculum appropriately.

A unique study within this sub-theme used literature on police training, the author's personal experience as a police trainer, and feedback from experts in the field to develop a suggested curriculum model for basic and field police training (Bouras, 2002). However, the paper does not report whether the model was tested or put into practice.

5.1.2 Field training

Three studies indicated the lack of coherency between academy-based education (delivered mainly in the classroom) including practical training, and subsequent field training (Hundersmarck, 2004; Chappell, 2007; Hundersmarck, 2009). Chappell's study focused on the lack of integration between the academy and field training in the area of community policing. She suggests one reason for this might be the lack of community police training for the field training officers (FTOs) themselves. Further, the lack of coordination was indicated by the fact that although the academy training was intended to foster community policing, the field training evaluation forms did not assess community policing abilities, perhaps indicating that the field training did not give as much importance to community training after all. Further, academy training was often

dismissed by field training officers, and often pre-training policing experience was not acknowledged as having an impact in field training (Hundersmarck, 2004; Hundersmarck, 2009).

Three studies examined the direct impact of field training officers on recruits (Green, 2001; Novakowski, 2003; Getty *et al.*, 2016). While investigating the impact of probationer training units on probationers, Green (2001) found both tutor constables and probationers were overworked. Getty *et al.* (2016) found FTOs had a statistically significant effect on their trainees' allegations of misconduct. 'Bad apple' or poorly trained tutors may have a harmful influence on their trainees. Novakowski (2003) also examined FTO impact, and examined satisfaction levels with field training. The study identified that recruit satisfaction with field training was found to mostly depend on whether their FTO was engaging, empowering, and encouraging. Recruits rated FTO "street smarts" (Novakowski, 2003: 146) as highly important, and interpersonal aptitude as less important for their overall satisfaction, despite this being important for police work. This adds to the literature stressing the importance of appropriate selection and training procedures for all training and supervising staff, from the academy to the field (Vander Kooi, 2006; King Stargel, 2010; Shipton, 2011; Lettic, 2016).

5.1.3 Comparing different training/recruit requirements

Some studies compared effectiveness of different approaches to police recruitment and training based on whether training was provided prior to employment or post-employment (Heslop, 2013b; Campbell, 2014). Campbell (2014) compared the perceptions and attitudes of recruits who were employed by a police organisation prior to training with those of trainees who were training in order to find employment as a police officer. Heslop (2013b) similarly examined police training in relation to employment status. Given the development of the PEQF and upcoming changes regarding entry to policing, there is some evidence that a variety of entry routes, including where trainees pay for their own education, can be a viable option for prospective police officers (Heslop, 2013a; Heslop, 2013b).

Campbell (2014: 77) raised concerns over trainers not having appropriate training to deliver material adequately, "especially in problem-based learning"- a recurring theme through a lot of the literature on police training. Aside from concerns regarding instructors, Campbell recommended the implementation of student success courses (courses designed to help students adjust to learning in a college environment) to emphasise the importance of academic performance. This also relates to a finding by Chappell (2008) that officers with previous educational qualifications were more likely to be successful in the academy or during training. In addition, Vander Kooi (2006) found that recruits learning through a problem-based approach possessed thought processes more aligned with community policing strategies than students taught using traditional methods. Therefore, the literature indicates for more progressive or community policing based police forces and services, training focused on academic

achievement through problem-based learning might be the most appropriate training approach.

5.1.4 Relevance and effectiveness of existing training

Studies within this sub-theme evaluated programmes delivered by training academies (Traut *et al.*, 2000; Seggie, 2011; Weber, 2012; Stanislas, 2013; Foley, 2014). Since the studies evaluated unique training programmes, using different methods (all of which were after measures, or archival data), it was not possible to blend findings together in a meaningful way. However, some commonalities existed within the studies.

Two of the studies concluded that it was important recruits had adequate facilities to encourage competency and professional development to produce police officers of the standard required to deal with the reality of the policing environment (Seggie, 2011; Foley, 2014). This included ensuring that there are appropriate number of trainees at one time, the space for training is adequate, and the number of experienced trainers is appropriate to maximise the potential of academies. Most of the evaluations found room for improvement, with omissions identified in some specific areas, such as training in report writing, presenting case papers, attending court, giving evidence, and using information and intelligence (Seggie, 2011; Weber, 2012). Seggie (2011) and Stanislas (2013) both found that training did not effectively link knowledge with practice, which may be why recruits had greater appreciation for input that was related to the core practical and operational aspects of police work. The gap between knowledge and practice was understandable, given the majority of recruits going through training had little or no experience of police work, and therefore they were unable to accurately judge the relevance of all their training. Stanislas (2013) emphasised that it was the responsibility of the training provider to successfully help recruits understand how theory and knowledge taught in the academy relate to field practice.

The importance of trainers and officers being committed to the training programme was mentioned once again within this broad theme, with Weber (2012: 73) concluding this is what “makes or breaks the success of the academy training program”. This study reported some success incorporating andragogical methods¹², with scenario based training receiving praise from recruits, and hard skills training ultimately being rated as most enjoyable by recruits.

5.1.5 Role of higher education

¹² Andragogy refers to the philosophy of teaching adults, which differentiates from the teaching of children known as pedagogy (Vodde, 2008). “Andragogical practices praise the use of experience and scenarios to teach adults; interaction and demonstration are essential to the success of adult learners” (Weber, 2012: 74).

This sub-theme contained just two studies (Stroupe, 2003; Drummond, 2010). Stroupe (2003) evaluated a revamped training programme within the West Virginia State Police Academy, to assess if curricula before and after the revamp¹³ prepared recruits adequately. He found that officers who trained both before and after the revamp perceived the higher education curricula as relevant, and they perceived themselves to be competent officers, defining 'competent' as "the quality or condition of being qualified" (American Heritage Dictionary, 1995 cited in Stroupe, 2003). He also found the group of officers who graduated after the revamp perceived higher levels of competence, compared to officers trained using the old curriculum.

Drummond (2010) compared effectiveness of a training programme delivered in a college based campus as against that delivered by a law enforcement based academy in the west coast of the USA. His study found higher retention rates, higher self-efficacy ratings, and better teaching style ratings among the college based cohort. The implication being that the training location may have some impact on retention and satisfaction rates.

¹³ The revamp involved deletion of four classes (psychology, government, deviant behaviour, and sociology) and the addition of one (criminal law litigation).

5.2 Examining part of training programme (n=36)

The foci of these studies were on specific areas of training and examined or evaluated the impact of specialised training or a particular aspect thereof. There were a number of specific areas of training that were examined in this section: cultural diversity (eight studies), stress/coping mechanisms (seven studies), fitness training (seven studies), mental health (four studies), communication skills (four studies), firearms training and the use of force (seven studies) and other (four studies).

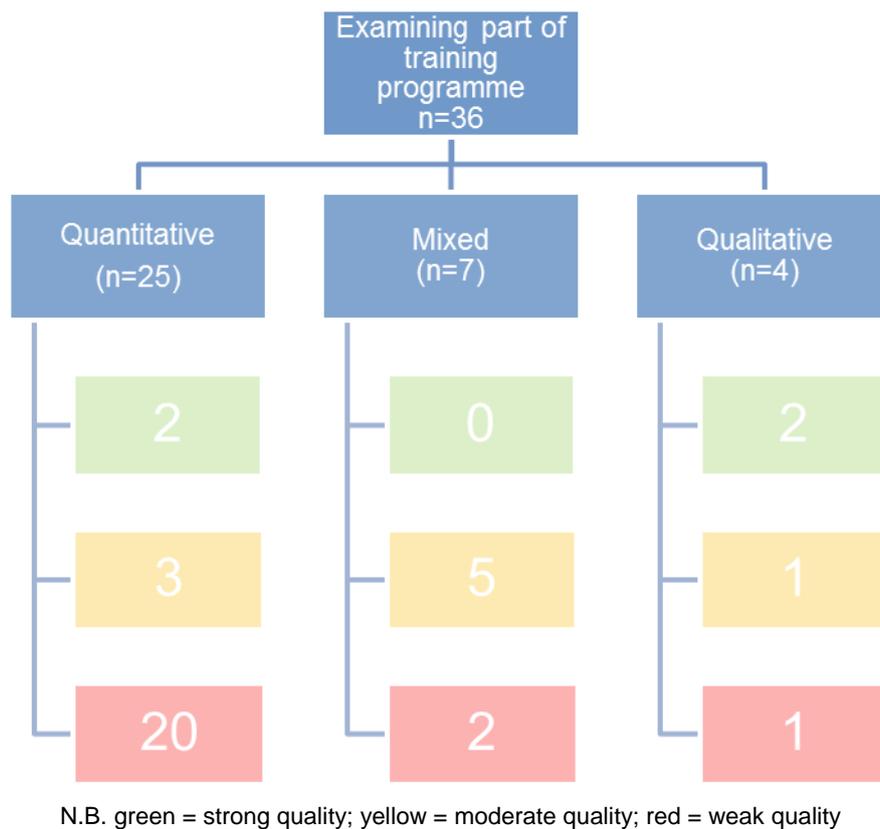


Figure 9: Examining part of training programme quality breakdown

5.2.1 Cultural diversity

Cultural diversity training was one of the most common aspects of recruit training that studies within this theme focused on. While some studies found that recruits developed their understanding of equality and diversity as a result of academy training in the short term (Clapham, 2009; Miles-Johnson and Pickering, 2017), most studies identified problematic results and found that training was inadequate (McMorris, 2001; Miles-Johnson *et al.*, 2016). McMorris (2001) found that police recruits stereotyped racial minorities as more likely to commit violent crimes post training. More recently

