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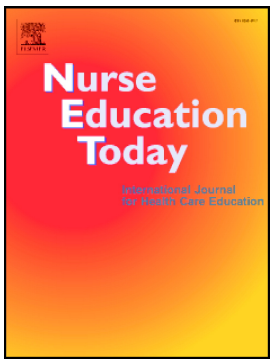

Factors that optimise the impact of continuing professional development in nursing: A rapid evidence review

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FACTORS THAT OPTIMISE THE IMPACT OF CONTINUING PROFESSIONAL DEVELOPMENT IN NURSING: A RAPID EVIDENCE REVIEW

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ABSTRACT

Objectives

Continuing professional development is essential for healthcare professionals to maintain and acquire the necessary knowledge and skills to provide person centred, safe and effective care. This is particularly important in the rapidly changing healthcare context of the Covid-19 pandemic. Despite recognition of its importance in the United Kingdom, minimum required hours for re-registration, and related investment, have been small compared to other countries. The aim of this review is to understand the factors that optimise continuing professional development impact for learning, development and improvement in the workplace.

Design

A rapid evidence review was undertaken using Arksey and O'Malley's (2005) framework; identifying a research question, developing a search strategy, extracting, collating and summarising the findings.

Review methods

In addressing the question 'What are the factors that enable or optimise CPD impact for learning, development and improvement in the workplace at the individual, team, organisation and system level?' the British Nursing Index, the Cochrane Library, CINAHL, HTA database, King's Fund Library, and Medline databases were searched for key terms. A total of 3790 papers were retrieved and 39 were included.

Results

Key factors to optimising the impact of nursing and inter-professional continuing development are; self-motivation, relevance to practice, preference for workplace learning, strong enabling leadership and a positive workplace culture. The findings

reveal the interdependence of these important factors in optimising the impact of continuing professional development on person-centred care and outcomes.

Conclusion

In the current, rapidly changing, healthcare context it is important for educators and managers to understand the factors that enhance the impact of continuing professional development. It is crucial that attention is given to addressing all of the optimising factors in this review to enhance impact. Future studies should seek to measure the value of continuing professional development for people experiencing care, nurses and the wider organisation.

Keywords

Nursing, continuing professional development, learning, workplace culture, leadership

BACKGROUND

Continuing Professional Development (CPD) aims to sustain competence, and introduce new skills (Ross et al., 2013), protecting the public by providing ethical, effective, and safe practice (Nursing and Midwifery Board of Australia, 2016). It is important in meeting the changing needs of society (for example the current Covid-19 pandemic), in ensuring care is person-centred, compassionate and evidence-based, and in enabling progression up and across career frameworks. CPD is defined as "*a life-long process of active participation by nurses in learning activities that assist in developing and maintaining their continuing competence, enhancing their professional practice, and supporting achievement of their career goals*" (Pool et al. 2013). The term is often used synonymously with continuing nursing education, life-long learning, and professional skills development (Royal College of Nursing, 2016).

The Covid-19 pandemic is presenting our healthcare system with its greatest ever challenge, therefore it is a crucial time to reflect on how best to support nurses in their professional development. Davidson et al. (2020) suggest that, rather than

increasing the content in undergraduate curriculums, we need to focus on key factors that create resilient healthcare systems. These include; skills in translating knowledge into practice, critically evaluating current practice, and strong nursing leadership and research (Davidson et al. 2020). The importance of contextual factors (including culture, evaluation, and leadership) and holistic facilitation in influencing knowledge translation has been presented in previous studies for example the 'Promoting Action on Research Implementation in Health Services' (or PARiHS) framework (Kitson et al. 1998), the knowledge to action cycle (Graham et al., 2006), and more recently though an organisational learning approach, involving co-production (Rowley et al. 2012).

The United Kingdom (UK) has a comparably small CPD requirement for nurses of 12 hours per year to maintain professional registration compared to other countries worldwide which average 30 hours per year (European Union Health Programme, 2013; Tran et al. 2014). A recent reduction in access to CPD in the UK has raised a number of potential concerns for both the nursing profession, and the public. First, nurses may face difficulties in meeting the CPD requirements for revalidation, which the NMC advise should not include mandatory training (Nursing and Midwifery Council, 2017; Royal College of Nursing, 2018). Second, there are concerns that, without adequate training, nurses will be underprepared to supervise future nursing students in attaining the new standards of proficiency which set out the extended knowledge and skills expected of nurses when they register. These include performing venepuncture, cannulation, electrocardiogram (ECG), physical examination (including chest auscultation), and administering intravenous medication (Council of Deans of Health, 2016; Royal College of Nursing, 2018; Nursing and Midwifery Council, 2018). Third, there are concerns over the impact of CPD reductions on nursing recruitment and retention (House of Commons Health Committee, 2018). Finally, an association between level of nursing qualification and patient safety has been identified but little work has been undertaken on how access to CPD impacts safe and effective care (European Union Health Programme, 2013, Aiken et al. 2018). One review suggests that inability to access CPD influences patient safety and quality of care, compounds issues surrounding competence to

practice and professional registration, and adversely affects job satisfaction, recruitment and retention (Coventry, 2015). Recently published 'Principles of Preceptorship' (Nursing and Midwifery Council, 2020) go some way towards addressing these concerns for newly qualified nurses; recognising the importance of providing support through a positive workplace culture, and empowerment to meet individual learning needs.

Two empirical studies have contributed significantly to knowledge in this area (Jackson et al. 2015 and Illing et al. 2019). Jackson et al. (2015) used realist methods to develop and test theoretical propositions to understand the mechanisms by which a CPD intervention works (or fails to work). Four theoretical propositions explain the mechanisms through which CPD could generate positive outcomes; transformation of individual practice, transformation of skills, transformation of knowledge and transformation of workplace culture.

Illing et al. (2019) also used a realist approach to explore how the education and training of health and social care staff transfers to practice and benefits patients. They developed a guide to facilitate staff training based on four steps; designing training to demonstrate patient benefit, ensuring the learner is motivated and ready to learn, ensuring the learning is successful and it is transferred into practice.

This review set out to understand the factors that enable or optimise nursing CPD impact for learning, development and improvement in the workplace.

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REVIEW METHODS

A rapid evidence review was undertaken following a five stage framework (Arksey and O'Malley, 2005); identifying a question, identifying relevant studies, selecting studies, charting the data, collating, summarising and reporting the findings. An optional sixth stage of a consultation exercise with key stakeholders is currently ongoing. Rapid evidence reviews;

> *"… use accelerated or abbreviated (streamlined) methods as compared to traditional systematic reviews"* (National Collaborating Centre for Methods and Tools, cited in, Booth et al. 2016: 175).

