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Workplace Learning through Collaboration in Primary Healthcare:

A BEME Realist Review of What Works, for Whom, and in What Circumstances.

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Workplace Learning through Collaboration in Primary Healthcare:

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Abstract

Background: Changes in healthcare practice toward more proactive clinical, organisational and interprofessional working require primary healthcare professionals to learn continuously from each other through collaboration. This systematic review uses realist methodology to consolidate knowledge on the characteristics of workplace learning (WPL) through collaboration by primary healthcare professionals.

Methods: Following several scoping searches, five electronic bibliographic databases were searched from January 1990 to December 2015 for relevant grey and published literature written in English, French, German and Dutch. Reviewers worked in pairs to identify relevant articles. A set of statements, based on the findings of our scoping searches, was used as a coding tree to analyse the papers. Interpretation of the results was done in alternating pairs, discussed within the author group, and triangulated with stakeholders' views.

Results: Out of 6930 references, we included 42 publications that elucidated who, when, how and what primary healthcare professionals learn through collaboration. Papers were both qualitative and quantitative in design, and focused largely on WPL of collaborating general practitioners and nurses. No striking differences between different professionals within primary healthcare were noted. Professionals were often unaware of the learning that occurs through collaboration. WPL happened predominantly through informal discussions about patient cases and modelling for other professionals. Any professionals could both learn and facilitate others' learning. Outcomes were diverse, but contextualised knowledge seemed to be important.

Discussion/conclusions: Primary care professionals' WPL is multifaceted. Existing social constructivist and social cognitivist learning theories form a framework from which to interpret these findings. Primary care policy makers and managers should ensure that

professionals have access to protected time, earmarked for learning. Time is required for reflection, to learn new ways of interaction and to develop new habits within clinical practice.

Keywords: workplace learning, collaboration, interprofessional collaboration, primary healthcare, realist review

Glossary

Workplace learning (WPL) is ‘learning taking place at work, through work and for work’ (1), which for medical professionals occurs during clinical practice. This review focuses on WPL occurring as a result of collaboration with healthcare professionals from the same or from different disciplines, at the same location or across organisational boundaries.

Collaboration happens when multiple health workers from different professional backgrounds work together with patients, families, caregivers and communities to deliver the highest quality of care. It allows health workers to involve any individual whose skills can help to achieve health goals (2). WPL may arise as a result of collaboration between professionals with the same educational background (intraprofessional), but, as a consequence of the rise in interprofessional collaborative practice, increasingly arises from the interaction between professionals from several disciplines working together to care for the same patient (interprofessional) (3, 4). In this review, we focus on understanding WPL arising as a result of both interprofessional and intraprofessional collaboration.

Primary healthcare is a discipline that has not been defined uniformly in diverse healthcare systems around the world. In Europe, the term is used to refer to community-based settings rather than hospital settings. General practitioners (family physicians), pharmacists, nurse practitioners and physiotherapists are just some members of this discipline (5). In the United States, the term ‘primary healthcare’ is used to refer to office-based practices (either family medicine, internal medicine or paediatrics) where the focus is on primary care delivery. In this review, in order to be relevant to practice worldwide, we adopted an inclusive view on primary healthcare and included papers describing primary healthcare as defined in the country where the research was undertaken.

Background

Over the last few decades, rapid demographic and epidemiological transitions (i.e. more older people with chronic multi-morbidities), coupled with increased patient proactivity regarding health-seeking behaviours, have resulted in an increase in the number of tasks and responsibilities being placed upon the shoulders of primary healthcare professionals (5-7). Awareness of these changes has led to a change in both the organisation of health care services and the ways in which healthcare professionals deliver care. To this end, current models of healthcare delivery now advocate a shift away from reactive clinical work towards proactive clinical and organisational work (8), and from working individually toward interprofessional collaborative practice (ICP) (9-11).

Professionals are expected to keep pace with these changes within healthcare by means of life-long learning. However, this can be challenging, because after graduation and during the career of all healthcare professionals, patient care seems to be the main focus of all activities and learning is often considered a mere side-effect of practice (12). Furthermore, although professionals are expected to engage in formal continuing medical education sessions to promote learning, these have limited value for physicians in terms of facilitating learning (13, 14). Instead, professionals are expected to learn during clinical practice through collaboration with others in the workplace (15), particularly in primary healthcare, where the need to maintain multiple, diverse relationships makes collaboration an essential aspect of professionals' work.

Workplace learning (WPL) has been broadly defined as 'learning taking place at work, through work and for work' (1). The literature on WPL notes that working and learning are inseparable and fundamental (15-17). Learning through work may result from collaboration between professionals with the same educational background (intraprofessional), but as a consequence of the rise in ICP, often arises from the interaction between professionals from several disciplines working together to care for a patient (interprofessional) (3, 4). During undergraduate medical education, where WPL is accepted as the way students learn, WPL has been studied extensively (18, 19). In such an educational context, it is clear that learning is an important goal of participation in practice. However, this is less obvious during clinical practice after graduation. Theories of WPL have been described in the general learning sciences literature (1, 15, 20-23), including, for example, the 'communities of practice' model proposed by Lave and Wenger (24), which is based on the idea of learning through

participation (24-26). For healthcare professionals working and learning after graduation, theories that have a clear social dimension, such as sociocultural learning theories and social cognitive learning theories (27, 28), have particular relevance for understanding WPL. However, there is still a lack of clarity regarding the mechanisms by which WPL through collaboration in primary healthcare settings takes place, and the contextual factors that facilitate or inhibit such learning.

We intend to move the field forwards with regards to WPL in primary healthcare by using realist methodology to investigate what works, for whom, in what circumstances and in what respects (29, 30). By developing a better understanding of primary healthcare professionals' WPL through collaboration, we hope to identify implications for practice and research that will ultimately contribute to the optimisation of life-long learning for these healthcare professionals.

Review aims and research questions

This review aims to better understand: i) the process of WPL through collaboration in primary healthcare, and ii) the conditions influencing WPL. The following research questions will be addressed:

- Who learns during WPL through collaboration in primary healthcare?
- When does this learning take place?
- How does this learning occur?
- What is being learned?

Method

Rationale for Using Realist Review

A realist review is an interpretative, theory driven evidence synthesis that uses cross-case comparison to understand, and ideally explain, how and why different outcomes have been observed in a sample of primary studies (29). We chose to use this methodology because WPL results from complex interactions during practice, during which contextual factors trigger mechanisms to generate different outcomes such as professionals' behaviour (30). We felt that, in order to understand the process of WPL through collaboration in primary healthcare, the links between context (C), mechanisms (M) and outcomes (O), or C-M-O,

needed to be explored. These links could be best explored using realist methodology. We used the Realist Synthesis RAMESES Training Materials to provide practical guidance during the review process (31).

Development of an analytical framework

Typically, one of the first steps of a realist synthesis is to make explicit a programme theory for interventions (29). However, we did not feel that one overarching programme theory of WPL would suffice or be applicable, given the intrinsic complexity of WPL (32). Instead, we followed the approach taken by Walshe and Luker (33), and developed a broad analytical framework, against which we could extract relevant data to address the review questions.

To do so, we first conducted broad **scoping searches** to examine the breadth and depth of the broad literature base pertaining to WPL. During a **stakeholders meeting** (with researchers and faculty members of the department of Family Medicine and Primary Healthcare in Ghent University: general practitioners, nurses, psychologists, and sociologists), we discussed the ways in which practicing healthcare professionals are likely to learn in primary healthcare to elicit **implicit assumptions** and to ensure that our review focused on practice-relevant issues. Informed by the results of our stakeholders' discussion and the **explicit theories** identified by our scoping searches, we developed statements on WPL (Box 1), which formed an analytical framework.

Some statements align with well-known learning theories such as socio-cognitive theory, which stresses the importance of role-models (27) (e.g. “demonstrating learning behaviour affects facilitators' behaviour”). Other statements were more experience-based, proposed by the stakeholders, such as “being a facilitator for others can be learned”. Models of workplace learning, such as the one proposed by Tynjälä (1) suggest that prerequisites for WPL may be clustered under the headings ‘learner factors’ and ‘learning contexts’. Learner factors were derived from the idea that motivation and experience are important for learning (34, 35).

From the work of Illeris (23), it is well known that how the work is organised and the relations at the workplace are important with respect to the affordances for learning a workplace provides. Therefore, we developed statements with respect to the organisation of the workplace (for example whether responsibility is shared), and statements about interpersonal aspects of the workplace that may affect learning. Outcomes of learning were not covered extensively in our statements but were derived through axial – and selective coding of the data. Learning processes, clustered under the heading ‘how does learning occur?’, were informed by learning theories, such as the theory on reflective practice (36, 37).

We saw reflection as an interactive and interactional process (36). Overall we adopted a focus on social learning (theories) in our review, even though the wordings of some statements in our framework appear to reflect an individualistic learning approach.

Box 1: Statements which were used as an analytical framework

- a) Every professional learns from others during practice
- b) Being a facilitator for others can be learned
- c) Willingness to learn influences learning
- d) Number of years in practice influences learning
- e) Professional expertise influences the effectiveness of the facilitator
- f) Awareness of learning needs influences learning
- g) Workplace artefacts can be used for learning during practice
- h) A shared aim or responsibility of a team influences the learning
- i) Workload influences learning
- j) Learning during practice can be planned or unplanned
- k) Difficult clinical situations have learning potential
- l) Learning during clinical practice is guided by actual patients' care needs
- m) Interprofessional relationships affect learning through collaboration
- n) Interprofessional hierarchy affects learning through collaboration
- o) The history of a team working together influences learning during practice
- p) Learning during practice is partially implicit
- q) Reflection on practice is a major process during learning
- r) Participating in practice has a better learning outcome than observing practice by others
- s) Every professional facilitates others' learning during practice
- t) Demonstrating learning behaviour affects facilitators' behaviour
- u) Demonstrating facilitative behaviour affects learners' behaviour
- v) During collaboration, new knowledge can be created (besides circulating knowledge between professionals)

Search Strategy

Following several scoping searches, five electronic databases (Pubmed, ERIC, ProQuest, Embase and CINAHL) were searched for relevant published and unpublished literature. These databases were chosen to span literature on health sciences and education, and to be as comprehensive as possible when considered together. Search syntaxes were informed by the research questions and not solely by initially derived learning theories, as it was not clear at that stage of the review process whether all WPL aspects would be covered by the learning theories. Search syntaxes were devised in collaboration with a librarian. Syntax was initially developed and piloted in Pubmed before being modified to fit the requirements of the other databases, and combined synonyms of a combination of relevant components: learning,

collaboration and primary healthcare. Since the purpose of the review was to consider WPL, we limited the search to papers published after January 1990. This was based on our initial scoping searches, which showed that most of the literature on WPL started from the nineties. To reduce the number of irrelevant references, the additional filters ‘human’ and ‘language’ (English, French, German, Dutch) were used for CINAHL and Embase. For the same reason, additional publication filters (‘article’, ‘article in press’, ‘conference paper’, ‘conference review’ and ‘short survey’) were used for Embase. ProQuest was used to search grey literature. Appendix 1 contains full details of the search syntaxes used in this review.

Endnote X7 was used to store all identified references.

Screening and Selection

To achieve maximum reliability, a team meeting (PP, FM, EDG and LM) was first held to clarify the in- and exclusion criteria, jointly practice the abstract selection and discuss screening and selection procedures. Screening and selection was then performed in pairs (PP/FM and EDG/LM). Each pair screened the titles and abstracts of half of the identified citations. The two reviewers of each pair independently evaluated the retrieved citations to determine their relevance to the aims of the review. Paper selection was done in two stages: in the first stage, only the titles and/or abstracts were considered. Potentially eligible papers were obtained in full text and re-screened against inclusion and exclusion criteria in the second stage. At each stage, disagreements were discussed in pairs until obtaining agreement, with an additional researcher conducted where consensus could not be found.

Studies were included if they: a) clearly described the learning processes of healthcare professionals in primary care settings; and b) contained sufficient information to determine the content or processes by which learning took place and/or was assessed. With respect to criterion a), data were considered if they were reported either in the method section (e.g. intervention study) or in the results section (e.g. interview study on experiences and beliefs towards WPL).

Studies were excluded if: a) they exclusively described classroom-based education; b) the learning context and processes were insufficiently described; c) the study population consisted solely of undergraduate and graduate students or hospital healthcare professionals; d) they were written in languages other than English, French, German or Dutch; and/or e) they were reported as dissertations or books if they were not electronically available’.

Analytical Procedure¹

Relevant study data (e.g. study design, publication year, country) were extracted and tabulated using Microsoft Excel. Data were then coded, extracted and analysed in accordance with their relevance to the review questions. To aid this, a code tree was first created using the initially formulated statements (see Box 1) as nodes. A team meeting (PP, FM, EDG, LM) was held to discuss a pilot coding of four papers and fine-tune the coding procedure, following which data coding and extraction then took place in pairs (PP/LM and FM/EDG). Each member of each pair independently read and re-read half of the included papers, and coded text fragments within the results or discussion section of the paper, provided that they were potentially relevant to one or more of the statements. These were discussed within each pair, and the resulting data were imported into NVivo 11. Next, data pertaining to each statement were examined. This phase was again executed in pairs: PP/FM and EDG/LM. Each pair discussed and analysed half of the data pertaining to the statements. C-M-O configurations were identified as follows: pairs interpreted which sections of the data functioned as context or a mechanism for a particular outcome within a paper. The duos checked each others' interpretations of the data and discussed differences. Next, comparisons between different contexts and underlying mechanisms were made, and statements were categorised in accordance with the review questions after careful discussion within the research group ('Who': statement a) - f), 'When': statement g) – o), 'How': statement p) – u), 'What': statement v)). Analysis was facilitated through regular team meetings, during which progress was discussed and reflected upon.

Quality Appraisal

Realist reviews seek to explain complex interventions by drawing together evidence from varied sources to illuminate the richer picture (29). This includes various sources of evidence contributing to the underlying theories being explored and does not rank or exclude studies according to their research design (29, 38). Pawson argues that studies should be assessed against the criteria of '*relevance*' (whether the study addressed the theories considered) and

¹ Although the phases of abstract selection and analysis are presented as sequential, they happened overlapping and iterative, as is characteristic for realist reviews²⁹. Pawson R, Greenhalgh T, Harvey G, Walshe K. Realist review--a new method of systematic review designed for complex policy interventions. *Journal of health services research & policy*. 2005;10 Suppl 1:21-34.

'rigour' (whether a particular inference drawn by the original researcher has sufficient weight to make a methodologically credible contribution to the test of a particular intervention). As such, both relevance and rigour are not absolute criteria but dimensions of fitness of the data for the purpose of the review (29). In light of this, we did not use conventional approaches to quality appraisal but instead scrutinised the relevance and rigour of papers prior to inclusion in this review.