Miles-Johnson *et al.* (2016) found that training about prejudice-motivated crime made recruits less likely to be able to identify this type of crime.

Schlosser (2011; 2013) conducted two studies looking at changes to recruits' racial attitudes using the Colour Blind Racial Attitudes Scale (CoBRAS). In both 2011 and 2013, evidence of 'colour-blind' racial ideology¹⁴ was found and recruits scores on the CoBRAS scale did not change as a result of training. Both studies found evidence of the dominant culture of white male and white privilege prevailing over that of racial minorities (Scholsser, 2011) and that there existed a "dominant/subordinate relationship between law enforcement/racial minority citizens" (Scholsser, 2013: 220). In response to Scholsser's previous studies, Zimny (2015) re-examined the same academy using the CoBRAS scale and found that despite changes to cultural diversity training, recruits' levels of racial colour-blindness did not significantly decrease after attending training. The author suggests that recruits, and society in general, is less tolerant of overt racism but is still ignorant of the less overt forms, such as institutional racism and racial privilege.

In 2015, Schlosser *et al.* developed and implemented a diversity education programme with a focus on increasing racial literacy and cultural empathy. Feedback from recruits about the programme stated the importance of making the training relevant to police work, and the importance of allowing free discussion and opinion sharing during class. Some examples of successful training mechanisms or suggestions for improvement from other studies within this sub-theme were community placements, interactions with people from diverse groups, and more sustained and integrated diversity training throughout academy curriculum (Clapham, 2009; Miles-Johnson *et al.*, 2016; Miles-Johnson and Pickering, 2017).

5.2.2 *Stress/coping mechanisms*

The two main foci of these studies were those that examined interventions to help improve coping and reduce stress (Shochet *et al.*, 2011; Arnetz *et al.*, 2013; Devilly and Varker, 2013; Jeter *et al.*, 2013; Page *et al.*, 2016), and those that assessed how recruits coped with stress and confidence levels during their initial training (McCarty and Lawrence, 2016; Patterson, 2016). Measuring stress over time spent in training, Patterson (2016) and McCarty and Lawrence (2016) reported that recruits used different or fewer coping strategies at the end of their training compared to at the beginning.

Some studies reported positive short-term findings from interventions (Deville and Varker, 2013; Jeter *et al.*, 2013; Page *et al.*, 2016), while Arnetz *et al.* (2013) reported benefits maintained after two years. Arnetz *et al.* (2013) studied a primary prevention programme designed to improve psychobiological responses to stress among urban police officers. An example of another intervention study was by Page *et al.* (2016),

¹⁴ Colour-blind racial ideology is "a way of overlooking racism and allowing or justifying current discriminatory practices of the dominant culture to continue" (Schlosser, 2011: 2).

who studied brief mental skills training in improving memory and performance in high stress scenarios. They found that cadets who were trained to use breathing, imagery, and were focused in their attention scored more than 30 per cent higher on the memory test than those who were not trained in those techniques.

5.2.3 Fitness training

The two studies on fitness training both examined a particular fitness programme. Crawley *et al.* (2016) tested the effectiveness of a 16-week programme that aimed to improve overall recruit fitness. The results showed that while recruits fitness improved in the first 8 weeks, there was no significant improvement in the final 8 weeks. When comparing an ability-based training programme to a continuous running programme, Orr *et al.* (2016) found that the Australian, ability-based academy programme produced similar fitness results and lower relative risk of injury, in less amount of time. These studies show that new fitness programmes can be effective in improving fitness and reducing the risk of injury, however it is important programmes ensure sustained fitness.

5.2.4 Mental health

The studies within this sub-theme mainly focus on recruits' abilities to recognise mental health symptoms (Barrett, 2014; Young, 2015; Kaur, 2017). Barrett (2014) and Kaur (2017) specifically examined recruits' attitudes and handling of people with mental health issues. Kaur examined mental illness and interrogation, and found that participating in a combined mental health training course increased police recruits' self-reported confidence in recognising mental illness and substance intoxication in an individual. Young (2015) compared the effects of one-hour mental health training for recruits to a new, twelve-hour programme. All of the studies reported positive findings regarding recruits' ability to recognise mental health symptoms following the training.

The remaining study within this sub-theme was produced by the Council of State Governments Justice Center (2017). This study surveyed and documented the standards used by States and U.S. territories for police training on de-escalation and responding to people with mental illnesses.

5.2.5 Communication skills

The two foci within this sub-theme were communication skills of recruits while interviewing civilians, and more widely, communication skills of recruits while routinely dealing with the public.

Hartwig *et al.* (2006) and Dando *et al.* (2009) investigated recruits' abilities in interviewing civilians after receiving interventions that focused on improving communication. The latter study assessed witness interview techniques, whereas the former study examined recruits' capabilities in detecting deception while interviewing

suspects. Despite the finding that the witness interview training did not produce the desired effect, deception training had a positive impact on recruits' deception detection abilities.

The remaining studies examined recruit training programmes which aimed to produce officers who were effective communicators, with respect for the people within communities they would serve (Schuck and Rosenbaum, 2011; Rosenbaum and Lawrence, 2012). Schuck and Rosenbaum (2011) reported positive findings as a result of the Quality Interaction Program recruits experienced, however, Rosenbaum and Lawrence (2012: 19) studied the same programme but reported "promising, but mixed" results.

5.2.6 *Firearms training and the use of force*

Seven studies focused on firearms training within recruit programmes. Studies in this sub-theme either examined firearms or shooting training, or more broadly involved learning to use force.

Studies that focused on shooting accuracy or on training recruits for 'shoot/don't shoot' scenarios often used simulation-based training (Rostker *et al.*, 2008; Broomé, 2011; Davies, 2015; Davies, 2017). Davies (2015; 2017) found that simulations were effective in that they ensured recruits built a repertoire of experiences to draw upon for future shoot/don't shoot scenarios and allowed recruits to appreciate the complexity of these situations. It was important that these exercises included the options to use less lethal force options such as communication and OC (oleoresin capsicum – similar to pepper) spray (Davies, 2017). Conversely, Broomé (2011) found that the simulation exercises examined fell short of simulating the psychological impacts of real-life police shootings. Another technique used in shoot/don't shoot training was situational awareness training which "enhances the capacity to make timely and effective decisions" (Saus *et al.*, 2006: 4).

Studies also found that use of force was taught across a range of subjects during the recruit programme, i.e. not just within firearms training (Rostker *et al.*, 2008; Lande, 2010). Roskter *et al.* (2008: xiv) in examining the NYPD recruit programme found that this training is received in a "use of force continuum" which cuts across a number of areas of the recruit programme. Lande (2010: 1) took this further in arguing that the use of force is a calibrated bodily technique and that learning to use force is also about learning how to justify the use of force after the fact, for example "during report writing or the demand from supervisors to justify past actions".

5.2.7 *Other*

The remaining studies examined a part of training on four disparate topics making them difficult to synthesise.

Bruns *et al.* (2005) examined whether victim blame attribution, ambivalent sexism, age, education and experience played a role in domestic violence training effectiveness. They found only a significant interaction between knowledge and ambivalent sexism, and argued ambivalent sexism should be considered a possible impediment to learning.