The research question of 'What are the factors that enable or optimise CPD impact for learning, development and improvement in the workplace at the individual, team, organisation and system level?' was developed through preliminary reading and engagement with key experts in the field (KM and CJ).

The 'Population, Exposure, Outcome' (PEO) framework was used to develop the search strategy (Moola et al. 2015). The population included registered nurses in comparable health service contexts (Europe, North America, and Australasia) in acute or community settings. The exposure was continuing professional development, and outcomes were measures of CPD transformation in the workplace (see Table 1 for search terms).

Databases searched between September and November 2019 were; the British Nursing Index, the Cochrane Library, CINAHL, HTA database, King's Fund Library, and Medline. Searches were limited to publications from 2002 to 2019. The start date of 2002 was chosen as this was the year that the Nursing and Midwifery Council (NMC) took over responsibility from the United Kingdom Central Council for Nursing, Midwifery and Health Visiting (UKCC) for monitoring post-registration education and practice.

Papers were not limited by design or methodology, however, opinion, discussion, news articles, non-English papers, and those focusing on mandatory training, undergraduate student nurse training and healthcare professions other than nursing were excluded.

Study selection was conducted in two stages. Firstly, one reviewer screened titles and abstracts. Second, full texts of all studies that met the inclusion criteria were obtained and reviewed by two researchers independently and disagreement

resolved by reaching consensus. The results of the study selection process are presented in Figure 1 as a PRISMA flow chart (Moher et al. 2009).

The review retrieved 3790 papers, reduced to 2568 after removing duplicates. After title and abstract review, 79 full text papers remained. Further exclusion of 42 papers following full text review resulted in 37 papers being included, and 2 further reports from reviewing grey literature were added (Table 2). A range of review, quantitative, qualitative and mixed methods papers have been included after assessing the quality using the Critical Appraisal Skills Programme tools (CASP) (CASP, 2019). The quality of returned papers varied. However, all had something important to offer in relation to the review question and were therefore included. The results are presented through an integrative summary, which is particularly useful when considering a large body of literature on a broad topic (Booth et al. 2016).

RESULTS

The review includes a range of international literature with studies undertaken in Australia (n=13), Canada (n=5), Sweden (n=5), the UK (n=10) and the US (n=4). Study designs were; reviews (n=5), quantitative (n=7), qualitative (n=13) and mixed methods (n=12). They covered a breadth of settings including general and specialist acute care, mental health care, and older people's residential care.

Factors that optimise the impact of nursing CPD relate to individual, team, and organisational transformation (Jackson et al. 2015). This paper presents the key concepts across those different levels, which enable transformation of knowledge into practice. These are self-motivation, relevance to clinical practice, preference for workplace learning, strong enabling leadership, and a positive workplace culture. However, these factors are not isolated entities but are intricately linked (Figure 2) with the benefit of the whole being greater than the sum of the individual factors. For example, relevance of CPD to the workplace is found to improve individual

motivation however, without support from strong enabling leadership and a positive workplace culture, there will be little transformation of practice.

Self- motivation

A theme spanning many of the papers was that CPD in nursing is enhanced by self-motivation, primarily through critical reflection of practice (Chapman, 2006; Davis et al. 2016; Goudreau et al. 2015; Govranos and Newton, 2014; Haywood et al. 2012; Rivas and Murray, 2010; Sandahl et al. 2013; Williams, 2010). Nurses were recognised as being best placed to take responsibility for their own CPD (Davis et al. 2016; Illing et al. 2019; Williams, 2010).

Factors that improve self-motivation are; perceived relevance of CPD to their role; a desire to provide high quality safe and effective care; peer attitude and valuing of learning; and a desire for career progression and concomitant remuneration (Govranos and Newton, 2014; Goudreau et al. 2015; Haywood et al. 2012; Hughes, 2005; Rivas and Murray, 2010; Sandahl et al. 2013). Further motivating factors include a willingness to learn (Goudreau et al. 2015), and clear relevance and benefit of the learning activity to clinical practice (Chapman, 2006; Sandahl et al. 2013). A lack of commitment and motivation notably hindered CPD learning and implementation for both individuals and teams (Goudreau et al. 2015; Lees and Meyer, 2011).

Self-motivation, although important in enhancing CPD impact, was clearly influenced by other factors (addressed in subsequent themes), such as relevance of the topic to clinical practice and a supportive culture (Haywood et al. 2012). This illustrates the complexities and interdependence of the elements identified in this review. Self-motivation needs to be supported at both the clinical setting (micro) level and organisational (meso) level (Davis et al. 2016; Eddy et al. 2016; Haywood et al. 2012; Williams, 2015; Williams, 2010).

Relevance to clinical practice

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Individual motivation to learn is improved if learners see the direct relevance of CPD to their work (Jackson et al. 2015; Manley et al. 2018). Aligning CPD with organisational priorities, and the needs of people experiencing care, will ensure this relevance is apparent. It can also help generate appropriate investment, managerial buy-in and therefore acceptance (and expectation) of transformational change in the clinical setting (Eddy et al. 2016; Haywood et al. 2010; Williams et al. 2015).

Learning that took place outside of the workplace was often found to lack relevance (Lees and Meyer, 2011, Sandahl, 2013). Hughes (2005) noted how some nurses found reflective practice difficult, being unable to identify the consequences of their actions for self and others, creating challenges to improving their own practice or in seeking to transform practice. Linked to this was a dissociation of CPD from lifelong learning when CPD was target driven (to maintain registration) rather than related to transforming practice (Hughes, 2005).

Few studies in this review measured the impact of CPD on patient care directly, despite this being the most important outcome of effective CPD. One study interviewed nurses after completing a work based learning programme and found that they perceived CPD to improve patient knowledge, access and choice of services (Chapman, 2006). In another study, participants recognised the need to integrate professional development with quality nursing care (Beal and Riley, 2019). Bradshaw et al. (2007) found that work based clinical supervision, alongside training in psychosocial interventions, led to improved outcomes for service users.

Preference for workplace learning

For individuals and teams, the workplace is identified as a valuable context for learning, development and improvement as it enhances knowledge translation, linking closely to the previous theme on ‘relevance to practice’. At an individual level, newly qualified nurses benefit significantly from workplace learning strategies. Henderson et al. (2015) showed an increased sense of belonging, accomplishment, worth and engagement following a preceptorship programme. Similarly, Fox et al. (2005) found that an effective preceptor relationship was highly regarded and

supported nurses to settle into their new working environment. In addition, Carlson and Bengtsson (2015) asserted the importance of preceptorship in driving learning and development forward.