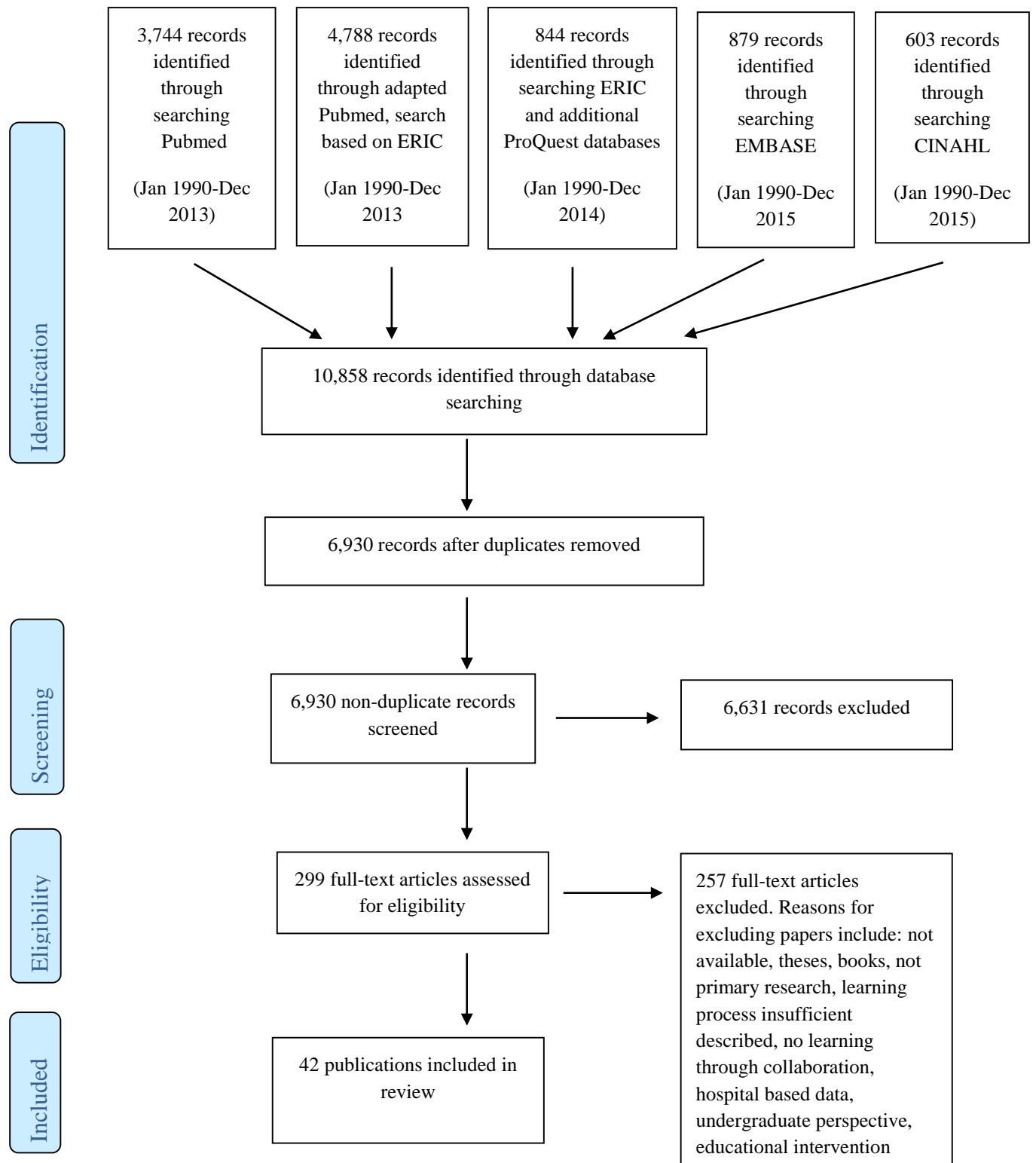
Results

In total, the search strategy identified 10,858 citations, resulting in 6,930 citations after de-duplication (see Table 1). Of these, 42 papers were selected for inclusion in this review, the details of which are summarised in Appendix 2.

Table 1. Bibliographic sources of included citations

Database	Citations found (n)	Duplicates (n)	New citations (n)
Initial Pubmed search	3,744		3,744
Adapted Pubmed search based on ERIC search	4,788	3,744	1,044
ERIC and additional ProQuest databases (20)	844	128	716
Embase	879	21	858
CINAHL	603	35	568
	10,858	3,928	6,930

Figure 1: Flow-chart of included studies



General characteristics of the included studies

Appendix 2 provides a summary of the forty-two included papers. Of these, 23 (55%) came from Europe; nine (21%) from the USA; four from Canada; three from Australia and one each from New Zealand, Mexico and Brazil. The studies varied in design. Twenty-eight studies used a qualitative research design (66%), four studies concerned a project description and qualitative evaluation (9%), four concerned a project description and quantitative evaluation (9%), three studies concerned a project description with both quantitative and qualitative evaluation (7%), one study concerned a project and case exemplar description, one study used action research, one study used both a quantitative and qualitative research design. Thirty-two studies (76%) reported on interprofessional learning, whereas 10 studies (24%) described intraprofessional learning through collaboration. Seven papers referred to communities of practices as a learning theory and two papers referred to socio-cognitive learning theories, while the rest of the papers were not explicit about a learning theory but referred to general concepts such as workplace learning (n = 3) or described what activities were performed without mentioning a learning theory.

Main results

Results are presented according to the research questions; throughout, figures are used to illustrate an overview of all C-M-O configurations identified from the included papers.² Additional examples of C-M-O configurations from individual papers are presented in Appendix 3.

Who learns during WPL through collaboration in primary healthcare?

Different perspectives were represented in the included studies, and therefore this section presents the perspectives of learners and facilitators³ separately for clarity.

Perspective of the learners

During WPL in practice, any professional can learn from others, both within the same profession (C) or between different professions (C). This was evident across all forty-two included studies. Ten papers reported on WPL between members of the same profession, of

² In each figure, C-M-O configurations are illustrated using arrows, with references to the relevant included papers in the review. Where no configurations could be made, references pertain to individual C-M-O elements.

³ Throughout this review, we use the term ‘facilitator’ to refer to anyone who facilitates another’s learning. As such, the facilitator may be a teacher, as well a professional functioning as a role model.

which five (39-43) described the learning of nurses (39) and five (44-48) described learning taking place between specialists and GPs (47). The remaining 32 included papers reported on WPL during interprofessional collaboration, with a broad spectrum of participants: GPs, nurses, midwives, health and social care practitioners, dentists, pharmacists, occupational therapists, physiotherapists, community health workers, receptionists, practice managers and faculty members.

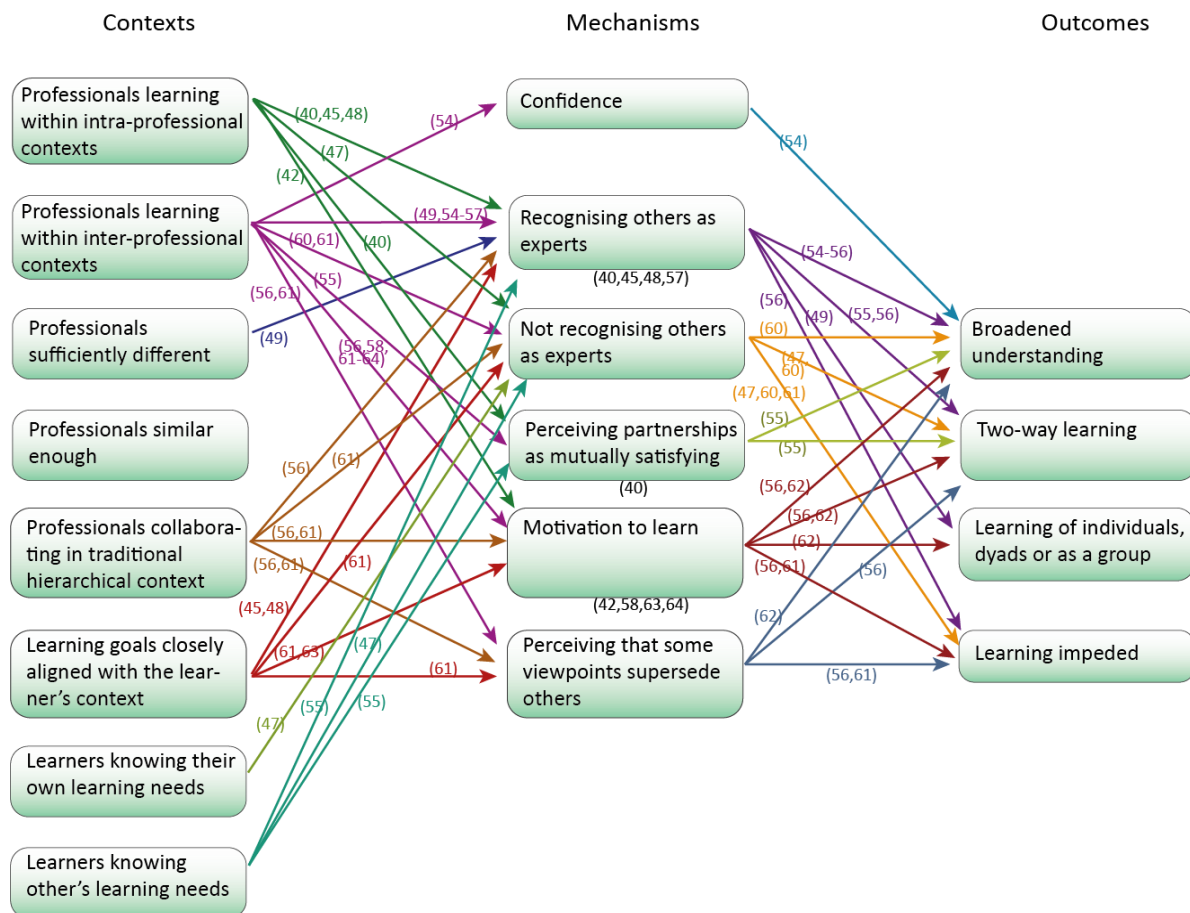
Professionals learn from those who are sufficiently different from themselves (C) to be able to offer additional knowledge and expertise (49-52), yet to whom they are still similar enough (C) to relate (53). Professionals' learning appeared to be influenced by different mechanisms (M), namely: having confidence (54) and recognising others as experts in their own right (40, 45, 48, 49, 54-57); being open about uncertainties (58, 59); and perceiving partnerships as mutually satisfying (40, 55). Conversely, if others are not seen as experts and there is limited communication or trust in others' expertise (47, 60, 61), learning may be impeded (O). The feeling that some viewpoints supersede others (M) may also impede learning (O) within a traditional hierarchical context (C) (56, 61).

Motivation to learn as an individual or within a group is a necessary mechanism (M) (42, 56, 58, 61-64) to enhance learning (O) (49, 59, 62, 65, 66), which contributes to better service delivery (56, 62, 64, 66). Awareness of practice problems that require solving and belief in the usefulness of certain learning activities contribute to willingness to learn (M) (56, 58, 61, 64). Motivation helps professionals to overcome resistance, build confidence, accept feedback and become more pro-active with respect to asking questions and seeking feedback (58, 61, 64, 67). However, willingness to learn is not sufficient to motivate learners to achieve all of their learning goals; learning goals must also be closely aligned with the context of the learner (C) (45, 48, 61, 63).

People who become aware of their own learning needs (C) (41, 47), others' learning needs or the learning needs of the group (C) (47, 55, 59, 65, 68) are more motivated to learn (46, 56, 59, 61). Awareness of one's learning needs helps professionals to prioritise and to control one's own learning agenda (45, 55, 57, 58). Professionals (e.g. collaborating GPs, nurses, practice managers; pharmacists) learn values, as well as new roles (O), by actually performing tasks (63, 69), particularly those which are closely connected to their daily practice (C) (69). However, the learning process is hampered (O) when professionals are not aware of others'

learning needs (C) (45, 47). Learning ends when needs are sufficiently met (47). We found insufficient data about the number of years in practice influencing professionals' WPL.

Figure 2: C-M-O for 'Who learns' – perspective of the learner



Perspective of the facilitators

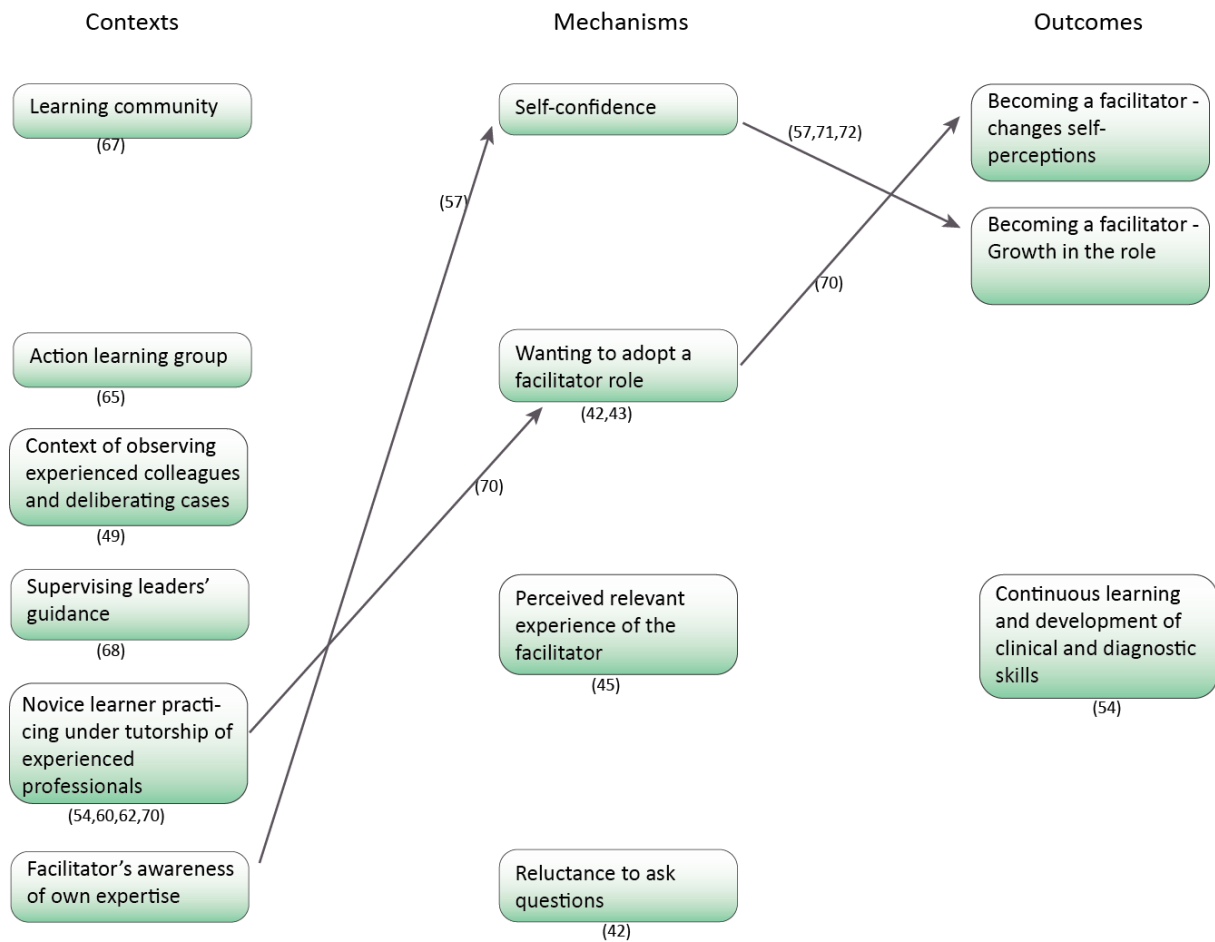
Becoming a facilitator for others' learning is, in principle, achievable but does not happen all by itself. Several studies reported on interventions whereby professionals became facilitators for others' learning; namely specialised palliative care nurses facilitating GPs' learning (42), specialists facilitating GPs' and nurses' learning (44, 47), and nurse specialists facilitating each other's learning (65). Facilitating another's learning is a competence which can be learned over time but which requires continuous reflective practice (39, 57, 70), learning by

doing (39) and, occasionally, additional formal learning as well (39). Becoming a facilitator can take place: within the context of a learning community (C) with space to exchange ideas and improve skills (67); in an action learning group (C) with other trainee facilitators (65); by observing more experienced colleagues (C), and talking through and deliberating cases with colleagues (C) (49); and/or by being nurtured and guided by supervising leaders (C) (68). Becoming a facilitator changes self-perceptions (O) (70), increases self-confidence (M and O) in the role and stimulates further growth as a facilitator (O) (57, 71, 72). Additionally, becoming more mindful of thought processes can result in long-term changes in one's own clinical practice (O) (70, 71).