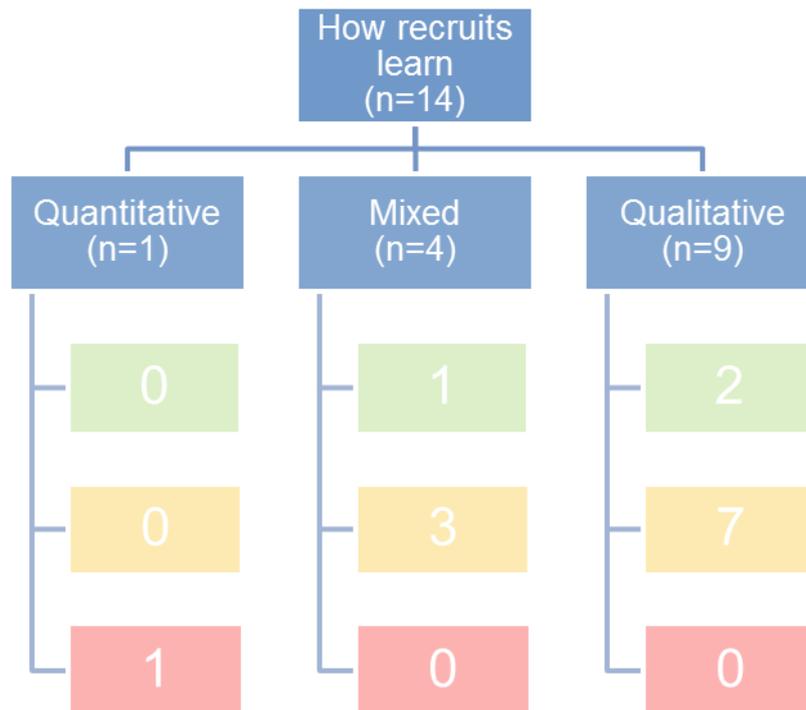
Patterson (2004) assessed whether mandatory child abuse training produced significant differences in the knowledge, skills, and attitudes between recruits who received the training and those who did not. Patterson found the experimental group acquired more knowledge, developed more skills, and felt more caring and sympathetic toward abusive parents than recruits in the comparison group.

Randles (2001) evaluated the examination system for recruits, whether or not it provided effective feedback for students' development, and assessed training content for realism to prepare recruits to be a police officer. He found that recruits were not provided adequate feedback necessary to facilitate self-development, which relates to studies by Seggie (2011) and Foley (2014) noted above.

Sedevic (2012) examined the emergency response (ER) week portion of the Chicago police department recruit training programme and found that all 14 of the 'emergency response (terrorism awareness and response training) week' courses had a higher than 'adequate' mean rating of satisfaction by the 133 participants. In feedback, police recruit participants indicated the week could benefit from being longer because too much information was crammed into one week, and also that recruits would have preferred more hands-on, scenario based training.

5.3 How recruits learn (n=14)

This theme was focused on how recruits learned to become a police officer through learning theories or organisational culture. As such, studies in this theme fell into one of two sub-themes: learning theory (five studies) or socialisation/occupational culture (nine studies).



N.B. green = strong quality; yellow = moderate quality; red = weak quality

Figure 10: How recruits learn quality breakdown

5.3.1 Socialisation

One of the main findings from these studies was that learning was impeded if the training environment in the academy was at odds with the demands of operational field conditions. This was predominantly true for academies that employed a paramilitary structure, characterised by high stress for recruits, which did not align with the principles of community policing and problem solving that require collaboration and partnership work (Chan *et al.*, 2003; Chappell and Lanza-Kaduce, 2010; Conti, 2011). This disconnect is accentuated by an ‘us’ (the police) and ‘them’ (the community) mentality fostered in the academy. There existed a simultaneous formal and informal curriculum, the former prescribed by the academy and the latter where ‘real’ policing is taught (Chappell and Lanza-Kaduce, 2010).

‘War stories’ were commonly referred to in the socialisation studies. These are informal stories, rarely pertinent to the particular lesson, told by trainers to students to highlight an ‘exciting’ or ‘heroic’ story from his/her time in duty. It was commonly found that students were highly receptive to ‘war stories’, however the examples were most often in direct contrast to the style of policing being taught in the curriculum, i.e. community focused (Chappell and Lanza-Kaduce, 2010; Conti, 2011; Foley, 2014; Hendricks, 2014). As referred to by Hendricks (2014: 20), “these informal learning experiences simultaneously contribute to relationship-building and organisational while also reinforcing existing culture and power divisions”. Therefore, the literature suggests police academies should work towards connecting the formal and informal

culture and socialisation of recruits with the principles of community policing and problem solving.

When examining the socialisation of recruits through ethnographic observations and social network analysis, Conti (2000: 142) found that the academy environment adhered to the concept of a 'total institution', whereby a "large number of 'like situated' individuals are cut off from society and lead to a 'formally administered' life" with the aim of creating a depersonalised and homogenous identity". In other words, recruits are held at the academy for an extended period of time until they reach their common goal of graduation. Haarr (2001) found that although the academy had a positive change relating to community policing and problem-solving policing, field training failed to reinforce the positive impact the training academy had on the recruits' attitudes. Therefore, socialisation both within the academy and during the field training appear to have an impact on police recruits.

5.3.2 Learning theory

A number of studies examined the question of 'how police recruits learn' using learning theory, in particular andragogy¹² and problem-based learning^{Error! Bookmark not defined.}. McCay (2011) found that police recruits do not learn differently to other adult learners, and therefore the principles of andragogy are appropriate to adhere to in police training during both academy and field training.

Studies in this sub-theme focused on the idea that it is important that police recruit training moves beyond training, in a paramilitary sense of instilling physical skills and operational competence, to acknowledge and emphasise and the importance of learning to 'become' a police officer. The more traditional conceptions of police training as a process of knowledge 'acquisition and transfer', as embodied by the paramilitary structure are limited and hinder the learning process (Heslop, 2011b). Recruit training programmes, underpinned by learning theory, ought to be practical and engaging while also providing structured learning through scaffolding with appropriate levels of guidance and feedback (Shipton, 2009; Hendricks, 2014). As found by McCay (2011), this can be facilitated through recruit interaction and the application and practicing of skills. Furthermore, recruit training is "most impactful when it is presented in a realistic, practical, and hands-on fashion" (McCay, 2011: 104). Problem-based learning was identified as particularly appropriate for law enforcement training as it aims to move beyond the "basic acquisition of knowledge" to instead focus on the "application of knowledge, in addition to improving the collaborative, decision-making and self-directed learning skills" (Shipton, 2009: 58). Collective reflection was also identified as an important process in recruit learning (Rantatalo and Karp, 2016).

5.4 New learning/teaching tool (n=8)

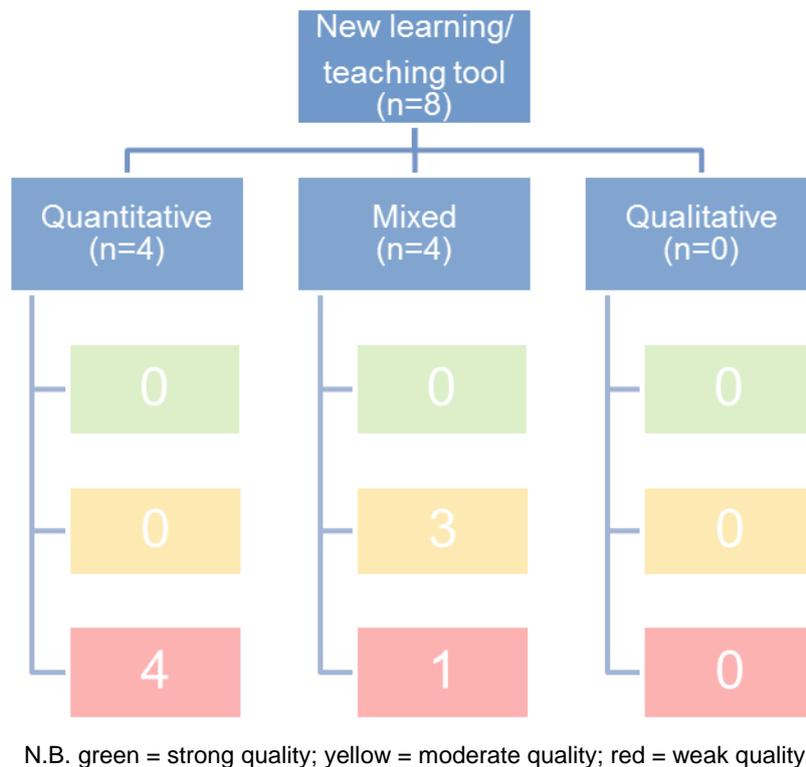


Figure 11: New learning/teaching tool quality breakdown

The focus of this theme was a specific tool to facilitate learning or teaching during recruit training. The sub-themes within this overall theme were the use of information technology (IT) or virtual learning environments (VLE) (four studies), simulation-based training (three studies), and the use of journals (one study).

