THE UNIVERSITY OF
NEW SOUTH WALES

CENTRE FOR CLINICAL GOVERNANCE RESEARCH

HEALTH SECTOR COMMUNITY OF PRACTICE LITERATURE: FINAL REPORT

A CONTENT ANALYSIS AND SYSTEMATIC REVIEW OF THE HEALTH COMMUNITY OF PRACTICE RESEARCH LITERATURE

The Centre for Clinical Governance Research in Health undertakes strategic research, evaluations and research-based projects of national and international standing with a core interest to investigate health sector issues of policy, culture, systems, governance and leadership

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1.

1. Introduction

This final report presents a detailed analysis of community of practice articles, chapters and reviews contained in the health care literature. This report follows the interim report which identified the themes in the literature and offered an overview of the issues. This report details the review process, a description of the methods used, content and systematic analyses of the literature, a discussion of the findings, and a conclusion.

The report has been completed as part of the Centre for Clinical Governance Research in Health's program of research. The research program is outlined in the Centre's web site: http://www.med.unsw.edu.au/medwed.nsf/page/ClinGov_About. In particular, this work is being done in conjunction with the National Institute of Clinical Studies (NICS), an institute of the National Health and Medical Research Council (NHMRC). As part of the NHMRC, NICS works to "*... improve healthcare by helping close important gaps between best available evidence (what we know) and current clinical practice (what we do).*" (NICS web site:http://www.nhmrc.gov.au/nics/asp/index.asp?page=corp_info/corp_info).

2. Definition

The concept of a community of practice (CoP) was first described by Lave and Wenger (1991) in their book "Situated Learning: Legitimate Peripheral Participation". Wenger (1998) then pursued the theoretical development of the notion in "Communities of Practice: Learning, Meaning and Identity". In the period since the idea has been appropriated across many fields by many different authors (Greenfield 2004). The following two extracts encompass the concept of CoP:

> "Over time, (this) collective learning results in practices that reflect both the pursuit of our enterprises and the attendant social relations. These practices are thus the property of a kind of community created over time by the sustained pursuit of a shared enterprise. It makes sense, therefore, to call these kinds of communities, communities of practice." (Wenger 1998: 45)

> "Communities of practice are groups of people who share a concern, a set of problems, or passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis. … Over time, they develop a unique perspective on their topic as well as a body of common knowledge, practices and approaches. They also develop personal relationships and established ways of interacting. They may even develop a common sense of identity. They become a community of practice." (Wenger, McDermott and Snyder 2002: 4-5)

As noted by Greenfield (2004) the CoP idea and the theoretical ground it captures is not unique. In the literature there is a host of analogous concepts, with comparable names, that reflect a common focus, that is, a concern for explaining how learning and knowing are developed through and become practice, and how such activity takes place collectively. However, while similar, they each conceptualise and emphasise different aspects of their common focus so they are not reducible to the one idea. They are associated with but different from each other and the CoP concept. Associated terms in the literature include (Greenfield 2004: 101):

- Communities of concept users (Toulmin 1972)
- Thought collectives (Fleck 1979)
- Community of practitioners (Constant 1980, 1987)
- Occupational community (Van Maanen and Barley 1984)
- Learning community (Senge 1990)
- A self-organising team (Nonaka 1994)
- Communities of knowing (Boland andTenkasi 1995)
- Community of interaction (Nonaka and Takeuchi 1995)
- Community of purpose (Warren 1996 in Liedtka 1999)
- Knowledge activists (von Krogh, Nonaka and Ichijo 1997)
- Community of competence (Snowded 1999)
- Communities of interest (Arias and Fischer 2000).

3. The literature review process

We reviewed the literature via a process comprised of two components: a search strategy and analysis. These components are detailed in this section and represented in Figure 1. The process was based on a model developed by the authors, building on the work of earlier researchers (Braithwaite and Travaglia 2005; Greenfield and Braithwaite 2007; Travaglia and Braithwaite 2007).

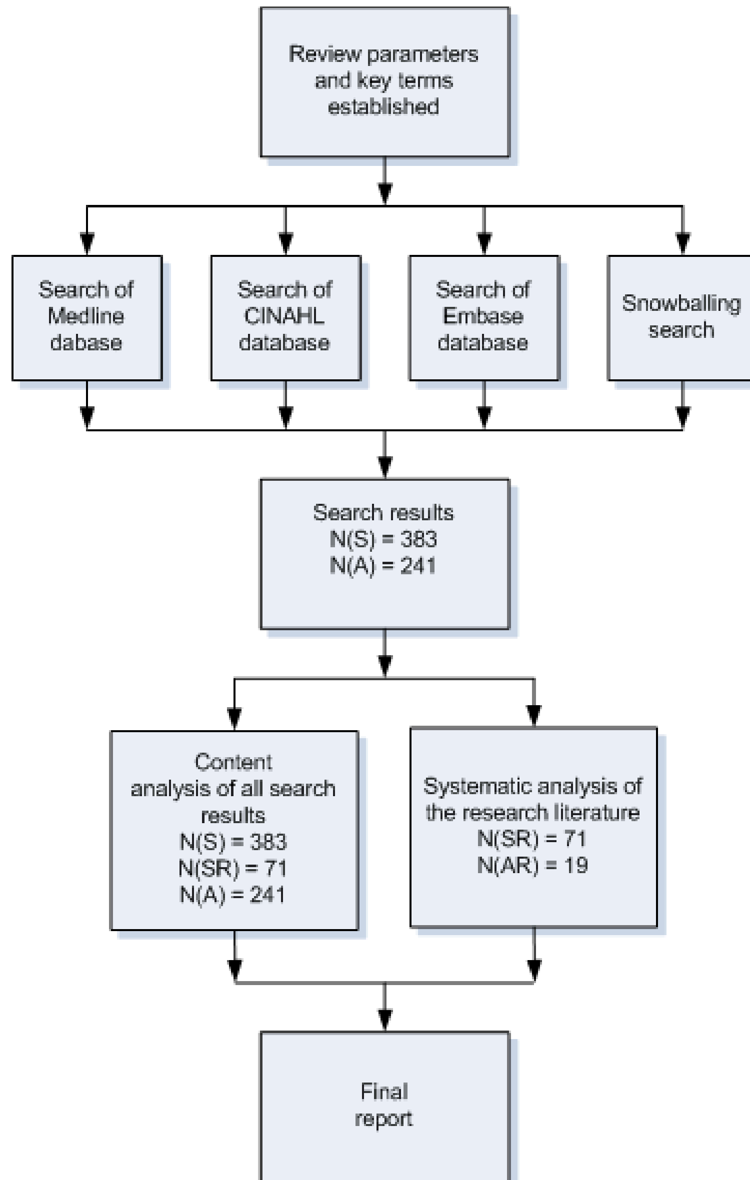
3.1 The search strategy

The literature search was conducted in September 2007 using a triangulated search of three health databases. The period covered is from 1950 to 2007. The data sources and the periods searched are presented in Table 1.

Table 1: Databases

DATABASES	SEARCHED FROM
CINAHL (Cumuliative Index of Nursing and Allied Health Literature)	1985 to 1 October 2007
EMBASE (Medicine and health services)	1988 to 2007 Week 40
MEDLINE (Medicine)	1950 to Week 1 October 2007

Figure 1: CoP literature review process



Key to terms:

Medline = Medical database

CINAHL = Cumulative Index of Nursing and Allied Health Literature database

Embase = Medicine and health services database

N = Number of articles

S = Health CoP literature

SR = Health CoP research literature

A = Associated CoP health literature

AR = Associated CoP health research literature

The key search term utilised was ‘community of practice’. In addition, the similar terms within the literature, listed in the previous section, were also searched. The singular and plural of terms were used to ensure capture of relevant articles. The term ‘$’ allows for a search of plurals, that is, community or communities and ‘exp’ searches using the selected term and all of its more specific terms. Where standardised Medical Subject Headings (MeSH) were available, these were used; where a MeSH term was not available, a keyword search was conducted. A complete list of the search terms is provided in Table 2. The references identified were downloaded into a bibliographic software package, Endnote version X.02.

Table 2: Search terms

SEARCH TERMS FOR COMMUNITIES OF PRACTICE AND ASSOCIATED TERMS	
1.	Community or communities of practice
2.	Community or communities of concept user(s)
3.	Thought collective(s)
4.	Community or communities of practitioner(s)
5.	Occupational community or communities
6.	Learning community or communities
7.	Self-organising team or self organizing team
8.	Community or communities of knowing
9.	Community or communities of interaction
10.	Community or communities of purpose
11.	Community or communities of interest
12.	Knowledge activist(s)

The search results are presented in Tables 3 and 4. Table 3 provides the search results for the health CoP literature and Table 4 displays the search results for the associated CoP health literature. For all searches the identified data were reviewed, and duplicates and incomplete or irrelevant references were removed. The total for the search of the health CoP literature, N(S), is 372 references, where N is the number of references and S refers to the health CoP literature. Analysis of the health CoP literature, explained in the next section, identified the health CoP research literature [N(SR)], which comprised a total of 60 articles, where N is the number of references and SR refers to the health CoP research literature.

Table 3: Search findings for the health CoP literature

SEARCH TERMS	DATABASE RESULTS: NUMBER OF ARTICLES			
	CINAHL	EMBASE	MEDLINE	TOTAL
1. Communit$ of practice	362	54	77	493
After removal of duplicates and irrelevant references				372 Health CoP literature [N (S)]
Identification of research literature				60 Health CoP research literature [N (SR)]

The total for the search of the associated CoP health literature, N(A), is 241 references, where N is the number of references and A refers to the associated CoP health literature. Analysis of the associated CoP health literature, explained in the next section, identified the associated CoP health research literature [N (AR)], which comprised a total of 19 articles, where N is the number of references and AR refers to the associated CoP health research literature.

Table 4: Search findings for the associated CoP health literature

SEARCH TERMS	DATABASE RESULTS: NUMBER OF ARTICLES			
	CINAHL	EMBASE	MEDLINE	TOTAL
2. Communit$ of concept user$	1	0	0	1
3. Thought collective$	2	2	4	8
4. Communit$ of practitioner$	45	7	10	62
5. Occupational communit$	4	0	5	9
6. Learning communit$	64	49	97	210
7. Self-organis(z)ing team$	1	1	1	3
8. Community or communities of knowing	0	0	0	0

SEARCH TERMS	DATABASE RESULTS: NUMBER OF ARTICLES			
	CINAHL	EMBASE	MEDLINE	TOTAL
9. Communit$ of interaction	2	0	0	2
10. Communit$ of purpose	38	0	0	38
11. Communit$ of interest	28	20	39	87
12. Knowledge activist$	0	0	0	0
Totals	**185**	**79**	**156**	**420**
After removal of duplicates and irrelevant references				**241** Associated CoP health literature [N (A)]
Identification of research literature				**19** Associated CoP health research literature [N (AR)]

4. Analysis

Analysis of the literature was conducted in three ways: content analysis of the health CoP literature, systematic analysis of the health CoP research literature and comparison by three reviewers. These strategies enabled the researchers to triangulate their findings (Hammersley and Atkinson 1995; Denzin and Lincoln 1998), identifying commonality and areas of divergence. The findings are presented in the following sections.

One researcher subjected the health CoP literature [N(S)], the health CoP research literature [N(SR)] and associated CoP health research literature [N (AR)] to content analysis. The content analysis of the health CoP literature involves reviewing findings of research studies and material from professional groups, the media, consumers, governments and health organisations. Analysis of the literature in this way allows for an examination of key concepts, themes and approaches across the health sector, allowing the researchers to identify emerging or under-researched issues. The later two analyses focus on the research literature to identify differences that may exist. In the content analyses

the Leximancer program was used. The program creates a relational schema of the concepts contained in the literature, the frequency of their occurrence and the strength of relationships between them. The analysis is presented as maps of key concepts and concepts grouped into themes. The researcher then reviews and analyses the themes.

A second researcher conducted a systematic analysis of the health CoP research literature [N(SR)] and associated CoP health research literature [N(AR)]. In each collection of literature research articles were identified through a stepwise strategy. Firstly, the selected literature [N(S) and N(A)] were reviewed by hand to identify research articles. Secondly, an electronic search of the selected literature [N(S) and N(A)] was conducted using 'research' as a keyword to search in any field. Together these two methods confirmed the results and distilled the selected literature to the research literature, ready for analysis. All non-research articles were excluded. The research literature was then analysed. This was a process of reviewing the documents, identifying emerging common themes and summarising the findings.

The researchers then discussed and consolidated the findings of the separate reviews in preparation of the report. Finally, the third researcher independently examined all the findings. Disagreements were resolved through collective discussion.

5. Findings and discussion

The finding section is comprised of two parts. The first part presents the content analysis of the health CoP literature. The second part details the systematic analysis of the health CoP research literature.

5.1 Content analysis of the health CoP literature and associated literature

The content analysis of the health CoP literature was undertaken in three ways: firstly, an analysis of the health CoP literature [N(S) = 372] (section 5.1.1); secondly, an analysis of the research subset of the health CoP literature [N(SR) = 60] (section 5.1.2); and thirdly, an analysis of the associated CoP health literature [N(A) = 241] (section 5.1.3). The health literature associated with CoP was examined for research studies, but the limited results [N(AR) = 19] meant no meaningful content analysis could be conducted. The three content analyses were then drawn together in a summary of their findings (section 5.1.4).

5.1.1 Content analysis of the health CoP literature

The concepts emerging from analysis of the health CoP literature [N(S) = 372] can be grouped into nine themes, which reflect the major foci of the literature. These include: professional; practice; community-based; communities (of practice); services; community; support; study; and treatment. The themes are automatically generated groupings of concepts that provide a mechanism for understanding the way the literature can be catergorised in order to make sense of the concepts which emerge; in this case the number of concepts was 52. By examining individual themes, it is possible to begin to drill into the internal logic of the literature. Junctures, where concepts lie in the overlap between themes, provide further insight into the association between themes. A ranked list of concepts is presented as a table in Appendix 1.

At the core of the CoP literature is the theme of services. This theme brings together the different aspects of service delivery and types (*clinical, system, patient, services* and *management*) which provide the location for industry based CoP. Overlapping services is the theme of community (or specifically, practice in the community). Two groupings emerge in this theme. The first is the *role* of *practitioners*, most specifically, *nursing, nurses* and *nurse.* The second is the provision of *care* to and in the *community*, including *health* services to the *public.*

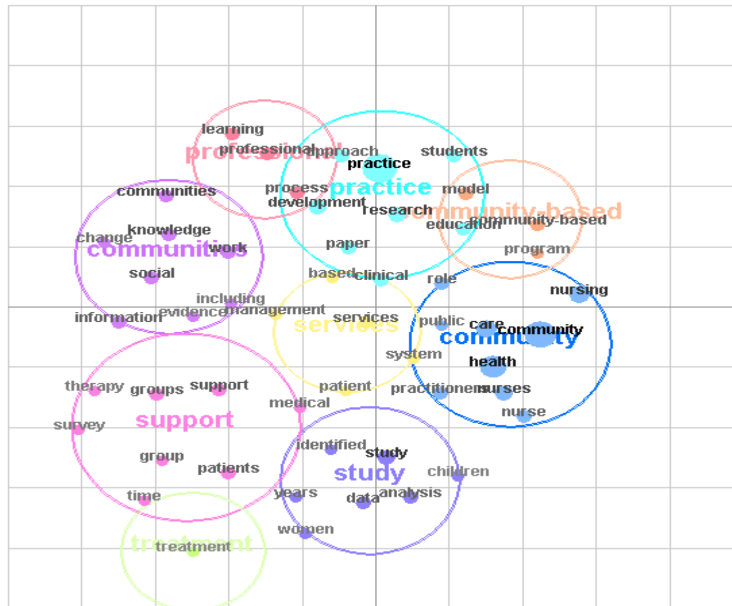
The community-based theme links the community's theme focus on practitioners, with the practice's theme focus on learning. Three concepts appear: *community-based, program* and *model*.

The next three themes make visible the role of CoP as a collective learning process. In the practice theme, for example, three sub-themes are visible. The first sub-theme is that of *practice,* itself including *approach* and *clinical*. The second is *research*, which is linked to the concept of *paper*, in other words, publications from the research. The final sub-theme is *education* and includes *development* and *students*. It is the concept *clinical* which links the practice theme with that of services. The professional theme continues this focus. Here we see *learning* and *process.* The final theme in this cluster is communities. Present are concepts linked to the process of CoPs, including *knowledge, social, change, information,* and *evidence* and its location, *work.*

The support theme presents a mix of concepts associated with the provision of support such as *therapy, groups, support, medical, groups, patients* and *time*. This focus is reflected in the treatment theme which adjoins support. These concepts may reflect two-fold body of literature. They can refer to the support provided in and by CoP, but they can equally reflect support provided in the community by practitioners. The final theme is that of study, or research. This theme includes the concepts of *study, identified, years, data, analysis, women* and *children.*

Figure 2: Content analysis of the health CoP literature

Iterations = 1000



5.1.2 Content analysis of the health CoP research literature

The health CoP research literature [N(SR) = 60] was extracted from, and analysed separately to, the larger body of health CoP literature [N(S) = 372]. The results were restricted to empirical studies; opinion pieces, commentaries and descriptive cases were eliminated. The analysis generated 100 concepts. For the full ranked list of concepts table associated with this analysis see Appendix 2. The health CoP research literature can be grouped into eight major themes. These include: health; community; nursing; group; groups; study; patients; and women.

The health theme draws together a range of practice issues. Three sub-themes emerge: those associated with practice settings (*program, programs, system, community-based* and *primary, including, mental* and *health*); professional practice (*professionals, evidence* and *practices*); and patients (*people, public* and *communities*).

The community theme shows an internal overlap between research into CoP and its uses. Here the three sub-themes include: the research and practice settings including: *practitioners, community, care, experience, settings, practice* and *role;* research methods and strategies (*approach*, *management, action, research, project* and *literature*); and the products of and use of CoP research (*knowledge, education, development, article* and *paper*).

As with the CoP general literature, the research literature highlights the dominance of nursing in the production of knowledge about CoP in the health

field. The nursing theme includes concepts *nursing, nurses* and *nurse* but also the broader*, professional* and *students*. Located in the juncture where nursing overlaps with community are the concepts *issue, process* and *design*. At the overlap of nursing and study (again, referring to research) we see *methods, clinical, interviews* and *findings.* The rest of the concepts in nursing are more generic, for example *important, critical, skills, students, case* and *experience*.