Group members' and facilitators' professional expertise or lack thereof, influences the effectiveness of the facilitator, both in a positive and a negative way (54, 62, 70). This influences others' learning in different ways. A novice learner benefits from the support of an experienced clinician and from being exposed to practice under the direction and tutorship of experienced professionals (C) (54, 60, 62, 70). The professional expertise of the facilitator needs to be contextual (48, 70), that is, they must be experienced in treating a specific group of patients (54, 62). In addition, it must be viewed as being relevant to the context of the learner (M) (45). An experienced facilitator is seen as the source for answers to questions and is addressed as such (60). Furthermore, the facilitator needs to be aware of his own expertise (C) (57). However, being seen as too much as an expert, may hinder the learning process because learners might be reluctant to ask questions (M) (42). The support of an experienced facilitator results in continuous learning and the development of clinical and diagnostic skills (O) (54).

The professional role one adopts in a team influences the development and expression of facilitating competencies. A professional who adopts the facilitator role (C) uses their knowledge to advise others (42, 43, 72), sometimes implicitly by vocalizing their own clinical reasoning (42, 43, 70) or by thinking out loud (42, 43, 70). This encourages other team members to get involved in the reflective process, resulting in learning (O). On the contrary, a professional who adopts the role of the 'clinical expert' by contributing expertise in direct patient care to the team may find it more difficult to assimilate knowledge and competencies in facilitation if this is not seen as part of their role (M) (43).

Figure 3: C-M-O for 'Who learns' – Perspective of the facilitators



When does WPL take place?

Broadly, data suggested that both organizational and social factors influence WPL. These are discussed below.

Organisational factors

Learning during practice may be influenced by the way the workplace/work environment is equipped and laid-out (50, 54, 56, 60, 66, 72, 73). For example, workplace artefacts (C), shared aims (C), and marked time (C) all influence WPL (46, 50, 55, 56, 58, 60, 61, 72-75).

Workplace artefacts are diverse tools (for example reflective logs, (flow-) charts, daily care reports, portfolios, protocols, and technological tools) which make learning more shared,

contextualised, personalised and patient-centered (O) (46, 50, 54, 56, 60, 73). Artefacts such as protocols (C) can mandate conversations between nurses, GPs and multiple professionals about care (53, 54, 73, 75). The influence of technological tools on learning only occurs in a context where learners have adequate skills (54, 57, 67, 72) and recognise the added value (M) (45, 48, 73). However, even when these conditions are met, change does not occur automatically (although it should be noted that the majority of these studies studied GPs only) (48, 55, 58, 61, 75).

Less tangible aspects of the workplace, such as a shared aim or responsibility (C), also facilitate learning. For example, a feeling of shared responsibility for patient care triggers professionals, whether they are of the same discipline or differing disciplines, to share their knowledge and expertise with others (M) (41, 56). Within the context of a safe learning environment, with shared values and a belief in patient-centred care, recognition of the value of sharing knowledge (M) is an underlying mechanism which facilitates learning (41, 56). Interprofessional learning in itself may also be a shared aim (C) (56) which can enhance the whole team's care quality (48) and can trigger continuous team learning dynamics (O) (65).

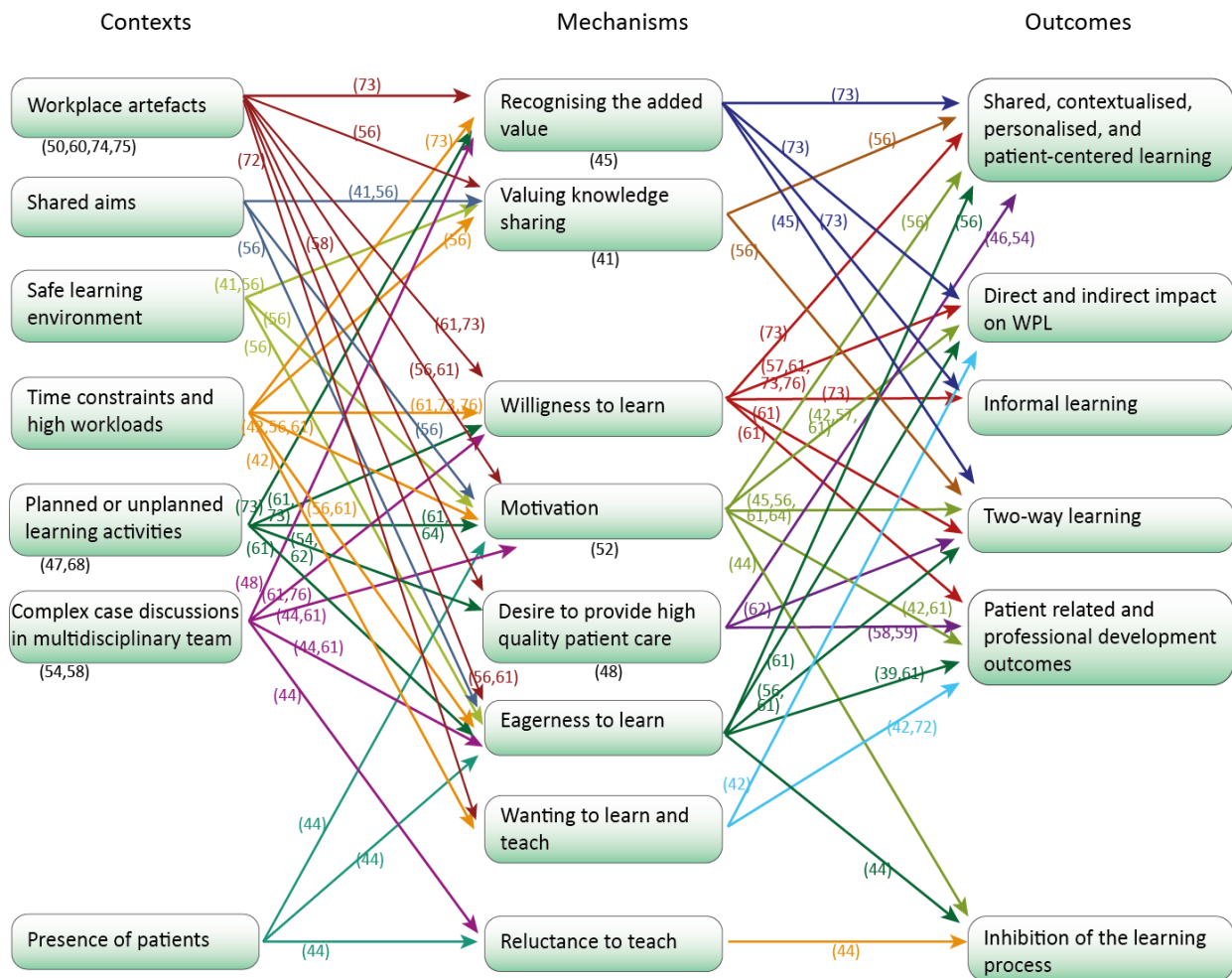
In organisations, both planned opportunities (e.g. structured reflection time) and unplanned learning opportunities (C) lead to WPL (47, 54, 61, 62, 64, 68, 73). However, unplanned activities seem to be more motivational (42, 44, 45, 52, 56, 57, 61, 64). For example, seeking out on-the-spot opportunities for peer feedback leads to greater responsiveness to the needs of the moment and facilitates two-way learning (O) (45, 56, 61, 62, 64). Professionals value and appreciate formal opportunities to learn from one another, such as shared visits (48), visits to each other's workplace (45) or comparative feedback (60), but do not prioritise these opportunities over routine clinical activities.

Irrespective of professional discipline, standardising and regulating learning dynamics is not recommended (56, 61, 64). However, unplanned learning appears to happen less frequently in situations characterised by time constraints and high workloads (C) (56, 73, 76). High workload affects WPL (O) directly (by limiting the time available for time teaching-learning interactions (42), and indirectly (by impacting on professionals' ability and willingness to learn (M) (57, 61, 73, 76)). Reflection on practice experience is time-consuming and even when convinced of the need to learn through reflection, engagement in reflection can be hindered by time constraints (61) and clinical responsibilities (45). Suggested solutions are protected time for team reflection and taking a break from daily practice in order to engage

with educational opportunities, such as interprofessional discussions or personal reflection (57, 73, 76).

In the workplace, primary healthcare professionals encounter cases with a high level of complexity at a patient level (such as cultural diversity (64)), a contextual level (practices for which resources are scarce (62, 64)) and/or a professional level (62, 64). All of these complexities provide opportunities for learning. Difficult case management occurs mostly in multidisciplinary and interprofessional collaborations (C), e.g. case discussions in multidisciplinary teams (54, 58, 61, 76), joint patient visits with different professionals (48), joint interprofessional teleconsultations (44). However, intra-professional case discussions, e.g. GP-specialist videoconferencing, also provide opportunities for learning. Besides complex cases, other opportunities for WPL are situations in which patients' care needs lead to consultation. The clinical problems at stake trigger primary healthcare professionals to seek answers as a team (M) (56), through purposeful engagement with other professionals who have the necessary knowledge and expertise (62). This enables them to learn from each other about the specific patient problems at hand. Discussion of patient cases are seen as reciprocal teaching-learning transactions (46, 47, 77). Learning that results from interactions during (difficult) case management is motivated by both professional development outcomes and patient-related outcomes (O) (39, 42, 58, 59, 61, 72, 75). Important driving mechanisms for learning are: the desire to provide high-quality patient care (M) (46, 48, 54, 58, 62); seeking information on professional decisions (M) (59); seeking guidance on professional development (M) (39); and an eagerness to learn (M) (44, 56, 61) or teach (M) (42, 72). Nevertheless, in a study on GPs and specialists, learning was negatively affected (O) by facilitators' reluctance to teach (M) in the presence of patients (C) (44).

Figure 4: C-M-O for 'When' – Organisational factors



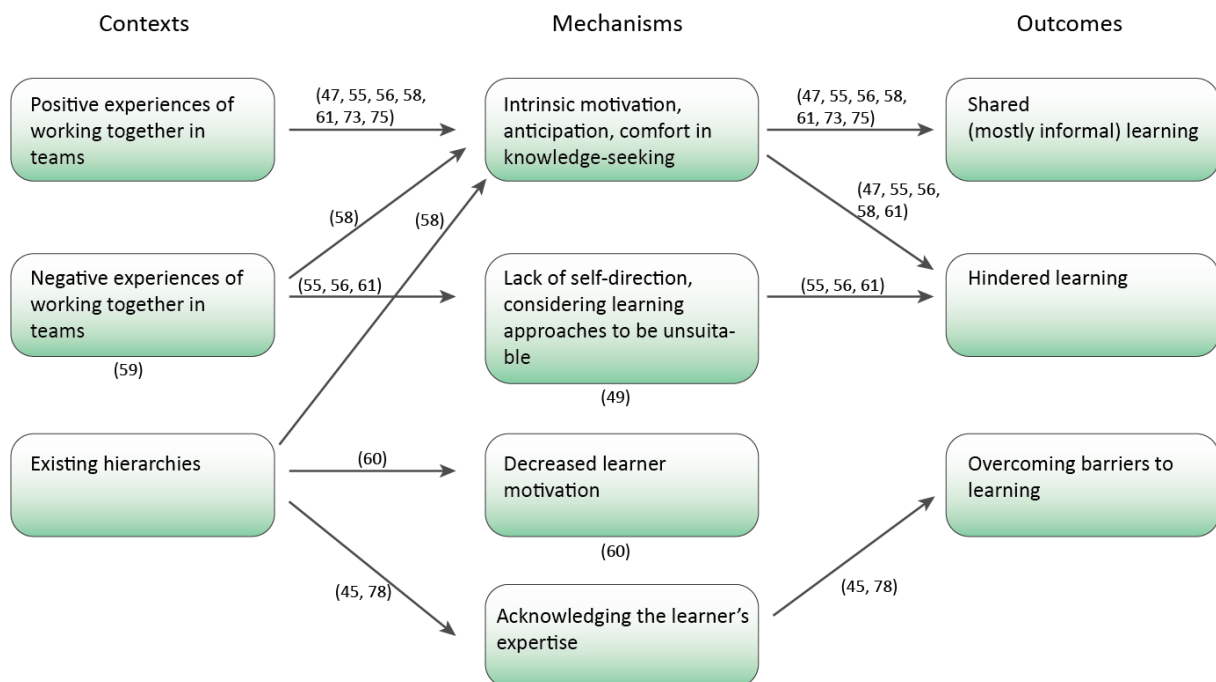
Social factors

The social environment, such as the composition of teams and the nature of relationships at work, influences learning. Strong relationships between healthcare professionals (C) can facilitate learning, because practitioners know one another well (56), feel equivalent (47, 51, 56, 58, 59), trust each other (48, 51, 54, 58, 62, 65), develop relational awareness (in teams) (47, 54, 56, 60), keep lines of (constructive critical) communication open (45, 47, 54, 56, 58, 60) and have a willingness to learn (57). In interprofessional settings, good relationships contribute to a safe environment which supports learning, particularly when collaborating on complex cases (41, 47, 51, 54, 56, 58, 59, 68, 69, 76). Both past positive and past negative experiences of working together in teams (C) or in dyads have an effect on learning during practice. Underlying mechanisms are the intrinsic motivation, anticipation and comfort in knowledge-seeking (M) (47, 55, 56, 58, 61, 73, 75) or the lack of self-direction or considering certain learning approaches to be unsuitable (M) (49, 55, 56, 61). They result in shared (and

mostly informal) learning (O) (47, 55, 56, 58, 61, 73, 75), or learning being hindered (O) (47, 55, 56, 58, 61).

Hierarchy between professionals (C) also influences the learning process (45, 58, 60, 78), e.g. in locations where expert palliative care nurses wish to facilitate general practitioners' learning (43). The learning process can be influenced negatively when a physician emphasises or reinforces a perceived hierarchy by adopting a lecture-like style when providing information to advanced practice nurses, resulting in nurses' decreased motivation to learn (M) (60). However, a study about a medical specialist, acting as facilitator for learning in general practice, showed that facilitators could help to overcome barriers to learning (O) associated with hierarchy when the specialist is able to communicate with GPs while “pragmatically relating expert knowledge to clinical experience” (45, 78). Furthermore, getting to know each other in an informal and different context (e.g. a team building weekend) makes it possible to learn from each other afterwards without perceived barriers of authority (O) (56).

Figure 5: C-M-O for ‘When’ – Social factors



How does this learning occur?