5.4.1 IT/VLE

Four studies examined the impact of incorporating IT/VLE in police training. These included using a gaming program to improve communication skills (Bosse and Gerritsen, 2017) and to train recruits in forensic examination (Drakou and Lanitis, 2016), implementing an online module in police investigation studies within a university for police recruits (Davies and Nixon, 2010) and the use of 'EYEPORIT', a vision training system to enhance the visual performance of police recruits (Lieberman and Horth, 2006). These studies found that the use of IT aided in the improving of the tested training area, however areas for improvement noted the importance of making these technologies user-friendly, realistic and correctly implemented for best results.

5.4.2 Simulations

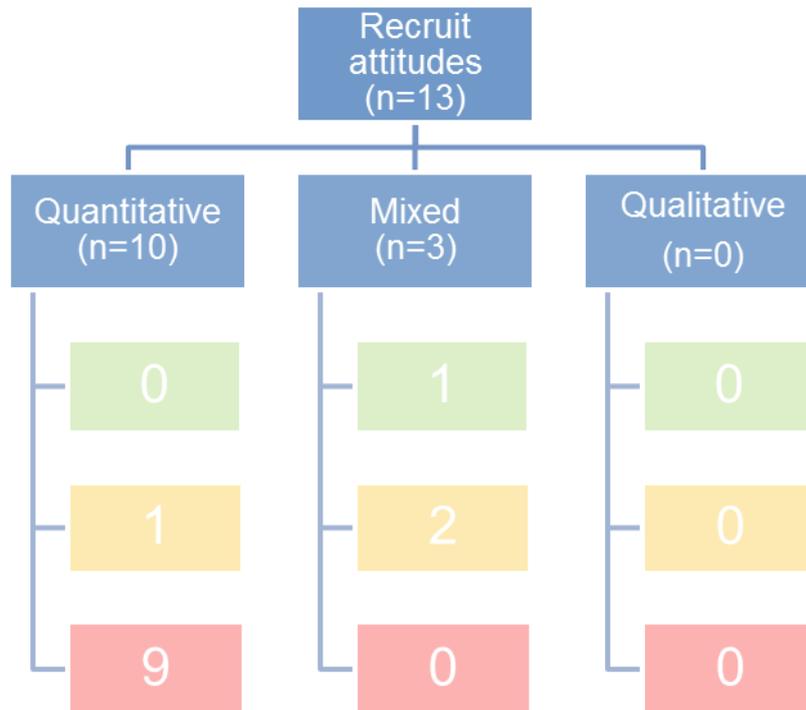
Three studies specifically examined the use of simulation-based training in recruit training. A simulation in the training environment is “an activity contrived to correspond to some aspect of reality and to provide an experiential context for learning that offers participants a tangible, reality based experience” (LaLonde, 2004: 20). Simulation provides police recruits with an opportunity to experience risky or stressful situations, such as driving or an armed response scenario in a safe environment (Holbrook and Cennamo, 2014; Paquette and Belanger, 2015). These studies found that simulations can be a highly effective learning tool for police recruits. Holbrook and Cennamo (2014) found that recruits found the experience highly valuable due to the emotional arousal and self-reflection gained from the experience. In order to be effective, however, attention must be paid to how these simulations are assessed (LaLonde, 2004), and recruits must receive adequate training and practice in simulations to avoid issues such as simulation sickness (Paquette and Belanger, 2015).

5.4.3 Journals

One study looked at the use of journals as a learning tool for police recruits. Gawlinski (2009) found that journal entries were an effective individual recollection tool for academic or class work, or to highlight learning themes relating to emotions. Their full potential as a tool for reflection however was not utilised since recruits were neither provided with sufficient explanation about how journals should be used, nor with any training in the use of reflective practice to learn.

5.5 Recruit attitudes (n=13)

The focus of this theme was examining recruit attitudes during training, over the course of the training, or as a direct result of the training.



N.B. green = strong quality; yellow = moderate quality; red = weak quality

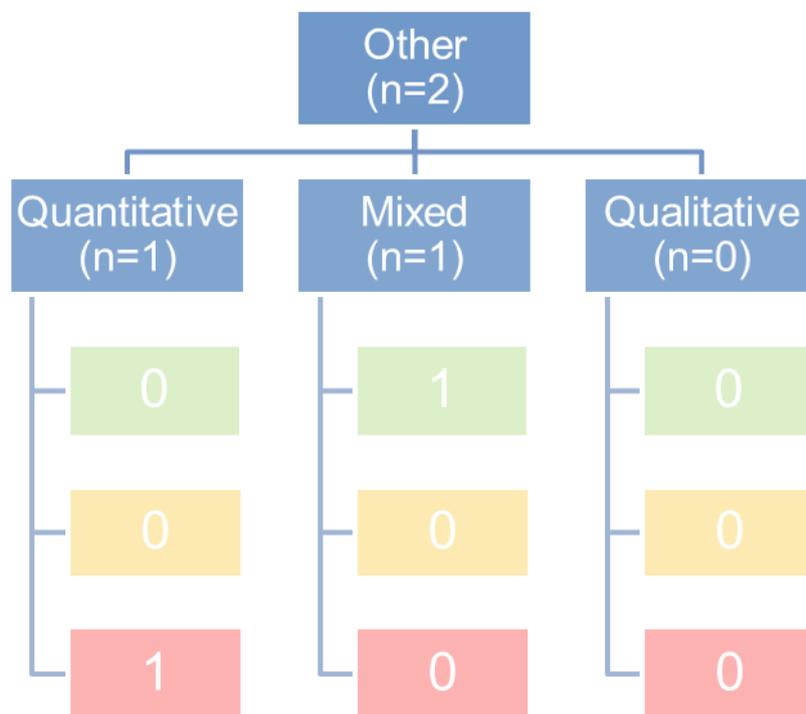
Figure 12: Recruit attitudes quality breakdown

Overall, studies in this theme found very little or no impact on recruit attitudes as a result of training or, in some cases, a negative impact on recruit attitudes. Recruits that began their training with positive attitudes about why they joined the profession, the role of police or high levels of integrity tended to remain stable and training did not alter these attitudes (Alain and Chantal, 2005; Anderson, 2006; Hoshell, 2009; Blumberg *et al.*, 2016; Porter and Alpert, 2017). However, recruit expectations of the profession seemed to adapt when faced with the realities of the profession as a number of studies found evidence of disillusionment when recruits began operational police work and faced a conflict between their initial idealism and the realities of the organisation (Verma, 2001; Alain and Chantal, 2005; Anderson, 2006). One reason for this given by Alain and Chantal (2005) was that recruits who were successful in being accepted into what they knew was a competitive academy, were disappointed in the reality of limited opportunities for promotion in the organisation. Anderson (2006) found that recruit perceptions only changed marginally over the course of the training, and that post-training they placed less emphasis on improving society, realising that they were probably less able to 'make a difference' than initially believed. Similarly, Fekjaer *et al.* (2014), found that while recruits were opposed to non-legalistic practices by police officers during academy training, once they began operational police work, recruits became more positive towards non-legalistic practices.

Some studies found that initial training had no impact or a negative impact on recruit attitudes. Steyn (2007: 25) found that training served to either maintain or strengthen the newcomers' attitudes in support of the themes of solidarity, isolation and cynicism, and stated "it is clear from these results that the... basic training institutes are not effective in changing the deviant police culture attitudes of new recruits; in fact, they serve to strengthen these attitudes". Mather (2012), in examining whether recruit training was able to identify and alter inappropriate attitudes, similarly found that the training did not have an impact on attitudinal change.

5.6 Other (n=2)

This theme contained just two studies, one focused on women in policing and the other on accuracy of peer evaluation in predicting success in the academy.



N.B. green = strong quality; yellow = moderate quality; red = weak quality

Figure 13: 'Other' quality breakdown

Kringen (2014) sought to answer the question: what are the perceived and organizational barriers to women interested in entering the policing profession? She found that being noticed for poor performance had negative effects during the screening process and on graduating from the academy, but being noticed for performing well was positively related to the decision to apply for employment as a police officer. Furthermore, exaggeration of differences between men and women, such as emphasis of women being physically weaker, discouraged women before

physical fitness tests, causing some to withdraw from the process. Those physical differences affected the perceptions about their ability to do their job as a police officer.