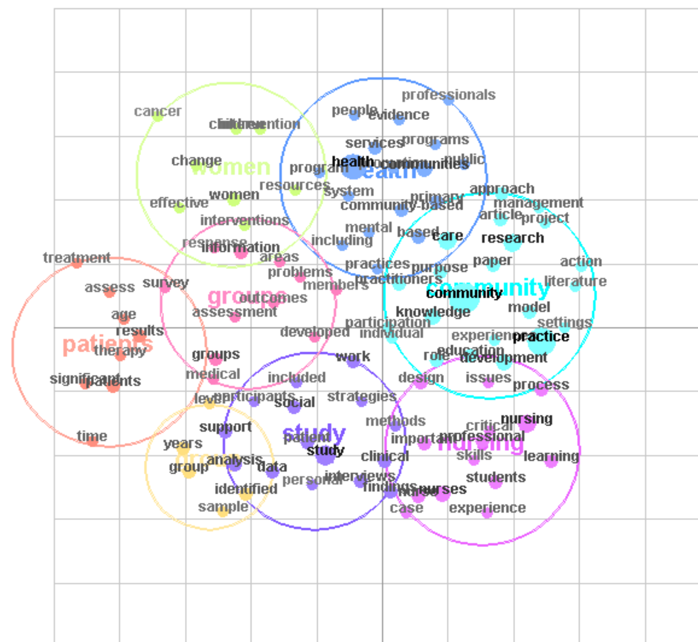
The study theme also encompasses other research concepts, such as *included, analysis, data* and *study*, and research foci, such as *work*, *personal, patient* and *participants*. Here as in the previous CoP analysis, the concepts of *social* and *support* emerge as foci for study.

The group theme continues to generate research related references. Here are the concepts *years, group, identified, sample* and *level*. At the centre of this theme are concepts associated with interventions, hence its collocation with the themes of patients and women. Three concept groupings are located here: a grouping of research process related concepts (*survey, response, information, areas, problems* and *members*)*;* a grouping of study outcomes concepts (*assessment* and *outcomes*); and a group of concepts related to the focus of outcomes (*groups* and *medical*).

The final two themes are patients and women. The patients theme encompasses concepts *treatment, assess, age, results, therapy, significant, patients* and *time*. The women theme concepts are *cancer, children, intervention, interventions, change, women, effective* and *resources.*

Figure 3: Content analysis of health CoP research literature

Iterations = 1000



5.1.3 Content analysis of the associated CoP health literature

The analysis of the associated CoP health literature [N(A) = 241] identifies 16 themes; see Figure 4. Visually this map and that of the health CoP literature are very similar. Ten themes parallel those identified in the previous two sections; these include where participants congregate (community and communities); those associated with research (information); several linked to provision of services (health, care and practice); and those associated with the use of CoP and development strategies (learning, education and approach). The associated CoP health literature generated 120 concepts. For the ranked list of concepts table associated with this map, see Appendix 3.

The remaining six themes are more accurately described as concepts, for example the themes *method, future* and *nurses*, or as a small sub theme, including distance (*distance* and *present*), networks (*networks, structure* and *effects*), models (*network, significant* and *models)* and patients (*patients* and *dental*).

The communities theme is at the centre of the map, and shows the association between the concept of *communities* and different aspects of practice and development. At the overlap of the communities and approach themes, is the concept *methods*. Bordering on the learning theme, there is *understanding* and *design*. Collocated with the education theme is the concept *school*. Near the juncture between the themes education and practice, we have concepts *educational, development, concepts, professional, role* and *delivery*. The link between themes communities and care, are the concepts *important, resources*, and *development*. The overlap with the theme community (once again more appropriately labelled research) shows the concepts *context, research* and *change*.

The approach theme overlaps the community (research) theme. Present are the concepts *paper, potential, results, effective, collaborative, communication* and *model.* The community (research) theme encompasses the concepts *individual, common, analysis* and *study.* Where the community theme overlaps with the information theme, the concepts include *social* and *group*. The information theme itself reflects several sub categories. These include those associated with information related to research (in the overlap with the community (research)) theme such as *data, strategies, identified* and *themes*. The information theme includes concepts *perspective, promotions, sources, groups*, *should, information* and *members.* At points of overlap with the health and information themes are concepts *importance, critical* and *factors*.

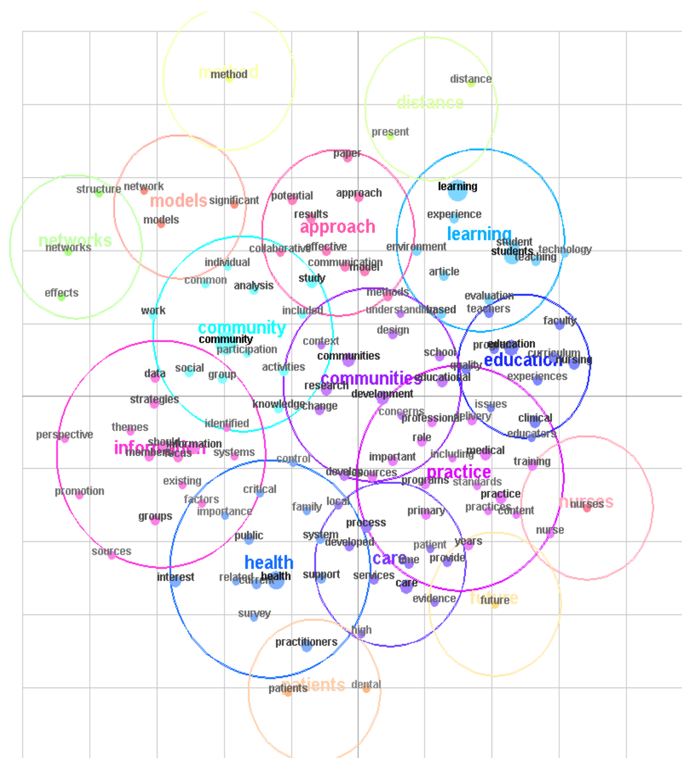
The health theme groups together a range of concepts loosely related to other themes including *interest* (information theme); *control* (community (research)); *family, system* and *support* (care theme). At the centre of the health theme is

health and *related.* The patients theme incorporates concepts *practitioners, current* and *survey.* The care theme overlaps health and practice themes. At the centre of all three is the concept *process*. In the overlap with the practice theme are concepts *patient, provide, care* and *evidence.* At the juncture between care and health themes concepts *developed, services* and *high*.

The practice theme overlaps communities, care and education themes. *Important, resources, development, professional educational* and *concerns* concepts shows the links between communities and practice themes. Care and practice themes are linked by concepts *primary, provide* and *years.* Three concepts, *issues, clinical* and *educators*, within the practice theme link it to the education theme. Nearby concepts *delivery, including, medical, training, programs, standards* and *content* also speak to this association. Concepts *practice* and *practices* lies just outside of the nurses theme. The training concept sits on the overlap between themes practice and nurses.

The education theme includes concepts associated with formal education (*faculty, education* and *curriculum*), clinical placements (*experience, clinical* and *educators*), and those associated with education in general (*issues, quality* and *professionals*). In contrast the learning theme focuses on concepts reflecting the teaching and learning processes (*learning, experience, student, students, teaching, technology, teachers, evaluation, environment* and *article*).

Figure 4: Content analysis of the associated CoP health literature



5.1.4 Synthesis of the content analysis

The health CoP literature content analysis highlights four central concerns. The first is the use of CoP by *professionals* (in particular *nurses*) in *practice* in various *service* and *community* locations. The second is the use of CoP as a *learning*, *development* and *change* tool, both by *practitioners* and *students,* in *clinical* and other settings, in their *practice* and *management* of *services*. The third is the provision of *support* to *patients* and staff through CoP. The final cross-cutting theme is that of *research* and the generation of *knowledge* both from CoP themselves and the research conducted on them.

Although the titles of the themes in the health CoP research literature differ from those of the broader health CoP literature, the core foci are the same. The concepts which have been identified in this literature reflect the same central concerns as the general health CoP literature, that is, the role of CoP in professional learning, development and practice. Additional concepts which emerge from the research focus demonstrate differences in research and practice settings, a greater specificity of research tools and methods, and the inclusion of specific research groups (for example women and children), which may partially reflect the inclusion of literature on research into practice in patient communities (rather than CoP).

The associated CoP health literature provides a wider context for the understanding of CoP. While this literature includes the same fundamental issues, that is, those of the use of CoP and related strategies as learning and practice improvement tools, the associated literature specifically addresses: a broader range of learning contexts (including, for example higher education); it includes literature on medical as well as nursing staff; and includes some of the broader social network literature. The associated CoP health literature shows that CoP is conceptually located within a larger body of knowledge and practice improvement strategies.

5.2 Systematic analysis of the research literature

Distilling the selected health CoP literature [N(S) = 372] into the health CoP research literature [N(SR)] produced 60 articles for analysis. A review of the associated CoP health literature [N(A) = 241] identified 19 research articles [N(AR)]. These two groups of articles have been combined together and the systematic analysis has been conducted on the unified collection of 79 papers.

The findings are divided into two groups. The first group presents an analysis of the characteristics of the empirical studies (section 5.2.1). The characteristics

highlighted are: countries where research has been conducted; research settings; professions within the research studies; and, research methodologies and methods. The second group presents an analysis of the empirical studies categorised using five topics (section 5.2.2). The topics are: CoP and organisational change; impact of technology on a CoP; contribution to care and professional development; learning processes within a CoP; and, barriers to participation in a CoP. The section ends with a synthesis of the systematic analysis (section 5.2.3).

5.2.1 Characteristics of the empirical studies

The empirical studies are analysed according to their significant characteristics: countries where research has been conducted; research settings; professions within the research studies; and, research methodologies and methods. Each of these is now summarised. Appendix 4 presents a review table with the details of each individual study.

5.2.1.1 Location of the research studies

Although research has been conducted in twelve different countries, the vast majority of research has been in three locations – the United Kingdom, the United States and Canada. Together they comprise 85% of the study locations. The remaining eight countries, or 15%, have had only one or two studies conducted in their setting. Table 5 provides the details of the countries and the number of studies that have been conducted.

Table 5: Countries where the research has been conducted

COUNTRY	NUMBER OF STUDIES
United Kingdom (England; Scotland)	32 (7; 6)
United States	25
Canada	12
Australia	3
Norway	2
Finland	2
Germany	1
Philippines	1
Italy	1
South Africa	1

5.2.1.2 Research settings

The research settings can be classified into eleven categories. There are two categories, university and hospital, with an equal number of studies that together comprise nearly 60% of the total. Two other categories, community health and health services, have (approximately) 10% of the total with eight and nine studies respectively. The remaining seven categories have three or less studies and comprise (approximately) 20% of the total. Table 6 presents the settings and number of studies associated with them.

Table 6: Research settings and the number of studies

RESEARCH SETTING	NUMBER OF STUDIES	AUTHOR
University	26	Avery et al. (2003) Babenko-Mould, Andrusyszyn and Goldenberg (2004) Black and Plowright (2007) Brennan et al. (2006) Burton and Anderson (2002) Cope, Cuthberston and Stoddart (2000) Cumbie and Wolverton (2004) Davis (2006) Goldie et al. (2007) Hayward et al. (2006) Kelly et al. (2005) Kernick (2005) Korhonen and Kaunonen (2004) Manogue and Brown (2007) Mariage, Paxton-Buursma and Bouck (2004) Marsh et al. (2005) McAllister and Moyle (2006) Miller et al. (2004) Moule (2006) Noe et al. (2007) Plack (2006) Richardson (2004) Richardson and Cooper (2003) Rosenbaum et al. (2007) Ryan, Ali and Carlton (2002) Steinert and McLeod (2006) Tilley, Boswell and Cannon (2006) Vanhanen, Makitalo and Pietila (1989) Velde and Lust (2004)

RESEARCH SETTING	NUMBER OF STUDIES	AUTHOR
Hospital (including: one each in anaesthesia; paediatrics; radiology; palliative services; and acute services; and two in gerontology and three in cancer services)	23	Adams et al. (2005 Aherene and Pereira (2005) Aydin (1989) Biayka (2006)) Bleakey (2002) Booth et al. (2007) Brooks and Scott (2006a, b) Chin (2003) Dewhurst, Shaw and Wood (2006) Dopson and Fitzgerald (2006) Gagliardi et al. (2003) Gagliardi et al. (2004) Gallagher. Hawley and Yeomans (2004) Goodwin et al. (2005) Lathlean and le May (2002) Lingard et al. (2003) Pereles, Lockyer and Fidler (2002) Plack (2006) Sharma et al. (2006) Sparacia et al. (2007) Strack et al. (2005) Tolson et al. (2006) Tolson et al. (2005) Yeoman, Urquhart and Sharp (2003) Gagliardi et al. (2004)
Community Health (including one in public health and two in Veterans Affairs)	10	Banister and Begoray (2006) Mold and Peterson (2005) Rosenheck (2001a, b)
Health Services (unspecified)	8	Clarke et al. (2005) Galimberti et al. (2004) Greenfield (2004) Kok (2006) Robinson and Cottell (2005) Russell et al. (2004)
Industry	3	Davenport and Peitsch (2005) Pearson, Aldridge and Winkel (2006) Thidemann (2005)
General practice/ Primary Care	3	Bryant and Ringrose (2005) Gabby et al. (2003)

RESEARCH SETTING	NUMBER OF STUDIES	AUTHOR
Groups		
Professional body	2	Farrell, Douglas and Sitlanen (2003) Parboosingh (2002)
Medical libraries	2	Booth (2004) Booth, Sutton and Falzon (2003) Yeoman, Urquhart and Sharp (2003)
Community Services	2	Artaraz (2006) Chin (2003)
Special Needs Education	1	Ainscow et al. (2003)
Nursing Home	1	Booth et al. (2007)

5.2.1.3 Professions within the research studies

The majority of studies focus upon CoPs comprised of a single profession. Two professions, nurses and doctors, are the focus of the bulk of the studies; they represent a third and a quarter of the studies respectively. While 16 professions have been researched, 12 of these have been subject to four studies or less. There are a further 21 studies, about one-quarter of the total, that define participants as ‘health professionals’ without clearly specifying if they are a single professional group or a multi-professional group. The focus of the majority of studies is on CoPs on individual professions rather than multiple professions. Only ten studies, about 14% of the total, explicitly define more than one different profession as participants. Table 7 displays the professions represented, the number of studies and authors that correspond to each.

Table 7: Professions on whom the research has focused

PROFESSIONS	NUMBER OF STUDIES	AUTHORS
Nurses (including midwives, women’s health nurses, community health nurses, gerontology nurses, nurse practitioners)	25	Adams et al. (2005) Avery et al. (2003) Aydin (1989) Babenko-Mould, Andrusyszyn and Goldenberg (2004) Banister and Begoray (2006) Biayka (2006) Booth et al. (2007) Brooks and Scott (2006a, b) Cope, Cuthberston and Stoddart (2000)

PROFESSIONS	NUMBER OF STUDIES	AUTHORS
		Cumbie and Wolverton (2004) Farrell, Douglas and Sitlanen (2003) Gabbay and Le May (2004) Greenfield (2004) Kelly et al. (2005) Korhonen and Kaunonen (2004) McAllister and Moyle (2006) Miller et al. (2004) Mould and Peterson (2005) Ryan, Ali and Carlton (2002) Thidemann (2005) Tilley, Boswell and Cannon (2006) Tolson et al. (2005) Tolson et al. (2006) Vanhanen, Makitalo and Pietila (1989)
Doctors/ consultants/ general practitioners	18	Adams et al. (2005) Bleakey (2002) Bryant and Ringrose (2005) Dewhurst, Shaw and Wood (2006) Gabby and le May (2004) Gagliardi et al. (2003) Gallegher, Hawley and Yeomans (2004) Goldie et al. (2007) Goodwin et al. (2005) Lingard et al. (2003) Marsh et al. (2005) Mould and Peterson (2005) Parboosingh (2002) Pereles, Lockyer and Fidler (2002) Rosebaum et al. (2007) Sharma et al. (2006) Sparacia et al. (2007) Steinert and McLeod (2006)
Health clinicians/ professionals/ students	23	Aherene and Pereira (2005) Bartunek et al. (2003) Bleakley (2002) Booth (2004) Booth, Sutton and Falzon (2003) Chin (2003) Clarke et al. (2005) Dopson and Fitzgerald (2006)

PROFESSIONS	NUMBER OF STUDIES	AUTHORS
		Gabby et al. (2003) Gagliardi et al. (2004) Gallagher et al. (2004) Kernick (2005) Goodwin et al (2005) Lathlean and le May (2002) Moule (2006) Noe et al. (2005) Parboosingh (2002) Pereles et al. (2002) Richardson and Cooper (2003) Robinson and Cottell (2005) Russell et al. (2004) Strack et al. (2005) Wild et al. (2004)
Educators (including careers education and guidance professionals, disability educators)	4	Ainscow et al. (2003) Artaraz (2006) Mariage, Paxton-Buursma and Bouck (2004) Steinert and McLeod (2006)
Health service managers/ administration staff	3	Adams et al. (2005) Gagliardi et al. (2004) Kok (2006)
Health librarians	3	Adams et al. (2005) Kok (2006) Yeoman, Urquhart and Sharp (2003)
Health researchers	2	Gagliardi et al. (2004) Kernick (2005)
Consumers	1	Gabby et al. (2003)
Allied health (total)	20	
Pharmacists	6	Aydin (1989) Black and Plowright (2007) Burton and Anderson (2002) Davenport and Peitsch (2005) Galimberti et al. (2004) Pearson, Aldridge and Winkel (2006)
Occupational therapists	3	Davis (2006) Richardson (2004) Velde and Lust (2004)
Mental Health professionals	3	Penn et al. (2006)

PROFESSIONS	NUMBER OF STUDIES	AUTHORS
		Rosenheck (2001a, b)
Physical therapists	2	Hayward et al. (2006) Plack (2006)
Social workers	2	Brennan et al. (2006) Kok (2006)
Psychiatrists	1	Galimberti et al. (2004)
Psychologists	1	Galimberti et al. (2004)
Dentists	1	Manogue and Brown (2007)
Public health/health promotion	1	McDonald and Vienbeck (2007)
Multi-professional CoP	10	Adams et al. (2005) Aherene and Pereira (2005) Aydin (1989) Gabby and le May (2004) Gabby et al. (2003) Gagliardi et al. (2004) Galimberti et al. (2004) Kernick (2005) Kok (2006) Mold and Peterson (2005)

5.2.1.4 Research methodology and methods

The research methodology could not be identified for all the studies. Of those with an explicit methodology, qualitative approaches dominate. One study features a quasi-experimental design. Similarly, the methods within the studies, in order of most common to least common, are interview, document analysis, surveys, observational research and focus groups. Table 8 shows the breakdown of methodology and methods used in the research studies.