Learning takes place via a number of channels, including interactions with other professionals and through others' facilitative behaviours (including discussions, explanations, modelling and facilitating). These are each discussed in turn.

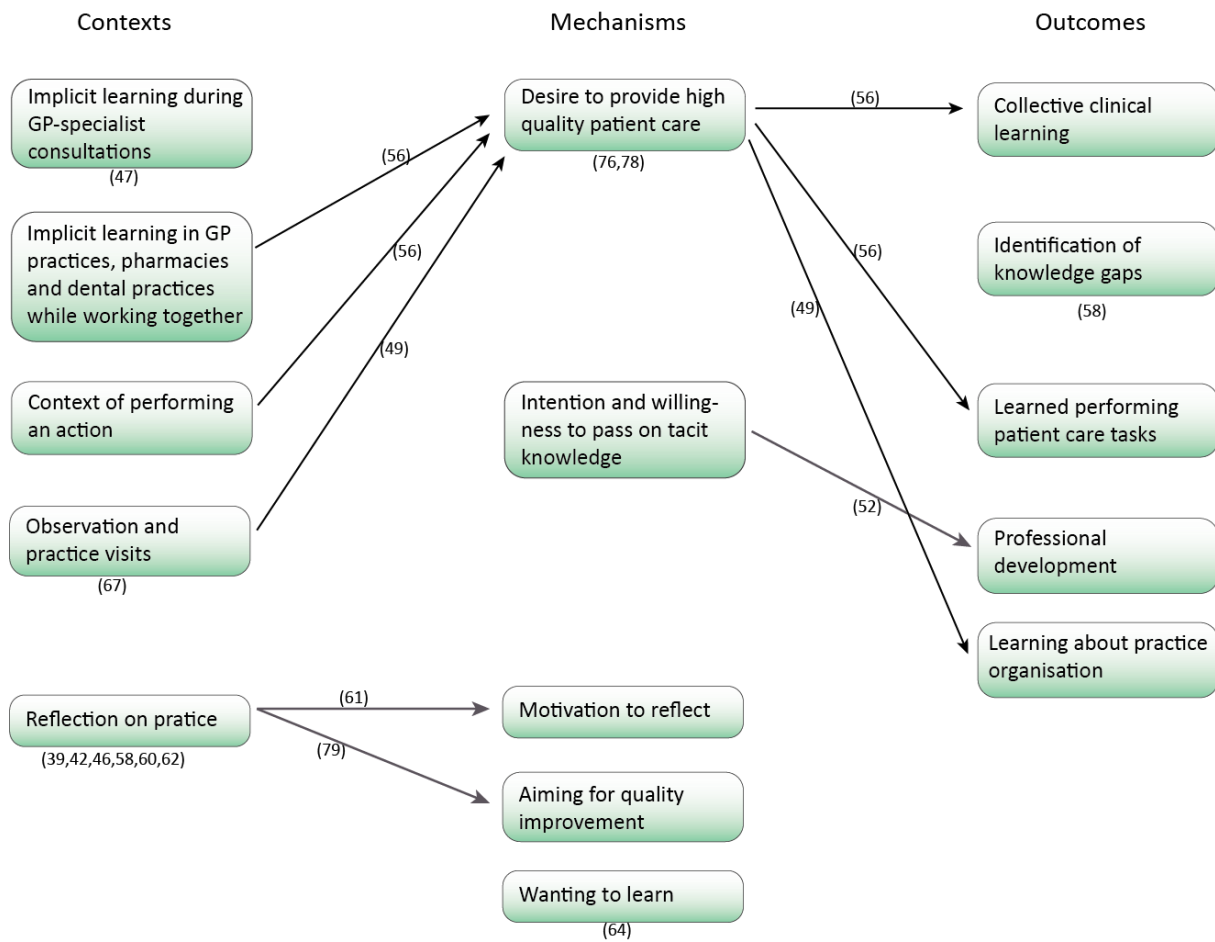
Interactions with other professionals

Learning often occurs without an explicit intention to learn. Sometimes learning occurs but is not explicitly discussed e.g. specialists who explain something to a generalist (C) do not always want their teaching effort noticed (47). Sometimes learning happens unconsciously and implicitly between team members while working together (C) (56). However, even though professionals in primary healthcare engage in implicit learning, not all learning is unintentional. The main driving mechanism for implicit learning is the wish to provide high quality patient care (M) (49, 56, 76, 78) by sharing and discussing tasks (42). Resulting outcomes are collective clinical learning (O) (56) or identification of knowledge gaps through comparing clinical practice and seeking peer data to inform self assessment (O) (58).

A study of interprofessional learning in GP practices, pharmacies and dental practices found that performing an action (C) is very important for the learning outcome; merely observing someone else doing it or getting an explanation on how to do it seems less efficient (56). However, studies carried out in interprofessional settings (GPs and social workers respectively) showed that observation and practice visits of colleagues (C) could be a first step in the learning process (49, 67). The intention and willingness to pass on tacit knowledge (M) is a driving mechanism to allow colleagues to learn by experience (52). Resulting learning outcomes are situated at the level of performing patient care tasks (O) (56), professional development (O) (52) and practice organisation (O) (49).

Within the context of experiential learning, reflection on practice (C) is an important part of the learning process. This reflection can be spontaneous or triggered (39, 42, 58), individual or guided or collective (46, 61, 62, 79) and can be related to the task at hand (60) or to one's professional role and identity (61). Driving mechanisms for reflection are the motivation (M) to continue doing it after experiencing the positive effects (61), aiming for quality improvement (M) (79) or explicitly wanting to learn (M) (e.g. primary healthcare professionals learning from local community health workers in a transcultural context) (64).

Figure 6: C-M-O for 'How' – Interactions with other professionals

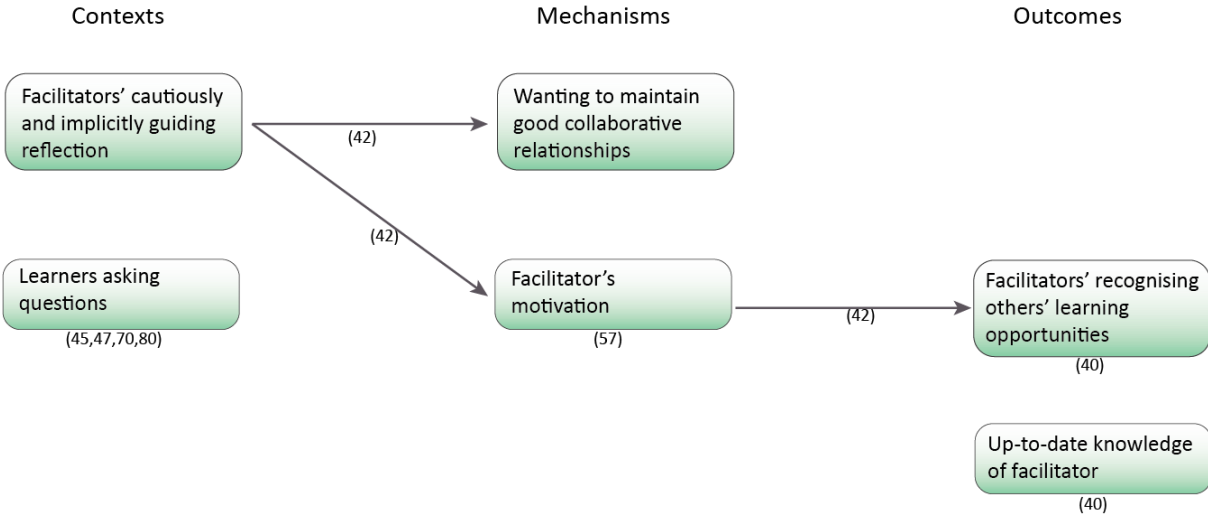


Others' facilitative behaviour

During daily practice activities, any professional can trigger the learning of another professional. This reciprocal process is also seen in the influence learners have on their facilitators, and vice versa. When learners ask questions in an open and positive manner, request feedback and bring up-to-date knowledge into practice (C) (45, 47, 70, 80), the facilitator learns to recognise opportunities to facilitate others' learning (O) (40, 42), which in turn triggers teaching and facilitative behaviour and challenges them to ensure that their knowledge base is up-to-date (O) (40). The learner's actions motivate the facilitator (M) to continue teaching and facilitating in different ways (42, 57). Regardless of the triggering effect of the learner's learning behaviour, some facilitators try to share their knowledge and give advice without being prompted, e.g. in a study with specialised palliative care nurses giving advice to GPs (42, 43). Professionals who exhibit facilitative behaviour can also affect the learning behaviour of others (39, 61, 75). Facilitators may guide joint reflection, but

should do so cautiously and implicitly (C) so as not to harm the interprofessional relationship as learning is secondary to maintaining good collaborative relationships (M) (42). Reflective learning, implicit learning through participation in practice, modelling and reciprocal learning were all identified in the included studies on primary healthcare professionals. In interprofessional contexts, more studies focused on learning through participation and reciprocal learning, whereas in intraprofessional contexts more studies were done about reflection and modelling through facilitators. Studies examining the context in which GPs learn mostly focused upon learning through participation, compared with studies about the learning of primary healthcare nurses, which focused more on reflection. In both disciplines, modelling through facilitators was seen.

Figure 7: C-M-O for ‘How’: Others’ facilitative behaviour



What is being learned?

Outcomes of WPL differed across the 42 included studies, with eight focused specifically on WPL at the team or organisation level (48, 53, 56, 66-68, 73, 75). As such, studies primarily reported data pertaining to professionals’ individual learning outcomes, with a minority focusing on what was considered relevant for the team.

During collaboration and through interaction with each other, professionals acquire and contextualise knowledge (39, 48, 50, 51, 56, 59, 62, 73, 75). In addition, new attitudes (39, 74), increased self-awareness (41, 56, 61, 63) and new values and roles may develop (69). Professionals develop skills (39, 61, 69) and behaviour (61, 74, 75) that they did not previously possess. Learning outcomes are a more realistic and relevant view on medicine (55, 77); growth in clinical care competence (56, 65); refined coping mechanisms (68); evolved interprofessional relationships (48, 55, 76); an impact on the growing learning culture (55); and insight and awareness of one's own and others' professional possibilities (55, 76).

Regular patient care and difficult case management (C) result in diverse learning outcomes, centred on both patient-related and professional development outcomes. They relate to: acquisition of clinical knowledge (47, 54, 56, 72), and a broader understanding of the clinical problem (46, 54, 59); contextualisation of generic knowledge (62), acquisition of cultural knowledge and cultural proficiency (64) creativity in problem solving (61, 64); the development of strategies to integrate knowledge into the work setting (62); reciprocal learning of each other's skills (48); development of skills for reflective practice (58, 61); improved patient care (58); individual professional growth (39, 76); enhanced patient-centeredness (77); changed attitudes and beliefs towards diseases (77); and clarification of professional roles.

Learning outcomes are evident not only with respect to independent performance of patient care tasks (56) but also at the level of non-patient related tasks, such as practice organisation or chairing a meeting (49). Additional outcomes may include transmission of tacit knowledge and professional skills (e.g. professional flexibility and creativity in unclear situations) (52), and increased insight into one's own and others' personal values and norms (61). Reflective practice can make it easier for professionals to understand the moral dimensions of care, which can benefit both individual practitioners and the team (61).

Facilitating the learning of others also results in enjoyment from being an expert (56); role transition from expert to facilitator (43, 61); acquisition of clinical or cultural-specific knowledge (51, 54, 56, 58, 62) which can also be a reciprocal dynamic (47, 55); and improved self-confidence (62). Other outcomes relevant for the team are professional hierarchy being replaced by knowledge hierarchy (54) and acquisition of team building skills (55). Demonstrating facilitative behaviour may lead to group members' passion for work or learning (68) or to the realisation that one's own judgment on a case needs to be postponed in

order to view the problem from different perspectives (61). This leads to the acquisition, sharing and development of knowledge (75), of ways to communicate guidelines' content (63), of a more exploratory attitude (61) and/or of reflection as a skill (39).

Discussion

This review aimed to better understand the process of WPL through collaboration in primary healthcare and the conditions influencing such WPL. In this discussion, we first discuss the results of the review. We then reflect on whether our findings fit with theories of social (workplace) learning mentioned in the introduction and compare them with other theoretical frameworks. Finally, we then discuss the strengths and limitations of the review itself and outline gaps in the current evidence base, before concluding by summarising the key findings of this review.

Who learns during WPL through collaboration in primary healthcare?

In our review, we were interested in WPL across a broad range of primary healthcare professionals. Participants in the included studies were mainly GPs and nurses, working in intraprofessional or interprofessional settings; studies investigating WPL of pharmacists or dentists were underrepresented. Interestingly, we did not find large differences in what would be considered to be successful learning approaches or beneficial aspects of the learning environment for GPs and nurses. What we did find, however, is that learners who are willing to learn, and who are aware of the importance of finding solutions to practice problems and relevance of the subject matter, are strongly motivated to engage in learning. This finding is not surprising, given the prevalence of motivation theories throughout the WPL literature (1, 23) e.g. self-determination theory (81).

What is surprising, however, is that only three of the included studies reported team-level analyses. Needs and wants, essential for experiential learning from daily practice, are often viewed as something that belongs to an individual learner (35) but seems to be equally relevant for understanding WPL at the group level (34). Unfortunately, given the paucity of team-level data, we were unable to draw conclusions about the influence of motivation of teams; future research is needed to address this gap and shed further light on the process of WPL through collaboration.

In addition to needs and wants, we also identified the importance of being aware of one another's expertise when it comes to WPL through collaboration. This phenomena was mostly observed in papers focused on interprofessional settings, and fits with Transactive Memory Theory, which posits that 'knowing who knows what' is essential for professional practice as it diminishes the need for every professional to have all facts in their own memory (82). As such, communicating each other's expertise in an explicit way may enhance both patient care and interprofessional WPL.

When does this learning take place?

Collectively, data from the included studies indicate that learning takes place when conditions provide opportunities for learning which aligns with the work by Illeris about workplace learning (25). When resources ('artefacts') are available to professionals, they influence WPL. Artefacts include technical resources (such as electronic patient records or technical devices to facilitate video communication between professionals in different locations) and practical resources (such as lay-out of the work environment or days-out). Artefacts act as boundary objects, "that allow connection between different perspectives among communities to achieve a common goal" (83). Consideration of theories of the hybrid or extended mind (84) and other sociomaterial learning theories (85) may help us to better understand the potential role of artefacts. Interestingly, however, these theories were not referenced in the papers included in our review, even though artefacts were studied frequently.

When practices are very busy, professionals' WPL is influenced by this high workload. We identified 14 studies that explicitly referred to workload; the remaining 28 studies did not mention any influence of workload. However, the relationship between learning and workload is complex, not least because workload is often seen a subjective rather than objective entity (86). When workload is low, with a small number of complex interesting patient cases, WPL through collaboration does not occur. When workload is too high, no room for constructive critical communication remains, thus hindering WPL.

Interprofessional learning is of increasing importance within the medical domain (87, 88). In our review, 32 studies focused on interprofessional learning of primary healthcare professionals, often referring to communities of practice as a relevant learning theory. We expect that, in healthcare, the idea of novices who become experts through participation is appealing because learning through socialisation is common. Not mentioned in the included

studies was Cultural Historic Activity Theory (89), which might have been a useful framework for understanding learning arising from collaboration between professionals from different professions and different organisations. In Cultural Historic Activity Theory, the wish to reach a specific goal is essential for learning to take place (89), which fits with our finding that a shared aim is important, but realising shared aims in an interprofessional setting does not always emerge naturally (90). Shared responsibility for patient care reflects the importance of authentic learning environments (28, 91, 92).