Meier *et al.* (2016) compared attrition of police officers to peer evaluations during academy training. This analysis showed that peer evaluations have the potential to serve as a measure to provide academies with accurate insight into the competence of recruits, and their ability to work with others. This information can be used to better support officers who are at risk of underperforming, through counselling for example, which could overall positively impact attrition rates.

6. Conclusion

Overall, the literature on police recruit training is fragmented and varies in terms of the study focus, methodological rigour and outcomes measured. This systematic map provides an overview of the landscape of police recruit training literature, which fulfilled specific inclusion criteria. During the development of this map it became clear there is room for improvement regarding the quality of empirical evidence in this area if the evidence base is to be generalisable beyond the limited context of individual studies.

The literature on police recruit training covered a range of topics and methods, with some topics being more researched than others. Some recurring themes were: the importance of understanding how recruits learn, incorporating andragogy into curricula, the limitations of the paramilitary model, police socialisation and occupational culture, integrating theory and practice, and the role of the tutor constable. Evaluation studies also identified a number of specific areas of recruit training that have attracted further research and inquiry, including cultural diversity training, mental health training, communications training, stress-related training, and the use of force.

The nature of the research available was highly mixed, with a larger proportion of quantitative (50%) and mixed method studies (33%) than expected, as opposed to qualitative (17%). The nature of the studies and what was measured in each varied significantly (see Appendices B and C), which made it unfeasible to conduct meaningful meta-analyses.

Overall the strength of the evidence was fragile, with half of the included studies (50%) receiving a 'weak' score in the quality appraisal. One example of studies that were difficult to find conclusive findings were single measure studies ($n=15$, 14%), where a measurement was taken just once, and not compared with a control group. The conclusions which can be drawn from those studies are limited.

One of the most striking findings emerging from the review was the lack of an agreed upon conception of what the training is aiming to achieve, i.e. what is the ideal of a professional police officer. In fact, much of the empirical evidence surveyed did not

attempt to define the desired outcome of training in terms of officer capabilities and professional behaviour, but were more focused on interim outcomes in terms of change in attitude or understanding over the training period or individual satisfaction with parts of or the entire training programme.

Future research into police recruit training programmes would benefit from the following:

- a) Explicitly defining the end goal of the training programme;
- b) Explicitly articulating the theory and mechanisms underpinning the training; specifically link mechanisms to outcomes in order to identify what “works” or not,
- c) Paying special attention to the implementation and programme fidelity of training programmes being evaluated
- d) Conducting a cost-benefit analysis, especially while comparing new and old programmes and,
- e) Finally, conducting evaluations with as much methodological rigour as possible.

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All studies included in the Systematic Map are marked with an asterisk (*)

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Appendix A – Database Search Terms

Criminal Justice Abstracts (3,059 after filtering for English language)

TI ((police or policing or "law enforcement" OR constab* OR sheriff OR detective)
AND (train* OR educat* OR academy OR institute OR college)) OR AB ((police or
policing or "law enforcement" OR constab* OR sheriff OR detective) N5 (train* OR
educat* OR academy OR institute OR college)) OR KW ((police or policing or "law
enforcement" OR constab* OR sheriff OR detective) AND (train* OR educat* OR
academy OR institute OR college))

PsycINFO (via EBSCO) (2,191 after filtering for English language)

TI ((police or policing or "law enforcement" OR constab* OR sheriff OR detective)
AND (train* OR educat* OR academy OR institute OR college)) OR AB ((police or
policing or "law enforcement" OR constab* OR sheriff OR detective) N5 (train* OR
educat* OR academy OR institute OR college)) OR KW ((police or policing or "law
enforcement" OR constab* OR sheriff OR detective) AND (train* OR educat* OR
academy OR institute OR college))

SCOPUS (3,175 after filtering for English language)

TITLE-ABS-KEY ((police OR policing OR "law enforcement" OR constab* OR
sheriff OR detective) W/5 (train* OR educat* OR academy OR institute OR
college)) AND (LIMIT-TO (LANGUAGE , "English"))

Criminal Justice Database (via ProQuest) (4,117 after filtering for English language)

TI((police OR policing OR "law enforcement" OR constab* OR sheriff OR
detective) N/5 (train* OR educat* OR academy OR institute OR college))
OR AB((police OR policing OR "law enforcement" OR constab* OR sheriff OR
detective) N/5 (train* OR educat* OR academy OR institute OR college))
OR IF((police OR policing OR "law enforcement" OR constab* OR sheriff OR
detective) N/5 (train* OR educat* OR academy OR institute OR college))

Sociological Abstracts (via ProQuest) (1,105 after filtering for English language)

TI((police OR policing OR "law enforcement" OR constab* OR sheriff OR detective
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Education Database (via ProQuest) (2,560 after filtering for English language)

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ProQuest Theses and Dissertations (1,548 after filtering for English language)

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Social Policy and Practice (450 results)

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Appendix B – Overview of quantitative data in studies scoring higher than ‘weak’ quality

Short Title	Title	Methods and Quality	Overall topic	Quantitative Data
Vander Kooi (2006)	Problem-Based Learning: An Attitudinal Study of Police Academy Students	Quant.	Examining academic and/or field training	Surveys of recruits (perceptions of whether or not the teaching method improved their problem-solving and critical thinking skills, enjoyment, and competency)
Chan <i>et al.</i> (2003)	Fair cop: Learning the art of policing	Mixed	How recruits learn	Surveys of recruits (demographics, initial expectations of training, current experiences training, field training experience, views of their organisation, orientation towards police work)
Foley (2014)	"Training for success?": An analysis of the Irish Garda Siochana trainee programmes from 1922 to present day	Mixed	Examining academic and/or field training	Surveys of recruits (demographics, opinions on overall training, reliability of an educative instrument, their participation in certain activities and events)
Letic (2016)	Problem based learning (PBL) in police training: An evaluation of the recruit experience	Mixed	Examining academic and/or field training	Archival data (demographics of recruits, quantified [rated] qualitative recruit journal entries on experiences while training using problem based learning)
Conti and Doreian (2014)	From Here On Out, We're All Blue: Interaction Order, Social Infrastructure, and Race in Police Socialization	Mixed	How recruits learn	Surveys of recruits (demographics, social network analysis with focus on race)
Conti (2000)	Creating the thin blue line: Twenty-one weeks of police socialization	Mixed	How recruits learn	Surveys of recruits (demographics, social network analysis - interactions with recruits at lunch, commuting, who they know best)

De Schrijver and Maesschalck (2015)	The development of moral reasoning skills in police recruits	Mixed	How recruits learn	Surveys of recruits (knowledge of the code of ethics and their moral reasoning skills)
Charles (2000)	Police training: breaking all the rules. Implementing the Adult Education Model into police training	Mixed	Examining academic and/or field training	Surveys of client departments (determining the effect of training methodologies)
Deverge (2016)	Police education and training: A comparative analysis of law enforcement preparation in the United States and Canada	Mixed	Examining academic and/or field training	Surveys of recruits (assessing levels of motivation and self-efficacy throughout the training)
Green (2001)	Comparative study of the effectiveness of three of the Probationer Training Units within Hertfordshire Constabulary	Mixed	Examining academic and/or field training	Surveys of recruits, tutor constables, and supervising sergeants (perceptions of each other)
Heslop (2013)	Police Pre-Employment Training the United States of America: (A study conducted under the auspices of a Fulbright Police Research Scholarship)	Mixed	Examining academic and/or field training	Statistics gathered from the Bureau of Justice statistics and other governmental bodies (descriptive data)
Hess (2014)	Developing Communications Skills for 21st Century Policing: Evaluating the LAPD Academy's New Recruit Basic Course	Mixed	Examining academic and/or field training	Surveys of Field Training Officers (rating themselves as an FTO, also evaluating how well the academy prepared their probationer in these competencies: Problem Solving/Critical Thinking, Community Relations/Policing, Communication, Professionalism, other skills)
Novakowski (2003)	Exploring Field Training Within British Columbia's Independent Police Agencies: It's the Singer, Not the Song	Mixed	Examining academic and/or field training	Surveys of recently graduated recruits (evaluating the field training content, and their FTO)