Team-based learning in the workplace was particularly effective in facilitating workplace transformation (Augustsson et al. 2013; Eddy et al., 2016; Williams et al. 2015; Tobiano et al. 2019). Augustsson et al. (2013) found that workplace study circles improved perceptions of palliative care, and led to a greater understanding of co-workers' ways of working. Similarly, Tobiano et al. (2019) demonstrated that intensive care nursing rounds positively influenced the application of evidence in practice, identified areas for improvement and improved the ability to communicate clinical information. They observed an increase in knowledge translation as a result of shared, inter-disciplinary learning and enhanced teamwork. Further innovations in workplace learning include; action learning sets (Rivas and Murray, 2010), simulation team-training (Sandahl et al. 2013), joint working to implement a facilitator role (Mulcahy et al. 2018), adopting colleagues as 'critical friends' (Carlson and Bengtsson, 2015), and the introduction of a toolbox to improve competence in an elderly care setting (Arnetz and Hasson, 2006).

Organisational support for workplace learning is fundamental to its success (Goudreau et al. 2015). For example, Farrell (2016) reported the potential value of using technology in facilitating work-based learning in everyday practice but recognised that this was reliant on support from organisational leaders. This reveals some overlap between the themes of workplace learning and a positive workplace culture, reinforcing the interdependent nature of the findings.

Barriers to workplace learning were raised by a number of studies in the review. There were concerns regarding the realistic potential of workplace learning in a context that is worryingly stretched (Chapman, 2006). Time pressures (Govranos and Newton, 2014; Sandahl et al. 2013), stress (Sandahl et al. 2013) and heavy workload (Lees and Meyer, 2011) were considered to affect individuals' ability to learn and reflect effectively. Indeed, time is essential for learning but time for mentoring is

equally important. Chapman (2006) found that a lack of availability of mentors and insufficient one-to-one time with mentors impeded workplace learning.

It is clear that the value of workplace learning (rather than more traditional, off-site training) needs to be recognised at the organisational level to fully embed learning into the clinical setting (Baumbusch et al. 2017; Eddy et al. 2016; Davis et al. 2016; Haywood et al. 2012; Williams et al. 2015).

Interventions that promote knowledge translation of off-site learning can increase the impact of CPD. Bradshaw et al. (2007) showed that additional workplace supervision following an off-site CPD intervention improved the knowledge and attitude of mental health nurses toward individuals with psychosis. Similarly, Heaven et al. (2006) found that those nurses who received additional support following an off-site CPD intervention to improve communication skills demonstrated greater knowledge translation. Furthermore, Jones (2015) found that workplace 'coaching the coach' support following off-site training for senior nurse managers had a positive impact on work performance for nurse managers and their staff. Incorporating a workplace project component has also been found to enhance the impact of web-based learning (Rankin et al. 2013). Harris et al (2007) reported nurses acquiring new information, skills and resources for improving palliative care practice when attending a combined off-site and workplace training programme.

The studies also reported preferences in learning style. For example, Owen et al. (2014) showed how a simulation-based, inter-professional education programme could help improve team working by increasing commitment to collaborative working and generating greater appreciation of roles. Furthermore, Lees and Meyer (2011) reported a preference for discussion-based activities rather than formal teaching. This shift in perceptions and understandings of CPD, away from rigid curricula and towards a competence-based approach that orientates towards situated learning in the workplace, is clearly advocated (Chapman, 2006; Goudreau et al. 2015), however this requires skilled facilitation.

Strong enabling leadership

Organisational support plays a vital role in whether CPD has impact within the workplace. In moving away from traditional hierarchies, strong nurse leaders are able to empower individual nurses and clinical teams to identify their learning needs, therefore enhancing self-motivation. Such empowerment is crucial to sustaining commitment to lifelong learning and fostering a change in nursing culture (Govranos and Newton, 2014).

Strong organisational leadership is required to align CPD opportunities with both clinical and organisational priorities through individual nurse appraisal processes in ways that motivate and maximise CPD benefit to the individual and the service (Beal and Riley, 2019; Eddy et al. 2016; Fox et al. 2005, Govranos and Newton, 2014; Haywood et al. 2012; Jones, 2015; Manley et al. 2011 McCauley et al. 2014; Rivas and Murray, 2010; Sandahl et al. 2013; Wallin et al. 2006; Warren et al. 2016; Williams et al. 2015). Studies in this review show that strong leadership and role modelling are characterised by the promotion of CPD to individual staff (Beal and Riley, 2019), facilitating mentorship programmes (Fox et al. 2005, Govranos and Newton, 2014) and empowering team members to contribute to service improvement (Beal and Riley, 2019; McCauley et al. 2014). Wallin et al. (2006) demonstrate a strong association between staff learning opportunities and transformational leadership among nurses working in neonatal care. This was linked to enhancing participatory management and increasing staff involvement in decision-making. In another study, nurses and other members of the clinical team emphasised the commitment of the local nurse manager as important in driving the training programme forward (Sandahl et al. 2013). Warren et al. (2016) found that a three-pronged approach focusing on nursing leadership, education and practice nurtured a spirit of inquiry that facilitates and encourages evidence-based practice.

There was evidence that a lack of strong leadership leads to poor knowledge translation. Augustsson et al. (2013) demonstrate positive results for individuals involved with a CPD programme, however participants remained sceptical about opportunities for implementing change as they felt this was a managerial responsibility and, 14 months after the intervention, there was little memory of

anything concrete that had been implemented. Hughes (2005) also highlights how lack of managerial support to implement change following CPD creates a cycle of frustration and apathy, whereas leadership that promotes creativity and welcomes new ideas can lead to improved staff and patient outcomes. Similarly, Harris et al. (2007) note that while there were organisational gains in improved palliative care practices following CPD, the full impact of this was restricted when managers perceived that learning was linked to individual development rather than organisational transformation. Illing et al. (2019) state that appropriate support structures (learner networks, peers, managers, influential change champions) help maintain momentum for change, and suggest that whole team training can reduce resistance to change.

Positive workplace culture

A workplace that fosters respectful relationships, and where individual and collective knowledge creation and transformation of practice are promoted, is key to effective CPD (Beal and Riley, 2019; Davis el at, 2016; Eddy et al. 2016; Fairbrother et al. 2016; Govranos and Newton, 2014; Haywood et al. 2012; Sandahl et al. 2013; Wallin et al. 2006; Williams, 2010; Williams et al. 2015). Fairbrother et al. (2016) showed that workplace cultures promoting academic development increase job satisfaction and make staff more likely to engage with evidence-based practice. Similarly, Wallin et al. (2006) demonstrated that organisational improvement could be achieved by developing a supportive workplace for learning for staff working in neonatal units, illustrating the relationship between micro and meso levels of development.

A further feature of a positive workforce culture was adaptability to new ways of learning in the workplace, for example through new technology (Farrell, 2016), practice development initiatives (Mulcahy et al. 2018; Rivas, 2010), and inter-professional knowledge sharing (Lees and Meyer, 2011).