Within primary healthcare, the team's history and past experiences was found to influence the quality of team relationships and, as such, their WPL. The history of a team is a concept that might explain successful learning thanks to shared mental models that people have developed in time while working together (93). This might also help to clarify unsuccessful learning, particularly if conflicts have arisen during the team's history that negatively affect learning (94). Conversely, a sense of hierarchy can hinder WPL, as it can impede learners' willingness to ask questions or to seek feedback. Existing (perceived) hierarchy can also form a barrier to providing feedback or to critical questioning. In the included studies, hierarchy was reported upon, yet at the same time measures were proposed to overcome this barrier, such as acknowledgement of others' expertise and awareness of others' specific contexts. Although the literature describes communication approaches to overcome communication difficulties in hierarchical situations (95), the role of acknowledging expertise has –to our knowledge- not been studied in detail.

How does this learning occur?

Practitioners can learn by sharing activities or working in collaboration, or by observing each other. The finding that healthcare professionals learn through participation during every-day working aligns with sociocultural learning theories, in which learning is posited to occur during regular interaction, for example in learning communities (28). An explicit reference to theory about learning communities was found in several studies, while in other studies learning theories were often mentioned much more implicitly by, for example, primarily describing the value of group discussion for learning (44, 46, 48, 54, 58, 61, 76) . In such discussions, it is important to be able to ask questions and seek feedback, and value the importance of being critical in a constructive and reflective manner (96, 97). We also found that planned formal learning seem to contribute to (opportunities for) informal learning.

Studies emphasised the importance of ‘finding a middle ground between formal and informal learning; that is, not solely relying on informal learning opportunities (98, 99).

Not all of our findings match a conceptualisation of learning as an interactional process that occurs while participating in practice. The findings that professionals can learn through observation of others is more in line with Bandura’s social cognitive learning theory (100), and with the notion of transformative learning (37). Social cognitive theory (27) stresses the importance of observation, imitation and modelling of other professionals when it comes to learning new skills or behaviours. Transformative learning in this context, emphasizes the role of learning from a formal, structured mentoring arrangement, and conceptualises mentoring as a two-way learning process (100). Collectively, social cognitive theory and transformative learning put less emphasis on doing things together and discussing with one another; instead, observation of people who are perceived as role models and explicit instruction are seen as more important.

Practitioners can also learn through reflection. In our analytical framework, we drew from contemporary, social conceptualisations of reflection when producing our statement on reflection. The majority of theories of reflection focus on individual learning, often as a result of formal learning activities (36). In recent years the idea of reflection as an individualistic – and mainly mental- activity has been challenged. For example, critically reflective work behaviour is now considered to be interactive, and something which is shown in the discourse between professionals (97, 101). In the studies included in our review, the value of reflective conversations next to individual reflection was confirmed.

What is being learned?

Studies reported varied outcomes. Improvements in care provision appeared to be both an important and primary motivator for learning and an intended outcome of learning, thus fitting with recent data from trainee doctors. Indeed, it seems that a major advantage of WPL is that new knowledge is contextualised by adapting it to their local context (102). However, it is important to note that as most studies were qualitative and not longitudinal, evidence about improved care being an actual outcome was missing. Furthermore, the majority of included studies indicated that their interventions were successful, that outcomes were reached, or that conditions were beneficial, leading us to suspect evidence of publication bias

(i.e. bias occurring as a result of positive findings being more easily publishable than negative findings (103)).

Reflections

In the previous section, we compared our findings with existing learning theories. Most of our findings could be situated in theories on workplace learning of other (healthcare) professionals. The starting point for this review was that professionals within primary healthcare have to engage in life-long learning and that WPL through collaboration might be an essential part of life-long learning. When reflecting on our findings, we found it remarkable that patient care played such a central role as a motivator for learning, while at the same time learning through collaboration was often not recognized as real learning. In sum, the findings of our review fit with general WPL literature stating that working and learning are inseparable and fundamental. Patient care appears to be a primary motivator for learning, but greater attention ought to be paid to the potential learning opportunities arising from ICP in order to optimize professionals' WPL.

Implications for practice

The stakeholders with a primary interest in this research are primary healthcare professionals, WPL researchers, managers and educators in primary healthcare. The findings of this review have the following implications for these stakeholders.

Primary healthcare professionals

- Professionals are often unaware that they learn through collaboration. As in undergraduate medical education (104), learning during work in professional life should be made explicit and framed as being 'inherent in the practice of patient care' (p.667). As such, developing the competency to learn while caring may diminish the need to organize formal training in situations with a high workload.
- Healthcare professionals do not exclusively identify themselves either as learners or as facilitators. Any professional can both learn and facilitate others' learning. Making this more explicit may help to improve WPL through collaboration.
- Acknowledgement of others' expertise and awareness of others' specific contexts, especially when hierarchy is involved, reduces barriers to learning.

- Unplanned learning activities provide more opportunities for ‘just-in-time’ learning and for non-hierarchical collaboration than planned learning sessions. The former are perceived as being more motivational.

Professionals who act as managers in primary healthcare

- Policy makers and managers working in primary care should ensure that protected time for learning is available. This time is needed to reflect upon practice, to customize oneself with the new ways of interaction and to develop new habits within clinical practice.
- The layout of the workplace affects learning. Managers need to organize the workplace layout to enhance communication in the workplace. Facilitating casual encounters between different professionals provides opportunities to ask for feedback and to exchange ideas. In addition, workplace layout could promote conversations around artefacts (such as electronic patient records), when they are co-located and accessible to multiple professionals simultaneously. Managers should explicitly state that artefacts such as patient records are not only useful for recording and accounting, but can play a role in learning conversations as well.

Primary healthcare educators

- (Post)-graduate educators should help learners to become aware that all kind of situations provide affordances for learning (i.e. learners do not just learn through lectures delivered outside of the workplace but learn when asking questions, discussing and asking feedback during the work to be done). Curricula should emphasise the importance of informally asking questions and requesting feedback.
- Knowing and valuing the expertise of others is essential for learning, yet this is more difficult in interprofessional settings. Interprofessional modules, focusing on collaboration, should therefore be included in undergraduate education.

WPL researchers

- The studies in our review refer to a limited subset of learning theories. Relying on a wider range of social learning theories as theoretical framework for future studies would improve the knowledge base on WPL through collaboration. Additionally, as most of the selected studies had individuals as their unit of analysis, we recommend

that researchers focus on supplementing current research with studies on organizational learning in primary healthcare.

- Although barriers for workplace learning in general have been described, surprisingly, findings of the intervention studies in our review were most often positive.

Researchers should build on this observation and focus on clarifying barriers to WPL

Strengths and Limitations

This review has a number of strengths. For example, we included only papers that provided a sufficiently detailed description of WPL, so as to allow for greater theoretical understanding of WPL in primary care. Furthermore, we ensured that all papers were independently screened, selected, assessed and coded by two researchers from different professional backgrounds, thus strengthening the rigour of our review. Also, we used the RAMESES training materials for realist synthesis (31) and the RAMESES Publications Standards (105) to provide practical guidance throughout the review and the writing process. However, it is pertinent to also consider the limitations of this review. First, we started with a broad spectrum of statements. This approach precluded us from presenting a fine-grained overview of CMOs for each and every paper supporting each statement separately. Although this may be seen as a limitation, we believe that our review provides an excellent starting point for studies designed to explore some of the complex (causal) chains of change contained within our statements. Second, we did not refine the focus of our review mid-way, as is common in realist synthesis, because we did not think it appropriate to exclude aspects of our analytical framework at this stage. Instead, we chose to broadly explore each statement, as we felt that a broad overview of all the different learning processes that occur within primary care would provide the most value as present. Third, updating our search during the review was not considered feasible. This limitation is unlikely to have substantively impacted on the findings of this review, but should be borne in mind, particularly given that a number of studies pertaining to interprofessional learning have been published since our search was conducted. Fourth, as is customary in a realist review (29), we focused on the rigour and relevance and did not assess the quality of each and every paper included in our review. Furthermore, most studies were qualitative papers, which makes our conclusions less generalizable. However, we included papers that describe WPL in sufficient detail, and, during our process of including and excluding papers, it became clear that papers using quantitative research methodologies

were less likely to describe the learning process in any detail (i.e. one of the inclusion criteria).

Conclusion

The results of this review indicate that interprofessional WPL through collaboration in primary healthcare is multifaceted. When situated within the context of existing social learning theories, our findings indicate that WPL does indeed take place when primary care professionals work together, within the same profession or with professionals from other disciplines, and that the mechanisms involved do not differ in major ways from those known from studies about other professionals, both inside and outside healthcare. As such, WPL should be considered to be an essential part of the continuing professional development continuum during lifelong practice. The findings of this review have a number of implications for practice. Future research should focus on clarifying and exploring the processes identified in this review further so as to optimise WPL and, ultimately, patient care.

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Conflict of interest statement

No conflict of interest to declare for any member of the review group.

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- Gemma Cherry is a Lecturer in Clinical Health Psychology and Clinical Psychologist in a specialist psycho-oncology service. Her main research interests align with her clinical interests, and relate to adjustment to, and coping with, chronic diseases such as cancer. She has previously worked as a systematic reviewer and has authored a textbook for students undertaking a systematic review as part of their postgraduate studies.
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Appendix 1: Search syntax

Initial Pubmed search syntax

- 1 “Learning”[MeSH] OR “Learning”
- 2 “Models, educational”[MeSH] OR “Models, educational”
- 3 “Problem-based learning”[MeSH] OR “Problem-based learning”
- 4 “Professional development”
- 5 “Workplace learning”
- 6 “Participatory learning”
- 7 “Shared learning”
- 8 “Collective learning”
- 9 “Community-based learning”
- 10 “Informal learning”
- 11 “Work-based learning”
- 12 “Team-based learning”
- 13 “Interprofessional learning”
- 14 “Practice-based learning”
- 15 “Open learning”
- 16 “Situated learning”
- 17 “Self-regulated learning”
- 18 “Action learning”
- 19 “Lifelong learning”
- 20 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR
14 OR 15 OR 16 OR 17 OR 18 OR 19
- 21 “Cooperative behavior”[MeSH] OR “Cooperative behavior”
- 22 “Interprofessional relations”[MeSH] OR “Interprofessional relations”
- 23 “Patient care team”[MeSH] OR “Patient care team”
- 24 “primary health care team”
- 25 “Peer collaboration”
- 26 “Community of practice”
- 27 “Collaborative practice”

- 28 Multi-profession* OR Multiprofession*
- 29 Multi-disciplin* OR Multidisciplin*
- 30 Inter-profession* OR Interprofession*
- 31 Inter-disciplin* OR Interdisciplin*
- 32 Teamw*
- 33 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32
- 34 “Primary health care”[MeSH] OR “Primary health care”
- 35 “Family practice”[MeSH] OR “Family practice”
- 36 “Health personnel”[MeSH] OR “Health personnel”
- 37 “Medical practice”
- 38 “Family care”
- 39 “Primary care practice”
- 40 “Family medicine”
- 41 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40
- 42 20 AND 33 AND 41
- 43 42 + filter publication date (1990 – 21/12/2013)

Adapted Pubmed search syntax, based on ERIC-search syntax

- 1 “Learning”[MeSH] OR “Learning”
- 2 “Models, educational”[MeSH] OR “Models, educational”
- 3 “Problem-based learning”[MeSH] OR “Problem-based learning”
- 4 “Professional development”
- 5 “Workplace learning”
- 6 “Participatory learning”
- 7 “Shared learning”
- 8 “Collective learning”
- 9 “Community-based learning”
- 10 “Informal learning”
- 11 “Work-based learning”

- 12 “Team-based learning”
- 13 “Interprofessional learning”
- 14 “Practice-based learning”
- 15 “Open learning”
- 16 “Situated learning”
- 17 “Self-regulated learning”
- 18 “Action learning”
- 19 “Lifelong learning”
- 20 “Active learning”
- 21 “Adult learning”
- 22 “Associative learning”
- 23 “Aural learning”
- 24 “Cooperative learning”
- 25 “Discovery learning”
- 26 “Experiential learning”
- 27 “Incidental learning”
- 28 “Intentional learning”
- 29 “Interference learning”
- 30 “Multisensory learning”
- 31 “Nonverbal learning”
- 32 “Observational learning”
- 33 “Prior learning”
- 34 “Sequential learning”
- 35 “Serial learning”
- 36 “Transfer of training”
- 37 “Transformative learning”
- 38 “Verbal learning”
- 39 “Visual learning”
- 40 “Learning experience”
- 41 “Learning strategies”
- 42 “Learning at work”
- 43 “Learning in practice” OR “Learning at practice”
- 44 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR
14 OR 15 OR 16 OR 17 OR 18 OR 19... OR 43

- 45 “Cooperative behavior”[MeSH] OR “Cooperative behavior”
- 46 “Interprofessional relations”[MeSH] OR “Interprofessional relations”
- 47 “Patient care team”[MeSH] OR “Patient care team”
- 48 “primary health care team”
- 49 “Peer collaboration”
- 50 “Community of practice”
- 51 “Collaborative practice”
- 52 Multi-profession* OR Multiprofession*
- 53 Multi-disciplin* OR Multidisciplin*
- 54 Inter-profession* OR Interprofession*
- 55 Inter-disciplin* OR Interdisciplin*
- 56 Teamw*
- 57 Cooperation
- 58 “Interprofessional relationship”
- 59 “Interdisciplinary approach”
- 60 “Compliant behavior*”
- 61 “Collaboration*”
- 62 “Interprofessional practice” OR “Inter-professional practice”
- 63 “Interprofessional collaboration” OR “Inter-professional collaboration”
- 64 “Medical care team*”
- 65 “Interdisciplinary health team*”
- 66 “Healthcare team*” OR “Health care team*”
- 67 “Care team”
- 68 45 OR 46 OR 47 OR 48 OR... OR 67
-
- 69 “Primary health care”[MeSH] OR “Primary health care”
- 70 “Family practice”[MeSH] OR “Family practice”
- 71 “Health personnel”[MeSH] OR “Health personnel”
- 72 “Medical practice”
- 73 “Family care”
- 74 “Primary care practice”
- 75 “Family medicine”
- 76 “Primary healthcare”

- 77 "Primary care"
- 78 "General practice"
- 79 "Health care provider*" OR "Healthcare provider*"
- 80 Fieldworker* OR "Field worker"
- 81 Caregiver*
- 82 69 OR 70 OR 71 OR... OR 81

- 83 44 AND 68 AND 82

- 84 83 + filter publication date (1990 – 31/12/2013)

ERIC (Proquest) search syntax

- 1 SU.EXACT.EXPLODE(" Learning") OR "learning"
- 2 "Active learning"
- 3 "Adult learning"
- 4 "Associative learning"
- 5 "Aural learning"
- 6 "Cooperative learning"
- 7 "Discovery learning"
- 8 "Experiential learning"
- 9 "Incidental learning"
- 10 "Intentional learning"
- 11 "Interference learning"
- 12 "Lifelong learning"
- 13 "Multisensory learning"
- 14 "Nonverbal learning"
- 15 "Observational learning"
- 16 "Prior learning"
- 17 "Problem based learning"
- 18 "Sequential learning"
- 19 "Serial learning"
- 20 "Transfer of training"