Poradzisz (2004)	Alternative instructional methods in police learning	Mixed	Examining academic and/or field training	Surveys of recruits (instructional satisfaction, inspiration, and cross-subject integration), recruit test scores (comprehension of training material)
Seggie (2011)	Initial police training for the 21st century: is the learning strategy meeting the needs of the organisation?	Mixed	Examining academic and/or field training	Surveys of recruits, sergeants, supervisors, tutors, and trainers (on the effectiveness of initial recruit training, opinions on effectiveness of teaching and learning)
Shipton (2011)	Expanding Police Educators' Understanding of Teaching, Are They as Learner-Centred as They Think?	Mixed	Examining academic and/or field training	Surveys of police and non-police educators (dominant teaching approaches)
Stanislas (2013)	Transforming St Lucian policing through recruit training in a context of high crime	Mixed	Examining academic and/or field training	Surveys of recruits (perceptions of their basic training)
Thorneywork (2004)	Just how good is Nellie or Neil? Assessing the teaching skills of the tutor constable	Mixed	Examining academic and/or field training	Surveys of recruits (evaluating ten-week tutored period regarding problem based learning, reflective practice, role playing, instruction)
Vodde (2008)	The efficacy of an andragogical instructional methodology in basic police training and education	Mixed	Examining academic and/or field training	Surveys of recruits (andragogy vs pedagogy, measured recruits' reaction, learning, behaviour, results under both teaching styles)
Weber (2012)	An Evaluation of a Midwestern Police Academy	Mixed	Examining academic and/or field training	Retention rates of graduated recruits

Appendix C – Quality Ratings (all studies)

Author (Year)	Title	Methodology	Quality Rating	Theme	Sub-theme
Alain and Chantal (2005)	Crime Prevention, Crime Repression, and Policing: Attitudes of Police Recruits Towards Their Role in Crime Control	Quantitative	Weak	Recruit attitudes	
Andersen (2006)	Perceptions, Attitudes, and Career Orientations of Recruit Police Officers	Quantitative	Weak	Recruit attitudes	
Arnetz <i>et al.</i> (2013)	Assessment of a prevention program for work-related stress among urban police officers	Quantitative	Strong	Examining part of programme	Stress/coping mechanisms
Barrett (2014)	The impact of training on law enforcement recruits' attitudes toward persons with mental illness	Quantitative	Weak	Examining part of programme	Mental health
Blumberg <i>et al.</i> (2016)	Impact of Police Academy Training on Recruits' Integrity	Quantitative	Weak	Recruit attitudes	
Bosse and Gerritsen (2017)	Towards serious gaming for communication training - A pilot study with police academy students	Quantitative	Weak	New learning/teaching tool	Use of IT/VLE
Bouras (2002)	A Conceptual Curriculum Model for Basic and Field Law Enforcement Training In North Carolina	Mixed	Weak	Examining academic and/or field training programme	New learning model/curriculum
Broomé (2011)	An empathetic psychological perspective of police deadly force training	Qualitative	Weak	Examining part of programme	Firearms training and the use of force

Bruns <i>et al.</i> (2005)	Domestic violence training: are sexism and victim blame mediators in training effectiveness?	Quantitative	Weak	Examining part of programme	Other (Domestic violence)
Campbell (2014)	An Exploratory Study of the Perceptions of Hired and Non-Hired Recruits' Police Academy Experiences	Mixed	Weak	Examining academic and/or field training programme	Comparing different training/recruit requirements
Chan <i>et al.</i> (2003)	Fair cop: Learning the art of policing	Mixed	Strong	How recruits learn	Socialisation
Chappell (2008)	Police academy training: comparing across curricula	Quantitative	Weak	Examining academic and/or field training programme	New learning model/ curriculum
Chappell (2007)	Community policing: is field training the missing link?	Qualitative	Moderate	Examining academic and/or field training programme	Field training
Chappell and Lanza-Kaduce (2010)	Police Academy Socialization: Understanding the Lessons Learned in a Paramilitary-Bureaucratic Organization	Qualitative	Moderate	How recruits learn	Socialisation
Charles (2000)	Police training: breaking all the rules. Implementing the Adult Education Model into police training	Mixed	Moderate	Examining academic and/or field training programme	New learning model/ curriculum
Clapham (2009)	Knowledge and Understanding of Equality and Diversity: Are Hampshire Constabulary Student Police Officers Up To the Standard	Qualitative	Strong	Examining part of programme	Cultural diversity
Conti and Doreian (2014)	From here on out, we're all blue: Interaction order, social infrastructure, and race in	Mixed	Moderate	How recruits learn	Socialisation

	police socialization				
Conti (2000)	Creating the thin blue line: Twenty-one weeks of police socialization	Mixed	Moderate	How recruits learn	Socialisation
Conti (2011)	Weak Links and Warrior Hearts: A Framework for Judging Self and Others in Police Training	Qualitative	Moderate	How recruits learn	Socialisation
Crawley <i>et al.</i> (2016)	Physical fitness of police academy cadets: Baseline characteristics and changes during a 16-week academy	Quantitative	Weak	Examining part of programme	Fitness training
Crime and Misconduct Commission (2010)	The Ethical Perceptions and Attitudes of Queensland Police Service Recruits and First Year Constables 1995–2008	Quantitative	Weak	Recruit attitudes	
Cuvelier <i>et al.</i> (2015)	Chinese police cadets' attitudes toward police roles revisited	Quantitative	Weak	Recruit attitudes	
Dando <i>et al.</i> (2009)	Cognitive interview: novice police officers' witness/victim interviewing practices	Quantitative	Weak	Examining part of programme	Communication skills
Davies (2015)	The Hidden Advantage in Shoot/Don't Shoot Simulation Exercises for Police Recruit Training	Mixed	Moderate	Examining part of programme	Firearms training and the use of force
Davies and Nixon (2010)	Making it real - From the street to the online classroom in police education: What is the impact on	Quantitative	Weak	New learning/teaching tool	Use of IT/VLE

	student learning?				
Davies (2017)	Shoot/Do Not Shoot - What Are The Influences? The Police Recruit Perspective	Mixed	Moderate	Examining part of programme	Firearms training and use of force
De Schrijver and Maesschalck (2015)	The development of moral reasoning skills in police recruits	Mixed	Moderate	How recruits learn	Socialisation
Deverge (2016)	Police Education and Training: A comparative analysis of law enforcement preparation in the United States and Canada	Mixed	Moderate	Examining academic and/or field training programme	Comparing different training/recruit requirements
Deville and Varker (2013)	The prevention of trauma reactions in police officers: decreasing reliance on drugs and alcohol	Quantitative	Strong	Examining part of programme	Stress/coping mechanisms
Drakou and Lanitis (2016)	On the development and evaluation of a serious game for forensic examination training	Mixed	Weak	New learning/teaching tool	Use of IT/VLE
Drummond (2010)	Criminal Justice Education: Investigation of Retention, Self-Efficacy, and Teaching Style in College Based Versus Law Enforcement Academies	Quantitative	Weak	Examining academic and/or field training programme	Role of HE
Fekjaer <i>et al.</i> (2014)	From legalist to Dirty Harry: Police recruits' attitudes towards non-legalistic police practice	Quantitative	Weak	Recruit attitudes	

Foley (2014)	"Training for success?": An analysis of the Irish Garda Siochana trainee programmes from 1922 to present day	Mixed	Strong	Examining academic and/or field training programme	Relevance and effectiveness of training
Gawlinski (2009)	Supporting the use of journal entries within the Calgary Police Service Recruit training program	Mixed	Moderate	New learning/teaching tool	Journal entries
Getty <i>et al.</i> (2016)	How Far From the Tree Does the Apple Fall? Field Training Officers, Their Trainees, and Allegations of Misconduct	Quantitative	Weak	Examining academic and/or field training programme	Field training
Green (2001)	Comparative effectiveness of three of the probationer training units within Hertfordshire constabulary	Mixed	Moderate	Examining academic and/or field training programme	Field training
Grieco (2016)	Attitudinal Dimensions and Openness to Evidence-Based Policing: Perspectives of Academy Recruits	Mixed	Moderate	Recruit attitudes	
Haarr (2001)	The Making of a Community Policing Officer: The Impact of Basic Training and Occupational Socialization on Police Recruits	Quantitative	Weak	How recruits learn	Socialisation
Hartwig <i>et al.</i> (2006)	Strategic Use of Evidence During Police Interviews: When Training to Detect Deception Works	Mixed	Moderate	Examining part of programme	Communication skills