The importance of a positive workplace culture for learning is reflected by some of the barriers to learning revealed in this review. In one study, separate nursing and medical team meetings limited opportunities for inter-professional knowledge

sharing (Lees and Meyer, 2011). Williamson et al. (2015) point out that heavy workload and lack of time reduce motivation to learn among nurses, while good managerial leadership played an important role in helping implement learning.

A positive workplace culture supports CPD through adequate resources of time, staffing, administrative support and finances (Beal and Riley, 2019; Davis et al. 2016; Eddy et al. 2016; Goudreau et al. 2015; Haywood et al. 2012; McCauley et al. 2014; Sandahl et al. 2013, Williams et al. 2015; Williams, 2010). Goudreau et al. (2015) recognised that incentives, such as remuneration of overtime hours and educational credits, facilitated engagement in CPD. Furthermore, strong relationships between health care services and academic partners were seen as critical to enabling a culture of scholarly nursing practice (Beal and Riley, 2019; Govranos and Newton, 2014; Illing et al. 2019; Jackson et al. 2015; Manley et al. 2018). McCauley et al. (2014) stressed the importance of administrative support, alongside executive backing and funding in achieving sustainable culture change. Staff shortages and the related requirement to work overtime, alongside the insufficient number of hospital beds and budget cuts, were all considered as threats to sustainable learning (Sandahl et al. 2013).

DISCUSSION

It is crucial to address nurses' inability to access or translate knowledge into practice to improve both the quality of patient care, and recruitment and retention of nurses (Coventry, 2015). The recently published 'Principles of Preceptorship' (NMC, 2020) provide a framework for supporting newly qualified nurses. However, there needs to be investment in the development of nurses at all stages of their career if the nursing workforce is to be fully prepared and skilled to provide high quality, transformational, preceptorship and leadership.

This review has identified key factors important in enabling CPD impact; self-motivation, relevance to practice, a preference for workplace learning, strong enabling leadership and a positive workplace culture. Self-motivation to engage in CPD is driven by a desire to provide high quality care and is best realised through

critical reflection of both self and others' practice. This finding is consistent with those of Illing et al. (2019) who recognised that 'ensuring the learner was motivated and ready to learn' and targeting CPD directly at patient benefit increases individual learner motivation and helps align this learning to shared workplace and organisational goals. A lack of relevance of CPD and its active application to practice will therefore impact nurses' motivation for CPD.

Embedding CPD in the workplace encourages active learning, in, through and from practice, ensures CPD is relevant to practice, and generates positive change for individuals and teams. Furthermore, Davidson et al (2020) emphasise the need for skills in translating knowledge to practice in the workplace and several models have been developed to facilitate this (Kitson 1998, Graham et al 2006, Rowley et al 2012).

It is clear that there needs to be a move away from hierarchical managerial structures to those that look to foster and develop individual nurses as reflexive leaders (Eddy et al. 2016; Williams, 2010; Williams et al. 2015). Strong enabling leadership needs to balance the drive for individual nurses to develop with wider organisational priorities to ensure efficient delivery of person-centred safe and effective care. Illing et al (2019) argue that ongoing monitoring and evaluation of CPD implementation is necessary to improve sustained knowledge translation.

A positive workplace culture for nursing CPD has been found to be crucial in enabling strong leadership. This is consistent with Jackson et al. (2015) who found that the workplace and organisation are key influencers of whether meaningful outcomes of CPD are achieved. The workplace culture can negatively or positively impact the focus of learning and development content, and how learning, development and improvement may be enabled (Jackson et al. 2015). Successful CPD requires not only knowing what to change, but also, importantly, how to make changes to practice and service delivery (Illing et al. 2019). Therefore, in addition to transformation of individual knowledge and practice, transformation of the workplace culture is essential to achieving maximum CPD impact for safe and effective care (Manley et al., 2018). Recent work has introduced the Venus model as a means of achieving

such workforce transformation and complex change within healthcare systems and recognises that CPD is a powerful resource in this transformation agenda (Manley and Jackson, 2020).

If CPD impact is to be maximised, learning needs to be fully supported within clinical and organisational settings that value knowledge creation and utilisation as collaborative activities, and that have improved care quality and outcomes as an explicit, collective aim. Strong leadership and skills in knowledge translation are critical in the effective management of the Covid-19 pandemic (Davidson et al. 2020). The recent implementation of new roles (such as Nursing Associates in England) and new ways of learning (such as nurse apprenticeship routes in the UK), combined with the challenges presented by the global covid-19 pandemic, makes this an opportune time to reconsider how nurses continue to remain updated and developed beyond registration.

CONCLUSION

CPD is essential to the delivery of person-centred, safe and effective care. However, how best to deliver and measure CPD is less clear. In the current rapidly changing healthcare context it is important for educators and managers to understand the factors that enhance CPD impact. This review has highlighted the importance of a positive workplace culture that can adapt to rapidly changing contexts and strong enabling leadership in harnessing motivated individuals and teams who perceive the relevance of CPD to their practice and are supported to access learning in the workplace.

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Figure 1 PRISMA diagram

Figure 2. Factors that enable CPD impact

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Table 1. Search terms

Term (AND)	Synonym (OR)
Registered Nurse	nurse
	nurses
	nursing
Professional development	CPD
	Develop*
	Educat*
	Learn*
Outcome: transformation of knowledge	Mobilis*
	Mobiliz*
	Translat*
	Transfer
	Exchange
	Implement*
	Disseminat*
	Diffus*
	Optimis*
	Transform*
	Impact
	Enable*
	Indicat*
	Metrics
In the Workplace	Workplace
	Place-based
	Culture

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Table 2. Summary of included papers

Author	Country & setting	Aim of study	Study design	Study population	Type of CPD	Findings
Arnetz and Hasson (2007)	Sweden Elderly care	To evaluate the impact of an educational ''toolbox''	Pre and post intervention questionnaire	Nurses in elderly care organisations	Toolbox of care on care of elderly patients.	Increase in self-reported competence and work satisfaction, improvement in psychosocial work environment.
Augustsson et al (2013)	Sweden Older people residential care	To evaluate the outcomes of a workplace learning intervention	Questionnaire at three time points and interviews	Nurses, support workers and nurse managers.	Palliative care. Study circles, workshops, reading materials and practical tasks.	The intervention had some effects on the individual level, but no improvements in organizational learning. Hindering factors for creating organizational learning were; poor learning climate, managers' uncertainty about their role, lack of ownership, managers' views that personality is more important than staff development in older people's care, and a lack of systems for capturing acquired knowledge.
Baumbusch et al (2017)	Canada. Older people hospital	To develop, implement and evaluate a	Multi-method pre and post	32 nurses	4- day training programme on caring	Positive change in attitude towards older people.