- 21 "Transformative learning"
- 22 "Verbal learning"
- 23 "Visual learning"
- 24 "Workplace learning"
- 25 SU.EXACT.EXPLODE("Learning experience") OR "Learning experience"
- 26 SU.EXACT("Learning strategies") OR "Learning strategies"
- 27 SU.EXACT.EXPLODE("Professional development") OR "Professional development"
- 28 "Learning at work"
- 29 "Participatory learning"
- 30 "Shared learning"
- 31 "Collective learning"
- 32 "Community-based learning"
- 33 "Informal learning"
- 34 "Work-based learning"
- 35 "Team-based learning"
- 36 "Interprofessional learning"
- 37 "Practice-based learning"
- 38 "Open learning"
- 39 "Situated learning"
- 40 "Self-regulated learning"
- 41 "Action learning"
- 42 "Learning in practice" OR "Learning at practice"
- 43 "Collaborative learning"
- 44 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 ... OR ... OR
42 OR 43
- 45 SU.EXACT("Cooperation") OR "cooperation"
- 46 SU.EXACT.EXPLODE("Interprofessional Relationship") OR "interprofessional
relationship"
- 47 SU.EXACT.EXPLODE("Communities of Practice") OR "communit* of practice" OR
"CoP*"
- 48 SU.EXACT.EXPLODE("Interdisciplinary Approach") OR "interdisciplinary
approach"
- 49 SU.EXACT.EXPLODE("Teamwork") OR "teamwork" OR teamw*

- 50 “cooperative behavior*”
- 51 “compliant behavior*”
- 52 “collaboration*”
- 53 “peer collaboration”
- 54 “interprofessional practice” OR “inter-professional practice”
- 55 “interprofessional collaboration” OR “inter-professional collaboration”
- 56 “collaborative practice”
- 57 Multi-profession* OR multiprofession*
- 58 Multi-disciplin* OR multidisciplin*
- 59 Inter-profession* OR interprofession*
- 60 Inter-disciplin* OR interdisciplin*
- 61 “patient care team*”
- 62 “medical care team*”
- 63 “interdisciplinary health team*”
- 64 “healthcare team*” OR “health care team*”
- 65 “care team*”
- 66 “primary health care team*” OR “primary healthcare team*”
- 67 45 OR 46 OR 47 OR 48 OR 49 OR 50 OR... OR... OR 65 OR 66
- 68 SU.EXACT.EXPLODE(“Primary Health Care”) OR “primary health care” OR
“primary healthcare”
- 69 “primary care”
- 70 SU.EXACT.EXPLODE(“Family Practice(Medicine)”) OR “family practice*”
- 71 “family care”
- 72 “medical practice”
- 73 “general practice*”
- 74 “primary care practice”
- 75 “family medicine”
- 76 SU.EXACT.EXPLODE(“Health Personnel”) OR “health personnel*”
- 77 “health care provider*” OR “healthcare provider*”
- 78 Fieldworker* OR “field worker”
- 79 SU.EXACT.EXPLODE(“Caregivers”) OR caregiver*
- 80 68 OR 69 OR 70 OR ... OR... OR 78 OR 79

81 44 AND 67 AND 80

82 81 + filter publication date (1/1/1990-31/12/2014)

Embase search syntax

- 1 'learning'/exp OR 'learning'
- 2 'educational model'/exp OR 'educational model'
- 3 'professional development'/exp OR 'professional development'
- 4 'workplace learning'
- 5 'participatory learning'
- 6 'shared learning'
- 7 'collective learning'
- 8 'community-based learning'
- 9 'informal learning'
- 10 'work-based learning'
- 11 'team-based learning'
- 12 'interprofessional learning'
- 13 'practice-based learning'
- 14 'open learning'
- 15 'situated learning'
- 16 'self-regulated learning'
- 17 'action learning'
- 18 'active learning'
- 19 'adult learning'
- 20 'aural learning'
- 21 'cooperative learning'
- 22 'discovery learning'
- 23 'incidental learning'
- 24 'intentional learning'
- 25 'interference learning'
- 26 'multisensory learning'
- 27 'nonverbal learning'

- 28 'observational learning'
- 29 'prior learning'
- 30 'sequential learning'
- 31 'transfer of training'
- 32 'transformative learning'
- 33 'visual learning'
- 34 'learning experience'
- 35 'learning strategies'
- 36 'learning at work'
- 37 'learning in practice'
- 38 'learning at practice'
- 39 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 ... OR ... OR
37 OR 38
- 40 'problem-based learning' OR 'lifelong learning' OR 'associative learning' OR 'serial
learning' OR 'verbal learning' OR 'experiential learning'
- 41 39 OR 40
- 42 'cooperation'/exp OR 'cooperation'
- 43 'cooperative behavior'
- 44 'interprofessional relations'
- 45 'patient care team'
- 46 'primary health care team'
- 47 'peer collaboration'
- 48 'community of practice'
- 49 'collaborative practice'
- 50 Teamwork*
- 51 Multi NEXT/1 profession* OR multiprofession*
- 52 Multi NEXT/1 disciplin* OR multidisciplin*
- 53 Inter NEXT/1 profession* OR interprofession*
- 54 Inter NEXT/1 disciplin* OR interdisciplin*
- 55 'interprofessional relationship'
- 56 'interdisciplinary approach'
- 57 Compliant NEXT/1 behavior*
- 58 Collaboration*

59 'interprofessional practice' OR 'inter-professional practice'

60 'interprofessional collaboration' OR 'inter-professional collaboration'

61 'medical care' NEXT/1 team*

62 'interdisciplinary health team' OR 'interdisciplinary health teams'

63 Healthcare NEXT/1 team* OR 'health care' NEXT/1 team*

64 'care team'

65 42 OR 43 OR 44 OR 45 OR 46 OR 47 OR ... 63 OR 64

66 'primary health care'/exp OR 'primary health care'

67 'general practice'/exp OR 'general practice'

68 'health care personnel'/exp OR 'health care personnel' OR 'health personnel'

69 'medical practice'/exp OR 'medical practice'

70 'family care'/exp OR 'family care'

71 'primary care practice'

72 'family medicine'/exp OR 'family medicine'

73 'primary healthcare'/exp OR 'primary healthcare'

74 'general practice'/exp OR 'general practice'

75 'health care provider'/exp OR 'health care provider'

76 'health care providers'

77 'healthcare provider'/exp OR 'healthcare provider'

78 'healthcare providers'

79 'field worker'

80 Fieldworker*

81 'caregiver'/exp OR caregiver*

82 66 OR 67 OR 68 OR 69 OR 70 OR... 80 OR 81

83 'family practice' OR 'primary care'

84 82 OR 83

85 41 AND 65 AND 84 AND [1990-2015]/py AND ([dutch]/lim OR [English]/lim OR [French]/lim OR [german]/lim) AND [humans]/lim

86 85 AND [embase]/lim NOT [medline]/lim AND ([article]/lim OR [article in press]/lim OR [conference paper]/lim OR [conference review]/lim OR [short survey]/lim)

Cinahl search syntax

- 1 (MH "Learning+") OR TX learning
- 2 (MH "Models, Educational") OR TX "models, educational"
- 3 (MH "Problem-Based Learning") OR TX "Problem-Based Learning"
- 4 (MH "Professional Development+") OR TX "Professional Development"
- 5 "workplace learning" OR TX "workplace learning"
- 6 "participatory learning" OR TX "participatory learning"
- 7 "shared learning" OR TX "shared learning"
- 8 "collective learning" OR TX "collective learning"
- 9 "community-based learning" OR TX "community-based learning"
- 10 "informal learning" OR TX "informal learning"
- 11 "work-based learning" OR TX "work-based learning"
- 12 "team-based learning" OR TX "team-based learning"
- 13 "interprofessional learning" OR TX "interprofessional learning"
- 14 "practice-based learning" OR TX "practice-based learning"
- 15 "open learning" OR TX "open learning"
- 16 "situated learning" OR TX "situated learning"
- 17 "self-regulated learning" OR TX "self-regulated learning"
- 18 "action learning" OR TX "action learning"
- 19 (MH "Lifelong Learning") OR TX "Lifelong Learning"
- 20 "active learning" OR TX "active learning"
- 21 "adult learning" OR TX "adult learning"
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82 "field worker" OR TX "field worker" OR fieldworker*
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84 "primary care practice" OR TX "primary care practice"
85 71 OR 72 OR 73 OR 74 OR... 83 OR 84

86 45 AND 70 AND 85 Limiters - Published Date: 19900101-20151231; Exclude MEDLINE records; Human; Language: Dutch/Flemish, English, French, German

Appendix 2: Included papers

Author, date, country	Title paper	Research question/aim	Research approach/design	Participants	Conclusion	Learning theory and/or learning method used
Allan, 2005, UK (55)	Developing an interprofessional learning culture in primary care	To evaluate a project to develop an interprofessional learning culture within a primary care setting. To situate the findings and the experiences of the project in the context of the policies and literature on interprofessional learning	Combination of semi-structured and two focus group interviews with nurses and receptionists and process evaluation methodology with documentary data and secondary analysis.	Four members of the steering group and the project manager, six general practitioners, five nurses 14 receptionists	There is a need to recognize responsibility for one's own learning as individuals as well as learning as teams of work colleagues if interprofessional learning is to be successful. Even when these pre-requisites of interprofessional learning are agreed and acknowledged openly in the workplace, participants in the development of a learning culture need to recognize that there are structural controls which influence and constrain such developments which are external to participants and beyond their immediate control.	Work-based learning, interprofessional learning, life- long learning
Arora S, 2010, USA (72)	Expanding Access to Hepatitis C Virus Treatment— Extension for Community Healthcare Outcomes (ECHO) Project: Disruptive Innovation in Specialty Care	To describe the ECHO model and its application in HCV care in New Mexico in detail and to present data from initial surveys of the providers that have participated in the program	Observation of ECHO weekly clinics and database of ECHO clinic participation and patient presentation by clinical provider + surveys	255 partner teams participating in ECHO clinics, expert interdisciplinary specialists and community-based primary care providers	ECHO expands access to best practice care for underserved populations, builds communities of practice to enhance professional development and satisfaction of primary care clinicians, and expands sustainable capacity for care by building local centers of excellence	Bandura's social cognitive theory, Vygotsky's situated learning theory, community of practice theory

<p>Arora, 2011, Mexico (71)</p>	<p>Partnering Urban Academic Medical Centers And Rural Primary Care Clinicians To Provide Complex Chronic Disease Care</p>	<p>To discuss the model and the early results of a project named ECHO (Extension for Community Healthcare Outcomes), an innovative new model of health care education and delivery to developing capacity for safe and effective treatment of chronic, common, and complex diseases in rural and underserved areas while monitoring outcomes to ensure quality of care. Using state-of-the-art telehealth technology and clinical management tools, ECHO trains and supports primary care providers in the community to develop knowledge and self-efficacy on a variety of diseases not usually considered within their scope of practice. As a result, these providers can deliver best-practice care for complex health conditions in federally qualified health centers and other community-based sites where this specialty care was previously unavailable.</p>	<p>Combination of description of the model and the organisation of the disease-specific learning networks that meet weekly by video teleconferencing, clinical evaluations, review of cases, survey data, questionnaires.</p>	<p>Primary care providers rural and urban underserved areas of the state: doctors, nurses, nurse practitioners, physician assistants, and community health workers, specialist of the University</p>	<p>Project ECHO has the potential to radically transform how health care is provided in the United States and to bring best practice care to patients with chronic health conditions, wherever they are. It creates partnerships between primary care providers in rural and underserved areas and specialty care providers at academic medical centers that allow for the sharing of new knowledge in real time. These partnerships exponentially boost the health care system's ability to deliver specialty care to people who otherwise would lack access. Thus, Project ECHO uses technology and existing resources to magnify the capacities of the health care workforce, build a bridge across health care settings, and truly provide health care without walls.</p>	<p>Familiar case-based learning strategies, providing learning opportunities, guided feedback, shared learning, multilevel "learning loop"</p>
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<p>Beam RJ, 2010, USA (39)</p>	<p>Reflective Practice Enhances Public Health Nurse Implementation of Nurse-Family Partnership</p>	<p>To describe the development and integration of reflective practice as a foundational concept of public health nursing practice in the Nurse-Family Partnership (NFP)</p>	<p>Description of the NFP program model, exemplars from the experience of NFP nursing supervisors</p>	<p>nurse supervisors and nurse home visitors</p>	<p>Comments from NFP nurses and supervisors are cited to suggest how the regular use of reflective practice has the potential to improve implementation of the program with families, the authors further propose that research is needed to more rigorously examine the benefits that reflective practice may have on the quality of program implementation, family outcomes and the retention of nurses working in the NFP program</p>	<p>Reflective learning cycle by Gibbs</p>
<p>Brown, 2011, USA (53)</p>	<p>The Phenomenon of Collaboration: A Phenomenologic Study of Collaboration between Family Medicine and Obstetrics and Gynecology Departments at an Academic Medical Center</p>	<p>To explore the essential invariant elements of collaboration between the departments of obstetrics and gynecology (OB/GYN) and family medicine (FM) at an academic medical center.</p>	<p>Phenomenologic methods, interviews</p>	<p>Departmental leaders and senior faculty in key positions residents of both departments from intern through senior level and nurses on Labor and Delivery L&D. Sample size was 33, consisting of six family medicine (FM) faculty, seven obstetrics and gynecology (OB) faculty, six FM residents, seven OB Residents and seven nurses</p>	<p>Key collaborative structures included a shared vision and commitment by leaders, rigorous quality improvement, clear delineation of roles with built-in flexibility, ongoing commitment to formal and informal communication channels and conflict resolution, relationship development grounded in respect and responsiveness, and shared training in a supportive learning environment with legitimate participation fostering skill development.</p>	<p>Mutual learning, learn in practice</p>

Bunniss S, 2008, UK (56)	'The unknown becomes the known': collective learning and change in primary care teams	To explore how collective learning and change happen in primary care teams and how the process varies across the disciplines of general medical practice, pharmacy and dentistry	Qualitative research design, observational visits of 10 primary care teams and 38 semi-structured interviews	4 general medical practices, 3 pharmacies, 3 dental practices	Teams share their knowledge because they believe it has value, not because they are driven by external incentives or are monitored. This challenges the assumption that, to be effective, interprofessional learning should be externally managed. As health care develops, it will become increasingly important to consider how to support the internal learning processes of care teams as they navigate complex organisational changes and the shared learning experiences that characterise those changes. Those who support learning and development within the NHS should therefore focus on how relational processes, as well as educational content, contribute to a team's collective learning capability and the quality of care its members provide	Informal collective learning - practice-based learning
Burgess J, 2011, Canada (68)	Community of Practice: A Nurse Practitioner Collaborative Model	To report on the CoP and the five characteristics describing this collaborative CoP model, including sanctioned social structure, knowledge exchange network, practice discovery and innovation, generating meaning and value, and power sharing for strategic improvement.	Participatory action research approach	Nurse practitioners	A collaborative CoP model addresses the internal interests and needs of participating members while attending to the external concerns of the organization, and thus contributes to healthcare improvement.	Community of practice theory

