Introduction

This paper presents the first systematic map of the literature to date on police recruit training. Mapping out the 'landscape' of a topic area is often the first step in the synthesis of a literature that is directed by a broad research question (Gough *et al.* 2012: 30). It is a way to help identify research trends and the nature of available evidence (Schucan Bird *et al.*, 2016). Our research was undertaken in support of the introduction of the Police Education Qualifications Framework (PEQF) in the United Kingdom. The map presented here informed discussions with stakeholders, which in turn helped identify specific themes that were subjected to deeper thematic analysis and synthesis (see Belur *et al.*, this issue). The map itself is a useful summary of the knowledge base of police recruit training and, in particular, identifies the knowledge gaps.

Recommendations for improvements in police education and training date back to Vollmer (1936). Following on, the President's Commission on Law Enforcement and Administration of Justice (1967: 109-110) in the United States of America (USA) suggested, "the ultimate aim of all police departments should be that all personnel with general enforcement powers have baccalaureate degrees". Since then, some evidence supporting the contention that officers with college degrees perform better in many areas has emerged (Jones, 2016; Paoline *et al.*, 2015; Roberg and Bonn, 2004), including use of force (Paoline and Terrill, 2007; Rydberg and Terrill, 2010). On the other hand, the evidence that an undergraduate degree has a discernible positive impact on police officer effectiveness, attitudes, and performance is ambiguous at best (Wimhurst and Ransley, 2007; Shernock, 1992). Evidence also indicates that higher education either gained pre-employment or via post-employment degrees, "provide(s) a deeper knowledge base than traditional training programmes" and assist the development of a reflective practitioner (Blakemore and Simpson, 2010: 40).

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. Thus, until as recently as 2016, a minimum requirement of a Bachelor's degree has not been mandatory for all entry level officers in England and Wales, although many countries offer degrees through police colleges or academies (for e.g. Sweden, Norway and Germany).

Nonetheless, advocating professionalisation of the police is a recurring theme in police training literature (Beckman, 1976; Cordner and Shain, 2011; Lauritz *et al.*, 2012; Interpol, 2012; Hilal *et al.*, 2013). The term *professionalisation* implies transitioning to becoming a profession by fulfilling a host of requirements of a profession, including acquiring tertiary academic qualifications to undertake the police role and creating a body of research to underpin policing strategies (Paterson, 2011; Green and Gates, 2014; Brown *et al.*, 2018).

It is noteworthy that a uniform training programme for police recruit training does not exist in the UK, or indeed even the USA. Until the PEQF is implemented there is 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 can be partly attributed to the difference in structure and size of the 43 forces in England and Wales and 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). Given these circumstances, forces in England and Wales opted to train officers as they saw fit (Belur *et al.*, 2018) with notable variations across different forces.

It is important here 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 softer skills with emphasis on critical thinking and problem-solving.

There is recognition that the current training curricula and programmes are not adequate to support the requirements of recruit police officers in modern societies, as the context of their work changes. Further, the economic downturn has meant decreasing resources and growing emphasis on adopting an evidence-based approach to public policy more generally (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 (Cordner and Shain, 2016).

The CoP recognised that any reform or change in training would be best served if grounded in the evidence of 'what works' to equip recruit officers to become more professional. Consequently, this research 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?' Towards that end, this systematic map is the first attempt to collate existing evidence on police recruit training internationally. The following section discusses the methodology including the search strategy, inclusion criteria and the quality appraisal of the selected studies. A thematic discussion of the included studies is presented in the findings section. Finally, the conclusion highlights some gaps in the current literature and indicates areas for future research.

Methodology

The search strategy used in this study involved keyword searches of 11 relevant electronic databases[1], including grey literature[2] and dissertation databases, additional hand searches[3], and searches of publications by relevant government, research, and professional agencies conducted by an information specialist. Literature searches were conducted during May and June 2017.

The search terms centred on three concepts and three related groups of terms[4]: the first related to policing; the second, to training; with the third, specifically focused on initial recruit training.

Inclusion criteria

The following inclusion criteria were applied when screening records for eligibility in this review:

The study must:

1. 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 broadly as "a planned and systematic effort to modify or develop knowledge/skill/attitude through learning experience"[5]

2. Report the findings of an empirical research project on police recruit training. The data reported could be quantitative or qualitative in nature.