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	care	workplace continuing education programme.	design. Surveys, focus groups and interviews.		for older patients.	Problems attending workshops. Continuing education should be integrated with work rather than something to pursue on their own time. The role of managers in supporting continuing education and facilitating application of knowledge into practice warrants further examination.
Beal and Riley (2019)	US Acute hospitals	To describe best organizational practices that support scholarly nursing practice.	Qualitative interviews.	32 senior nurse leaders in Magnet hospitals	No specific CPD	The organization creates and sustains a core culture supportive of scholarly nursing practice, via: A well-developed nursing culture, expectations for professional development, resources (financial and human). Senior nurse leaders are key to promoting professional development.
Billon et al (2016)	UK Learning disability	Evaluate a simulation training course to support healthcare	Human Factors Skills for Healthcare (HFSH) tool to measure	34 participants (6 nurses, 28 other healthcar	1 day course on 3 occasions. Actors with learning disabilities	Improvement in healthcare skills and confidence. Perceived improvements to: attitudes,

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		professionals in learning disability care.	impact.	e professionals)	provided 6 scenarios.	communication skills, reasonable adjustments, inter-professional and multi-disciplinary working, knowledge of key issues in working with people with learning disabilities.
Bradshaw et al (2007)	UK Mental Health	To assess whether clinical supervision can enhance outcomes for mental health nurses attending a psychosocial intervention education programme.	Nurses' knowledge and attitudes about schizophrenia and PSI were assessed using five multiple-choice question papers.	23 mental health nurses (11 in intervention group and 12 in control group)	36 days of formal teaching in PSI over 9 months. Intervention: Supervision sessions were conducted in groups of three every fortnight in the student's own workplace.	Students in both groups showed significant increases in their knowledge about case management. Only students in the experimental group showed significant increases in knowledge about psychological interventions and general knowledge about schizophrenia. Service users who worked with students in the experimental group achieved significantly greater reductions in total symptoms than those who worked with students in the

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						control group.
Carlson and Bengtsson (2015)	Sweden Unspecified	To evaluate preceptors' experiences of preceptorship after completion of a course on advanced practice.	Focus groups. Analysis by naturalistic inquiry.	27 participants- multi disciplinary (Nurses, occupational therapists and biomedical scientists)	Advanced Level practice module Lectures, workshops, observation by 'critical friends'	Increased the knowledge and confidence of those supporting nurses in the workplace (preceptors). Increased the status of the workplace- a setting with trained preceptors may increase recruitment.
Chapman (2006)	UK Community	To record the impact of community nurse work-based learning on patients.	Interviews	10 community nurses	Advanced clinical practice, teamwork and communication, and leadership modules.	Community nurses perceived the learning had led to changes in practice in health promotion, access to services, patient choice, and reduced risk of infection.
Curran et al (2019)	Canada Community	To explore the use of mobile devices in CPD	Mixed method case study, semi-structured interviews and survey	Interviews: 55 health care professionals (20 nurses). Survey- 556 (59% nurses)	Mobile devices- self directed	Smartphones and tablets were used to access apps for CPD. They were flexible and convenient and enabled self-directed learning in the workplace. Workplace barriers to accessing digital knowledge included cost, and perception of unprofessionalism.
Davis et	Australi	To	Literature	Nurses	N/A	Organizational

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al (2016)	a N/A	understand nurses' learning experiences within the workplace, and factors in the workplace that influence learning.	Review (14 papers)	and enrolled nurses working in acute healthcare settings.		influences: enabling nurses to demonstrate accountability for learning, clear organizational systems that provide resources, time, adequate staffing and support, demonstrates the value of nurses' learning and education. Relational dynamics: nurses value their peers, expert nurses, preceptors, mentors and educators facilitating and encouraging their learning and development.
Eddy et al (2016)	Australia N/A	Health professionals experience of teamwork education	Systematic review of qualitative studies (11 papers)	Doctors, nurses, midwives and Allied Healthcare Professionals.	N/A	Organizational culture has an impact on experience of teamwork education. Understanding how successful teams function is central to the development of teamwork education. Participants highly value practical learning opportunities. High fidelity simulation used with specific

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						communication strategies provides a powerful learning opportunity for health professions to practice teamwork skills.
Fairbrother et al (2016)	Australia Acute & Community	To establish correlates of self-reported skill levels and behaviours in relation to evidence-based practice	Evidence Based Practice (EBP) Questionnaire	169 senior nurses and midwives	No specific CPD	Education level and level of job satisfaction have been identified as key predictors of EBP capacity. A work environment which promotes academic development and increases job satisfaction will allow for an increase in EBP.
Farrell (2016)	Australia Acute ward	To explore nurses' perspectives on iphone use	Focus groups	20 nurses	Information to inform decision making during clinical work	Barriers to the use of phones in accessing info included feeling unprofessional.
Fox et al (2005)	Australia Acute medical and surgical areas	Exploration of new staff perceptions of what constitutes support.	A longitudinal study Focus groups	16 nurses in 1st phase 12 nurses in 2nd phase	No specific CPD	Support includes the provision of adequate guidance and assistance through buddying with a preceptor and allocating time with the preceptor, provision of education assistance and being 'welcomed' through

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						support and friendly interactions.
Goudreau et al (2015)	Canada Acute hospitals	To evaluate a continuing education intervention (CEI) for newly qualified nurses.	Longitudinal evaluative design, combining individual and group interviews with stakeholders.	12 nurse managers, 18 nurses, 55 newly qualified nurses	Series of 30 min reflective practice groups- on clinical events experiences by newly qualified nurses.	Issues associated with the implementation of the continuing education intervention revolved around leadership for managers, flexibility for nursing staff, and role shifting for the facilitators. 2 units continued the reflective groups following the end of the study.
Govranos and Newton (2014)	Australia Acute hospitals	To explore ward-based nurses' values and perceptions towards continuing education	Case study, one teaching hospital. Focus groups x 4. Semi structured interviews x6	23 nurses	No specific CPD	Three central themes: 'culture and attitudes', 'what is learning?' and 'being there, being seen'. Organizational support is essential so ward managers in conjunction with educational departments can promote and sustain continuing education, lifelong learning and a culture conducive to learning.
Harris	Canada	Design and	Pre and	244	A palliative	Transfer cannot