Table 8: Research methodology and methods

RESEARCH METHOD-OLOGY	#	METHODS	SURVEY	OBSER-VATION	INTER-VIEW	FOCUS GROUP	DOC. ANALYSIS
Ethnography	6		1	6	5	2	1
Descriptive study	57		8	2	13	4	12

Action research	1						
Case study	11		4	3	6	1	3
Multi-case design	1				1		
Quasi-experimental design	1						
Exploratory research	1				1	1	
Appreciative inquiry	1				1	1	1
Totals	79		13	11	27	9	17

5.2.2 Categorisation of the CoP empirical studies

The empirical studies have been categorised using five topics. The topics are: CoP and organisational change; impact of technology on a CoP; contribution to care and professional development; learning processes within a CoP; and, barriers to participation in a CoP. Each of these is now summarised.

5.2.2.1 CoP and organisational change

There are empirical studies that discuss CoPs and organisational change. The majority consider the influence of a CoP on organisational change and one study reflects how organisational change impacts on the CoP.

Research shows that change in an organisation can be affected by CoPs in three ways. Firstly, by integrating clinicians into a CoP (Brooks and Scott 2006a; Davenport and Peitsch 2005; Gagliardi et al. 2003; Parboosingh 2002; Rosenheck 2001b; Tolson et al. 2005) and secondly through linking professionals across their separate CoPs (Aherne and Pereira 2005; Black and Plowright 2007; Gagliardi et al. 2004; Kelly et al. 2005; Steinert and McLeod 2006) organisational change can be enacted. From one study a list of strategies to achieve organisational change, by effectively implementing new programs, is proposed: construct decision-making coalitions; link new initiatives to existing goals and values; monitor performance quantitatively; and develop self-sustaining CoP and learning organisations (Rosenheck 2001b). Thirdly, a CoP can influence organisational change to ensure that the interests of the CoP are not sidelined (Manogue and Brown 2007). Nevertheless the claim has been made that the influence of a CoP has been overlooked in research, particularly research involving questionnaires (Pearson, Aldridge and Winkel 2006).

Organisational change, in the form of new policy or service restructuring, has been shown to disrupt a CoP (Artaraz 2006). The disruption impacts on the delivery of services and professional identities.

5.2.2.2 Impact of technology on CoP

The impact of technology on a CoP has been examined empirically. Three issues are highlighted by these studies: that CoPs can arise from technological changes; learning can be enhanced by technology; and, challenges for CoP to overcome when using technology.

A CoP can arise from technological changes (Adams et al. 2005; Aydin 1989; Brennan et al. 2006; Brooks and Scott 2006a, b; Greenfield 2004). As a result practice improves across organisational and professional boundaries. In one study a variety of health professionals, both clinical and administrative, involved in the development of a new organisational client information system formed a CoP that improved the end product and the useability of the system; unintentionally they created a new communication tool (Adams et al. 2005). In another study the introduction of an electronic communication system for a group of professionals saw them enact a CoP, critically reflect upon their practice and improve their service (Brooks and Scott 2006a, 2006b). Similarly, new communication systems have enabled a CoP to form allowing exchange of information, experience and ideas (Russell et al. 2004; Sharma et al. 2004). In another case, two independent CoPs communication and working relationships improved through adopting the use of a common computerised information system (Aydin 1989). One study examining the impact of technological changes identified factors critical to the formation of a CoP: broad membership; a fluid network structure; focusing on the interest of members; a culture of reciprocity; and, new members learning through observation (Russell et al. 2004).

The learning of health professionals can be enhanced by membership in a CoP centred upon web-based learning programs. For distributed professionals a virtual CoP provides:

- A supportive community (Avery 2003; Babenko-Mould, Andrusyszyn and Goldenberg 2004; Cumbie and Wolverton 2004; Richardson and Cooper 2003; Ryan, Ali and Carlton 2002; Sharma et al. 2006; Sparacia et al. 2007; Strack et al. 2005; Tolson et al. 2005; Yeoman, Urquhart and Sharp 2003); and,
- The opportunity for interaction amongst members that contributes to personal and professional growth (Burton and Anderson 2002; Richardson 2004).

The opportunity for a blend of personal and virtual interactions has been advocated as the most advantageous for learning (Clarke et al. 2005). Web-based learning programs can support the transfer of knowledge, including tacit knowledge (Brooks and Scott 2006a, b). They have been shown to further the learning of:

- Professionals (Bryant and Ringrose 2005; Clarke et al. 2005; Galimberti et al. 2004; Kok 2006; Sharma et al. 2006; Tolson et al. 2005; Tolson et al. 2006; Yeoman et al. 2003);
- Students (Brennan et al. 2006; Korhonen and Kaunonen 2004; Moule 2006; Richardson and Cooper 2003; Ryan, Ali and Carlton 2002; Tilley, Boswell and Cannon 2006); and,
- Consumers (Penn et al. 2006).

Finally, the introduction of technology presents a number of challenges for a web-based learning CoP. There are practical and member relationship difficulties. The practical obstacles are time and access (Babenko-Mould, Andrusyszyn and Goldenberg 2004; Clarke et al. 2005) and the type of technology utilised has also been shown to have an impact on the interactions of the community; WebCT is superior to interactive TV (Mash et al. 2005). The relationship challenges are for the members of the CoP to establish trust, interaction and identity (Moule 2006). Together the challenges are formidable and can negatively reinforce each other.

5.2.2.3 CoP shapes learning and the provision of services

Research has shown that a CoP can make significant contributions to how professionals learn in the workplace and how services are provided. A CoP moulds the learning, knowing and working of professionals and offers an explanation of professional identity development (Artaraz 2006; Banister and Begoray 2006; Davis 2006; Goldie et al. 2007; Lindgard et al. 2003). From the empirical studies a number of important findings have emerged, and these are how a CoP:

- Privileges, accepts and internalises knowledge for members (Booth 2004; Gabbay et al. 2003; Greenfield 2004);
- Fosters the development of knowledge (Bartunek et al. 2003; Greenfield 2004);
- Change discursive practices and expand forms of knowledge (Mariage et al. 2004); and,

- Shapes collective sense making through agendas, roles and power relations (Gabbay et al. 2003; Thidemann 2005).

Learning takes place in the action of providing services in a CoP (Aherne and Pereira 2005; Cope, Cuthberston and Stoddart 2000; Goodwin et al. 2005; Greenfield 2004; Plack 2006; Tolson et al. 2006). Interaction with peers in a supportive CoP impacts positively upon:

- Shared learning (Dewhurst, Shaw and Wood 2006; Greenfield 2004; Hayward et al. 2006; Kelly et al. 2005; Korhonen and Korhonen 2004; McAllister and Moyle 2006; Plack 2006; Richardson 2004; Richardson and Cooper 2003; Rosenbaum et al. 2007; Steinert and McLeod 2006; Strack et al. 2005; Velde and Lust 2004);

- Clinical practice (Burton and Anderson 2002; Gagliardi et al. 2003; Greenfield 2004; Kelly et al. 2005; Mould and Peterson 2005; Plack 2006; Richardson 2004; Sharma et al. 2006; Sparacia et al. 2007);

- The development of professionalism (Cumbie and Wolverton 2004; Dewhurst, Shaw and Wood 2006; Goldie et al. 2007; Hayward et al. 2006; McAllister and Moyle 2006; Plack 2006; Rosenbaum et al. 2007; Tolson et al. 2005; Vanhanen et al. 1998; Velde and Lust 2004; Yeoman, Urquhart and Sharp 2003); and,

- The collection of clinical data (Greenfield 2004; Wild et al. 2004).

A CoP has a positive influence because it enables exchange of resources and promotes trust, reciprocity and cohesion (Greenfield 2004; McDonald and Viehbeck 2007; Penn et al. 2006; Russell et al. 2004). Structured reflection within a CoP was identified as particularly effective to improve patient care (Black and Plowright 2007; Kelly et al. 2005). Amongst the positive writings on learning within a community one dissenting study is noted (Vanhanen, Makitalo and Pietila 1998). In this case the learning community was not valued. Individuals focused upon their own actions and personal growth as the important goals and did not link them to participation within their community.

Studies that focus on CoPs comprised of multiple professions discuss how they influence care and inter-professional development (Lathlean and May 2002; Robinson and Cottrell 2005). They describe how middle managers in health work collaboratively together (Dopson and Fitzgerald 2006) and across sectors (health and education) (Ainscow et al. 2003; Bartunek et al. 2003; Kernick 2005; McDonald and Viehbeck 2007; Miller et al. 2004; Rosenheck 2001a, b; Russell et al. 2004). Furthermore CoPs can explain differences of opinion between professional groups working in the same field. That is, research has illuminated how organisational attributes of individual CoP shape the knowledge and knowing of groups differently (Gabbay et al. 2003). However, a significant

challenge is being able to deal with changes in professional boundaries and identities (Robinson and Cottell 2005). Such changes can cause multi-professional and multi-agency teams to blur roles and cause confusion and conflict.

In addition, it has been shown how a CoP can simultaneously meet client needs while ensuring professional accountability (Chin 2003; Hayward et al. 2006; Kelly et al. 2005). Moreover a CoP comprised of researchers and clinicians can address issues of concern to clinicians, improve the quality of research and enable the translation of research findings into the practitioner setting (Bartunek et al. 2003; Gagliardi et al. 2004; Rosenheck 2001a).

5.2.2.4 Learning processes within a CoP

Learning processes within a CoP have been shown to be active not passive (Bleakey 2002; Davis 2006; Greenfield 2004; Plack 2006). What information is accepted and privileged, and how it is shared is determined by the organisation of a CoP (Gabby et al. 2003). The internal factors that shape the community are relationships, agendas and roles (Gabby et al. 2003; Robinson and Cottell 2005). Similarly, competence development is shaped by power relationships. Empirical research shows the factors which influence development of competencies are: access to knowledge; the ability to understand and abstract about practice; the use of authority; and, participating with peers (Thidemann 2005). The learning processes within a CoP are:

- Inclusive practices (Ainscow et al. 2003);
- Collaboration (Bartunek et al. 2003);
- Structured reflection (Black and Plowright 2007);
- Collaborative research processes [including action research (Booth, Sutton and Falzon 2003; Booth 2007), practice development (Chin 2003), participatory research (Tolson et al. 2006) or community-based participatory research (Noe et al. 2007), iterative role development (combining research, education and practice) (Miller et al. 2004); and practice-based research networks (Mold and Peterson 2005)]
- Mind-lines (Gabby and le May 2004);
- The organisation of a community (Gabby et al. 2003); and,
- Competence development (Thidemann 2005).

Inclusive practices involve collaborative working arrangements, the increased use of evidence to challenge thinking, and space and time to reflect upon issues (Ainscow et al. 2003; Biayka 2006). Structured reflection was identified as an activity that makes learning processes explicit for participants (Black and Plowright 2007).

In a CoP different roles have been identified, where members can be ‘enabling’ and ‘instructing’ for new participants (Kok 2006). In particular, these different roles are vital to integrate students in clinical placements as a clash between student and work genres has been identified (Lingard et al. 2003). When explaining their work students value non-interruptions whereas workplaces are highly interactional. Becoming a professional is learning how to acquire the interactional form of talk. The different roles mentor students enabling them to develop in the workplace. For students their relationship with their supervisor has been identified as a critical factor impacting upon the degree of their inclusion in a CoP (Davis 2006). Furthermore, consideration of inclusive practices involves shifting attention from individuals to acknowledge how knowledge is constructed and held communally (Bleakey 2002). In such cases the factors that promote learning have been defined as supportiveness, open sharing of oneself and socialisation (Tilley, Boswell and Cannon 2006).

Collaboration can be improved by directing attention to the membership of a CoP, the dynamics associated with membership, acknowledging and dealing with differences (Robinson and Cottell 2005), and developing positive trusting working relationships, including dialogue about issues and findings (Bartunek et al. 2003; Plack 2006). Specific techniques for collaboration involve peer interaction, sharing and validating information, brainstorming, joint decision making and constructing care protocols (Parboosingh 2002).

Collaborative research processes are argued to positively influence learning in a CoP, solve clinical problems and improve systems. Action research (Booth, Sutton and Falzon 2003), practice development (Chin 2003) or participatory research (Noe et al. 2007; Tolson et al. 2006) are similar processes to address shared learning needs and exploit the learning of members. Each promotes inclusive processes by which evidence from literature and practice is integrated collectively (Booth 2007). Similarly, iterative role development (Miller et al. 2004) or practice-based research networks (Mold and Peterson 2005) do likewise, whereby research, education and practice integrated together promote learning within a CoP. An outcome can be an increase in social capital for research partners. In one study this was through improving the quality of and use of findings from collaborative research activities (Bartunek et al. 2003). Another study enabled sharing learning of best practices to address the challenges of planning, developing and implementing information systems (Wild et al. 2004).

One study revealed that clinicians did not access explicit evidence from research or other sources but used mind-lines, collectively reinforced internalised tacit guidelines, within a CoP (Gabby and le May 2004; Gagliardi et al. 2003). Mind-lines are experience-based, drawn from one's own and colleagues' practice (Gabby and le May 2004).

5.2.2.5 Barriers to participation in a CoP

The distinct domain of a CoP can serve as a boundary that excludes participation by other professionals; a domain is determined by professional interests. Studies have shown CoPs frequently have uni-professional domains (Dopson and Fitzgerald 2006; Kernick 2005). This means the boundaries between CoPs affect participation by shaping motivation for seeking improvements and the way evidence and knowledge is interpreted. To enable participation by external professionals overcoming barriers is required. Studies that seek to understand interactions between different CoPs and others that design diffusion strategies to promote interaction are recommended (Dopson and Fitzgerald 2006).

When different professions strive to jointly construct a CoP participation is inhibited by different professional perspectives. Different understandings from each professional group emerge about a range of issues: leadership; creating and maintaining a shared purpose and vision; the ability of the CoP to be flexible in its activities; and, valuing and using knowledge within the CoP and with other professionals (Lathlean and le May 2002).

Understanding what changes a group into a CoP is needed. Research has identified how different groups of professionals, while supportive and helpful in validating clinical experience, stopped short of becoming a CoP (Pereles, Lockyer and Fidler 2002); as a result the groups did not become vehicles for significant learning and practice change. In another case, the identification of common values evolved a professional group into a supportive CoP (Farrell et al. 2003). However stakeholders within the community differed on the direction they thought the CoP should pursue.

5.2.3 Synthesis of the systemic analysis

The systematic analysis reveals that the CoP idea has been empirically applied in the health sector in useful ways, but research is sporadic, and many studies are descriptive and centred on one profession or location. The transferability and generalisability of findings is limited. A difficulty with the empirical studies is due to the descriptive nature of the majority of the studies there is a lack of specificity in their claims. For example, at times the argument is made that team work has

improved but what 'good team work' means is not clarified. There is scope for more far-reaching, rigorous and systemic research.

6. Conclusion

The CoP idea is a recent conceptualisation. In the heath literature the idea is increasingly being discussed and utilised in empirical research. The findings to date indicate that a CoP can positively shape professional learning and knowing across a variety of settings. However, research to date has applied the CoP idea primarily to examine professions as single entities. Examining the use of CoP across locations, professions and organisations, such as in inter-professional learning and practice in health settings, remains significantly underexplored.

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8. Selected abstracts

Adams, A., A. Blandford, D. Budd and N. Bailey (2005). "Organizational communication and awareness: a novel solution for health informatics." Health Informatics Journal **11**(3): 163-178.
As organizations grow larger and more distributed, the problems of maintaining corporate awareness and effective communication channels escalate. The clinical domain poses particular challenges to maintaining good corporate communications because users have limited time to access information and often have negative technology perceptions. This article highlights how a screen saver application, initially designed to increase privacy and security, developed into a new communication medium improving corporate communication across the organization. An ethnographic study of the application within a hospital setting, analysed using grounded theory methods, details the iterative and organic development of the design through 'community of practice' involvement. This application and the evolutionary process through which it was developed were found to not only increase awareness of resources, activities and hospital changes but also positively influence users' perceptions of, involvement in and ownership of general IT developments. User involvement also raised the importance, for the designers, of application usability, quality and aesthetics.

Aherne, M. and J. Pereira (2005). "A generative response to palliative service capacity in Canada." International Journal of Health Care Quality Assurance Incorporating Leadership in Health Services **18**(1): iii-xxi.
Purpose: This paper situates a large-scale learning and service development capacity-building initiative for hospice palliative care services within the current Canadian policy context for use by international readers. Design: In 2000 a national initiative using action research as its design was crafted to support continuing professional development and knowledge management in primary-health care environments. Findings: The Canadian health policy context is complex and requires innovative solutions to achieve desired changes in response to emerging population health demands for quality end-of-life care. Employment of educational and social science constructs, including complexity theory, communities of practice, transformative learning theory, and workplace learning methods, has proven helpful in supporting the creation of national capacity for hospice palliative care. Research limitations/ implications: There is a significant contribution for social scientists to make in aiding a better understanding of the complexity in health systems. At the same time, an aging population in industrial countries demands more active engagement of legal and bioethical scholars in a range of emerging policy and legislative questions about quality end-of-life care. Educational research is also required to understand better and reform curricula to prepare an emerging generation of health science practitioners for the demands of an aging population. Practical implications: Changing health service delivery environments demand rethinking of the knowledge and skills leaders require to influence desired change. A broader understanding of where and how learning takes place is essential for enhancing the quality of patient care. Originality/ value: The Pallium Project represents a generative response to facilitating learning and building longer-term system capacity. The journey of project development to date illustrates some important lessons that can be adopted from hospice palliative care to inform other primary-health care initiatives, including, potentially, mental health, cardiology, diabetes, geriatrics, where productive change can result from productively linking specialists and primary-care colleagues.

Ainscow, M., A. Howes, P. Farrell and J. Frankham (2003). "Making sense of the development of inclusive practices." European Journal of Special Needs Education **18**(2): 227-242.
Schools in England are currently being asked to pay greater attention to the issue of educational inclusion. This paper reports some of the findings of a collaborative action research Network that was set up to address the implications of this trend. The Network involves teams of university researchers in working with practitioners in order to encourage the development of inclusive practices. As a result of this work, it is argued that the development of such practices is not about adopting 'recipes' of the sort described in much of the existing literature. Rather, it involves social learning processes that occur within a given workplace. The paper attempts to provide deeper understandings of what these processes involve. To assist in this analysis use is made of the idea of 'communities of practice', as developed by Etienne Wenger, focusing specifically on the way he sees learning as a characteristic of practice. It is argued that the development of inclusive practices involves collaborative working arrangements; that they can be encouraged by engagement with various forms of evidence that interrupt ways of thinking; and that the space that is created through such interruptions can enable those involved to recognize overlooked or, indeed, new possibilities for moving practice forward.

Artaraz, K. (2006). "The wrong person for the job? Professional habitus and working cultures in Connexions." Critical Social Policy **26**(4): 910-931.
A paradigmatic shift has taken place in the underlying principles that have, in the past, informed the provision of careers education and guidance (CEG) in the UK. The root cause has been a policy transition to a new service model that emphasizes the importance of CEG as part of New Labour's social inclusion agenda. This article reflects on this policy transition and, using the Connexions service as a case study, explores some aspects of its effects on professional identities of Connexions personal advisers (PAs) through a Bourdieusian framework. The article argues that a new, externally imposed context and service discourse can affect the various 'communities of practice' that operate under the Connexions service. The article also questions policy attempts to create generic forms of professionals for the delivery of future welfare services.