3. Cover substantive content on police training. By this we mean it should report, at a minimum, on either the structure, content or duration of the curriculum, the pedagogy, and/or assessment and evaluation methods.

4. Be available in English.

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[1] 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

[2] Grey literature refers to publications produced outside of commercial academic outlets. These include reports, dissertations, conference abstracts and policy documents

[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] Our search syntax was: ((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))

[5] Inspired by the European Police College (CEPOL Glossary, 2005) definitions on police training in general.

No restrictions were placed on research designs so long as they met points 1-4 above.

Screening process

After duplicate citations were removed, studies were screened on title and abstract to remove those that were, based on our inclusion criteria, obviously ineligible. Inclusion at this stage was biased towards being more inclusive in cases where the abstract was either unclear or hinted at the study being relevant for our purpose. Full text screening was conducted and the inclusion criteria applied to remove studies that were ineligible. Given the large number of studies that met the inclusion criteria, we then decided to apply the exclusion criteria thus eliminating studies published pre 2000 in order to focus on the more recent evidence.

Inter-rater reliability, data extraction and sense-checking

Studies were screened and coded by a team of three researchers and inter-rater reliability (IRR) tests were conducted at three points at the screening on title and abstract stage: pre-screening, half way through the screening process, and post-screening. This helped to check whether coding behaviour was consistent across the team and the code book was refined each time. Initial agreement rates for the three exercises (52%, 68%, 87%) indicated that despite clear inclusion criteria, screening involved 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.*, 2019). After each IRR test, team members revisited the studies they had already coded in line with the decisions made at the IRR reconciliation meetings and made appropriate changes. However, the final agreement figure of 87% was considered adequate, particularly as decisions made by the less experienced members of the team erred on the side of inclusivity.

Full studies were coded and data extracted to capture key information about various aspects of training including content, design, delivery and evaluation or assessment as well as trainer and trainee satisfaction levels by all three members of the team. Sense checking exercises were conducted, which involved each researcher discussing studies that they were unsure or conflicted about, at regular intervals during screening of full texts and decisions were taken by consensus. Further, team meetings were conducted once a week to discuss coding decisions and clarifying concepts, throughout the coding process,

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 established quality appraisal tools, one for each of the research design types: qualitative, mixed-methods, and quantitative. These included the CASP (2017) Qualitative Checklist, the Mixed Methods Appraisal Tool (MMAT) (Pluye *et al.*, 2011) and Effective Public Health Practice Project (2017) (EPHPP) Quality Assessment Tool for quantitative studies. To group studies according to their strength, a slightly amended scoring system was

implemented for use with both the CASP and MMAT tools[6]. Studies were double blind quality appraised and final scores were arrived through discussion involving all three members of the team.

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 scores[7].

Findings

Figure 1 illustrates the process from initial searches to the final set of 109 studies[8]. Due to resource constraints, when screening on full texts resulted in a set of 304 relevant studies, a decision was made in consultation with project partners and the College of Policing to focus on more recent studies, based on the notion that since police training is changing and evolving, evidence from more recent studies might be of greater relevance, was made. The millennial year was chosen as an arbitrary cut-off point at this stage on police recruit training that are included in this map.

Figure 1: about here

Demographics

Some studies took place across multiple locations, for example Wooden and Nixon (2014) carried out a study across Australia, Canada, and China. Consequently, data was collected in 115 locations across all studies (see Table 1). Of these, 109 (91 per cent) originated from Anglo-based countries.

Table 1 about here

With respect to publication types, journal articles accounted for almost half of the studies (46%, n = 50), with grey literature such as dissertations, theses, and reports comprising a similar proportion (47%, n=51). Books and conference papers made up the remainder (7%, with n = 4 for each, respectively). 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.

Of the 109 studies, 54 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 included studies were double-blind quality appraised, and studies were given quality ratings based on the abovementioned three quality appraisal

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[6] In the original scoring system for both tools 'Yes' answers received two points and 'no' and 'can't tell' answers received zero points. Scoring for the CASP tool, was amended to allow robust studies to rate higher than studies which technically met the minimum criteria to answer each question. Thus from question 5 onwards scoring for 'yes' answer was changed in favour of 'yes, substantive' (giving two points) and 'yes, mentions' (giving one point).