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et al (2007)	Palliative care	evaluation of palliative care resources.	post questionnaire Interviews (n=21)	nurses, 57 registered practice nurses	care curriculum	be left to chance and requires supportive organizations to help clear the path for changes to clinical practices and to devise strategies to ensure sustained improvements over time.
Haywood et al (2012)	UK N/A	To review factors that influence CPD	Literature review (133 papers)	Nurses/Allied Health Professionals	N/A	A model of CPD was developed: what enables people to engage with CPD activities; what learning is derived from CPD; and how that learning is put into practice. Model includes the need for organisational support throughout the process.
Heaven et al (2006)	UK Acute and community	To investigate the potential for clinical supervision to enhance the transfer of learning to practice.	Assessment of skills before, after supervision and 3 months later	61 clinical nurse specialists. 29 were randomised to 4 weeks of clinical supervision	3-day workshop on communication skills	Only those who experienced supervision showed any evidence of knowledge transfer.
Henderson et al (2015)	Australia Acute hospital	Exploration of novices' perceptions of a structured clinical support program	Survey and focus groups	78 newly qualified nurses	An intense system of support tapers over 12 months	Novices placed considerable importance on largely intangible aspects of the interactive days, such as

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						emotional support and collegiality which contributed to their confidence. The positive contribution of the nursing team was highlighted.
Hughes (2005)	UK Acute hospitals and residential care	To investigate nurses' perceptions of continuing professional development	Survey Interviews	200 nurses 8 interviews	No specific CP	Managers' leadership styles were found to influence nurses' perceptions of the value of CPD, as well as their ability to reflect, which affected the application of learning to practice.
Jones (2015)	Australia Acute and community	Engaging in critical reflection enabled a unit team to identify gaps in the transfer of coaching skills learned from a two-day workshop to practice.	Evaluation using pre and post CPD survey	22 nurse managers and nurse unit managers	Three, one-hour coaching sessions over a period of four months.	The project highlighted that training is more effective with structured follow-up, particularly one-to-one support and role modelling. Factors that enhanced ability to provide coaching included: allocating specific time for coaching, having the confidence to use the skills learned and seeing the

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						improvement in staff as a result of coaching. Lack of time was cited as a barrier to coaching staff.
Lees and Meyer (2011)	UK Community	Using Interprofessional Education (IPE) to enhance the potential of participants to work collaboratively in meeting challenges emerging from the implementation of the Every Child Matters Agenda	27 interviews conducted 12 months after the CPD.	Staff at middle management level, from health visiting, education, education welfare, youth work, information, advice and guidance provision, social care and mental health.	Interprofessional Education (IPE) drawing on Wenger's 'Communities of Practice' CPD cohorts, each consisting of 10–15 professionals (6 facilitated sessions over 5-6 months)	Task-focused small group work allowed group members to learn from each other, reflect on their own practice and reach a degree of consensus. Knowledge about the roles of others gave participants greater resources to do their own job. Action planning improved interprofessional understanding, helped focus on common ground and helped establish bonds of camaraderie and loyalty. Heavy workloads were cited as barriers to involvement in learning activities outside scheduled sessions. Participants preferred discussions and participative

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						activities to the 'formal' teaching. Learning suffered when group members were not fully committed or comfortable within the group setting. It was suggested by a few participants that the mix in seniority levels of delegates led to some more 'junior' members feeling inhibited.
Manley et al (2014)	England Acute hospitals	Implementation of a shared purpose framework with emphasis on workplace as the main learning resource	A complex intervention to enable a transformational journey of cultural change across the organisation.	Initially 400 specialist nurses then extended to all Trust staff	Practice Development methodology. Participants were invited to attend six active learning sets to engage in a self-assessment and a qualitative 360 degree feedback process including patients and service users.	Role clarity, transformational leadership, and the facilitation skills required to enable others to be effective are the three prerequisites individuals need to bring about effective workplace cultures in combination with organisational enablers. Effective workplace cultures at the micro-systems level include a set of values about person-centredness, effectiveness and working

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						with others. Only when these values are realised in practice can an effective workplace culture be said to exist.
Manley et al (2018)	England Acute hospitals	To develop strategies for achieving effective CPD in healthcare.	A case study design drawing on principles of realist synthesis was used during two phases of the study to identify and test what works and in what circumstances.	CPD stakeholders; professional regulatory bodies (n = 8), commissioners (n = 15), facilitators of clinical skills (n = 34), NHS clinical leaders (n = 38), NHS post graduates (n = 31), service users (n = 8) and an international expert group (n = 10).		The study resulted in four transformation theories)for attaining maximum benefit from CPD activity: Transformation of individual's professional practice; Transformation of skills to meet society's changing healthcare needs; Transformation that enables knowledge translation; Transformation of work place culture. Organizations and teams with shared values and purpose enable active generation of knowledge from practice and the use of different types of knowledge in practice for service improvements
McCauley et al (2014)	Australia & New	To explore what practice	Action research	Mental health nurses in	Group 1: Clinical support	Support for cultural change was evident in

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	Zealand Mental Health	developme nt offers mental health services in terms of transforma tional change approaches and the promotion of effective workplace cultures.		three different case study settings	using practice developme nt methods. Facilitated by an experience d mental health nurse. Group 2: A stakeholde r representat ive working committee t o transform care delivery using action learning, workshops and developme nt of educational material. Group 3: Nursing unit mangers, clinical nurse specialists and clinical nurse consultants explored how to manage complex human resource issues using a facilitated action learning	all three case studies. Staff were more confident and able to role model learning within their respective teams. Capacity development occurred in domains such as human relationship skills and 'reflective activism'. Staff felt they were helped to better engage with other members of the team, their clients, and other interagency groups related to their clinical specialisms. Lea ders working in an Action Learning Set were seen to further facilitate the growth of other 'practice developers' who would then in turn facilitate the uptake of PD activities into other teams.

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					model.	
Mulcahy et al (2018)	Australia Acute hospitals	Perspectives and experiences of nurses as facilitators within a Practice Development program	A qualitative interpretive design	Interviews with 12 nurses in a facilitator role. 6 attended focus groups.	Essentials of care practice development program.	Five key themes were identified: (1) facilitator as enabler,(2) the necessary team approach to facilitation, (3) valuing both internal and external models of facilitation, (4) preparation and training for role, and (5) perceived changes: to the facilitator and to the workplace. Individuals' ongoing development resulted from reflection, mentorship, role-modelling and co-facilitation; facilitation skills were recognised as relevant for nursing beyond their Program role. Ward culture gains were valued as distinct from measurable patient outcomes such as reduced medication errors.
Owen et al (2014)	USA Acute hospitals	Implementation and evaluation of a Continuing inter-	Theory based program to enhance team collaborati	17 participants (then 11 for the second and third	Sepsis care CIPE programme (3 activities over 6	Attitudes to inter-professional learning were unchanged. Allocation of