Avery, M. D., D. Ringdahl, C. Juve and P. Plumbo (2003). "The transition to Web-based education: enhancing access to graduate education for women's health providers." Journal of Midwifery & Women's Health **48**(6): 418.
Nurse-midwives and women's health nurse practitioners have a long history as positive change agents in health care as well as education. This article chronicles the transition of a traditional face-to-face nurse-midwife and women's health nurse practitioner graduate curriculum to a Web-based format with campus seminars and clinical laboratories. This change was made to increase access to these graduate programs. A total of 20 courses, including both graduate core and specialty courses, was converted to the Web-based format over a 3-year period. Practical considerations for implementing a similar program, including faculty development and support, student orientation and ongoing support, development of a learning community, and time management, are discussed. The importance of listening to student feedback and partnering with them as the program continues to develop is emphasized as a key element of program evaluation and improvement.

Aydin, C. E. (1989). "Occupational adaptation to computerized medical information systems." Journal of Health & Social Behavior **30**(2): 163-79.
This paper explores the effects of computerized medical information systems on the occupational communities of health care professionals in hospitals. Interviews were conducted with informants from the pharmacy and nursing departments at two hospitals currently using medical information systems for communicating physicians' medication orders from the nursing station to the pharmacy. Results showed changes in tasks for both pharmacy and nursing, resulting in increased interdependence between the two departments. This interdependence was accompanied by improved communication and cooperation, providing an opportunity to encourage better working relationships between departments. The use and maintenance of the common computerized data base became a superordinate goal for the two groups, with the computer system itself as the topic of communication.

Babenko-Mould, Y., M. A. Andrusyszyn and D. Goldenberg (2004). "Effects of computer-based clinical conferencing on nursing students' self-efficacy." Journal of Nursing Education **43**(4): 149-55.
A pretest-posttest, quasi-experimental, control group design and Bandura's theory of self-efficacy were used to examine the influence of computer conferencing on fourth-year baccalaureate nursing students' self-efficacy for professional nursing competencies and computer-mediated learning (CML) during a final clinical practicum. Descriptive analysis was also used to explore themes regarding strengths and challenges of online learning. The convenience sample included 42 direct-entry students (control group: n = 27; online intervention: n = 15). Within both groups, there was a significant difference in self-efficacy for nursing competencies from pretest to posttest. However, between-group posttest scores were not significantly different. Computer conferencing enhanced learning, and students' self-efficacy for CML increased at posttest. Strengths of CML included connection, support, learning, and sharing. Challenges involved time and Internet access. Insights gained may assist educators in curriculum development when considering how CML strategies support clinical courses and strengthen learning communities.

Banister, E. M. and D. L. Begoray (2006). "A community of practice approach for aboriginal girls' sexual health education." Canadian child psychiatric review **15**(4): 168-173.
Introduction: There is a paucity of intervention programs for Aboriginal girls and many of those that exist are delivered in culturally inappropriate ways. Methods: In this paper, we provide an overview of recent research that focused on delivering a sexual health mentorship program that enhanced the voices of Aboriginal youth and was culturally relevant and appropriate to indigenous youth. Results: Our program served to enhance social connection and reinforced a sense of belonging and relational mutuality among group members. Conclusion: The purpose of this article is to illustrate how a mentorship program that used a community of practice approach empowered Aboriginal youth to become successful border crossers and helped to align them with the wider community.

Bartunek, J., J. Trullen, E. Bonet and A. Sauquet (2003). "Sharing and expanding academic and practitioner knowledge in health care." Journal of Health Services Research & Policy **8**([4]): S2:62-8.
The purpose of this paper is to expand understanding of academic-practitioner knowledge-sharing in the service of enhanced knowledge creation in health care. To this end, we describe the tacit and explicit knowledge of academics and practitioners and

how this knowledge exists within their communities of practice. We also discuss benefits of, difficulties with, and some underlying dynamics of academic-practitioner knowledge-sharing. We then propose what might be done, based on appreciation of these dynamics, to foster joint knowledge-sharing and knowledge creation. We illustrate our arguments with examples from health care settings.

Biayka, G. (2006). "Newcomers' learning of midwifery practice in a labour ward: a socio-cultural perspective." Learning in Health & Social Care **5**(1): 35-44.
This article presents a qualitative case study of midwifery students' learning processes in a Norwegian maternity ward. Midwifery students in their first year of midwifery education were interviewed with regard to their experiences of learning in this context. Both students and their preceptors were observed in different settings on the ward. Taking this community of practice as the privileged locus for learning practical knowledge, the study set out to understand students' learning processes in this context, and how skilled midwifery was being learned. Three overarching themes emerged: acceptance into the community of practice; engagement in supportive dialogue with a preceptor; and being in different places at the right time. The study provides midwifery educators with some insight into midwifery students' learning through participation in real-life situations and performing midwifery actions within formal and informal learning relationships on the ward.

Black, P. E. and D. Plowright (2007). "Exploring pharmacists' views about the contribution that reflective learning can make to the development of professional practice." International Journal of Pharmacy Practice **15**(2): 149-155.
Objective: Postgraduate courses for pharmacists are increasingly incorporating reflection on learning and on professional practice as the theory of learning in use. This paper provides an insight into the views of pharmacists, who participated in a prescribing course, about using reflection to contribute to the development of their learning and professional practice. Method: The research was exploratory in nature and employed an inductive, grounded theory strategy. Qualitative data were collected from focus groups and individual interviewees. Twenty-six individuals, who had been registered on Keele University's Supplementary Prescribing (SP) course, participated in total. Key findings and conclusions: Two key themes are discussed in this paper that appear to the authors to provide an insight into how reflective learning contributes to the development of professional practice. The structured reflective activities included in participants' reflective portfolios were a catalyst to making them aware of the reflective learning process that they instinctively or intuitively used in their professional practice to some degree. Participants also appeared to be aware of different levels or depths of reflection. They articulated these in a more pragmatic way than the theoretical presentations of levels that appear in published literature. Overall, they saw reflection as being of benefit to their professional development, patient care and their interactions with other health professionals. They perceived it as a way of building the healthcare team through helping them integrate with other health professionals by developing a community of practice.

Bleakley, A. (2002). "Pre-registration house officers and ward-based learning: a 'new apprenticeship' model." Medical Education **36**(1): 9-15.
Introduction: The pre-registration house officer (PRHO) year can be seen as a formal apprenticeship into the profession of medicine, and as central to the identity construction of the doctor. The year characteristically involves rotation between specialties, including attachment to ward-based 'firms', where consultants teach PRHOs. Discussion:

Teaching and learning in ward-based environments is under-researched, and the current literature displays a bias towards a psychological model of pedagogy that focuses upon transmission of knowledge and skills from one individual to another. Such a model offers a necessary, but not sufficient, explanation of how work-based learning occurs. Understanding the PRHO apprenticeship year should include reference to cultural dimensions to learning, especially socialisation into the profession. This constitutes an 'extended' (or 'hidden') curriculum model that may be theorised through contemporary ideas of activity learning within a 'new apprenticeship' framework. Conclusion: The dominant psychological model can lead to an expectation for a uniform method of teaching and learning in ward round contexts that (a) ignores important differences in educational climate between established communities of practice, and (b) orients both teachers and learners to one-to-one transmission and reception, rather than sensitising to how knowledge may be held across members of a working group. The latter shifts emphasis away from reception to issues of active access. PRHOs, as novices, are not relegated to passive learning roles, but may actively co-construct knowledge with experts, offering potential transformation of the practices of ward groups.

Booth, A. (2004). "In pursuit of e-Quality: the role of "communities of practice" when evaluating electronic information services." Journal of Electronic Resources in Medical Libraries **1**(3): 25-42.
Electronic information services have the potential to address longstanding barriers in connection with access, especially in a 24/7 clinical environment. This places a premium on appropriate evaluation that must be credible and address wider issues in connection with the collections, services, usability, and the community. The last of these issues has not received sufficient attention. After briefly considering approaches to outcomes measurement, the author reviews three significant approaches to e-Quality: the e-SQ, LibQUAL+, and Multi-attribute stated-preference techniques. Moving to issues around the 'community of practice,' the author argues that an evaluation framework that takes such a perspective into account will lead to more sympathetic evaluations as well as broadening our understanding and expectations of models of electronic information service delivery.

Booth, A., A. Sutton and L. Falzon (2003). "Working together: supporting projects through action learning." Health Information & Libraries Journal **20**(4): 225-231.
Recent years have seen tremendous growth in knowledge management projects within the NHS. Project staff must acquire rapidly a wide range of task-related skills. Conventional training courses may be inappropriately timed or unavailable to project staff. Action learning provides a group-based means of meeting skills deficits associated with project management and delivery. This paper describes an action learning set for project staff on five knowledge management projects within Trent Region. A brief evaluation aimed to identify most and least useful and most and least enjoyable features of the action learning set. Comments on the facilitation and the content of the action learning sessions are analysed. Action learning is feasible in meeting the training needs of project staff. It may also provide a means of meeting the shared learning needs of communities of practice within a virtual environment. Knowledge management does not merely involve management and delivery within innovative projects but also requires exploiting shared learning across projects.

Booth, J., D. Tolson, R. Hotchkiss and I. Schofield (2007). "Using action research to construct national evidence-based nursing care guidance for gerontological nursing." Journal of Clinical Nursing **16**(5): 945-53.

Aim: This paper explores the development of a low-cost, involving methodology for constructing nursing-focused evidence-based national care guidance, known as Best Practice Statements, the intended users of which are gerontological nurses practising throughout Scotland. DESIGN: The Best Practice Statement construction methodology forms one cycle in a five-year longitudinal action research study that aims to achieve evidence-based nursing, facilitate professional networking to support practice development and promote the principles and practice of gerontological nursing. Achieving these aims involved designing a virtual Practice Development College. Methods: A Community of Practice comprising practising gerontological nurses, expert advisors, academic teaching and research nurses collaborated in face-to-face meetings and in the virtual Practice Development College to delineate and refine the procedural model for Best Practice Statement construction. Focus groups, telephone interviews, analysis of on-line archives and documentary outputs formed the analytic dataset. Results: Qualitative analysis indicated that, from the perspective of the community of practice, the emerging methodology facilitated the melding of knowledge sources reflecting the dominant evidence hierarchy with other forms of evidence valued by gerontological nurses, in the Best Practice Statement. Relevance to clinical practice Current methods of care guidance construction rarely address the concerns of nurses and the evidence from which guidelines are developed is narrowly defined with regard to inclusion and acceptability. In contrast this model focuses on nursing issues, embraces a wider definition of evidence and ensures that the published Best Practice Statements are credible and achievable in gerontological practice, where they are tested and refined as an inherent aspect of the development process.

Brooks, F. and P. Scott (2006a). "Exploring knowledge work and leadership in online midwifery communication." Journal of Advanced Nursing **55**(4): 510-20.
AIM: This paper reports a study to answer the following question: if given a user-friendly online system, that enabled communication across the practice community, would midwives function as knowledge workers? Background: Globally, the demand for quality-led and innovative service delivery requires that nurses and midwives shift from being 'information workers', or passive receivers of managerial and organizational decisions, to become 'knowledge workers' who are able to create, lead and communicate service innovation and practice development. New communication technologies may offer a means for healthcare professionals to interact as knowledge workers and develop supportive communities of practice. Methods: An online discussion forum was implemented as a low-cost technological intervention, deploying existing hardware and a standard hospital intranet. The evaluation of the forum was constructed as case-study organizational research. The totality of online communication, both traffic and content, was analysed over a 3-month period (193 messages downloaded 2003/2004), and 15 in-depth interviews were undertaken with forum users. Findings: Given simple, facilitative, innovative technology, supported by a positive working culture and guided by effective leadership, midwives could function as 'knowledge workers', critically reflecting upon their practice and translating knowledge into action designed to achieve change in practice. Participation occurred across all staff grades, and midwives were predominantly supportive and facilitative towards the contributions made by colleagues. Conclusion: Midwives may be well placed to exemplify the 'ideal' characteristics of the knowledge worker being demanded of modern healthcare professionals. The deployment of online interactive technologies as part of strategic vision to enhance knowledge work among healthcare professionals should be given attention within health systems.

Brooks, F. and P. Scott (2006b). "Knowledge work in nursing and midwifery: an evaluation through computer-mediated communication." International Journal of Nursing Studies **43**(1): 83-97.
Recent changes in policy and culture require health workers to incorporate "knowledge work" as a routine component of professional practice. Innovative computer-mediated communication technologies provide the opportunity to evaluate the nature of "knowledge work" within nursing and midwifery. This study embedded an online discussion system into an acute NHS Trust to support interaction within communities of practice. The complete record of online communications was analysed. Nurses were found to predominantly engage in information work with knowledge work restricted to senior-to-senior level exchanges. In contrast, midwives were observed to employ the technology to support knowledge work between all grades. The study indicates that technology can support knowledge work, including conveying tacit knowledge effectively.

Bryant, S. L. and T. Ringrose (2005). "Evaluating the Doctors.net.uk model of electronic continuing medical education." Work Based Learning in Primary Care **3**(2): 129-142.
E-learning has the potential to improve accessibility of education, reduce costs and engage greater numbers of participants. E-learning is forming an increasingly large component of continuing professional development (CPD) for general practitioners in the UK. A recent informal survey of GP appraisers found that e-learning contributes to 70% of CPD for this group. Among the factors driving e-learning are constraints on the time and funding available to support traditional learning opportunities, and the changing requirements for CPD across the health and social care professions. Despite the rapid adoption of e-learning for CPD by the medical profession, there remains scepticism about the learning outcomes of e-learning. This paper describes the activity and results of an e-learning programme providing CPD for general practitioners in the UK since 2001. Pre- and post-module self-assessment scores, used as measures of understanding and short-term message retention show an 18% rise for one of the 150 modules available. Feedback from 2856 participants showed high satisfaction scores. The authors propose further developments to integrate e-learning into a collaborative community of practice and discuss additional measures of educational value.

Burton, S. and C. Anderson (2002). "Using the internet to develop an international learning community of pharmacists." Pharmacy World & Science **24**(5): 172-174.
Until recent years, the level of interaction across a profession, necessary to provide for an optimum learning environment which supports professional development, has only been significantly possible'in face-to-face interaction and has therefore been place and time, dependent. With the explosive development of the Internet, communication barriers are breaking down and international interaction, networking and collaboration is becoming increasingly possible. This short report describes the manner in which an Internet-based postgradbate study programme, entitled 'Enhancing Pharmacy Practice' has made use of these communication opportunities to develop an international learning community of pharmacists. Programme evaluation data collected from surveys completed online by participants and content analysis of online discussion groups during the first four modules of the programme, demonstrates that there is a high level of interaction amongst participants. It also suggests that this interaction has contributed to the learning experience and professional growth of the participants and impacted positively upon their practice.

Chin, H. (2003). "Practice development: a framework toward modernizing health care in the United States and the United Kingdom and a means toward building international

communities of learning and practice." Home Health Care Management & Practice **15**(5): 423-428.
U.S. and U.K. governments and health care organizations are pressured to provide innovative, equitable, and quality patient-focused, evidence-based care that meets the needs of contemporary populations within existing resources. This requires new ways of working and thinking so clients, their families, and health care providers become an integrated and accountable community. This article addresses practice development as a framework that facilitates development of communities of practice and learning while acknowledging the inherent complexity and messiness. It examines how U.S. and U.K. community and acute services have adopted the framework to provide evidence-based, innovative ways of working and explains practitioners' experiences meeting the needs of clients and working in partnership and across boundaries. In doing so, practitioners have taken leadership roles, rewritten rules, and shifted the balance of power from professionals to clients while being fully accountable. The article discusses implications for future cross-cultural working partnerships and alliance building.

Clarke, A., D. Lewis, I. Cole and L. Ringrose (2005). "A strategic approach to developing e-learning capability for healthcare." Health Information & Libraries Journal **22**: 33-41.
Objectives: This article examines a strategic approach to developing e-learning capability to enhance learning opportunities for the workforce of a healthcare organization. Emphasis is given to the procurement of a bespoke Managed Learning Environment (MLE). Strategic organizational issues impacting on future e-learning developments are considered. Methods: The 2-year implementation plan was evaluated through a two phase external research project. The first phase focused on the effectiveness of a training programme designed to build capacity for e-learning within the Northern area and also included a virtual learning environment usability study which informed the MLE specification. The second phase evaluation is ongoing during 2005 and interim findings are presented. Results: The MLE has been piloted and on-line learning packages have been acquired. There has been a phased take-up of e-learning opportunities and e-tutor training. Some virtual Communities of Practice have been established. Key organizational issues have been identified and ongoing findings are informing strategic planning. Conclusions: The healthcare MLE is offering enhanced learning opportunities and assisting area healthcare providers in training their dispersed workforces. Blended learning strategies are most successful. The need for protected time for e-learning is a key issue, financial savings are available. Progress has been slowed by identified organizational constraints-the MLE's benefits are widely recognized.

Cope, P., P. Cuthbertson and B. Stoddart (2000). "Situated learning in the practice placement." Journal of Advanced Nursing **31**(4): 850-856.
Nurses who had just completed their training in Scotland were interviewed with regard to their experiences on placements. The nurses had either completed a traditional training course or came from the first cohort of the Project 2000 diploma level course. The interviews focused on the way in which the student nurses had learned in their practice placements. The results suggest that the placement is a complex social and cognitive experience in which there are elements of situated learning. Acceptance into the community of practice is important but this can be separated, conceptually at least, into a social acceptance which might be extended to any student and a professional acceptance which relies on the display of appropriate competence. The nurses described the way in which their mentors had interacted with them in terms which suggested that cognitive apprenticeship strategies had been used to further their learning in practice. It is concluded that, in view of the central importance of the

placement for training nurses, explicit use of mentoring techniques derived from situated learning and cognitive apprenticeship might be beneficial.

Cumbie, S. A. and R. L. Wolverton (2004). "Building communities of scholars through a hologogy for online graduate nursing education: reconnecting with the wisdom of nursing." International Journal of Nursing Education Scholarship **1**(1): 23p.
Nursing must respond to complex health care needs, but the response will be ineffective without cohesiveness within the nursing community. Advance practice nursing students' exploration of the historical, philosophical, and theoretical structures of nursing can provide an anchor for study of the discipline, promote a feeling of connection with the community of nursing, and foster an understanding of the wisdom that exists within the body of nursing knowledge. The authors have developed and refined a structure and approach for teaching an online nursing theory course to promote students' identification with nursing knowledge and facilitate building a sense of community among the class members and with the discipline, as a whole. The purposes of this article are to describe this model for community building within a master's-level online graduate nursing theory course and to demonstrate student responses to the course process.