[7] This instrument is available from the corresponding author on request.

[8] The full list of studies is available at UCL repository at xxx

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(QA) tools[9]. When the quality ratings were cross-referenced with study design a striking finding was that most of the quantitative studies were classified as 'weak'; significantly more so compared to mixed methods or qualitative studies. This, though, can be explained by the QA tool used, as there were only seven (13%) of the included quantitative studies that fit the 'gold standard' design of randomised control trial. Other research designs were quasi-experimental (7%, n=4); before and after studies (33%, n=18), post-intervention measures (26%, n=14) and 'other' (20%, n=11).

Systematic Map

The evidence on police training was grouped according to five themes (see Figure 2): i) examining academic and/or field training; ii) examining part of a training programme; iii) how recruits learn; iv) new learning/teaching tools, and v) recruit attitudes. These themes were generated inductively, guided by the aims of the study specified by the study authors. The specific themes emerged from their recurrence in the literature and from the perspective of what might be most useful for informing future training programmes. Two studies fell outside these themes; Kringen (2014) sought to identify barriers to women entering the policing profession and Meier *et al.* (2016) compared attrition of police officers to peer evaluations during academy training.

Figure 2 about here

i. 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). Overall quality appraisal revealed that four studies were deemed strong (with two apiece using qualitative and mixed-methods), 16 were moderate (with one study using quantitative methods, two using qualitative methods and the remainder using mixed-methods), and 16 were of weak quality (12 studies using quantitative methods, two using qualitative methods and two studies using mixed-methods).

Five studies focused on the evaluation of curriculum design and/or change in curriculum, comparing an old (traditional, lecture-based) learning model or curriculum with a new model (Poradzisz, 2004; Vander Kooi, 2006; Chappell, 2008; Hess, 2014; Wong, 2014). Generally positive findings were reported that new models (community-focused and/or problem-based) were in some way more effective in developing recruits compared with the traditional models.

Teaching approaches featured strongly within the studies examining the academic content and delivery in training programmes. For example, student-centred approaches such as problem-based learning[10] (PBL) were examined across a range of settings, with mixed findings on the

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[9] Full details are available on request from the corresponding author.
[10] "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).

perceptions of its effectiveness by both recruits and police trainers (King Stargel, 2010; Lettic, 2016; Vander Kooi, 2006). Although, Shipton's (2011) study does highlight that eliciting opinions about teaching approaches could be influenced by whether closed or open questions are asked. With respect to outcomes, Vander Kooi (2006) found that recruits learning through a PBL-based approach possessed thought processes more aligned with community policing strategies then students taught using traditional methods.

Several studies examined the direct impact of field training officers on recruits. These studies generally centred on the role of the field training officers (FTOs), with Novakowski (2003) finding that recruit satisfaction with field training was entwined with how positively they interacted with their FTO. Getty et al. (2016) found FTOs had a statistically significant effect on allegations of misconduct subsequently levied against their trainees. Hence, they concluded that 'bad apples' or poorly trained tutors may have a harmful influence on their trainees. Weber (2012: 73) concludes that FTOs are what "makes or breaks the success of the academy training program". Some of these findings may be partly explained by Green's (2001) finding that both tutor constables and probationers were overworked, which affected the quality of training provided and internalised respectively.

The lack of coherence between academy-based classroom material, and subsequent field training, was indicated by three studies. Chappell's (2007) study on community policing suggests one reason for the incongruence might be the lack of community police training for the FTOs themselves. Similarly, Campbell (2014: 77) raised concerns over trainers not having appropriate training to deliver new material adequately, "especially in problem-based learning"- a recurring theme through a lot of the literature on police training. Furthermore, academy or classroom-based training was often dismissed by field training officers, as was pre-training policing experience of recruits (Hundersmarck, 2004; 2009).

Some studies compared whether training was provided prior to employment or post-employment (Campbell, 2014; Heslop, 2013a; Heslop 2013b). These found 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. As Chappell (2008) notes, officers with previous educational qualifications were more likely to be successful in the academy or during training, supporting Campbell's (2014) recommendation to provide supporting courses to students to help them adjust to learning in a college environment, thus emphasising the importance of academic performance.

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 most 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.