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		professional education (CIPE) activity	on	activities)	months)	workload moved to a greater reliance on non-medical members of the team. Greater appreciation of role of other team members. Commitment by some to translating this knowledge into their own workplaces.
Rankin et al (2013)	Canada Emergency Department	To determine the impact of changes to the "standard" course on Canadian Triage and Acuity Scale (CTAS) assessment.	Quasi RCT with randomization to the standard training or the enhanced training	Nurses (N = 203) who enrolled in the online CTAS course. 132 agreed to participate in the Survey	Online training	The project facilitated the transfer of triage learning from the course to the individual and from the individual to other staff in the emergency department. The not-enhanced group had the majority of patients who were under-triaged which has implications for waiting times and poor outcomes if necessary care is delayed. Nurses who completed the workplace project (enhanced group) made significantly fewer errors of clinical importance.
Rivas	Australi	Using	Survey	24 nurses	4 x 4hr	Staff used their

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and Murray (2010)	a Inpatient Medical Unit	Action Learning Sets (ALS) to help with systematic practice improvement.	evaluation. Thematically categorised		workshop co-facilitated by the manager of the unit and nurse educators.	power as knowledgeable clinicians to solve problems themselves and this fostered their growth. Staff sense of wellbeing improved. There was increased commitment to the organisation, confidence and motivation. The ALS contributed to establishing a forum where staff learn and feel supported and enabled to make changes to improve care and the workplace environment.
Sandahl et al (2013)	Sweden Intensive Care	To describe the implementation of simulation based team training and the impact on inter-professional working.	Case study approach with elements of action research. Interviews (participants & stakeholders) and observation (n=18)	Doctors, nurses and key unit managers	Simulation team training	Increased individual awareness of effective communication for patient safety. Findings indicate that observed improvement will not last, unless organisational features such as staffing rotas and scheduling of rounds and meetings can be changed to enable use of the learned behaviours in everyday work.

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						Other threats to sustainability include shortage of staff, overtime for staff, demands for hospital beds, budget cuts, and poor staff communication due to separate meetings for nurses and doctors.
Tobiano et al (2019)	Australia Intensive Care	To evaluate the implementation of 'nursing rounds' as a strategy for workplace learning.	Mixed methods Observation and survey	110 registered nurses attended 54 nursing rounds. 40 completed the survey	Implementation of regular, 1hr nursing rounds twice a week	Highlights the importance of nursing leaders within the ICU who organise and facilitate Nursing Rounds, as they play an important role in establishing conducive learning environments for staff. Enables a more multi-disciplinary approach to care and translation of knowledge into practice. Sources of evidence were often limited to the facilitator as expert.
Wallin et al (2006)	Sweden Neonatal units	To identify predictors of organizational improvement by measuring	Surveys with one year interval. The Quality Work Competence (QWC)	Practical (second level) and registered nurses (n=167) on 4 neonatal	Guideline implementation	Changes in perceptions of skills development were a major factor in explaining the variance in the

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		staff perceptions of work contextual factors.	questionnaire to assess staff well-being.	units		organization's potential for renewal and improvement, as well as in explaining the changes in leadership. There is a strong association between staff learning opportunities and transformational leadership. Skills development is linked to enhancing participatory management and performance feedback. While all people have the capacity to learn, the structures that they have to function in are often obstructions to reflection, engagement, and personal growth.
Warren et al (2016)	U.S. Acute hospitals and community	To evaluate the strength of and the opportunities for implementing evidence-based nursing practice	Cross-sectional survey using a purposive sampling frame	1,608 registered nurses (RNs) in 9 hospitals in the U.S.	No specific CPD	RNs in this study reported a lack of human and fiscal resources to promote a culture that supports EBP. Lack of autonomy, lack of leadership support, and lack of inclusion

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						in clinical practice decision making as well as physician resistance all contribute to low EBP implementation by RNs. Findings demonstrated that younger RNs with fewer years in practice showed more positive reactions toward EBP and organizational readiness. These same novice nurses also reported greater barriers to changing practice due to their lack of skill and experience.
Williams et al (2015)	Australia N/A	To consider the barriers to implementing EBP in health care settings	Scoping review (49 papers) Narrative analysis	Not limited to nursing but included "all health care disciplines" – though majority were nursing	N/A	Organisational barriers to EBP: Workload, other staff/management not supportive of research, lack of resources, lack of authority to change practice, workplace/professional culture resistant to change.
Williams (2010)	UK N/A	To explore the elements essential to	Literature Review Number of papers not	Nurses	N/A	Three key elements: 1) Learning is both

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		work-based learning	stated Narrative synthesis			derived from and focussed on practice, enabling the learner to use their everyday experiences as the basis for learning 2) The culture of the workplace is changed so that learning and developing practice is seen as everyone's job 3) Learning how to learn, and questioning existing practice needs to become routine.
Williamson et al (2015)	U.S Acute hospitals, community and hospice	Explore nurses' perceptions of the barriers and facilitators to fully using EBP in the workplace	Cross-sectional mixed methods survey	1,500 registered nurses	No specific CPD	Barriers – Resources (internet access, training, mentors); knowledge of EBP process; time; staffing & workload. Facilitators – Experience; knowledge; resources and time; support (from admin staff, managers,

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						peers) Significant difference between staff nurses and those in management in knowledge, attitude, and skills in EBP. Nurses were positive toward EBP but less positive in reporting the skills for EBP (e.g. appraisal) Qualitative data suggested support in EBP skills and collaborative learning and problem-solving helped implementation of learning which helped improve patient outcomes.

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Highlights

- Contemporary healthcare contexts require effective CPD for nurses in all settings.
- Optimising CPD is essential to providing person centred, safe and effective care.
- CPD is enabled by self-motivated, relevant, work based learning.
- Impact of CPD is facilitated by strong leadership and a positive workplace culture.