Davenport, T. H. and M. C. Peitsch (2005). "Human aspects of the management of drug discovery knowledge." Drug Discovery Today: Technologies **2**(3): 205-209.
A well-defined strategy for knowledge management is a key success factor of any knowledge-intensive industry. This applies particularly well to pharmaceutical drug discovery, which is one of the most knowledge-intensive processes. The subject has only rarely been studied in the context of pharmaceutical firms and we can only extrapolate a limited number of findings from other industries. Here, we look at five key human aspects of knowledge management (social networks and communities of practice, the roles of professional knowledge managers, the behaviors and processes of knowledge workers, management strategies and tactics and the role of the external work environment) and how they apply to the drug discovery process.

Davis, J. (2006). "The importance of the community of practice in identity development." Internet Journal of Allied Health Sciences & Practice **4**(3): 8p.
Purpose: The purpose of this study was to examine what processes facilitate, temper, or impede occupational therapy identity development in a community of practice. Methods: A multiple case design organized data collected from five in-depth interviews with occupational therapy students on level II fieldwork. A cross-case analysis was used to arrive at multiple case themes. Results: Themes emerged as responses to participation in a community of practice: a) professional relationships; b) supervision types; and c) responsibility for professional identity development. Results suggest that communities of practice have unique characteristics that either inhibit students from adopting professional identity or draw them closer to the center of the profession. Conclusions: Responsibility for professional identity development lies with both student and community of practice. These findings suggest attention must be paid to the quality of the community of practice if students are to experience a successful trajectory into the profession of occupational therapy.

Dewhurst, G., P. Shaw and D. Wood (2006). "An evaluation of four foundation programme pilots in the Kent Surrey and Sussex Deanery." British Journal of Hospital Medicine (17508460) **67**(1): 36-39.
The authors discuss the outcomes of four pilot foundation programmes in terms of the trainees' experience, that of their educational supervisors and ask what made foundation

placements good learning opportunities. The authors conclude that trainees' learning needs to be embedded in a learning community.

Dopson, S. and L. Fitzgerald (2006). "The role of the middle manager in the implementation of evidence-based health care." Journal of Nursing Management **14**(1): 43-51.
The present study reflects on the role of the middle manager in the implementation of what has become known as evidence-based health care. This movement advocates that clinical practice is continually informed by the results of robust research and evidence. In our work exploring the complexity of ensuring that practice is informed by evidence we have found that general managers have relatively little influence when compared with clinicians especially doctors. We argue that local professional groups work together in communities of practice, which are frequently uniprofessional. These boundaries affect the motivations for seeking improvement and upgrading and the way evidence and knowledge is perceived and interpreted. We argue that if the quality of health care is to be improved, we need to understand the complex historically and contextually informed interactions between different professional groups and to design diffusion strategies that acknowledge this complexity.

Farrell, M., D. Douglas and S. Siltanen (2003). "Exploring and developing a college's community of interest: an appreciative inquiry." Journal of Professional Nursing **19**(6): 364-371.
This study examined what the Commission on Collegiate Nursing Education identifies as a college of nursing's internal and external "community of interest." Using "appreciative inquiry" in this study of a college campus, we examined the parts of the historical past that the community believed should be maintained, its vision of excellence for the college, the ways in which the vision could be realized, and its part in fulfilling the expectations of a shared, co-created vision. Investigators collected data using a self-developed, one-on-one interview and focus-group format and analyzed the data using content analysis. The findings suggest that the community shared values of preserving the college's past and of its vision for the college's future. However, it differed in the means of putting its co-created vision into practice and in defining its contributions in realizing the vision it created for the college.

Gabbay, J. and A. Le May (2004). "Evidence based guidelines or collectively constructed 'mindlines? ' Ethnographic study of knowledge management in primary care." British Medical Journal **329**(7473): 1013-1016.
Objective: To explore in depth how primary care clinicians (general practitioners and practice nurses) derive their individual and collective healthcare decisions. Design: Ethnographic study using standard methods (non-participant observation, semistructured interviews, and documentary review) over two years to collect data, which were analysed thematically. Setting: Two general practices, one in the south of England and the other in the north of England. Participants: Nine doctors, three nurses, one phlebotomist, and associated medical staff in one practice provided the initial data; the emerging model was checked for transferability with general practitioners in the second practice. Results: Clinicians rarely accessed and used explicit evidence from research or other sources directly, but relied on 'mindlines' - collectively reinforced, internalised, tacit guidelines. These were informed by brief reading but mainly by their own and their colleagues' experience, their interactions with each other and with opinion leaders, patients, and pharmaceutical representatives, and other sources of largely tacit knowledge. Mediated by organisational demands and constraints, mindlines were

iteratively negotiated with a variety of key actors, often through a range of informal interactions in fluid 'communities of practice,' resulting in socially constructed 'knowledge in practice.' Conclusions: These findings highlight the potential advantage of exploiting existing formal and informal networking as a key to conveying evidence to clinicians.

Gabbay, J., A. le May, H. Jefferson, D. Webb, R. Lovelock, J. Powell and J. Lathlean (2003). "A case study of knowledge management in multi-agency consumer-informed 'communities of practice': implications for evidence-based policy development in health and social services." Health: An Interdisciplinary Journal for the Social Study of Health, Illness & Medicine **7**(3): 283-310.
We report a study that facilitated and evaluated two multiagency Communities of Practice (CoPs) working on improving specific aspects of health and social services for older people, and analysed how they processed and applied knowledge in formulating their views. Data collection included observing and tape-recording the Cops, interviewing participants and reviewing documents they generated and used. All these sources were analysed to identify knowledge-related behaviours. Four themes emerged from these data: (1) the way that certain kinds of knowledge became privileged and accepted; (2) the ways in which the CoP members transformed and internalized new knowledge; (3) how the haphazard processing of the available knowledge was contingent upon the organizational features of the groups; and (4) the ways in which the changing agendas, roles and powerrelations had differential effects on collective sense making. We conclude by recommending ways in which the process of evidence-based policy development in such groups may be enhanced.

Gagliardi, A., F. D. Ashbury, R. George, J. Irish and H. S. Stern (2004). "Improving cancer surgery in Ontario: Recommendations from a strategic planning retreat." Canadian Journal of Surgery **47**(4): 270-276.
Introduction: The Ministry of Health and Long-Term Care mandated a rapid and thorough change in the delivery of cancer services in Ontario to integrate ambulatory services offered by Cancer Care Ontario (CCO) with the inpatient services of affiliated hospitals. The CCO Surgical Oncology Program held a strategic planning retreat to establish the basis upon which to implement surgery-specific changes. Methods: Participants completed a pre-retreat survey. Based on survey results, the retreat was organized around 4 themes: role of the Surgical Oncology Program; knowledge transfer; funding for cancer surgery; and research priorities. These topics were discussed in small breakout groups and by the entire assembly. Results: Retreat participants (n = 55) included hospital CEOs, vice-presidents of cancer services, surgeons from cancer centres and community hospitals, academic chairs of surgery, clinician researchers and managers from CCO. Responses to the pre-retreat survey (n = 38) and recommendations made by retreat participants showed strong support for the Surgical Oncology Program to take a leadership role in the development and monitoring of quality indicators, research related to cancer surgery and the creation of regional communities of practice. Funding mechanisms for cancer surgeons and hospitals performing cancer surgery were also highlighted. Conclusion: The Surgical Oncology Program used the results to develop a strategic plan that was approved by retreat participants and the board of the CCO. The program has embarked on a multifaceted approach to facilitate, monitor and report on the organization and delivery of cancer surgery in Ontario.

Gagliardi, A., A. Smith, V. Goel and D. DePetrillo (2003). "Feasibility study of multidisciplinary oncology rounds by videoconference for surgeons in remote locales." BMC Medical Informatics & Decision Making **3**: 7.

Background: This study was undertaken to assess the feasibility of using videoconferencing to involve community-based surgeons in interactive, multidisciplinary oncology rounds so they may benefit from the type of community of practice that is usually only available in academic cancer centres. Methods: An existing videoconference service provider with sites across Ontario was chosen and the series was accredited. Indirect needs assessment involved examining responses to a previously conducted survey of provincial surgeons; interviewing three cancer surgeons from different regions of Ontario; and by analyzing an online portfolio of self-directed learning projects. Direct needs assessment involved a survey of surgeons at videoconference-enabled sites. A surgical, medical and radiation oncologist plus a facilitator were scheduled to guide discussion for each session. A patient scenario developed by the discussants was distributed to participants one week prior to each session. Results: Direct and indirect needs assessment confirmed that breast cancer and colorectal cancer topics were of greatest importance to community surgeons. Six one-hour sessions were offered (two breast, two colorectal, one gynecologic and one lung cancer). A median of 22 physicians and a median of eight sites participated in each session. The majority of respondents were satisfied with the videoconference format, presenters and content. Many noted that discussion prompted reflection on practice and that current practice would change. Conclusions: This pilot study demonstrated that it is possible to engage remote surgeons in multidisciplinary oncology rounds by videoconference. Continued assessment of videoconferencing is warranted but further research is required to develop frameworks by which to evaluate the benefits of telehealth initiatives.

Galimberti, C., G. Belloni, A. Cattaneo, M. Grassi, V. Manias and L. Menti (2004). "An integrated approach to the ergonomic analysis of VR in psychotherapy: panic disorders, agoraphobia and eating disorders." Studies in Health Technology & Informatics **99**: 231-51.
To face the aspects connected with VR environments usability for psychotherapeutic applications means to dare a double challenge from a methodological point of view: from one side, the need to adapt and to integrate on a heuristic basis classic usability evaluation methods to specific artefacts such as 3D Virtual Environments for clinical applications; from the other hand, the problems arisen by integration of expert evaluation of VR environments user-based tests carried out in real context of use. The theoretical background of our analytical stance is based upon an ethnomethodological approach, a perspective that gives evidence of how people, in specific social situations, are able to solve complex tasks producing shared meanings and achieving their goals during interaction. According to this perspective, the methodological objective consisted also in the identification of the usability requirements of the specific community of practice. The virtual environments considered were two of the four VR modules in the framework of the VEPSY project: Panic Disorders--Agoraphobia and Eating Disorders.

Gallagher, R., P. Hawley and W. Yeomans (2004). "A survey of cancer pain management knowledge and attitudes of British Columbian physicians." Pain Research & Management **9**(4): 188-94.
Introduction: There are many potential barriers to adequate cancer pain management, including lack of physician education and prescription monitoring programs. The authors surveyed physicians about their specific knowledge of pain management and the effects of the regulation of opioids on their prescribing practices. Methods: A questionnaire was mailed out to British Columbia physicians who were likely to encounter cancer patients. The survey asked for physicians' opinions about College of Physicians and Surgeons of

British Columbia regulation and other issues related to their prescribing practices, and assessed basic knowledge of cancer pain management. Results: There was a 69% return rate with a total of 4618 evaluable responses. There was a significant difference among medical disciplines, years in practice, number of chronic pain patients seen and size of community of practice. The highest knowledge scores were achieved by oncologists and the lowest scores were from surgeons. Those who practiced in smaller communities had a higher average knowledge score. Those who felt their knowledge about cancer pain was inadequate scored lower than those who felt their knowledge was adequate. The questions most frequently answered incorrectly (or by "don't know") were those about equianalgesic dosing (68%) and adequate breakthrough dosing (45%), revealing knowledge deficiencies that would significantly impair a physician's ability to manage cancer pain. Conclusions: The details of opioid prescribing are crucial areas to target education for cancer pain management. The surveyed physicians accepted the need for regulation of opioid prescribing with very few being fearful of scrutiny from the College of Physicians and Surgeons of British Columbia. However, the inconvenience of the triplicate prescription pad was more of a barrier to prescribing, it being of concern to 20% of respondents, particularly surgeons and medical specialists.

Goldie, J., A. Dowie, P. Cotton and J. Morrison (2007). "Teaching professionalism in the early years of a medical curriculum: A qualitative study." Medical Education **41**(6): 610-617.
Context: Despite the growing literature on professionalism in undergraduate medical curricula, few studies have examined its delivery. Objectives: This study investigated tutors' and students' perspectives of the delivery of professionalism in the early years of Glasgow's learner-centred, problem-based learning (PBL), integrated medical curriculum. Methods: A qualitative approach was adopted involving semistructured interviews, on a 1 in 6 sample of tutors involved in teaching in the early curricular years, and 3 student focus groups. The findings were subjected to between-method triangulation. Results: Involvement in teaching raised students' and tutors' awareness of their professionalism. Learning activities promoting critical reflection were most effective. The integration of professionalism across the domains of Vocational Studies (VS) was important for learning; however, it was not well integrated with the PBL core. Integration was promoted by having the same tutor present throughout all VS sessions. Early patient contact experiences were found to be particularly important. The hidden curriculum provided both opportunities for, and threats to, learning. The small-group format provided a suitable environment for the examination of pre-existing perspectives. The portfolio was an effective learning tool, although its assessment should be formalised. Conclusions: Reflection is integral to professional development. Early clinical contact is an important part of the process of socialisation, as it allows students to enter the community of practice that is the medical profession. Role models can contribute powerfully to students' learning and identity formation. As students move towards fuller participation, the clinical milieu should be controlled to maximise the influence of role models, and opportunities for guided reflection should be sustained.

Goodwin, D., C. Pope, M. Mort and A. Smith (2005). "Access, boundaries and their effects: legitimate participation in anaesthesia." Sociology of Health & Illness **27**(6): 855-871.
The distribution of work, knowledge and responsibilities in the delivery of anaesthesia has attained particular significance recently as attempts to meet the demands of the European Working Times Directive intensify existing pressures to reorganise anaesthetic services. Using Lave and Wenger's (1991) notions of 'legitimate peripheral participation'

in 'communities of practice' (and Wenger 1998) to analyse ethnographic data of anaesthetic practice we illustrate how work and knowledge are currently configured, and when knowledge may legitimately be taken as the basis for action. The ability to initiate action, to prescribe healthcare interventions, we suggest, is a critical element in the organisation of anaesthetic practices and therefore central to any attempts to reshape the delivery of anaesthetic services.

Kernick, D. (2005). "Life on the exponential curve--time to rattle the academic cage? A view from the street." Journal of Evaluation in Clinical Practice **11**(1): 1-6.
The history of health service research has been characterized by an overwhelming volume of literature that has little impact on those who actually get on and do the work. The focus has been on an examination of why evidence is not accommodated into practice and how the barriers to implementation can be reduced. The fact that the evidence-based product may not be relevant to those at whom it is directed had not until recently been considered a possibility. Over the past 20 years there has been a consolidation of two cultures in the National Health Service--the academic/researcher and the clinician/practitioner. This paper sets the two cultures within the context of a community of practice framework and argues that the emphasis should move away from managing the interface to a fundamental reappraisal of the health service academic community.

Kok, A. J. (2006). "Enhancing information literacy in an interdisciplinary collaboration." Journal of Technology in Human Services **24**(2/3): 83-103.
The study examined the impact of an interdisciplinary collaborative on the information literacy of its participants by using legitimate peripheral participation (Lave & Wenger, 1991) as a conceptual framework. The objectives of this exploratory study were to document participants' qualitative gains in information technology knowledge and uses, and to analyze expert involvement in supporting learning by novices. Data were gathered by using a participation observation approach, interviews, and survey. Participants cited more frequently the non-technical aspects of information literacy as being more beneficial than gains in technical know-how. Varying degrees of expert involvement ranging from enabling to instructing were identified. The implications in terms of convening and managing communities of practice and the development of legitimate peripheral participation theory are discussed.

Korhonen, V. and M. Kaunonen (2004). "Intentional learning in web-environment -- university nursing science students' goals and experiences of learning of nursing science in network learning environment [Finnish]." Hoitotiede **16**(1): 25-38.
The article describes the goals of students attending web-based courses and their experiences of the achievement of these goals in a network learning environment implemented by the University of Tampere Institute for Extension Studies and the Department of Nursing Science at the Open University. The idea was based on learning approaches emphasizing communal, intentional, and goal-oriented learning. The data for the study comprised essays (n = 52) written by students at the beginning of the course and essays (n = 33) written at the end of the course. The variation of goals at the outset of the course described the different starting points and multilevel goals of adult students enrolling in the Open University network studies. Students' descriptions of the achievement of the goals emphasized a more comprehensive set of goal linkages, such as life management skills, practice application of knowledge and personal growth as a human being and a nursing practitioner. The study suggests that the central component is the construction of a learning environment promoting motivation, communication and

the formation of a learning community, which allows for individual learning styles and approaches.

Lathlean, J. and A. May (2002). "Communities of practice: an opportunity for interagency working." Journal of Clinical Nursing **11**(3): 394-398.
A particular approach to collaborative interagency working is that of multiprofessional "communities of practice". Four such groups are described in the context of two action research projects, one relating to primary care and the other to outpatient services for dermatology and ENT. The facilitating features, and the challenges and the potential of working in this way, are discussed, both from the point of view of understanding how knowledge is used and valued in such groups and as a useful mechanism for the development of services that span different professional perspectives and involve consumer interests.

Lingard, L., C. Schryer, K. Garwood and M. Spafford (2003). "'Talking the talk': School and workplace genre tension in clerkship case presentations." Medical Education **37**(7): 612-620.
Background: Socialisation into a community involves learning sanctioned ways of talking. This study investigates the case presentation genre as a site of socialisation into the clinical community of practice. Methods: Sixteen oral case presentations and the teaching exchanges surrounding them (involving 11 students and 10 faculty members) were observed by paired researchers during inpatient paediatric medicine rounds. A total of 21 in-depth interviews were conducted with 11 students and 10 faculty. Both data sets were audio-recorded, transcribed and analysed for emergent themes and rhetorical strategies. Results: Students emphasised case presentation as a school genre and described the ideal presentation as free of interruptions. As a consequence, students' presentation strategies were directed towards getting through the presentation without questions. In contrast, faculty responses suggested an understanding of the genre as a way of constructing shared professional knowledge. Faculty feedback was often explicit about critical issues in constructing shared knowledge, such as handling uncertainty. However, student presentations rarely reflected this feedback. Conclusions: The school genre described and enacted by students conflicts in key ways with the workplace genre evident in faculty feedback, suggesting that school and workplace iterations of case presentation may be at cross-purposes. Such cross-purposes have implications, because when students and teachers perceive a genre differently, a 'gap' is created in their interactions. Even rich and contextually situated feedback may get lost or distorted as it crosses this gap. Explicit acknowledgement of the multiple and flexible iterations of case presentation will improve the learning that novices experience through acquiring this central form of professional 'talk'.