Hendricks (2014)	Gauging alignment between school and work: An activity theory analysis of police report writing instruction	Qualitative	Strong	How recruits learn	Learning theory
Heslop (2013)	A comparison of police pre-employment training and education in the UK and USA	Qualitative	Weak	Examining academic and/or field training programme	Comparing different training/recruit requirements
Heslop (2011b)	Community engagement and learning as 'becoming': findings from a study of British police recruit training	Qualitative	Moderate	How recruits learn	Learning theory
Heslop (2013)	Police Pre-Employment Training the United States of America: (A study conducted under the auspices of a Fulbright Police Research Scholarship)	Mixed	Moderate	Examining academic and/or field training programme	Comparing different training/recruit requirements
Heslop (2011a)	Reproducing Police Culture in a British University: Findings from an Exploratory Case Study of Police Foundation Degrees	Qualitative	Moderate	How recruits learn	Socialisation
Hess (2014)	Developing Communication Skills for 21st Century Policing: Evaluating the LAPD Academy's New Recruit Basic Course	Mixed	Moderate	Examining academic and/or field training programme	New learning model/ curriculum
Holbrook and Cennamo (2014)	Effects of high-fidelity virtual training simulators on learners' self-efficacy	Mixed	Moderate	New learning/teaching tool	Simulation

Hoshell (2009)	A Study of the Perceptions and Attitudes of Recruits and Veteran Officers In Relation To Police Motivation and Retention	Mixed	Moderate	Recruit attitudes	
Hundersmarck (2009)	Police recruit training facilitating learning between the Academy and field training	Qualitative	Weak	Examining academic and/or field training programme	Field training
Hundersmarck (2004)	Sixteen weeks and a year: The generalization of knowledge and identity between the police academy and police field training	Qualitative	Strong	Examining academic and/or field training programme	Field training
Jeter <i>et al.</i> (2013)	Evaluation of the Benefits of a Kripalu Yoga Program for Police Academy Trainees: A Pilot Study	Quantitative	Weak	Examining part of programme	Stress/coping mechanisms
Jordan (2014)	Comparison of entry-level police officers and training instructors' perceptions of the training environment as it relates to the transferability of training	Quantitative	Weak	Examining academic and/or field training programme	Relevance and effectiveness of training
Council of State Governments Justice Center (2017)	The Variability in Law Enforcement State Standards: A 42-state Survey on Mental Health and Crisis De-escalation Training	Quantitative	Weak	Examining part of programme	Mental health
Kaur (2017)	Mental Illness and Interrogation: How Police Officers'	Quantitative	Weak	Examining part of programme	Mental health

	Confidence Measures Up				
King (2010)	The perceived value of problem -based learning at a police training academy	Qualitative	Strong	Examining academic and/or field training programme	New learning model/ curriculum
Kringen (2014)	Understanding barriers that affect recruiting and retaining female police officers: A mixed method approach	Mixed	Strong	Other	Gender
LaLonde (2004)	Assessment in police recruit training simulations	Mixed	Moderate	New learning/ teaching tool	Simulation
Lande (2010)	Bodies of Force: The Social Organization of Force, Suffering, and Honor in Policing	Qualitative	Strong	Examining part of programme	Firearms training and the use of force
Letic (2016)	Problem Based Learning (PBL) in police training: An evaluation of the recruit experience	Mixed	Strong	Examining academic and/or field training programme	New learning model/ curriculum
Liberman and Horth (2006)	Use of the EYEPOR T vision training system to enhance the visual performance of police recruits a pilot study	Quantitative	Weak	New learning/ teaching tool	Use of IT/VLE
Mather (2012)	An examination of the effectiveness of initial training for new police recruits in promoting appropriate attitudes and behaviour for twenty first century policing	Mixed	Strong	Recruit attitudes	

McCarty and Lawrence (2016)	Coping, confidence and change within the academy a longitudinal look at police recruits	Quantitative	Weak	Examining part of programme	Stress/coping mechanisms
McCay (2011)	They Are Old Enough To Carry Guns, Should We Teach Them Like Children? The Application of Adult Learning Strategies in Police Training	Qualitative	Strong	How recruits learn	Learning theory
McMorris (2001)	Perceptions of criminality: Michigan police recruits rank likely criminal types. Year 2000 exploratory study	Quantitative	Weak	Examining part of programme	Cultural diversity
Meier <i>et al.</i> (2016)	Attrition of police officers as predicted by peer evaluations during academy training	Quantitative	Weak	Other	Predicting success
Miles-Johnson <i>et al.</i> (2016)	Police Perceptions of Prejudice: How Police Awareness Training Influences the Capacity of Police to Assess Prejudiced Motivated Crime	Quantitative	Weak	Examining part of programme	Cultural diversity
Miles-Johnson and Pickering (2017)	Police recruits and perceptions of trust in diverse groups	Quantitative	Weak	Examining part of programme	Cultural diversity
Morrow (2008)	Creating the blue code: Identity, gender and *class in a police training environment	Qualitative	Moderate	How recruits learn	Socialisation
Nevers (2014)	The Impact of Background and Demographic Differences on Selection Standards and	Quantitative	Weak	Examining academic and/or field training programme	Comparing different training/recruit requirements

	Academy Performance				
Novakowski (2003)	Exploring Field Training Within British Columbia's Independent Police Agencies: It's the Singer, Not the Song	Mixed	Moderate	Examining academic and/or field training programme	Field training
Orr <i>et al.</i> (2016)	Implementation of an ability-based training program in police force recruits	Quantitative	Weak	Examining part of programme	Fitness training
Page <i>et al.</i> (2016)	Brief Mental Skills Training Improves Memory and Performance in High Stress Police Cadet Training	Quantitative	Weak	Examining part of programme	Stress/coping mechanisms
Paquette and Bélanger (2015)	Does Simulator Sickness Impair Learning Decision Making While Driving a Police Vehicle?	Quantitative	Weak	New learning/teaching tool	Simulation
Patterson (2016)	A Brief Exploratory Report of Coping Strategies among Police Recruits during Academy Training	Quantitative	Moderate	Examining part of programme	Stress/coping mechanisms
Patterson (2004)	Evaluating the Effects of Child Abuse Training on the Attitudes, Knowledge, and Skills of Police Recruits	Quantitative	Weak	Examining part of programme	Other (Child abuse)
Perry (2012)	Twenty-First Century Police Training: Recruits' Problem-Solving Skills Following	Quantitative	Weak	Examining academic and/or field training programme	New learning model/ curriculum

	Scenario-Based Training				
Poradzisz (2004)	Alternative instructional methods in police learning	Mixed	Moderate	Examining academic and/or field training programme	New learning model/ curriculum
Porter and Alpert (2017)	Understanding Police Recruits' Attitudes Toward Public Interactions: An Australian Example	Quantitative	Weak	Recruit attitudes	
Randles (2001)	Effectiveness of multiple-choice examinations in the development of Stage 2 police probationer students	Mixed	Moderate	Examining part of programme	Other (Assessment)
Rantatalo and Karp (2016)	Collective Reflection in Practice: An Ethnographic Study of Swedish Police Training	Qualitative	Moderate	How recruits learn	Learning theory
Reaves (2016)	State and Local Law Enforcement Training Academies, 2013	Quantitative	Weak	Examining academic and/or field training programme	Comparing different training/recruit requirements
Renahan (2005)	Perception of police executives in New Jersey regarding the relationship of basic police academy training to expectations of proficiency or skills required for duty in their respective communities	Quantitative	Weak	Examining academic and/or field training programme	New learning model/ curriculum
Rojek <i>et al.</i> (2007)	The Standard of Local Law Enforcement Training in the United States	Quantitative	Weak	Examining academic and/or field training programme	Comparing different training/recruit requirements