Carr ECJ, 2012, UK (77)	Improving services for back pain: putting the patient at the centre of interprofessional education	To explore and capture the processes and experiences of the practice teams and patients in the interprofessional learning within a quality improvement project	Eight half-day IPE workshop on quality improvement of back pain management. Evaluation through focus groups with practice teams, before and after the workshops	44 practice staff of nine general practice teams and 11 patients	True engagement with patients and their inclusion in IPE, in ways that reinforced practice-based learning, was a catalyst for the sort of behavioural change, which leads to improved patient outcomes. Opportunities for patients to share their personal stories of back pain appeared to improve communication and in particular listening. Their presence challenged the unhelpful medical model in favour of a more integrative bio-psychosocial one.	Interprofessional education, practice-based learning
Coleman K, 2014, USA (67)	Unlocking the Black Box - Supporting Practices to Become Patient-centered Medical Homes	To describe the multimodal technical assistance approach used by the SNMHI (Safety Net Medical Home Initiative) and the participating practices' assessment of its value and helpfulness in supporting their transformation	Multimodal technical assistance approach. Practice survey about the perceived value of technical assistance overall and by component	Primary care associations, clinical membership organizations skilled in quality improvement and stakeholder engagement who partnered with 10-15 primary care practices in their region	There is an important role for both local and national organizations to provide non-duplicative, mutually reinforcing support for primary care transformation. How (in-person, between peers) and by whom technical assistance is provided may be important to consider	Community of practice theory

<p>Collins F, 2012, UK (49)</p>	<p>Relationships, learning and team working in UK services for children</p>	<p>To report on education, health, and social care practitioners' experiences of working across traditional boundaries and establishing new relationships in the context of the Common Assessment Framework (CAF) in UK children's services</p>	<p>Qualitative research design, semi-structured interviews</p>	<p>20 education, health and social care practitioners, and operational managers</p>	<p>Owing to infrastructure and resource issues the move to co-located, integrated teams has occurred relatively recently within many local authorities. This research prioritises the perspective of the practitioner generating further understanding of what it means to work collaboratively; it highlights how relationships between agencies and practitioner groups have been subjected to tensions during a period of transition holding potential to impact upon service delivery. Change in the composition and leadership of teams in multi-contextual settings has also provided stimulus for new relationships, learning and ways of working. The research suggests that participation in the multi-agency forums associated with the CAF increased practitioners' individual and collective skills, facilitating information sharing and joint decision making about how best to meet a child's needs.</p>	<p>Experiential learning</p>
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de Araujo, 2013, Brazil (80)	Primary Health Care workers' view on the presence of nursing students	To explore the view of the workers at a basic health unit on the presence of nursing students at the service	Semi-structured interviews (18)	18 workers of the Basic Health Unit who related to nursing students in their work schedules: six community health agents (CHA), nine nursing assistants, one nurse technician and two nurses.	There is a multiplicity of views that vary according to the professional category, the place occupied in the social and technical division of work and the year of education of the student. Views that prevailed were the ones in which students help with work, update the worker's knowledge, but slow the care. It was found that the presence of students questions the manner of care in which minimal listening, fragmentation and a focus on procedures prevails. There was a predominance of teaching-learning concepts, such as passing information hierarchically among sectors and agents of this process. The process of formation of these workers, students themselves, with a predominance of a discipline teaching a discipline, fragmented and hierarchical, although with advances, such as the early immersion in health services. The approach between university and primary healthcare services exposes tensions which, collectively analyzed, can engender new ways of caring, teaching and learning.	Interprofessional learning
Guirguis-Younger M, 2009, Canada (62)	Learning and Knowledge-Integration Strategies of Nurses and Client Care Workers Serving Homeless Persons	To explore the learning and knowledge-integration strategies used by nurses and client care workers employed by health-care organizations that target homeless persons	Qualitative research design, semi-structured interviews	4 registered nurses, 1 registered practical nurse, 3 client care workers	Knowledge exchange has the potential to improve care by accounting for the diverse needs and experiences of homeless persons and to equip health-care workers with the skills they need to face complex challenges and achieve improved outcomes	Community of practice theory

Halcomb EJ, 2012, Australia (40)	Practice nurses experiences of mentoring undergraduate nursing students in Australian general practice	To explore the experiences of Practice Nurses when supervising undergraduate nursing students	Qualitative research design	12 Practice nurses who had supervised undergraduate nursing students on clinical placement in a general practice setting	It is clear that providing clinical placement opportunities in general practice benefits undergraduate nursing students in terms of providing them with additional opportunities for skills consolidation and alternative employment options. Further, supervising these students was considered by Practice Nurses as being beneficial for not only their own personal development but also their development of the Practice Nurse role.	Mentoring, reciprocity of learning
Hjalmarson, 2011, Sweden (74)	Forming a learning culture to promote fracture prevention activities	To explore interprofessional experiences of incorporating fracture prevention activities in clinical practice inspired by an empowerment approach.	Combination of focus groups interviews (8) and in depth interviews(2) and a workshop.	19 professionals participated: four nurses, five occupational therapists, eight physiotherapists and two physicians from primary health care and orthopedic departments.	Learning processes through patient-centred interaction and face-to-face collaboration based on the professionals' own requests and experiences are one important motivator to promote fracture prevention activities in everyday-work. These learning processes became a driving force for the joint efforts to manage fracture prevention in clinical practice, here identified as breaking professional patterns, creating empowering meetings, making the preventive links visible and constructing a sense-of-prevention community. The inspiration of empowerment as a health-enhancing strategy for patients may also generate an empowered organisational process including individual development and improved community competence. Such a bottom-up approach might be an essential key to managing the implementation of fracture prevention.	Learning processes through patient-centred interaction and face-to-face collaboration based on the professionals' own requests and experiences, empowerment

Hoare, 2013, New Zealand (57)	New graduate nurses as knowledge brokers in general practice in New Zealand: a constructivist grounded theory	To investigate practice nurses' use of information	Combination of initial ethnographic fieldwork and there after interviews with practice nurses	Ethnographic fieldwork in the practice of four general practitioners and 10 practice nurses from different practices	Experienced practice nurses role modelled clinical skills to new graduate nurses. Unexpectedly, new graduate nurses were unconscious experts at sourcing information and role modelled this skill to experienced practice nurses. Once this attribute was acknowledged by the experienced practice nurse, mutual learning occurred that enabled both groups of nurses to become better practitioners. Graduate nurses of the millennial generation were identified as a resource for experienced practice nurses who belong to the baby boomer generation and generation X.	Supportive multidisciplinary learning, reciprocal role modelling
Humphreys J, 2013, UK (63)	A collaborative project to improve identification and management of patients with chronic kidney disease in a primary care setting in Greater Manchester	To reduce the difference between expected and recorded prevalence of chronic kidney disease by 50%, to treat 75% of chronic kidney disease patients to relevant NICE blood pressure targets	A 12 -month improvement collaborative supported by an evidence-informed implementation framework and financial incentives.	19 general practices from four primary care trusts.	Evidence-based improvement can be implemented in practice for chronic disease management. A collaborative approach has been succesful in enabling teams to test and apply changes to identify patients and improve care. The model has proved to be more succesful for some practices, suggesting a need to develop more context-sensitive approaches to implementation and actively manage the factors that influence the succes of the collaborative	Shared learning, learning by doing

Jones, 2003, UK (41)	Some benefits experienced by hospice nurses from group clinical supervision	The aims of the research study were to gain some understanding of the different aspects of the group process concerning clinical supervision for distinct groups, i.e. hospice nurses. And to evaluate experiences of group clinical supervision that hospice nurses found most and least helpful to promoting good professional practice.	Combination of audiotaped one-hour facilitated supervision meetings, questionnaires and group interview	Five nurses working in a hospice	Clinical supervision is an effective format for exploring issues concerning professional practice, allowing nurses to: learn from each other, offer support, recognize how others see and esteem them as fellow workers, and moderate concerns and anxiety related to their work. Group work is likely to raise anxiety in all participants, however, and preparation and support are required for the group facilitator. Carefully chosen membership is also considered important to the safety of members and successes of the group.	Reflective learning
Kousgaard MB, 2012, Denmark (78)	Positive experiences with a specialist as facilitator in general practice	To explore the experiences and assessments of GPs and nurses participating in a project in which a medical specialist (endocrinologist) acted as facilitator for quality improvement	Observation of facilitation sessions and interviews with the health professionals	Nine participating clinics (general practice); 13 GPs, 4 nurses, 1 endocrinologist	The combination of specialized knowledge and hands-on clinical experience seems to be an important advantage when using a medical specialist as facilitator in quality improvement efforts directed at pharmacological issues in general practice.	Learning in facilitation sessions
Leslie, 2003, UK (65)	Education to achieve symptom control for patients with cancer	To evaluate if shared interprofessional education across primary and secondary care could improve symptom control for patients with cancer.	Combination of training two facilitators of the group, action learning group sessions to implement a quality improvement tool and analysis the reflective diaries in three steps, with feedback meetings for health professionals and the project development team.	Group of 16 health care professionals: cancer nurse specialist from community and hospitals	Both participants and facilitators developed skills in working with other health care settings, as well as experience of using a continuous quality improvement tool. Participants developed a greater understanding of how the NHS worked and what was required to enable patients to receive improved care. The project enabled professionals to work more effectively with both primary and secondary services, agencies, and helped patients to enhance symptom control	Action learning in a group with trained facilitators
Liveng, 2010, Denmark (76)	Learning and recognition in health and care	To discuss the role of recognition in learning processes among female	Case study semi-structured focus group interviews with employees in the	Social- and health care assistants, nurses and occupational therapists	The main argument is that learning is related to recognition – especially when it comes to groups of professionals, who are	Recognizing learning spaces

	work: an inter-subjective perspective	nurses, social and health care assistants and occupational therapists working with people with dementia and other age-related illnesses.	home based care of the elderly and in hospitals respectively	among other professional groups	low ranked in the workplace hierarchy and therefore seldom experience recognition in their daily work. According to interviews with members of the mentioned professional groups, learning spaces, in which the medical and professional hierarchies are suspended, promote learning processes. The relational nature of human learning processes and the need for recognizing contexts concludes that this need is particularly imperative in health and care work for the elderly, but may also promote learning more generally.	
MacFarlane, 2006, Republic of Ireland (44)	A qualitative study of the educational potential of joint teleconsultations at the primary–secondary care interface	To explore the processes by which educational exchanges may occur from the perspective of participating clinicians through teleconsultations	Combination of semi-structured interviews (n=39) with specialists and GPs and focus groups (2 groups with specialists; 6 groups with GPs)	Specialists and general practitioners	The results showed that the teleconsultation was a complex situation in which some learning took place for the generalists, but overall participants were disappointed. Three themes emerged that could enhance the educational potential in future: generalists' reasons for referral as an influence on perceived learning; lack of clarity among clinicians regarding their role and conduct; and the presence of patients as an inhibitor in doctor–doctor interactions.	Non-formal learning and the value of observation, tacit knowledge in professional work

Mann K, 2011, Canada (58)	Tensions in Informed Self-Assessment: How the Desire for Feedback and Reticence to Collect and Use It Can Conflict	To explore the tensions described by learners and professionals when informing self-assessments of clinical performance	Qualitative research design, seventeen focus groups	134 participants, involving learners at undergraduate and postgraduate levels, as well as practicing physicians	Multiple tensions, requiring ongoing negotiation and renegotiation, are inherent in informed self-assessment. Tensions are both intraindividual and interindividual and they are culturally situated, reflecting both professional and institutional influences. Social learning theories and sociocultural theories of learning may inform our understanding and interpretation of the study findings. The findings suggest that educational interventions should be directed at individual, collective, and institutional cultural levels. Implications for practice are presented.	Social cognitive theory, situated learning and communities of practice
Marshall, 1998, UK (45)	Qualitative study of educational interaction between general practitioners and specialists	To identify the main barriers to effective educational interaction between general practitioners and specialists and to suggest ways of overcoming these barriers.	Combination of semistructured interviews (24) and 4 focus groups	General practitioner principals (28) and hospital consultants (28)	The two main branches of the medical profession have to address several significant problems before the full potential of teaching and learning together can be realised.	Three models of educational interaction were identified: traditional didactic lectures given by specialists to general practitioners, interactive clinically based teaching, and informal interaction based on referrals.

Moore, 2006, UK (69)	Partnerships and work-based learning: an evaluation of an opportunity to pioneer new ways to care for the older people in the community	To explore and examine the impact of work-based learning on practice, the sustainability of the preferred mechanisms that have supported the outcomes in practice. Report on the learning that has been sustained and developed over time. Explore the nurses experience of work-based learning and changing contexts.	Case study, triangulation of evaluation methods, self-assessment, reflection, action learning sets and time to practice new skills in a workshop and in practice settings	12 new advanced primary nurses	Evidencing work-based learning was a new but positive experience. The evidence suggests that the expanding partnerships and synergy between practice and academia is evolving, but needs organizational support. The new ways of working, including multidisciplinary mentorship, have developed both acute and community nurses to undertake health needs assessments of identified caseloads, and in partnership with doctors and pharmacists, to diagnose, review and prescribe drugs in an attempt to reduce re-hospitalization. Evolving themes from the evaluation and the learning from the partnerships have influenced further developments in both practice and academia.	Work-based learning module was triangulated to include both individual and group responses
Morton J, 2011, USA (64)	Transcultural healthcare immersion: A unique interprofessional experience poised to influence collaborative practice in cultural settings	To describe a model for interprofessional and transcultural learning established by the author and supported by the University of New England and Ghana Health Mission	Cultural-clinical experience known as Transcultural Immersion in Healthcare - in an urban setting in Ghana	In partnership with the Ghana Health Mission, Inc and local community health workers, students and faculty from a range of health professions took part	The transcultural immersion in healthcare experience achieved its "bounty" as seen in the enhanced cultural proficiency of students and faculty, seamless interprofessional communication and collaboration and provision of primary care and related services to patients and the Ghanaian community.	Shared cultural-clinical learning