Manogue, M. and G. Brown (2007). "Managing the curriculum--for a change." European Journal of Dental Education **11**(2): 75-86.
This article reports the model used to design a new dental curriculum, the design process used and its underlying rationale. The evidence base for the process is reviewed and discussed. Some suggestions are offered for those engaged in developing new curricula. The main conclusions drawn are that the design process needs to be managed openly and democratically; the alignment model is the most appropriate for designing dental curricula; the process of curriculum design is inextricably linked to organisational development; and the concepts of learning organisations, communities of practice and culture all have their part to play in the process of introducing deep innovations, such as new curricula'.

Mariage, T. V., D. J. Paxton-Buursma and E. C. Bouck (2004). "Interanimation: respositioning possibilities in educational contexts." Journal of Learning Disabilities **37**(6): 534-549.
Changing discursive practices is necessary for educational social justice and is made possible through the interanimation of diverse ways of knowing that create dynamic tensions and challenge reliance on narrow views of what counts as legitimate knowledge. In this article, we accept the challenge that Reid and Valle put forth in creating new discourses of possibility through the animation of sociocultural and critical theory as they might apply to the interrogation of two aspects of the meaning-making process: (a) the interanimation of voices across systems as a condition of reculturing institutions and communities of practice, and (b) instructional activity settings in educational contexts (e. g., disciplinary apprenticeships). We conclude this article by examining possibilities for collaborative research activity.

Mash, R. J., D. Marais, S. Van Der Walt, I. Van Deventer, M. Steyn and D. Labadarios (2005). "Assessment of the quality of interaction in distance learning programmes utilising the Internet (WebCT) or interactive television (ITV)." Medical Education **39**(11): 1093-1100.
Introduction: This study focuses on the quality of interaction in interactive TV (ITV), WebCT bulletin boards (BBs) and chat rooms (CRs) and addresses the question of how effectively new collaborative electronic technologies have been married with new pedagogical ideas to create effective learning for distance education students. Methods: Fifteen (out of 68) BB, 14 (out of 32) CR and 13 (out of 25) ITV conversations were randomly selected for coding using a modified exchange structure analysis. The roles that students and lecturers took in the conversations were determined from this. RESULTS: The percentage of turns made by lecturers as opposed to students was 51% in CRs, 14% in BBs and 68% in ITV. The percentage of turns spent on actual coursework was 73% in CRs, 89% in BBs and 82% in ITV. Comparisons between tutors' and students' roles within as well as between ITV, BBs and CRs were all statistically significant with $P < 0.05$. In CRs the main roles of both students and lecturers were those of elaborators, inquirers and explainers. In BBs the main roles of students and lecturers were those of explainers and evaluators. In ITV sessions students' main roles were those of elaborators and explainers, whereas lecturers' main roles were those of lecturers, elaborators, inquirers and evaluators. Conclusion: In terms of creating a constructivist and active learning community that can operate within a distance learning paradigm, WebCT appears superior to ITV.

McAllister, M. and W. Moyle (2006). "Stakeholders' views in relation to curriculum development approaches for Australian clinical educators." Australian Journal of Advanced Nursing **24**(2): 16-20.
Objective: Clinical educators in nursing perform a crucial role in facilitating effective learning for students of nursing. They have the potential to act as a catalysing agent for learning--motivating students to make links between theory and practice, moving students safely from the known to the unknown, developing clinical skills and reflective practice. Whilst their role is extremely important, clinical educators in Australia are undervalued and under-supported. They are isolated and fragmented, and lack a unifying professional body and infrastructure to assist them in education, research and practice development. This paper reports on a study to explore what educational solutions could help to resolve the problem. Design: A qualitative design utilising snowball sampling and semi-structured interviews was conducted. Setting: The study took place in Queensland and thus results are limited to the needs identified in this

region of Australia. Subjects: Ten participants provided their views about educational innovations. Conclusions: There is strong support for a curriculum focused on clinical education and centred on the concept of a learning community in order to provide community and build capacity in the specialty group so that they become self-reliant and their achievements and contributions are sustainable.

McDonald, P. W. and S. Viehbeck (2007). "From evidence-based practice making to practice-based evidence making: creating communities of (research) and practice." Health Promotion Practice **8**(2): 140-4.
Models of research translation frequently emphasize independent roles for research producers and intended users. This article describes a novel approach for enhancing exchange between researchers and practitioners. The framework is based on Wenger's notion of Communities of Practice (CoP) where knowledge is regarded as a social enterprise at the center of member interactions. Research-based practices and policies emerge when research producers and users mutually engage one another about specific health promotion problems through negotiation and by creating and sharing technical standards and other resources. CoPs are more than loose networks or task-oriented teams. They aim to create both social and intellectual capital through mutual negotiation, reciprocity, trust, and cohesion. A Consortium of Quitline Operators across North America and a Canadian project to enhance research capacity for tobacco control research serve as examples of how the model has been successfully operationalized.

Miller, K. L., M. R. Bleich, D. Hathaway and C. Warren (2004). "Developing the academic nursing practice in the midst of new realities in higher education." Journal of Nursing Education **43**(2): 55-59.
The academic nursing practice has a role in replenishing the diminished resources that confront higher education and, if well conceived and managed, is a viable option to support existing academic program stability and growth. An alternative model for defining the academic practice--beyond traditional nurse-managed centers--is presented in this article. The cohesive interconnection of the education, research, and practice missions is addressed with examples of how each contributes to a variety of communities of interest and expands professional nursing roles through innovative care model testing and development. With effective business planning and infrastructure support, faculty practice plans can evolve to a second generation, with heightened societal accountability for service, academic, and collaborative research outcomes.

Mold, J. W. and K. A. Peterson (2005). "Primary care practice-based research networks: Working at the interface between research and quality improvement." Annals of Family Medicine **3**(SUPPL.1): S12-S20.
Purpose: We wanted to describe the emerging role of primary care practice-based in research, quality improvement (QI), and translation of research into practice (TRIP). Methods: We gathered information from the published literature, discussions with PBRN leaders, case examples, and our own personal experience to describe a role for PBRNs that comfortably bridges the gap between research and QI, discovery and application, academicians and practitioners - a role that may lead to the establishment of true learning communities. We provide specific recommendations for network directors, network clinicians, and other potential stakeholders. Results: PBRNs function at the interface between research and QI, an interface called TRIP by some members of the research community. In doing so, PBRNs are helping to clarify the difficulty of applying study findings to everyday care as an inappropriate disconnect between discovery and implementation, research and practice. Participatory models are emerging in which

stakeholders agree on their goals; apply their collective knowledge, skills, and resources to accomplish these goals; and use research and QI methods when appropriate. Conclusions: PBRNs appear to be evolving from clinical laboratories into learning communities, proving grounds for generalizable solutions to clinical problems, and engines for improvement of primary care delivery systems.

Noe, T. D., S. M. Manson, C. Croy, H. McGough, J. A. Henderson and D. S. Buchwald (2007). "The influence of community-based participatory research principles on the likelihood of participation in health research in American Indian communities." Ethnicity & Disease **17**(SUPPL. 1): S1-6-S1-14.
Objectives: Advocates of community-based participatory research (CBPR) have emphasized the need for such efforts to be collaborative, and close partnerships with the communities of interest are strongly recommended in developing study designs. However, to date, no systematic, empiric inquiry has been made into whether CBPR principles might influence an individual's decision to participate in research. Design, Setting, and Participants: Using vignettes that described various types of research, we surveyed 1066 American Indian students from three tribal colleges/universities to ascertain the extent to which respondent age, gender, education, cultural affiliation, tribal status, and prior experience with research may interact with the implementation of critical CBPR principles to increase or decrease the likelihood of participating in health research. Results: Many factors significantly increased odds of participation and included the study's being conducted by a tribal college/university or national organization, involving the community in study development, an American Indian's leading the study, addressing serious health problems of concern to the community, bringing money into the community, providing new treatments or services, compensation, anonymity, and using the information to answer new questions. Decreased odds of participation were related to possible discrimination against one's family, tribe, or racial group; lack of confidentiality; and possible physical harm. Conclusions: Employing CBPR principles such as community involvement in all phases of the research, considering the potential benefits of the research, building on strengths and resources within the community and considering how results will be used is essential to conceptualizing, designing, and implementing successful health research in partnership with American Indians.

Parboosingh, J. T. (2002). "Physician communities of practice: where learning and practice are inseparable." Journal of Continuing Education in the Health Professions **22**(4): 230-236.
Physicians interact with peers and mentors to frame issues, brainstorm, validate and share information, make decisions, and create management protocols, all of which contribute to learning in practice. It is likely that working together in this way creates the best environment for learning that enhances professional practice and professional judgment. So convincing are the arguments for this view that management practices already are changing to foster the integration of learning and practice. This article describes a program of research that is planned to assess the effectiveness of information and communication technologies that purport to support and enhance learning in practice.

Pearson, T. D., J. W. Aldridge and M. Winkel (2006). "Moral decision-making among professionals in the pharmaceutical industry: A 'communities of practice' model." Quality Assurance Journal **10**(4): 270-278.

Ethical decision-making in a major USA pharmaceutical company was studied. One prevailing model for investigating professional ethics has been to assume that the professional domain itself is morally neutral, and that individuals simply deploy their own personal, privately held values within their professions. Our research, however, indicates that the professional context - which we describe by means of the current concept 'communities of practice' - plays a significant role in guiding how these researchers and project managers express their beliefs about what is appropriate behavior in their own profession. We further discovered that it is quite possible to overlook the influence of a community of practice in shaping a moral perspective, owing to differences in the way testing instruments frame the questions. We conclude that in organizations involving an identifiable community of professionals, Quality Assurance programs may face unnecessary obstacles if they neglect attention to the community's culture.

Penn, D. L., L. E. Simpson, S. Leggett, G. Edie and L. Wood (2006). "The development of a Web site to promote the mental and physical health of sons and daughters of Vietnam veterans of Australia." Journal of Consumer Health on the Internet **10**(4): 45-63.
There are estimated to be approximately 85,000 Australian Sons and Daughters of Australian Vietnam Veterans,1 a group recognized as having a substantially higher rate of suicide than the general Australian population.2 The Sons and Daughters of Vietnam Veterans of Australia (SDVVA) Web site was developed to harness the computer literacy of this age group by featuring an online support group that enables discussions, access to information and resources about Australia's involvement in the Vietnam War, and provides the ability of Sons and Daughters to share experiences with each other. The conceptualization and early development of the Web site was well received by the SDVVA during state-based focus groups, particularly given the complete lack of targeted Web-based information and online support groups. This project is an example of participatory action research (PAR) methodology that was successful in developing the early stages of a community of practice (CoP). This paper discusses how online technologies can be implemented to build a sense of community, trust, and shared values in individuals at higher risk of suicide. It also describes why PAR was chosen as a methodology to meet the challenges and needs of this particular project.

Pereles, L., J. Lockyer and H. Fidler (2002). "Permanent small groups: group dynamics, learning, and change." Journal of Continuing Education in the Health Professions **22**(4): 205-213.
Introduction: The concept of "communities of practice," a special facet of social constructivist learning theory, provides a new template against which we can examine the learning that goes on within permanent small groups of physicians. We interviewed participants and facilitators about the dynamics of these groups, their learning in conjunction with these groups, and the role the facilitator played to see the extent to which they captured the essence of communities of practice. Methods: Semistructured interviews were conducted with physicians known to be participants or facilitators of small groups that met regularly. A constant comparative method was used for data gathering and analysis leading to coded themes, categories, and subcategories. The coding schemas were tested, the analyses were reviewed, and data were recoded as necessary. To ensure accuracy, interviewees were provided with a preliminary copy of the manuscript to ensure that the interpretation of the data was appropriately handled. Results: Interviews were conducted with 10 facilitators and 22 group members representing 24 different groups of physicians. The groups appeared to function as communities of practice in which the members were supportive of each other's learning and respectful of one another, reporting little conflict. Members preferred to agree to

disagree rather than pursue a "right" answer or consensus. Most of the discussion focused on scientific information and the way in which their colleagues approached common problems. Practice refinement rather than new directions in patient care appeared to be the goal. The facilitators in these groups played a key role in providing administrative support for the group and often the energy needed to sustain them. Discussion: Small groups that meet regularly provide a supportive network to share knowledge and validate clinical experience. There is some evidence that the groups have the potential to become communities of practice but do not actually achieve that level of sharing. Research needs to be done to determine how these groups could become more powerful as communities of practice and vehicles for more substantive learning and change.

Plack, M. M. (2006). "The development of communication skills, interpersonal skills, and a professional identity within a community of practice." Journal of Physical Therapy Education **20**(1): 37-46.
Background and Purpose. The development of professional behaviors, including communication and interpersonal skills, has become an issue of great concern in the physical therapist profession. Yet little has been written about how these behaviors are learned, particularly from the perspectives of students and newly graduated physical therapists (PTs). This study sought to understand how PT students and new PT graduates learn professional communication and interpersonal skills. Subjects: The author interviewed 13 PT students and 6 new graduates. Their most recent clinical instructors (CIs) and clinical supervisors (CSs) were interviewed as well. Three hundred forty-four of their classmates submitted critical incidents for analysis. Finally, 5 additional PT students, 2 additional new graduates, and 5 additional clinicians participated in 2 separate summative focus groups. Methods: One-on-one semistructured interviews were used to explore the experiences of the students and new graduates. Similar questions were asked of their most recent CIs and CSs. Critical incidents were used to obtain the perspective of the participants' classmates. Once data were analyzed, 2 summative focus group interviews were completed to confirm, refute, and/or extend the findings. Qualitative methods were used to analyze the data. Triangulation of methods and subjects, use of "devil's advocates," member checks, and search for negative cases ensured trustworthiness. Results: A model of learning within the community of physical therapist practice has emerged. This model depicts a process of learning that incorporates the following: access to the clinic and all of its challenges; strategies to make personal meaning of the clinical experience; dialogue as a mechanism to negotiate shared meaning; and outcomes, which include identification and assimilation of the values, beliefs, and attitudes of the profession. Discussion and Conclusion: Application of this process of learning will enable students, clinicians, and academicians to design and engage in clinical experiences that optimize learning of communication, interpersonal skills, and the development of a professional identity for both the learner and the clinical community.

Richardson, P. (2004). "Student development in an online post-professional master's program." Occupational Therapy in Health Care **18**(1/2): 107-116.
Students' perceptions of personal and professional development in an online post-professional Master's degree program in occupational therapy were investigated. In-class postings, reflection papers, and e-mail surveys completed by 14 occupational therapists throughout the course of an online Master's program were coded and analyzed. Three themes were identified: the developmental process of post-professional education, the value of the online learning community, and the influence of positive and

negative characteristics of online pedagogy in creating lifelong learners. Results indicated that the students perceived personal and professional growth that enhanced their clinical practice, and that the online learning community supported and enhanced this growth. Online pedagogy was effective in creating a cooperative learning environment that facilitated personal and professional development at the post-graduate level.

Richardson, B. and N. Cooper (2003). "Developing a virtual interdisciplinary research community in higher education." Journal of Interprofessional Care **17**(2): 173-182.
As multidisciplinary collaboration in both clinical and research settings is becoming a key aspect of contemporary health care, strategies to enhance interprofessional interaction in postgraduate research programmes can offer important experiences to facilitate ongoing interprofessional relationships. This paper provides a retrospective appraisal of a strategy which used computer-mediated communication to develop a virtual community network, known as'healthvoice' accessed through a web page. The rationale for developing the network is presented, and the process of designing and establishing the web-site through an action research approach is described The outcome of the strategy is reviewed with regard to the relationships between the real' and 'virtual' community. Reflections on the developmental process contextualise the initiative within a concept of a community-of-practice. It is acknowledged that the use of a virtual arena for communication within a research community involves a cultural change in the dynamics of higher degree teaching and learning. Future plans to further embed the virtual environment within a postgraduate research culture are given.

Robinson, M. and D. Cottrell (2005). "Health professionals in multi-disciplinary and multi-agency teams: changing professional practice." Journal of Interprofessional Care **19**(6): 547-560.
The article draws on an Economic and Social Research Council (ESRC)-funded research project that aimed to investigate the reality behind the rhetoric of "joined up thinking". The research project was a qualitative, multi-method study involving three phases, including observation and documentary analysis; interviews; and focus groups around decision making and knowledge sharing. The article reflects on the perspectives and experiences of health professionals and their colleagues in multi-agency teams about the impact of multi-agency teamwork on their professional knowledge and learning, and on their ways of working. Actual and potential conflicts between professionals are explored about models of understanding, about roles, identities, status and power, about information sharing, and around links with other agencies. Dilemmas of team building and of conflicting values and knowledge are exemplified from health professionals' accounts, using theoretical models of "communities of practice" and "activity theory". The article presents groups of strategies that health professionals and their colleagues in multi-agency, multi-professional teams use to overcome barriers and to strengthen team cohesion. The conclusion reflects on some implications of our findings in theory and practice for professionalism within integrated, multi-professional teams that are building new ways of working.

Rosenbaum, M. E., M. Schwabbauer, C. Kreiter and K. J. Ferguson (2007). "Medical students' perceptions of emerging learning communities at one medical school." Academic Medicine **82**(5): 508-515.
Purpose: In 1999, the University of Iowa Roy J. and Lucille A. Carver College of Medicine (UICCOM) established a student management model consisting of four student-style learning communities (LCs), each comprising one quarter of the students

from each class, with the goal of fostering student connection, excellence, learning, leadership, and service. The authors present results of a prospective evaluation of medical students' perceptions of emerging LCs and their impact on medical student life at UICCOM. Method: A two-page questionnaire, administered in 1999 and again in 2003 to all second-through fourth-year and MD/PhD students, assessed connections among students from different years of study, students' participation in activities, anticipated/perceived benefits of LCs, concerns about LCs, and the impact of LCs on students' perceptions of the learning environment. Questions were open ended or Likert scaled; statistical analyses were descriptive, parametric, and nonparametric. Results: Comparison of results between 1999 and 2003 demonstrated increased connections between students and participation in LC activities, positive perceptions of the overall learning environment, increased access to faculty and staff, and increased involvement in leadership and service activities. Student concerns included continued obstacles to involvement in LCs for third- and fourth-year students. Conclusions: This prospective evaluation demonstrates that LCs can contribute to more positive perceptions of the learning environment and increased interaction between students throughout medical school. LCs seem to increase student leadership development and engagement in the broader community. Further investigation is needed to determine how these potential benefits of LCs can be maximized and made more accessible to all students.

Rosenheck, R. (2001a). "Stages in the implementation of innovative clinical programs in complex organizations." Journal of Nervous & Mental Disease **189**(12): 812-821.
Organizational processes can have an important impact on the introduction of innovative treatments into practice. Conceptual frameworks from organization theory and experiences implementing several hundred specialized mental health programs in the Department of Veterans Affairs (VA) over the past 15 years are used to illustrate stages and processes in the implementation of new treatment models. Four phases in the implementation of new treatments in complex organizational settings are described: a) the decision to implement, b) initial implementation, c) sustained implementation, and d) termination or transformation. Key strategies for moving research into practice include constructing decision-making coalitions, linking new initiatives to legitimate goals and values, quantitative monitoring of implementation and performance, and the development of self-sustaining communities of practice as well as learning organizations. Effective dissemination of new treatment methods requires different organizational strategies at different phases of implementation.