Therefore, the literature indicates, for more progressive or community policing based police forces and services, training focused on academic achievement through PBL might be the most appropriate training approach.

A number of studies evaluated the facilities and resources required to deliver effective training programmes. For example, Drummond (2010) found that there were higher retention rates, higher self-efficacy ratings, and better teaching style ratings amongst a university-based cohort compared to a law enforcement academy cohort. The implication being that the training location may have some impact on retention and satisfaction rates. Two 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).

Therefore, the literature indicates, for more progressive or community policing based police forces and services, a model that is focused on academic achievement through PBL might be the most appropriate training approach. Furthermore, choice of motivated FTOs and training to ensure they are equipped to deliver teaching material was also a prominent finding. Finally, the evidence highlights the importance of ensuring the training structure and content effectively links theory or classroom based training with the operational experience of policing.

ii. Examining part of a 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. Quality appraisal indicated four studies rated as strong (all using qualitative methods), nine as moderate (three studies using quantitative methods, one study using qualitative methods and the remainder using mixed-methods), and 23 being of weak quality (20 studies of which used quantitative methods, one used qualitative methods and two used mixed-methods). We first present training imparting 'hard' skills that were assessed, before moving on to delivery of 'soft skills' training that were evaluated.

Seven studies focused on firearms training, or learning to use force, within recruit programmes. For example, Davies (2015; 2017) found simulations effective in ensuring 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. 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). Two 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 (Lande, 2010; Rostker *et al.,* 2008).

The two studies on fitness training both found that it is important that programmes ensured sustained fitness rather than a constant improvement in fitness. This was because Crawley *et al.* (2016) found that there was no further improvement in recruits' fitness after the initial period of eight weeks and Orr *et al.* (2016) found similar results in an Australian setting.

Cultural diversity training was covered by nine studies. While some studies found that recruits developed their understanding of equality and diversity as a result of academy training in the short term (Bruns *et al.,* 2005; Clapham, 2009; Miles-Johnson and Pickering, 2017; Schlosser *et al.,* 2015), others identified problematic results and found that training was inadequate (McMorris, 2001; Miles-Johnson *et al.*, 2016; Schlosser, 2011; 2013; Zimny, 2015). For example, McMorris (2001) found that police recruits stereotyped racial minorities as being more likely to commit violent crimes, post training. 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) and Zimny (2015) both found levels of racial colour-blindness amongst recruits did not significantly decrease after attending training. On another dimension of discrimination, 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. 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).

Communication skills were the subject of four studies. Two studies examined training programmes which aimed to produce officers with effective communication skills to serve their specific communities and found mixed results (Rosenbaum and Lawrence, 2012; Schuck and Rosenbaum, 2011). Hartwig *et al.* (2006) and Dando *et al.* (2009) investigated recruits' abilities in interviewing civilians after receiving a particular training programme that focused on improving communication and found that although witness interview training did not produce the desired effect, deception training had a positive impact on recruits' deception detection abilities.

Recruits' abilities to recognise mental health symptoms was the focus of four studies (Barrett, 2014; Council of State Governments Justice Center, 2017; Kaur, 2017; Young, 2015). All studies reported positive findings regarding recruits' ability to recognise mental health symptoms following the training.

Seven studies focused on training for coping with stress which could be grouped into two types - 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). Three studies reported positive short-term findings from interventions and one study reported benefits maintained after two years. The reasons for these were not explored in greater detail.

Thus, the evidence indicates mixed findings for training focused on specific topics such as diversity training or recognising mental health symptoms. However studies had no or little description of how the training was intended to bring about desired behaviours in recruits and lacked deeper explanations for why some programmes and topics might have had more successful outcomes than others, which constitutes a gap in the literature.

iii.   How recruits learn (n=14)

This theme focused on how recruits learned to become a police officer, either through learning theories or organisational culture. As such, studies in this theme fell into one of two sub-themes: socialisation/ occupational culture (nine studies) or learning theory (five studies). Regarding quality, three were classified as strong (two studies used qualitative methods, and one used mixed-methods), ten were moderate (seven studies used qualitative methods with the remainder using mixed-methods), and one was weak (using quantitative methods).