Nilsen, 2011, Norway (46)	Workplace learning among general practitioners and specialists The use of videoconferencing as a tool	To explore the use of videoconferencing for information exchange and consultation throughout the patient trajectory and to investigate how collaboration affects learning and the patient's treatment.	Combination of observation interaction analysis of videoconferences (7) supplemented by interviews.	General Practitioners and specialist (42 of both)	General practitioners and specialists use a different repertoire of knowledge and experiences to report and consult throughout the course of treatment. Over time, new medical problems arose, and the treatment had to be adjusted. The activity remained continuous and contributed to an integrated knowledge and information exchange. Collaboration using videoconferencing across levels of care created opportunities for workplace learning in health services and can lead to continuity, improved coordination, and a higher quality of care.	Workplace learning
O'Brien JL, 2008, USA (60)	Negotiating transformational leadership:A key to effective collaboration	To explore how medical doctors, in order to be transformative, should negotiate with advanced practice nurses while work in collaboration with them	Qualitative research design, semi-structured interviews	5 medical doctors, 8 advanced practice nurses	Effective leadership involves negotiating along these dimensions (MD and APN should negotiate levels of supervision, mentoring should be a reciprocal communication process, educating necessitates mutual learning), which will contribute to effective team-building	Transformational leadership
Orzano, 2008, USA (75)	Family medicine practice performance and knowledge management	To identify how family medicine practices exhibit knowledge management	Combination of developing a preliminary conceptual framework by the research team enriched with a synthesis of an extensive literature search of diverse disciplines. Constructing tables who identify knowledge management-associated processes and tools. Refining the tables and secondary analysing existing data from the Prevention and Competing Demands in Primary Care Study with two higher performing practices and	Prevention and Competing Demands in Primary Care Study that examined organizational dimensions of 18 Midwestern family medicine practices. From this a selection of two higher performing practices and two low performing practices.	Differences in knowledge management (KM) occur within family practices and between family practices and other organizations and may have implications for improving practice performance. Understanding interaction patterns of work relationships and KM may explain why costly technical or externally imposed "one size fits all" practice organizational interventions have had mixed results and limited sustainability.	Organizational learning

			two lower performing practices.			
Pyte P, 2014, Belgium (42)	'I beg your pardon?' Nurses' experiences in facilitating doctors' learning process – An interview study	To clarify the views and preferences of specialized palliative care nurses toward their role as facilitator of physicians' learning	Qualitative research design, semi-structured interviews	21 palliative care nurses who were trained in the role of learning facilitator	Training palliative care nurses as facilitator of GPs' workplace learning is feasible. Preferences toward sharing knowledge and toward the focus of care (just the patient or the whole team) leads to different behavioral styles. Nurses have personal preferences toward one of the styles but shift between them according to the circumstances (e.g. actual patient care needs and GP's attitude).	Workplace learning
Pyte P, 2015, Belgium (43)	Preparing palliative home care nurses to act as facilitators for physicians' learning: Evaluation of a training programme	To describe the development and evaluation of a training programme for nurses in primary care. The programme aimed to prepare palliative home care team nurses to act as facilitator for general practitioners' workplace learning.	A multifaceted train-the-trainer programme was designed. Evaluation was done through assignments with individual feedback, summative assessment through videotaped encounters with simulation-physicians and individual interviews after a period of practice implementation	35 palliative home care team nurses	Training palliative home care team nurses as facilitator of general practitioners' workplace learning is a feasible but complex intervention. Personal characteristics, interpersonal relationships and contextual variables have to be taken into account. Training expert palliative care nurses to facilitate general practitioners' workplace learning requires careful and individualised mentoring.	Workplace learning

<p>Randström B, 2012, Sweden (66)</p>	<p>Working with 'hands-off' support: a qualitative study of multidisciplinary teams' experiences of home rehabilitation for older people</p>	<p>To explore multidisciplinary teams' experiences of home rehabilitation for older people.</p>	<p>Five focus group interviews (28 participants)</p>	<p>Participants of five multidisciplinary teams with seven different professionals physiotherapists (n = 6), occupational therapists (n = 3), district nurses (n = 5), nurse assistants (n = 5), one home helper (n = 1), home help officers responsible for needs assessment (n = 3) and home help officers in charge of home help (n=5)</p>	<p>Common goals, communication skills and role understanding contributed to facilitating the teams' performances of rehabilitation. A potential benefit of home rehabilitation, because the older person is in a familiar environment, is to work a rehabilitative approach into each individual's activity in their everyday life in order to meet their specific needs. At an organisational level, there is a need for developing services to further support older people's psychosocial needs during rehabilitation. To address difficulties and to provide adequate rehabilitation, the teams developed strategies for exchanging experiences and enabling interprofessional learning. Supervision from a therapist developed knowledge in the team to work with a rehabilitative approach.</p>	<p>Interprofessional learning and supervision</p>
<p>Rowlands, 2001, UK (59)</p>	<p>Referrals and relationships: in-practice referrals meetings in a general practice</p>	<p>To conduct a qualitative study running parallel with a RCT to investigate the effect of in-practice meetings on referral rates, and to describe the learning needs of the participants as a result of the meetings.</p>	<p>Combination of audio-taped and video referrals meetings, participants diaries and evaluation forms</p>	<p>A four-partners practice that trained both registrars and medical students with a patient population of 11.000</p>	<p>The findings of this study raise important questions for developing practice-based learning. The outcomes of self-directive interventions in practices will be influenced by internal and external events both past and present. Such outcomes may be qualitative difficult to measure. They are likely to differ from outcomes seen when interventions are applied to groups of doctors who are not member of the same practice.</p>	<p>Individual and group learning, self-reflective and directive learning and interprofessional learning</p>

Shaw EK, 2012, USA (79)	How Team-Based Reflection Affects Quality Improvement Implementation: A Qualitative Study	How does reflection affect team processes and QI implementation?	Qualitative approach: qualitative analysis of recorded RAP meetings (Reflective Adaptive Process) and associated fieldnotes	4 primary care practices	Team-based reflection can affect the QI change process. Building an environment of trust where members of the organization can openly and critically reflect while implementing changes can address many of the social and relational elements that so often hinder effective change. As health care researchers develop approaches to improve health care organizations and patient care, they should consider ways to intentionally integrate reflective practices into these efforts.	Team-based reflection
Shershneva, 2006, USA (47)	A Model of Teaching Learning Transactions in Generalist-Specialist Consultations	To explore physicians' learning through participation in generalist-specialist consultation.	Interviewing ten primary care physicians and 9 internal medicine subspecialists regarding their approaches to learning and teaching during generalist-specialist consultations.	Ten primary care physicians and 9 internal medicine subspecialists	Learning and teaching are embedded in consultations. The discovered theory of teaching learning transactions in generalist-specialist consultations does not provide all the answers for how to facilitate, yet not disturb, the natural flow of an educational dialogue between consulting physicians. A complete teaching-learning transaction in a generalist-specialist consultation includes (1) recognizing one's own or a colleague's learning needs (or both),(2) an exchange of valuable information in a noncondescending way and (3) satisfying learning needs, to the extent possible.	A teaching-learning transaction in consultation may be best understood as a dialogue. Teaching-as-dialogue approach
Siriwardena, 2008, UK (50)	Drivers for change in primary care of diabetes following a protected learning time educational event: interview study of practitioners	To investigate the perceptions of practitioners involved in a specific educational intervention in diabetes as part of a protected learning time scheme for primary health care teams, relating to changing processes of diabetes care in general practice.	Semistructured interviews with key informants (12)from a sample of practices stratified according to the extent they had changed behaviour in prescribing of ramipril and diabetes care more generally, following a specific educational intervention	General Practitioners and practice nurses of urban and rural primary care practices	A protected learning time scheme, using interprofessional learning, local opinion leaders and early implementers as change agents and audit and feedback, was one of a number of factors supporting changing systems of diabetes care in some practices. But also how other confounding factors played an important part in changes that occurred in practice.	Protected learning time for primary care, interprofessional learning

Stamp GE, 2008, Australia (51)	Aboriginal maternal and infant care workers: partners in caring for Aboriginal mothers and babies	To explore the views of the AMIC (Aboriginal Maternal and Infant Care) workers and midwives about their roles, their partnership and the program, following the first 45 births	Qualitative research design, semi-structured interviews	5 AMIC workers and 4 midwives	Development of the partnership took commitment and time. There were issues initially with resistance from hospital staff. Skill sharing and two-way learning engendered mutual respect. Clear benefits of the care model were highlighted by both the AMIC workers and midwives while cultural safety was maintained for the Aboriginal mothers and families. The AMIC worker role will continue to require acknowledgement, support and development. This equivalent inter-cultural partnership model has the potential for much wider application and evaluation	Skill sharing and two-way learning
Stenner K, 2008, UK (54)	The role of inter-professional relationships and support for nurse prescribing in acute and chronic pain	To explore nurse prescribers' views on the role of inter-professional relationships and other means of support for nurse prescribing for patients in acute and chronic pain	Qualitative research design, semi-structured interviews	26 nurses who prescribed medicines for patients with acute and/or chronic pain	Factors that promote understanding of nurse prescribing and support inter-professional relationships are likely to have a positive impact on the effectiveness of nurse prescribing. A more consistent approach is required within organisations to support nurse prescribing	Sharing knowledge across professional boundaries
Sullivan, 2007, UK (48)	Shared geriatric mental health care in a rural community	To explore opportunities to increase the capacity of the rural primary care system as a resource for older people with mental health needs.	Pilot project in shared mental health care in Canada was initiated to explore opportunities to increase the capacity of the rural primary care system as a resource for older people with mental health needs.	Four family physicians from a rural town get 2 geriatric urban-based psychiatrists as mentor	Geriatric shared mental health care services were successful initiated in a rural setting achieved by the development of a respectful partnership between 2 different cultures of service providers (GPs and psychiatrist), ease at which specialty services are accessible, the provision of alternative strategies to build capacity to provide geriatric mental health services in the primary care setting, and a continual exchange of knowledge underpinning clinical practice.	Consultation-liaison service, adult learning, and knowledge exchange, formal lecturing and interactive discussion using case examples.

Taber, 2008, Canada (52)	“Grey” areas and “organized chaos” in emergency response	To explore the interaction between organizational policies and daily work practices of paramedics and firefighters within two emergency response organizations. How do paramedics and firefighters learn their practice?	Combination of In-depth, semi-structured interviews, observations of training sessions, ride alongs with paramedics and firefighters in the field. The ride alongs were in essence extended, running interviews and observing their work, leading to a deeper understanding of their practice.	Senior administrators, training staff, and front line personnel: paramedics and firefighters	Paramedics and firefighters value learning in their daily work above initial qualification training. They learn in practice through increasing collaboration with others, and in the broader context of legitimate peripheral participation. Organizational policies can help in guiding their decision making processes, but learning in practice and relying on experience is most helpful in their daily work.	Learning in communities of practice, situated learning
van der Dam, 2013, The Netherlands (61)	The discovery of deliberation. From ambiguity to appreciation through the learning process of doing Moral Case Deliberation in Dutch elderly care	To evaluate the implementation of Moral Case Deliberation (MCD) within two elderly care institutions and to present lessons learned from organizing this kind of clinical ethics support in elderly care	Combination of individual interviews (N = 16), two focus groups, participant observation	Stakeholders and employees from different wards and disciplines in two Dutch elderly care organizations	In doing MCD, participants develop competencies for reflection and deliberation, experience the benefits and therefore become internally motivated. Participation in MCD is a crucial factor and accelerator in the implementation process. Poor awareness of moral issues and ambiguous attitudes toward MCD make bottom-up stimulation and top-down facilitation needed.	Dialogical ethics and pragmatic hermeneutics
Walters L, 2011, Australia (70)	Demonstrating the value of longitudinal integrated placements to general practice preceptors	To consider why general practitioners (GPs) teach, in particular by defining the longitudinal supervisory relationships between rural clinician-preceptors and students.	Qualitative research design, 41 semi-structured interviews	GPs, practice managers, students	The evolution of doctor-student relationships in long-term student placements explains how students become more useful over the academic year and sheds light on how GPs are changed through precepting as part of the complex process by which they come to recognise themselves as central members of the rural generalist community	mutual learning, situated learning in a community of practice

<p>Wilcock, 2002, UK (73)</p>	<p>The Dorset Seedcorn Project: interprofessional learning and continuous quality improvement in primary care</p>	<p>To arrange a facilitated practice-based project where five general practices formed interprofessional teams that worked over a six-month period, 3 meetings using a continuous quality improvement (CQI) approach to make a change in areas of importance to them and their patients.</p>	<p>Combination of questionnaire and a number of face-to-face and telephone interviews with participants, facilitators, and practice staff not directly involved in the project.</p>	<p>Primary care teams (5) with at least one general practitioner (GP) principal, one nurse, and one administrator. Practices were free to invite other team members or external people as appropriate.</p>	<p>Qualitative enquiry showed changes in relationships and teamworking that extended beyond the specific topic of the project, with teams reporting an enhanced sense of competence and achievement. The project facilitators were able to develop a model of learning that acknowledges and utilises the depth of experience and understanding within interprofessional practice teams. Protected time and an environment and processes that encourage full participation of a wide range of team members is essential.</p>	<p>Improvement-focused learning, Team learning in practice settings through use of continuous quality improvement (CQI) model</p>
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Appendix 3: Examples of C-M-O configurations of included papers per research question

Example of C-M-O configuration for ‘Who learns?’:

‘Developing an interprofessional learning culture in primary care’ (55)
Summary: Qualitative analysis of an interprofessional learning project in a primary healthcare centre focusing on the development of a learning culture in practice. A process evaluation methodology was chosen to collect the data using 11 semi-structured interviews (conducted with four members of the steering group, the project manager and six general practitioners) and two focus groups (one with five nurses and one with 14 receptionists) and documentary data from records written during the project. The aim was to describe the views and experiences of participants on multidisciplinary learning and at mapping the processes and outcomes of change as a result of the project.
In a primary care practice with general practitioners, nurses, midwives, managers, secretaries and receptionists [C] an explicit group learning needs assessment aimed at identifying strengths and weaknesses of the group to adopt a learning culture [M] resulted in the recognition of the need for teaching skills to be spread over all the staff and to the introduction of personal development plans [O].

Example of C-M-O configuration for ‘When does learning take place?’:

‘The unknown becomes the known’: collective learning and change in primary care teams (56).
Summary: Qualitative study using an interpretative epistemology design (meaning is constructed in the researcher-participant interaction in the natural environment) and iterative research design with seven successive phases. Data (49 hours of team observations and 38 semi-structured interviews) gathered during a 1-year time period of 10 primary care teams in general medical practice (4), pharmacy (3) and dentistry (3). All teams had recently undergone one or more practice changes involving the whole team. The focus of the study was to explore how collective learning and change happen in primary care teams and how the process varies across the disciplines of general medical practice, pharmacy and dentistry.
When a diverse team of medical professionals has the security of a collective learning relationship, [C] individuals did not feel solely responsible for the success or failure of a

particular initiative, could draw on the expertise of the rest of the team, knew one another's strengths and were able to call upon each other [M] where necessary to perform a task or learn something new [O].

Example of C-M-O configuration for 'How does learning occur?':

'I beg your pardon?' Nurses' experiences in facilitating doctors' learning process – an interview study. (42)

Summary: Qualitative study based on 21 semi-structured interviews with specialised palliative care nurses who were trained to act as facilitator of GPs' learning during collaboration. The data were analysed using Grounded Theory principles. This interview study explores the views and preferences of the nurses toward their role as facilitator of learning.

In the context of GPs and specialised palliative home care nurses collaborating in primary palliative care [C] in order to provide high quality of patient care and to improve the doctors' palliative care competences [M], the nurses stimulate joint reflection leading to doctors' better understanding of palliative care practice and a better interprofessional relationship [O].

Example of C-M-O configuration for 'What is being learned?':

'The discovery of deliberation. From ambiguity to appreciation through the learning process of doing Moral Case Deliberation in Dutch elderly care' (61).

Summary: Qualitative thematic content analysis of the naturalistic evaluation of the implementation of Moral Case Deliberation (MCD) in two elderly care organisations (two nursing homes and three locations with a mix of nursing and assisted-living units). Participants' (managers and caregivers) experiences were examined through: individual interviews (16) with directors, middle managers, (para)medics and nursing assistants; three focus groups; participant observations in a number of ways: recordings of clinical site visits and project group meetings and participant observations during the MCD sessions (47 sessions of 2h each). The aim of the study, besides the evaluation, is to present lessons learned from organising this kind of clinical ethics support (MCD) in elderly care.

During MCD with healthcare professionals (nurses and physicians) in elderly care institutions [C] the sharing of frustrations and emotions and the search for relief of moral distress [M] leads to learning to postpone their own judgment and to examine an issue from another, different point of view [O].