Rosenheck, R. A. (2001b). "Organizational process: a missing link between research and practice." Psychiatric Services **52**(12): 1607-1612.
Organizational process is an underexamined barrier and a potential bridge for the introduction of innovative treatment models into mental health practice. The author describes key operational characteristics of large, complex organizations and strategies that have been used to facilitate implementation of innovative programs in the Department of Veterans Affairs health care system. He argues that complex organizations of the type in which mental health care is increasingly delivered are characterized by multiple competing goals, uncertain technologies, and fluid involvement of key participants. Interventions shown to be effective in controlled studies are often not easily introduced into such organizations, because research is typically conducted in a buffered organizational niche that is shielded from the complex open systems around it. Key strategies for moving research into practice include constructing decision-making coalitions, linking new initiatives to legitimated goals and values, quantitatively monitoring implementation and ongoing performance, and developing self-sustaining

communities of practice as well as learning organizations. The author shows how effective dissemination of new treatment methods requires attention to and effective engagement with organizational processes.

Russell, J., T. Greenhalgh, P. Boynton and M. Rigby (2004). "Soft networks for bridging the gap between research and practice: Illuminative evaluation of CHAIN." British Medical Journal **328**(7449): 1174-1177.
Objectives: To explore the process of knowledge exchange in an informal email network for evidence based health care, to illuminate the value of the service and its critical success factors, and to identify areas for improvement. Design: Illuminative evaluation. Setting: Targeted email and networking service for UK healthcare practitioners and researchers. Participants: 2800 members of a networking service. Main outcome measures: Tracking of email messages, interviews with core staff, and a qualitative analysis of messages, postings from focus groups, and invited and unsolicited feedback to the service. Results: The informal email network helped to bridge the gap between research and practice by serving as a rich source of information, providing access to members' experiences, suggestions, and ideas, facilitating cross boundary collaboration, and enabling participation in networking at a variety of levels. Ad hoc groupings and communities of practice emerged spontaneously as members discovered common areas of interest. Conclusion: This study illuminated how knowledge for evidence based health care can be targeted, personalised, and made meaningful through informal social processes. Critical success factors include a broad based membership from both the research and service communities; a loose and fluid network structure; tight targeting of messages based on members' interests; the presence of a strong network identity and culture of reciprocity; and the opportunity for new members to learn through passive participation.

Ryan, M., N. Ali and K. H. Carlton (2002). "Community of communities: an electronic link to integrating cultural diversity in nursing curriculum." Journal of Professional Nursing **18**(2): 85-92.
The inclusion of principles of diversity in nursing education has yet to reach expected levels of common understanding and value. Integration of human diversity is an expected outcome based on essentials for professional nursing education by the American Association of Colleges of Nursing. This article describes one approach that used electronic networking to integrate cultural diversity content into a graduate nursing curriculum. Regional networking among schools of nursing about cultural diversity resulted in the Community of Communities (COC) web page. The COC is a common electronic network that contains information and case studies based on a cultural assessment model. Modules in on-line courses are linked to a cultural module in the COC. Several applications are described herein. The COC modules were evaluated to determine if participants gained knowledge and insight into another culture. Findings suggested that students perceived that the COC modules increased the awareness culture plays in health care.

Sharma, S., A. F. Smith, J. Rooksby and B. Gerry (2006). "Involving users in the design of a system for sharing lessons from adverse incidents in anaesthesia." Anaesthesia **61**(4): 350-354.
In this qualitative study using observation and interviews, 10 anaesthetists from five Departments of Anaesthesia in the North-West region of England were enlisted to participate in the design of an online system to allow the sharing of critical incidents. Respondents perceived that existing schemes had differing and sometimes conflicting

aims. Reporting was used for reasons other than simply logging incidents in the interests of promoting patient safety. No existing scheme allowed the lessons learned from incidents to be shared between members of the professional group from which they arose. Using participants' suggestions, we designed a simple, secure, anonymous system favouring free-text description, intended to enable the on-line sharing and discussion of selected incidents. Seven incidents were posted during the 6-month pilot period. The practitioners in our study valued the opportunity to share and discuss educational incidents 'horizontally' within their community of practice. We suggest that large-scale reporting systems either incorporate such a function or allow other systems that permit such sharing to co-exist.

Sparacia, G., F. Cannizzaro, D. M. D'Alessandro, M. P. D'Alessandro, G. Caruso and R. Lagalla (2007). "Initial experiences in radiology e-learning.[see comment]." Radiographics **27**(2): 573-81.
The use of two different educator-centric learning management systems (LMSs), Moodle and Manila, for radiology e-learning was formatively evaluated and the implications of the future use of LMSs in radiology education were explored. NeuroRAD, a neuroradiologic digital library and learning community, is implemented with Moodle, one of the most popular open-source educator-centric LMSs. Pediatric-Education.org, a pediatric digital library and learning community, is implemented with Manila, a commercial educator-centric LMS. Quantitative and qualitative analyses of these LMSs were performed with World Wide Web server log file statistical programs and user-submitted comment forms. In 2005, NeuroRAD was used by 9959 visitors, who read 98,495 pages of information, whereas PediatricEducation .org was used by 91,000 visitors, who read 186,000 pages of information. Visitors represented a wide spectrum of medical learners and used the sites to answer clinical questions; to prepare for lectures, conferences, and informal teaching sessions; and to stay up-to-date and prepare for examinations. Early results indicate that radiology learning communities can be implemented with educator-centric LMSs relatively easily and at low cost by radiologists with minimal computer expertise, and can find receptive and appreciative audiences. Online radiology learning communities could play a significant role in providing education to radiologists the world over throughout their careers.

Steinert, Y. and P. J. McLeod (2006). "From novice to informed educator: The Teaching Scholars Program for Educators in the Health Sciences." Academic Medicine **81**(11): 969-974.
The Teaching Scholars Program for Educators in the Health Sciences at McGill University, in Montreal, Quebec, was designed to promote the professional development of health science educators by increasing their expertise in developing and implementing educational programs and taking on leadership roles in education. This program, which was initiated in 1997 and is tailored to the individual needs of the participants, consists of participation in: two university courses; a monthly seminar; a research study or an educational project, consisting of curriculum design and evaluation; and faculty-wide faculty development activities. As of 2006, 34 scholars have completed this program. Outcome data indicate that the majority of teaching scholars have taken on new roles and responsibilities in medical education; maintained the changes implemented in their teaching practices; continued to participate in faculty development activities; and presented their work at educational meetings. A number of scholars have also applied successfully for educationally related grants and have published their educational projects. Five of the scholars have pursued advanced studies.This program, which aims to move beyond the improvement of teaching skills by providing a foundation for

educational leadership and scholarship, resembles many others in its emphasis on independent study, peer support, and the maintenance of ongoing responsibilities. It is innovative in that scholars participate in university courses and are encouraged to attend an 'outside' conference or course. The overall benefits of this program, as noted by the scholars, include increased knowledge and skills, introduction to a 'community of practice,' and new career paths and opportunities.

Thidemann, I. (2005). "The vulnerable learning arena -- implications of community of practice for learning and competence development in nursing." Nordic Journal of Nursing Research & Clinical Studies **25**(1): 10-15.
The article presents and discusses results from two follow up studies of nurses during the first five years after qualifying. The purpose has been to attain knowledge relating to factors that have a significance for the nurses regarding competence development and how learning occurs among nurses in the post educational period and factors that inhibit such development of competence. In this study both quantitative and qualitative methods have been used. The study shows that learning and competence development during this period are tied to ongoing activities and practices in the community of practice and experienced colleagues play an important part through their interactions. Factors that inhibit such interactions and development of competence are related to findings which are associated to power relations expressed through knowledge, authority and abstractions of practice, and through possibility which is connected to resources and prioritizing. The study indicates how power relations both within the local community of practice and with other communities of practice influence the nurse's daily activities.

Tilley, D. S., C. Boswell and S. Cannon (2006). "Developing and establishing online student learning communities." CIN: Computers, Informatics, Nursing **24**(3): 144-151.
Developing effective learning communities is an important component of Web-based courses. Learning communities offer a social context for learning that greatly enhances the knowledge acquisition of all involved parties. This article describes the development of an effective learning community among Web-based RN-BSN students. The characteristics of the cohort leading to an effective learning community included supportiveness, open sharing of oneself, and socialization.

Tolson, D., S. Irene, J. Booth, T. B. Kelly and L. James (2006). "Constructing a new approach to developing evidence-based practice with nurses and older people." Worldviews on Evidence-Based Nursing **3**(2): 62-72.
Purpose: Providing evidence-based nursing care to older people is central to the international development agenda. This paper is a report on the first 5 years (2000-2005) of a participatory research project, the purpose of which was to collaborate with practitioners and older people to develop approaches to promote the attainment of evidence-based nursing care across Scotland. Design: Many theoretical influences shaped the design of this action research study including realistic evaluation, participatory social learning theory, and descriptions of communities of practice. Multiple methods of data collection were used during four action cycles. The inaugural community of practice comprised 30 nurses, a second group of 30 nurses joined midway, followed by a third group of 15 nurses, and finally, an older person-carer community of 21 members was established. Findings: Project outputs included the construction of an internet-based, practice-development college. A procedural model for developing and demonstrating care guidance drawn from a diversity of evidence and reflective of an agreed set of principles was piloted and endorsed by the national standard setting agency. A preliminary version of a promising approach to practice

development, "the Caledonian Model," was delineated for future testing and refinement. Conclusion: This work indicates the merits of using participatory research to find solutions to the challenge of promoting evidence-based practice. Evaluation data suggest that in combination, the approaches developed in this project empower nurses to work with older people to champion developments even in seemingly unfavorable conditions.

Tolson, D., M. McAloon, R. Hotchkiss and I. Schofield (2005). "Progressing evidence-based practice: an effective nursing model?" Journal of Advanced Nursing **50**(2): 124-133.
Aims: This paper presents findings from telephone interviews completed with link nurses 2 years into the project to explore how participation progressed achievement of evidence-based practice where the link nurses worked. Background: In 2001, an innovative practice development initiative was launched in Scotland. A national network of experienced nurses from across the country was recruited to form the inaugural Community of Practice. This involved describing gerontological nursing, pioneering a nurse-sensitive methodology to craft care guidance that reflects the agreed practice model, and constructing a virtual college based on a situated learning model. Methods: A volunteer sample of link nurses took part in telephone interviews exploring experiences of using the virtual college and the extent to which the description of gerontological nursing and the first best practice statement on nutrition had influenced practice. Findings: Five components (themes) were identified as facilitating the attainment of evidence-based practice. These focussed on confidence-building and the positive benefits of achieving vision and clarity for gerontological nursing. Membership of a national Community of Practice afforded status and strengthened sense of professional identity. The inclusive knowledge synthesis methodology used to prepare, pilot and support implementation of the best practice statement was highly valued. Progress towards evidence-based practice in all affiliated areas was reported. Major challenges for nurses in participating in the virtual college included the absence of a learning-at-work culture, lack of time and doubts about the legitimacy of internet-based learning. Conclusion: The evaluation indicates the potential merits of e-practice development, particularly for nurses who feel geographically and professionally isolated or disenchanted with available continuing professional development opportunities. Participation in the virtual college appeared to enrich practice and foster a culture of change.

Vanhanen, L., O. Makitalo and A. Pietila (1998). "Students' perceptions about the process of learning to nurse: a pilot study of a polytechnic nursing programme." European Nurse **3**(4): 274-285.
The aim of this study is to describe the perceptions of student nurses of the process of learning to nurse at the beginning of a nursing programme in a polytechnic. The theoretical background of the study lies in the process of expansive learning and a multiprofessional approach in a nursing curriculum. The material was collected from students of nursing during the first term of their polytechnic studies, using a questionnaire with both open-ended and structured questions. The data were processed qualitatively and quantitatively. According to the students' responses, the most important reasons for choosing a nursing education were the nature of nurses' work and their willingness to help. Almost every student had experience of working life before they began to study nursing. The most important theoretical studies in learning to nurse were seen as the behavioural sciences and medicine. The most important way to succeed in learning to nurse was the students' own actions. The students did not regard the learning

community and collaboration as important resources for learning; rather they emphasized professional competence and their own personal growth as the most important goals in nursing education. The results challenge nurse educators to develop teaching and learning methods which support students' personal growth and promote collaborative learning during education.

Velde, B. and C. Lust (2004). "Using a learning community to enhance course integration in a school of allied health." Journal of Allied Health **33**(1): 55-61.
The occupational therapy department at East Carolina University conducted a case study of an intact learning community to assess its potential to enhance the integration of course content. This learning community of students and faculty offers a method of supplementing curricula. The learning community consisted of seven students and two faculty members. Analysis of individual interviews, focus group discussion, and self-administered self-efficacy assessments indicated that students perceived the learning community as enhancing their ability to integrate course material from pediatrics and research occupational therapy courses. Recommendations for implementation in other settings are offered.

Wild, E. L., P. A. Richmond, L. de Merode and J. D. Smith (2004). "All Kids Count Connections: a community of practice on integrating child health information systems." Journal of Public Health Management & Practice **Suppl**: S61-5.
Integrated child health information systems consolidate data about multiple health care services a child receives into information useful to families, private health care providers, public health officials, and others. The challenges to successful integration faced by public health agencies are similar, yet system integration projects have historically struggled in isolation to overcome these barriers. All Kids Count created a community of practice called Connections to bring together 11 state and local public health agencies engaged in child health information system integration projects to learn from each other, capture best practices, and collaboratively address challenges. As demonstrated by All Kids Count Connections, communities of practice can be employed by geographically distributed public health agencies to address complex issues.

Yeoman, A., C. Urquhart and S. Sharp (2003). "Moving communities of practice forward: the challenge for the National electronic Library for Health and its virtual branch libraries." Health Informatics Journal **9**(4): 241-251.
The aim of this evaluation was to examine how specialist portals within the UK's National electronic Library for Health were developing as communities of practice to support continuing professional development. Objectives included a literature review, to inform the development of an appraisal framework for the individual portals, and interviews with portal development teams and stakeholder groups. Appraisals of the websites and the data from the interviews showed that most of the specialist portals had evolved beyond the initial stages of community of practice development. Further planning of outsourcing would require a balance between maintaining a recognizable identity for the portals and not stifling the creativity of the development team.

9. Appendices

Appendix 1: Health CoP literature ranked list of concepts

Concept	Absolute Count	Relative Count	Concept	Absolute Count	Relative Count
practice	993	100%	information	127	12.7%
community	883	88.9%	services	123	12.3%
health	634	63.8%	nurse	123	12.3%
care	391	39.3%	role	123	12.3%
nursing	346	34.8%	practitioners	119	11.9%
study	316	31.8%	analysis	119	11.9%
research	255	25.6%	group	110	11%
nurses	237	23.8%	approach	110	11%
communities	228	22.9%	management	100	10%
development	210	21.1%	change	99	9.9%
knowledge	187	18.8%	years	98	9.8%
social	174	17.5%	identified	95	9.5%
students	164	16.5%	public	92	9.2%
work	157	15.8%	medical	89	8.9%
support	152	15.3%	based	89	8.9%
education	151	15.2%	system	87	8.7%
learning	148	14.9%	program	86	8.6%
community-based	143	14.4%	patient	83	8.3%
paper	141	14.1%	time	79	7.9%
clinical	141	14.1%	women	76	7.6%
professional	138	13.8%	therapy	74	7.4%
data	137	13.7%	evidence	74	7.4%
process	132	13.2%	including	74	7.4%
model	131	13.1%	survey	71	7.1%
patients	131	13.1%	children	66	6.6%
groups	129	12.9%	treatment	57	5.7%

Appendix 2: Health CoP research literature ranked list of concepts

Concept	Absolute Count	Relative Count	Concept	Absolute Count	Relative Count
community	587	100%	program	64	10.9%
practice	562	95.7%	time	63	10.7%
health	452	77%	patient	62	10.5%
study	317	54%	project	62	10.5%
care	262	44.6%	practices	62	10.5%
research	259	44.1%	management	61	10.3%
nursing	226	38.5%	issues	61	10.3%
nurses	177	30.1%	strategies	60	10.2%
development	153	26%	design	59	10%
communities	147	25%	public	58	9.8%
knowledge	135	22.9%	age	57	9.7%
social	130	22.1%	action	57	9.7%
data	128	21.8%	level	56	9.5%
support	125	21.2%	people	56	9.5%
groups	116	19.7%	programs	55	9.3%
professional	110	18.7%	participants	55	9.3%
work	108	18.3%	therapy	54	9.1%
students	104	17.7%	participation	54	9.1%
learning	104	17.7%	system	54	9.1%
analysis	103	17.5%	assessment	54	9.1%
clinical	102	17.3%	case	53	9%
process	101	17.2%	developed	53	9%
patients	98	16.6%	including	53	9%
education	97	16.5%	children	52	8.8%
information	94	16%	critical	52	8.8%
group	94	16%	problems	52	8.8%
nurse	93	15.8%	sample	52	8.8%
model	92	15.6%	included	51	8.6%
paper	90	15.3%	areas	51	8.6%
findings	89	15.1%	mental	51	8.6%
results	86	14.6%	experiences	50	8.5%

Concept	Absolute Count	Relative Count	Concept	Absolute Count	Relative Count
identified	85	14.4%	individual	50	8.5%
approach	80	13.6%	treatment	50	8.5%
interviews	78	13.2%	assess	50	8.5%
years	77	13.1%	skills	49	8.3%
purpose	77	13.1%	promotion	49	8.3%
role	77	13.1%	literature	49	8.3%
community-based	76	12.9%	interventions	49	8.3%
services	76	12.9%	resources	49	8.3%
significant	75	12.7%	methods	48	8.1%
important	74	12.6%	medical	47	8%
women	73	12.4%	outcomes	47	8%
practitioners	71	12%	settings	46	7.8%
evidence	71	12%	effective	46	7.8%
based	67	11.4%	intervention	45	7.6%
experience	67	11.4%	personal	44	7.4%
survey	66	11.2%	professionals	42	7.1%
change	66	11.2%	members	42	7.1%
primary	65	11%	response	37	6.3%
article	65	11%	cancer	31	5.2%