One of the main findings from the studies on socialisation was that learning was impeded if the training environment in the academy was at odds with the demands of operational field conditions. This was especially true of paramilitary-structured academies, which did not align well 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). 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). Related to this, it was commonly found that students were highly receptive to 'war stories' – that is, informal stories that highlight an 'exciting' or 'heroic' example of on-duty experience - 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). Both Conti (2000) and Haarr (2001) noted that academies could institutionalise recruits, in both positive and negative ways, the negative aspects are reinforced if either the informal culture or the field training does not reinforce classroom training.

Several studies examined the question of 'how police recruits learn' using learning theory, in particular andragogy[Error! Bookmark not defined.][11] (McCay, 2011) and PBL (mentioned previously, see Shipton, 2009); both which were found to be effective in developing the skills appropriate to policing. These often emphasised that it is important that recruit training move beyond a paramilitary sense of instilling physical skills and operational competence, to acknowledge and emphasise and the importance of learning to 'become' a police officer (Heslop, 2011). Studies in this sub-theme focused on the idea that it is important that police recruit training moves beyond a paramilitary sense of instilling physical skills and operational competence, to acknowledge and emphasise and the importance of learning to 'become' a police officer. Structured learning, through scaffolding, with appropriate levels of guidance and feedback (Shipton, 2009; Hendricks, 2014) and collective reflection (Rantatalo and Karp, 2016), were identified as important processes in recruit learning. 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. Furthermore, socialisation both within the academy and during the field training appear to have an impact on police recruits

iv.   New learning/teaching tool (n=8)

The focus of this theme was specific tools that facilitated learning or teaching during recruit training. This included 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). Within this theme, three studies were deemed of moderate quality (all using mixed-methods), and five were considered weak (four of which used quantitative methods and one study used mixed-methods).

The studies examining the impact of incorporating IT/VLE in police training found that the use of IT aided enhancements of the tested training area, however areas for improvement included the importance of making these technologies user-friendly, realistic and correctly implemented for the best results. Specific training topics that were studied were communication skills (Bosse and Gerritsen, 2017), forensic examination skills (Drakou and Lanitis, 2016), investigation skills (Davies and Nixon, 2010) and visual performance skills (Liberman and Horth, 2006).

As mentioned in section ii, simulation-based training in recruit training featured in the sample of studies. A simulation in the training environment is an activity "to provide an experiential context for learning that offers participants a tangible, reality based experience" (LaLonde, 2004: 20). Studies found that simulations can be a highly effective learning tool for police recruits, although adequate training and the appropriateness of assessment techniques were stressed (Holbrook and Cennamo, 2014; Paquette and Belanger, 2015).

v. 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. Regarding quality, one was appraised as being strong (using mixed-methods), three were moderate (one using quantitative methods and two using mixed-methods), and nine were weak (all using quantitative methods) studies.

Broadly speaking, 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 (Mather, 2012; Steyn, 2007). 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 over the training period (Alain and Baril, 2005; Andersen, 2006; Hoshell, 2009; Blumberg *et al.*, 2016; Porter and Alpert, 2017). However several 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 Baril, 2005; Andersen, 2006). Reasons offered for this attitudinal decline were that recruits were probably less able to 'make a difference' than initially believed (Andersen, 2006), they may change their views of non-legalistic practices (Fekjaer *et al.*, 2014), and that there were limited opportunities for career advancement (Alain and Baril, 2005).

Overall, evidence indicates that training intended to influence recruit attitudes towards the profession is less successful than is desirable, given that developing the correct attitude towards their role so as to meet expectations of recruits when they work in the field is an important aspect of police training.

Discussion

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). However, the need for graduate level training, as envisaged by the Police Educational Qualification Framework (PEQF), is an acknowledgement that modern policing faces increasing complexity which requires officers to respond to difficult and fast changing challenges of a diverse society in more flexible ways. It, thus places greater emphasis on the development of critical thinking and problem-solving skills, as well as softer skills such as better communication and collaboration (Huey *et al.*, 2017).

The gamut of evidence on recruit police training spans across a number of themes and specific topics that emerged from this review, with some topics being more researched than others. Recurring themes included: the importance of understanding how recruits learn, incorporating andragogy into curricula, the limitations of the paramilitary model of police training, police socialisation and occupational culture, integrating theory and practice, and the role of the tutor constable or field training officer (FTO). 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. 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. Areas such as communication, negotiation, multi-agency working and problem solving have reportedly been neglected within traditional training programmes (Lauritz *et al.*, 2012).