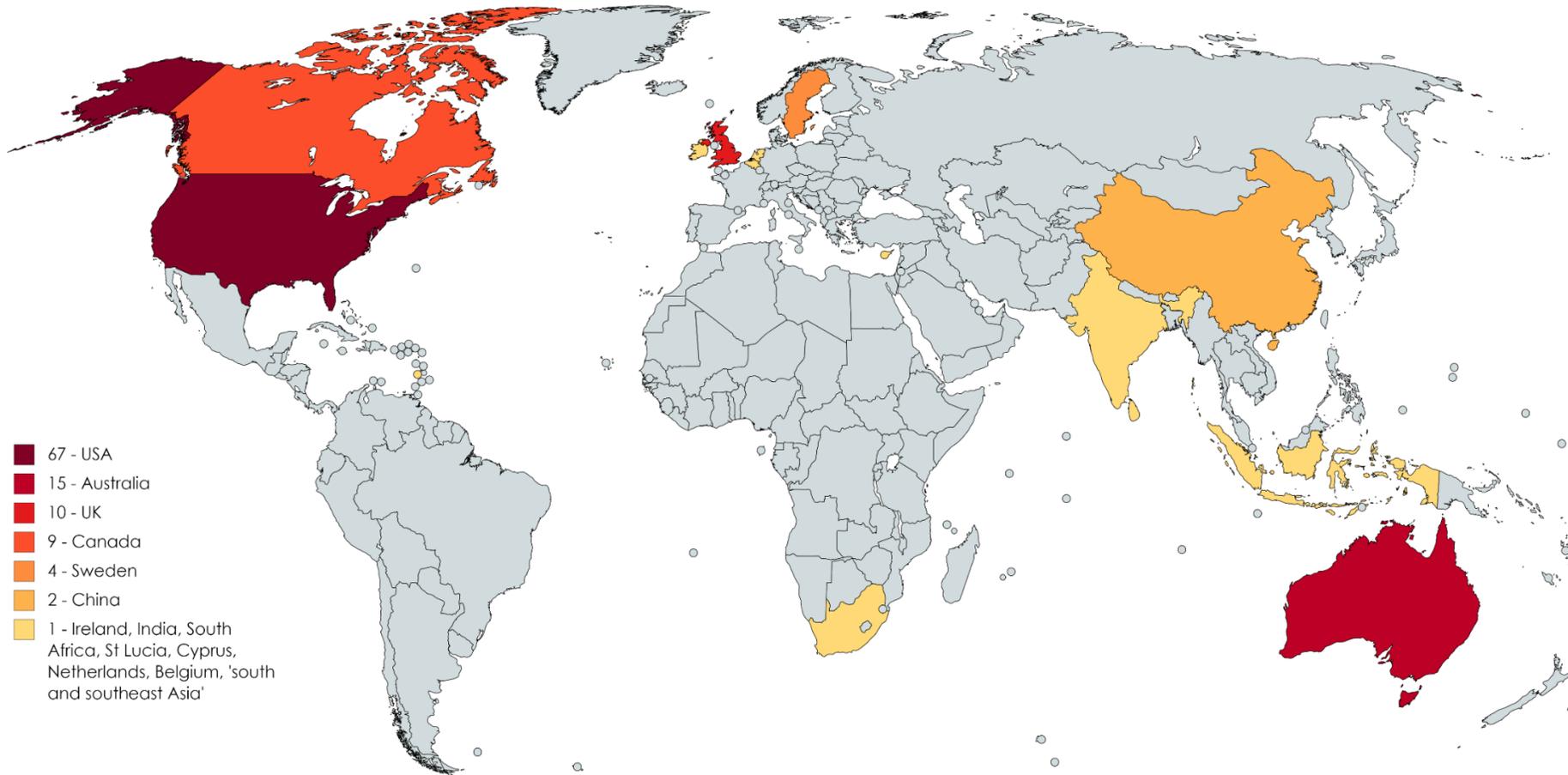
Rosenbaum and Lawrence (2012)	Teaching Respectful Police-Citizen Encounters and Good Decision Making: Results of a Randomized Control Trial with Police Recruits	Quantitative	Weak	Examining part of programme	Communication skills
Rostker <i>et al.</i> (2008)	Evaluation of the New York City Police Department firearm training and firearm-discharge review process	Qualitative	Moderate	Examining part of programme	Firearms training and use of force
Saus <i>et al.</i> (2006)	The Effect of Brief Situational Awareness Training in a Police Shooting Simulator: An Experimental Study	Quantitative	Weak	Examining part of programme	Firearms training and use of force
Schlosser <i>et al.</i> (2015)	Improving Policing in a Multiracial Society in the United States: A New Approach	Mixed	Weak	Examining part of programme	Cultural diversity
Schlosser (2011)	Evaluating the Midwest Police Academy's ability to prepare recruits to police in a diverse multicultural society	Mixed	Moderate	Examining part of programme	Cultural diversity
Schlosser (2013)	Racial Attitudes of Police Recruits in the United States Midwest Police Academy: A Quantitative Examination	Quantitative	Weak	Examining part of programme	Cultural diversity
Schuck and Rosenbaum (2011)	The Chicago Quality Interaction Training Program: A Randomized Control Trial of Police Innovation	Quantitative	Weak	Examining part of programme	Communication skills

Sedevic (2012)	An Evaluation of the Emergency Response Week Curriculum	Quantitative	Weak	Examining part of programme	Other (Emergency response)
Seggie (2011)	Initial police training for the 21st century: is the learning strategy meeting the needs of the organisation?	Mixed	Moderate	Examining academic and/or field training programme	Relevance and effectiveness of training
Shipton (2011)	Expanding Police Educators' Understanding of Teaching, Are They as Learner-Centred as They Think?	Mixed	Moderate	Examining academic and/or field training programme	New learning model/ curriculum
Shipton (2009)	Problem Based Learning: Does It Provide Appropriate Levels of Guidance and Flexibility for Use in Police Recruit Education?	Qualitative	Moderate	How recruits learn	Learning theory
Shochet <i>et al.</i> (2011)	The Development and Implementation of the Promoting Resilient Officers (PRO) Program	Mixed	Weak	Examining part of programme	Stress/coping mechanisms
Stanislas (2013)	Transforming St Lucian policing through recruit training in a context of high crime	Mixed	Moderate	Examining academic and/or field training programme	Relevance and effectiveness of training
Steyn and De Vries (2007)	Exploring the impact of the SAPS Basic Training institutes in changing the deviant police culture attitudes of new recruits	Quantitative	Moderate	Recruit attitudes	

Stroupe (2003)	A Study of West Virginia State Police Academy Graduates' Perceptions of Their Degrees of Competence and the Relevance of the Marshall University Community and Technical College Police Science Curriculum	Quantitative	Weak	Examining academic and/or field training programme	Role of HE
Thorneywork (2004)	Just how good is Nellie or Neil? Assessing the teaching skills of the tutor constable	Mixed	Moderate	Examining academic and/or field training programme	Field training
Traut <i>et al.</i> (2000)	Law Enforcement Recruit Training at the State Level: An Evaluation	Quantitative	Weak	Examining academic and/or field training programme	Relevance and effectiveness of training
Trump (2003)	Does the delivery model of a firearms training program affect qualification scoring and shooting accuracy?	Quantitative	Moderate	Examining part of programme	Firearms training and use of force
Vander Kooi (2006)	Problem-Based Learning: An Attitudinal Study of Police Academy Students	Quantitative	Moderate	Examining academic and/or field training programme	New learning model/ curriculum
Verma (2001)	'Making of the police manager: Bharat versus India.'	Quantitative	Weak	Recruit attitudes	
Vodde (2008)	The efficacy of an andragogical instructional methodology in basic police training and education	Mixed	Moderate	Examining academic and/or field training programme	New learning model/ curriculum
Warners (2010)	The Field Training Experience: Perspectives of Field Training	Quantitative	Weak	Examining academic and/or field training programme	Field training

	Officers and Trainees				
Weber (2012)	An Evaluation of a Midwestern Police Academy	Mixed	Moderate	Examining academic and/or field training programme	Relevance and effectiveness of training
Wong (2014)	Field Training Officers' Ratings of Communication and Listening Skills in Police Officer Trainees	Qualitative	Moderate	Examining academic and/or field training programme	New learning model/ curriculum
Wooden and Nixon (2014)	The Incorporation of Obedience to Authority into New South Wales Police Force Recruit Training	Quantitative	Weak	Recruit attitudes	
Young (2015)	A Comparison Between the Effects of the One-hour and Twelve-hour Massachusetts Municipal Basic Recruit Officer Course Mental Health Training on Officer's De-Escalation Skills, Self-Efficacy, and Stigmatizing Attitudes	Quantitative	Weak	Examining part of programme	Mental health
Zimny (2015)	Racial Attitudes of Police Recruits at the United States Midwest Police Academy: A Second Examination	Quantitative	Moderate	Examining part of programme	Cultural diversity

Appendix D – Geographic map of study locations



Note: For visual purposes, Sri Lanka was chosen to represent 'south Asia' and Indonesia to represent 'southeast Asia' as Lettic (2016) did not specify countries.