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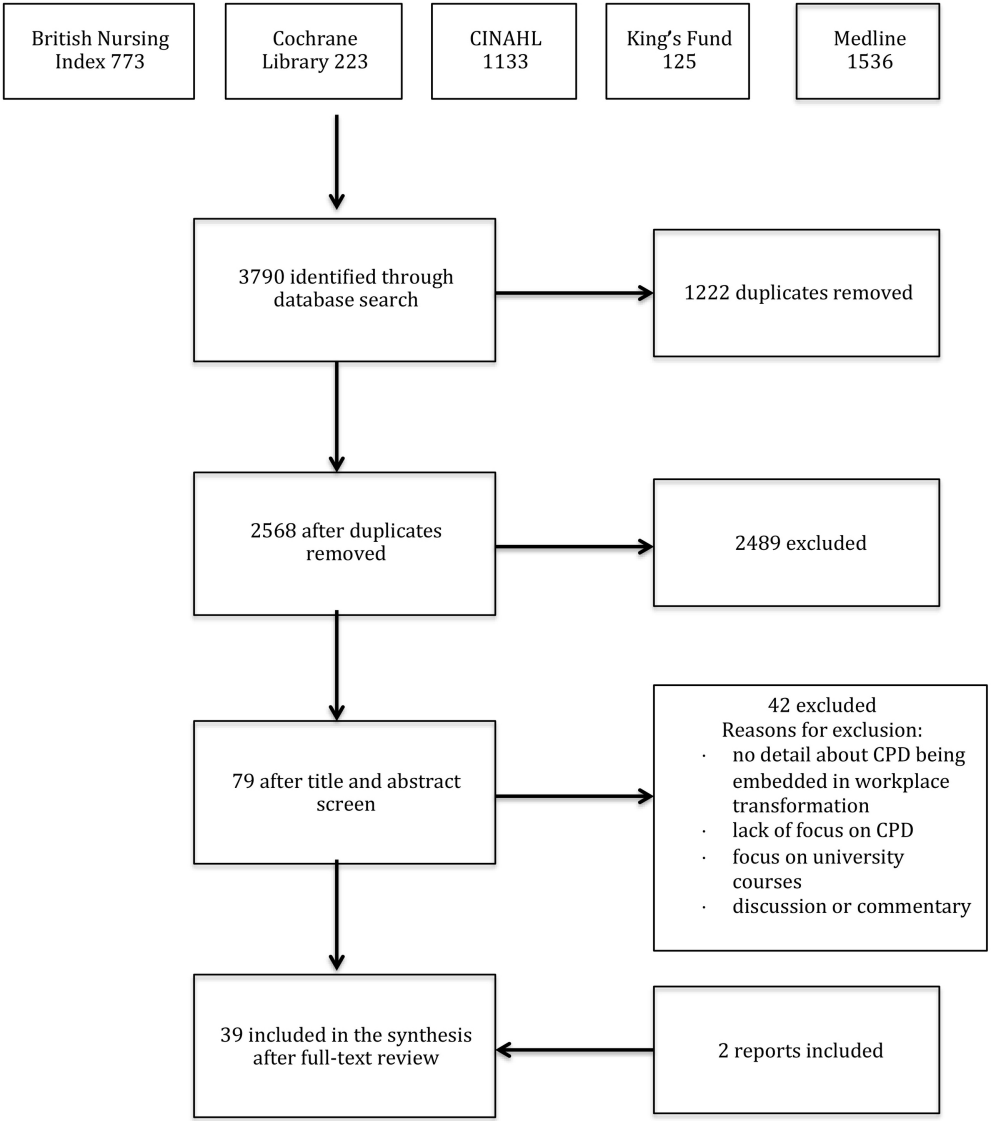
British Nursing Index 773
Cochrane Library 223
CINAHL 1133
King's Fund 125
Medline 1536
3790 identified through database search
1222 duplicates removed
2568 after duplicates removed
2489 excluded
79 after title and abstract screen
42 excluded
Reasons for exclusion:
· no detail about CPD being embedded in workplace transformation
· lack of focus on CPD
· focus on university courses
· discussion or commentary
39 included in the synthesis after full-text review
2 reports included

Figure 1

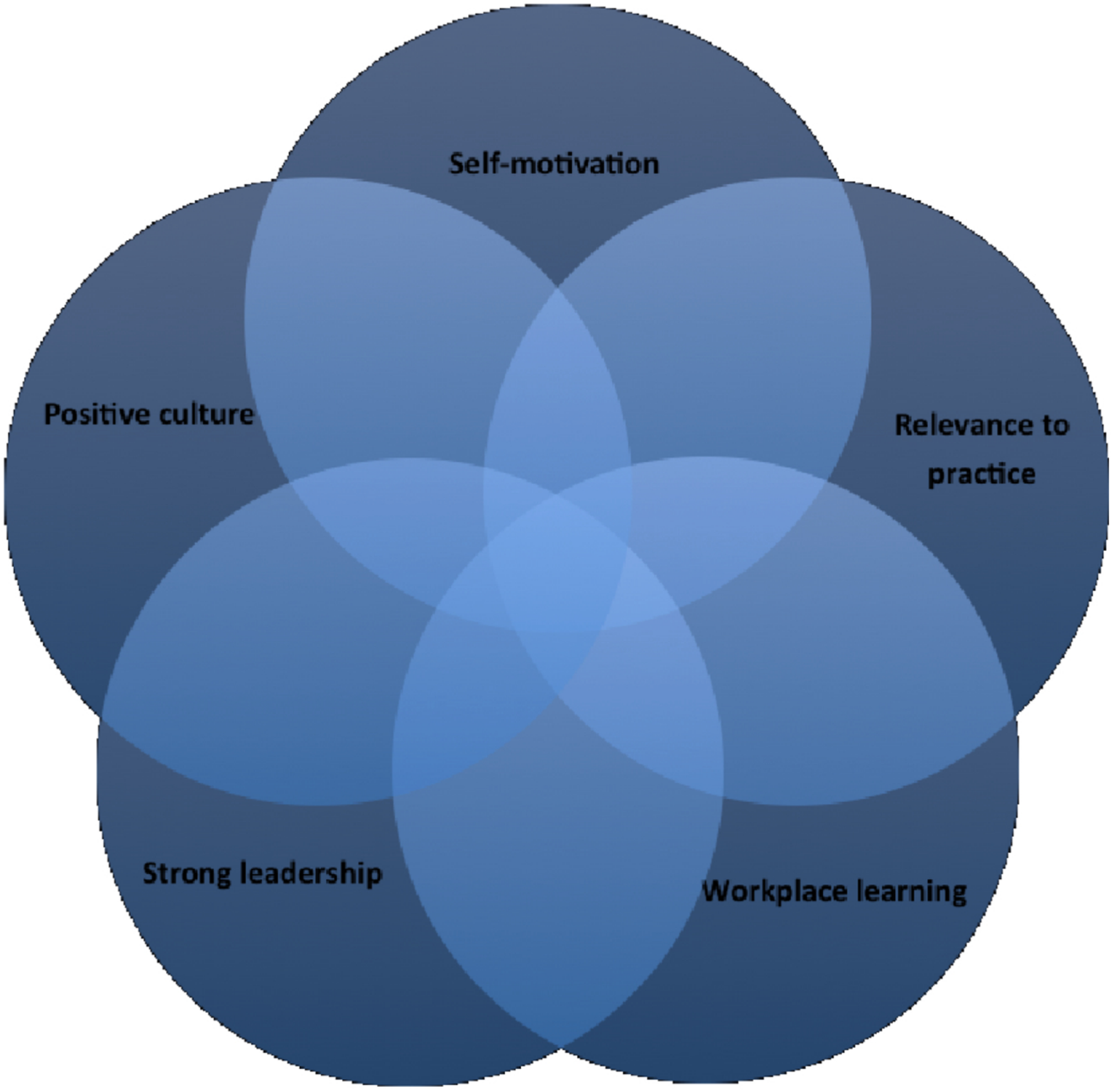
Self-motivation
Positive culture
Relevance to practice
Strong leadership
Workplace learning

Figure 2