The nature of the research reviewed in this map was highly varied, 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 was notably different (see Appendix A). Overall the quality of the evidence was fragile, with half of the included studies (50%) receiving a 'weak' score in the quality appraisal. For example, a number of studies reported a single post-intervention measure (n=15, 14%), with no comparable control group. Thus, our findings are only as robust as the quality of evidence that it is based on and we accept that as a limitation of the study.

One of the most striking findings emerging from the review was the lack of an agreed upon conception of what the training was 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 whole training programme.

Thus, in terms of contributing to the design and content of future training programmes, the current evidence supports some broad-brush conclusions about innovative training approaches like problem based learning (PBL) or community-oriented models of training that have proven to be more 'effective' than traditional or paramilitary training models. The evidence reveals that perhaps focusing on training the trainers in these new models of training, and adopting appropriate teaching tools suited for particular learner needs, might be effective when designing new training programmes. Further, the lack of evidence in this review on the integration of theory and practice delivered in the classroom and via field training that currently exists in police training, is considered to be a crucial knowledge gap, especially if the training is to be uplifted to a graduate level entry programme, as envisaged in the UK. Based on evidence from other professions that have a graduate level entry course, the integration of theory and practice requires field trainers and academic educators to collaborate both from a philosophical perspective (in having a shared vision of the expected outcome, i.e. what a professional police officer should look like), and an education perspective (co-designing the course and associated assessments) (Belur *et al.*, 2018).

Finally, it is evident that evaluation studies in this field have done little more than conclude training effectiveness based on officer knowledge (via tests or assessments) or officer perceptions about usefulness (or otherwise) of training. The evidence also indicates that assessments themselves are not used particularly creatively, either formatively (assessments *for* learning) or summatively, for testing the effectiveness of training (assessments *of* learning). Future training programmes might be well advised to explore creative design and use of assessments to a fuller degree.

Thus, this overview of police recruit training reveals that the nature of available evidence is patchy at best, and covers a number of themes but does not explore in depth the nuances of why training does or does not work and is surprisingly lacking in any discussion of a theory of change underpinning training programmes. Thus, in terms of answering our research question: what can we learn from the existing evidence that will inform the development of a graduate level training programme in the UK?, this review contributes more in terms of identifying the gaps regarding what we currently don't know, but ought to, about recruit training than identifying what definitely works or does not work and why. This in itself is an important finding for those involved in police training research.

Limitations

One of the biggest limitations of the study is the quality of evidence that informs it. Figure 2 indicated that a majority of the studies are or poor and moderate qualities[11]. Thus, the conclusions drawn from them are tenuous at best. Secondly, the admittedly arbitrary cut-off date of 2000 as an inclusion criteria might have eliminated studies that might contain more useful evidence, which has not been captured by this map. Thirdly, we recognise that there is a considerable literature on police training in other languages, but the abilities of the research

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[11] For a full list of study quality see UCL repository at xxx

team restricted our search to English language studies. Finally, although this is an attempt to systematically review the evidence, there is some element of subjectivity involved in the screening and coding process as they are decision-making by individuals, which can often be affected by a number of factors (Belur *et al*., 2019). As the less than perfect agreement in the IRR process indicated, there exists a margin of error in the selection and coding of studies which meant that perhaps some relevant studies were excluded or nuances of study findings might have been missed.

Direction for future research

Our research indicates that the literature on police recruit training is fragmented and varies in terms of the study focus, methodological rigour and outcomes measured. This systematic map clearly indicates that there is considerable 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 map was useful in identifying areas where some evidence exists, albeit not always of reliable quality, but was more helpful in identifying areas where there are considerable gaps in our knowledge about what works in police recruit training. The lack of good evaluation studies employing robust methodology was marked. Thus, any attempts to ground the design and development of graduate recruit training programmes in evidence would be well served if accompanied not only by a clearly articulated theory of change which identifies interim outcomes and long-term impact, but also a robust process and outcome evaluation strategy.

In conclusion, we recommend that 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 whether something "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.
e) Finally, the evidence indicates the need for conducting methodologically rigorous evaluations of existing and new training programmes, especially in the context of the reconceptualised recruit training and education approach envisaged by the PEQF in the UK.

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