Appendix 3: CoP associated health literature ranked list of concepts

Concept	Absolute count	Relative count	Concept	Absolute count	Relative count
community	327	100%	resources	41	12.5%
learning	297	90.8%	environment	40	12.2%
health	201	61.4%	curriculum	40	12.2%
students	181	55.3%	time	40	12.2%
education	157	48%	current	39	11.9%
communities	137	41.8%	models	38	11.6%
care	133	40.6%	group	38	11.6%
development	113	34.5%	communication	38	11.6%
study	102	31.1%	method	37	11.3%
practice	102	31.1%	teachers	36	11%
nursing	100	30.5%	methods	36	11%
process	92	28.1%	nurse	35	10.7%
interest	88	26.9%	patients	35	10.7%
research	86	26.2%	educators	34	10.3%
practitioners	84	25.6%	activities	34	10.3%
clinical	83	25.3%	content	34	10.3%
medical	76	23.2%	significant	34	10.3%
educational	76	23.2%	design	33	10%
support	76	23.2%	experiences	32	9.7%
information	75	22.9%	local	32	9.7%
approach	72	22%	individual	32	9.7%
data	67	20.4%	collaborative	32	9.7%
model	67	20.4%	evidence	32	9.7%
groups	66	20.1%	nurses	31	9.4%
results	64	19.5%	survey	31	9.4%
analysis	62	18.9%	future	31	9.4%
based	61	18.6%	related	31	9.4%
knowledge	61	18.6%	practices	30	9.1%
public	60	18.3%	perspective	30	9.1%
teaching	59	18%	themes	29	8.8%
programs	59	18%	including	29	8.8%
student	59	18%	network	29	8.8%

Concept	Absolute count	Relative count	Concept	Absolute count	Relative count
developed	58	17.7%	issues	29	8.8%
professional	57	17.4%	context	28	8.5%
faculty	57	17.4%	identified	28	8.5%
system	57	17.4%	technology	28	8.5%
services	56	17.1%	included	28	8.5%
program	56	17.1%	promotion	28	8.5%
develop	55	16.8%	systems	28	8.5%
work	55	16.8%	participation	28	8.5%
role	54	16.5%	delivery	28	8.5%
experience	52	15.9%	critical	27	8.2%
years	51	15.5%	existing	26	7.9%
quality	50	15.2%	structure	26	7.9%
school	49	14.9%	effects	26	7.9%
paper	49	14.9%	family	26	7.9%
change	49	14.9%	high	25	7.6%
important	49	14.9%	distance	25	7.6%
strategies	49	14.9%	sources	25	7.6%
article	47	14.3%	patient	24	7.3%
training	46	14%	understanding	24	7.3%
provide	46	14%	concerns	24	7.3%
potential	45	13.7%	networks	23	7%
evaluation	45	13.7%	importance	22	6.7%
members	45	13.7%	standards	22	6.7%
focus	44	13.4%	present	22	6.7%
primary	44	13.4%	factors	21	6.4%
effective	43	13.1%	common	21	6.4%
should	42	12.8%	control	20	6.1%
social	42	12.8%	dental	15	4.5%

Appendix 4: Table of reviewed empirical research articles

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
1. Adams et al. (2005)	United Kingdom	To understand the impact of the development of an IT application; the purpose which was to increase privacy and security of client information.	Hospital	Health service managers and administration staff Library staff Technical staff Nurses Doctors Consultants	Ethnographic study, using grounded theory methods Interviews Focus groups 20 participants	An evolutionary process of development of an IT application engaged users into a CoP and ownership, use and quality of the product. In addition, the application became a new communication medium across the organisation.
2. Aherne and Pereira (2005)	Canada	To examine an action research project which aimed to support continuing professional development and knowledge management in primary health care environments.	Hospice Palliative Services	Rural health care practitioners	Descriptive study	To enhance patient care understanding where and how learning takes place is required. Social scientists can make a significant contribution in this regard. Linking professionals across organisational boundaries is required to achieve change in complex organisations.
3. Ainscow et al. (2003)	England	To understand what "inclusive practices" to improve education involves.	Special needs education	Educators/ teachers	A collaborative action research network	Inclusive practices involve collaborative working arrangements, the increased use of evidence to challenge thinking and space/time to reflect upon issues, that is, a CoP.

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
4.	Artaraz (2006)	United Kingdom	To explore the impact of a policy transition on professional identities.	Social welfare services	Careers Education and Guidance Professionals	Case study	Externally imposed context and service discourses disrupt CoPs.
5.	Avery et al. (2003)	United States	To chronicle the transition of an educational course from face-to-face to web based.	University	Mid-wives Women's health nurse practitioners	Descriptive study	For a web-based course to be successful support for staff and students, development of a leaning community and listening/ partnering with participants is required.
6.	Aydin (1989)	United States	To explore the effects of computerised medical information systems on health care professionals.	Hospital	Nurses Pharmacists	Descriptive study Interviews	The information system created interdependence between the two professions, and better working relationships, including communication and cooperation, between the departments.
7.	Babenko-Mould, Andrusyszyn and Goldenberg (2004)	Canada	To examine the influence of computer conferencing on nursing students self-efficacy for professional competencies and computer mediated learning (CML).	University	Nurses	A pre-test, quasi-experimental control group design Convenience sample of 42; control group 27, intervention 15.	Both groups improved over time. No significant difference between the groups noted. CML strengths included connection, learning, support and sharing. The challenges are time and access.
8.	Banister and Begoray (2006)	Canada	To illustrate the impact of a mentorship program that used a CoP.	Community Health	Community health nurses	Ethnographic research Focus groups	The mentoring program and CoP empowered the client group to be border crosses and join the wider

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
					Observations 40 participants	community. Participants had increased sense of belonging with one another and social cohesion.
9. Bartunek et al. (2003)	United States	To understand academic-practitioner knowledge-sharing in the service of enhanced knowledge creation in health care.	Health services (different sites)	Health professionals	Descriptive study	Collaboration can be improved by the recognition of explicit and tacit knowledge and the CoP that they reside in. The benefits of collaboration are: improved quality of research; increased social capital for the research partners; translation of research skills into practitioner settings; and, the addressing of issues of concern to practitioners. To increase the likelihood of collaboration attention should be paid to: the different CoP memberships and the dynamics associated with them; acknowledging and dealing with differences; and, developing a positive trusting working relationships, including dialogue about issues and findings.
10. Biayka (2006)	Norway	To understand learning process of health (nursing) students.	Hospital	Nurses; midwives	Case study Interviews	Learning the practice of midwifery was through: being accepted into the

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
						Observations	setting, supportive dialogue with a mentor and opportunity to observe and act with others.
11.	Black and Plowright (2007)	United Kingdom	To examine how reflective learning contributes to professional practice.	University	Pharmacists	Exploratory research using inductive grounded theory; Focus groups Interviews 26 participants	Structured reflective activities made explicit learning process for participants. Reflection was seen as being of benefit to professional development, patient care and interactions with other professionals.
12.	Bleakey (2002)	United Kingdom	To understand how junior medical staff learn, especially through socialisation into the profession.	Hospital	Doctors	Descriptive study	Learning is an active not a passive process. Knowledge is held across groups/ wards. Socialisation into the profession is an important element of learning. The focus should shift from individuals to the CoP and how knowledge is constructed communally.
13.	Booth (2004)	United Kingdom	To understand the impact of the user context, or CoP, has in evaluating information.	Medical libraries	Health professionals	Descriptive study	Taking into account the CoP will improve service delivery of electronic information to clinicians.
14.	Booth, Sutton and Falzon (2003)	United Kingdom	To describe an action-learning set and how it contributed to improvements in project management.	Medical libraries	Health professionals	Descriptive study	Action learning is a means of addressing shared learning needs within a CoP. Knowledge

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
						management involves exploiting shared learning across projects.
15. Booth, et al. (2007)	Scotland	To explore the development of a low cost collaborative methodology (action research) for constructing evidence-based care standards.	Hospitals Nursing homes Gerontology	Nurses	Descriptive study Focus groups Interviews Document analysis 30 participants	The methodology blended evidence from literature and practice, and was credible to the clinicians. Also, the methodology promoted inclusion of the users in the activity. The standards are deemed credible and achievable by practitioners.
16. Brennan et al. (2006)	United States	To examine a pilot program which developed web-based learning centres for a post-graduate program.	University	Social work	Descriptive study	Technology can provide an additional forum for learning and also be a strategy by which learning is integrated and students are supported.
17. Brooks and Scott (2006a)	United Kingdom	To examine if midwives would function as "knowledge workers" if given an IT system that enabled and promoted communication amongst peers.	Hospitals	Nurses Midwives	Case study, organisational research 15 in-depth interviews	When given a simple facilitative IT system, support and leadership, midwives functioned as knowledge workers. They critically reflected upon their practice, and translated knowledge into action to achieve change in practice. A supportive collaborative CoP was enacted.
18. Brooks and Scott (2006b)	United Kingdom	To examine the knowledge work practices of nursing staff.	Hospitals	Nurses Midwives	Descriptive study	The more senior professionals (midwives) engaged in knowledge

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
					Document analysis	work with less senior professionals (nurses) undertaking information work. Technology can support knowledge work and convey tacit knowledge effectively.
19. Bryant and Ringrose (2005)	United Kingdom	To describe the activity and results of an e-learning program providing continuing professional development.	General practitioners	Doctors	Descriptive study Informal survey 2856 participants	E-learning contributes 70% of CPD for GPs. The activity showed learning improvements and high satisfaction scores.
20. Burton and Anderson (2002)	International study	To describe how an internet-based postgraduate study program has promoted collaboration and networking amongst professionals.	University	Pharmacists	Descriptive study On-line surveys Content analysis of discussion groups	The program demonstrated a high level of interaction amongst the community members. The professionals' perceived interaction contributed to their learning experience, professional and impacted positively on their practice.
21. Chin (2003)	United Kingdom United States	To understand practice development as a framework that facilitates CoP and learning.	Community services Acute services	Health professionals	Descriptive study	The framework provides evidence-based innovative ways of working, and enables the meeting of client needs and working across boundaries. Practice has changed with new leadership roles, rewriting rules and including clients in decisions which promotes accountability of clinicians.

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
22.	Clarke et al. (2005)	England	To examine how a healthcare organisation approached developing e-learning capability to enhance learning opportunities for their workforce.	Health services	Health professionals	Case study Observations Survey	Blended learning strategies (personal and virtual interactions) are most successful. Time must be made available and protected for e-learning.
23.	Cope, Cuthberston and Stoddart (2000)	Scotland	To understand the ways in which students learnt in their practice placements.	University	Nurses	Descriptive study Interviews	Situated learning occurs within placement involving a complex social and cognitive experience. The display of competence is necessary for acceptance into the CoP.
24.	Cumbie and Wolverton (2004)	United States	To describe a teaching model (for an online theory course) for post-graduate students and detail students responses to the model.	University	Nurses	Descriptive study	The model promotes students' positive connection to the community of nursing and the nursing body of knowledge.
25.	Davenport and Peitsch (2005)	United States	To explore how knowledge management activities apply to the drug process.	Industry	Pharmaceutical firms	Descriptive study	Knowledge management (social networks, CoP, roles of managers, behaviours and processes of staff, management strategies and tactics, and the role of the external work environment) is a key success factor in the drug discovery process.
26.	Davis (2006)		To examine processes which help or hinder identity development of students.	University	Occupational therapy	Multiple case design, using cross case analysis	Students can be excluded from or drawn into a CoP, promoting or inhibiting identity development.

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
					Five in-depth interviews	Important factors are professional relationships, supervision types and responsibility for identity development.
27. Dewhurst, Shaw and Wood (2006)	United Kingdom	To understand the training experience of students and their supervisors.	Hospital	Doctors	Descriptive study	Learning needs to be embedded within a learning community.
28. Dopson and Fitzgerald (2006)		To examine the role of the middle manager in the implementation of evidence-based medicine.	Hospital	Health professionals	Descriptive study	Professional groups work together in CoP which are frequently uniprofessional. The boundaries between CoP affect practice (motivation for seeking improvements, and the way evidence and knowledge is interpreted). To improve health care two things are required: better understanding of the interactions between professional CoPs and the need to design diffusion strategies.
29. Farrell, Douglas and Sitlanen (2003)	United States	To explore the professional body "community of interest" and future plans.	Professional body	Nurses	Appreciative inquiry Interviews Focus groups Content analysis of data	The community shared values, which held it together; however, plans for the future were contested.
30. Gabby and le	England	To understand how primary	General	Doctors (general	Ethnographic	Clinicians did not access

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
	May (2004)		care clinicians make individual and collective decisions.	practices	practitioners) and practice nurses	study Non-participant observation Semi-structured interviews Document review	explicit evidence from research or other sources but used mind-lines, collectively reinforced internalised tacit guidelines, within a CoP. Mind-lines are experienced-based guidelines drawn from their own and colleagues practice.
31.	Gabby et al. (2003)	England	To examine how health professionals processed and applied knowledge.	Primary Care Groups	Health professionals Consumers	Case study Observations Interviews Document analysis	Certain knowledge becomes accepted, privileged and internalised; the organisation of groups shapes how knowledge is shared; relationships, agendas and roles effect collective sense making.
32.	Gagliardi et al. (2004)	Canada	To describe the development of integrated cancer services.	Cancer services	Healthcare executives Clinicians Researchers	Descriptive study	Working together the participants developed a united program involving clinical services, research and practice support networks, including regional CoP.
33.	Gagliardi et al. (2003)	Canada	To evaluate a pilot program which was examining how video conferencing technology could involve dispersed practitioners to develop a CoP.	Cancer services	Doctors	Descriptive study	The pilot was successful in drawing clinicians together in case discussions. Participants were engaged, reflected on their practice and said their practice would change as a result of their learning.

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
34.	Galimberti et al. (2004)	Italy	To understand how technology can be used in professional learning in psychotherapy.	Health services	Psychiatrists Psychologists	Descriptive study	The technology influenced learning, shaping the shared meaning that occurs.
35.	Gallagher, Hawley and Yeomans (2004)	Canada	To understand the knowledge of professionals and their practice in relation to the regulation of opioids.	Cancer services	Doctors	Descriptive study Survey 4618 participants	Experience, discipline, number of patients treated and networks shaped clinical knowledge.
36.	Goldie et al. (2007)	Scotland	To investigate the delivery of professionalism in a medical course.	University	Doctors	Descriptive study Semi-structured interviews Focus groups Between-method triangulation Students and tutors participated	Professionalism increased through involvement in teaching, critical reflection and role models. Early patient experiences shaped attitudes and identity as well.
37.	Goodwin et al. (2005)	England	To describe how work and knowledge are related in professional practice.	Anaesthesia practice	Doctors	Ethnographic data	The organisation of practice is shaped by an individual's ability to initiate action, which in turn is linked to how they learn and participate in work.
38.	Greenfield (2004)	Australia	To examine how a nursing team collectively developed	Community Health	Nurses	Ethnographic study	The learning and practice of nursing became a

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
		their learning practice and in doing so became a community of practice.			Interviews Observations	collaborative collective endeavour. The complexity of practice meant individuals needed their community to learn, support and develop their knowing. A CoP formed and grew through the collective interactions.
39. Hayward et al. (2006)	United States	To examine strategies that teach and reward student development of professional core values critical to effective patient-provider relationships	University	Physical therapy	Observations Interviews Document analysis	The use of a standardised patient, a CoP and feedback to participants promoted the development of values important to the professionals to provide effective to patient-provider relationships.
40. Kelly et al. (2005)	Scotland	To develop a practitioner-led description of gerontological nursing and articulate the principles which underpin its practice.	Aged care Health services University	Nursing	Descriptive study Interviews Document analysis	Forming a CoP the participants developed principles for their practice: a shared and explicit philosophy of care, which values gerontological care; a partnership approach that promotes inter-disciplinary practice; and person-centred care.
41. Kernick (2005)	United Kingdom	To explore the interaction of clinical and academic cultures and why evidence based practice has not been utilised effectively in health services.	University-heath service culture boundaries	Clinicians Researchers	Descriptive study	Different cultures have distinct boundaries that exclude participation in the other CoP.
42. Kok (2006)	United States	To examine how learning and	Health service	Librarians	Ethnography	Participants valued the

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
			practice occurred using information technology.		Social workers Healthcare administrators	Participant observation Interviews Survey	non-technical aspects over technical knowledge required to use the IT system. A range of involvement in the CoP identified; roles were from enabling to instructing.
43.	Korhonen and Kaunonen (2004)	Finland	To understand the experiences of students in a learning community.	University	Nurses	Descriptive study Document analysis	Individual learning within a learning community is shaped by motivation, communication and the supportive nature of the community itself.
44.	Lathlean and le May (2002)	United Kingdom	To document the challenges and opportunities of interagency working, involving multi-professional CoPs.	Primary care Hospital outpatient services (dermatology and ENT)	Health professionals	Descriptive study	The challenges are: the nature of leadership in a CoP; creating and maintaining a shared purpose and vision; the ability of the CoP to be flexible; and, valuing and using knowledge by the CoP and other professionals. The opportunities offered by a CoP are to develop services, particularly across agencies, and to develop an evidence base for practice.
45.	Lingard et al. (2003)	Canada	To explore the case presentation genre as a site of socialisation into the clinical CoP.	Hospital (paediatric service)	Doctors	Descriptive study Observations Interviews	Student and work genres may be at cross purposes; students value non-interruptions whereas workplaces are highly interactional. Becoming a

Author (year)		Country	Purpose	Practice setting	Professionals involved	Method	Outcome
							professional is learning how to acquire the interactional form of talk.
46.	Manogue and Brown (2007)	United Kingdom	To detail and learn from the design process for a new curriculum.	University	Dentists	Descriptive study	The design process needs to be open and democratic and linked to organisational development. The innovation process is impacted upon by concepts such as CoP, culture and learning organisation.
47.	Mariage, Paxton-Buursma and Bouck (2004)	United States	To explore how educational social justice is realised or suppressed.	University	Disability Educators	Descriptive study	Educational social justice can only be met by systematic coherence across intuitional and developmental levels.
48.	Mash et al. (2005)	South Africa	To examine how new collaborative electronic technologies have been married with new pedagogical ideas to create effective learning for distant education students.	University	Doctors	Case study Data comprised 42 conversations Data examined by modified exchange structure analysis	Different technologies are more successful than others in creating a constructivist and active learning community; WebCT assessed as superior to interactive TV.
49.	McAllister and Moyle (2006)	Australia	To explore what educational solutions could help support and nurture clinical educators.	University	Nurses	Descriptive study Snowball sampling	A learning community is considered to provide support and build capacity for clinical nursing educators. A self-reliant

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
					Semi-structured interviews 10 participants	and sustainable community is the outcome.
50. McDonald and Viehbeck (2007)	United States Canada	To describe an approach for enhancing exchange between researchers and practitioners.	Community Health (health promotions)	Public health/ health promotion	Descriptive study	Using a CoP enabled mutual exchange (of resources, ideas and technical standards) and promoted trust, reciprocity and cohesion.
51. Miller et al. (2004)	United States	To present a model for academic-nurse practice.	University	Nurses	Descriptive study	A mixture of research, education and practice expanded the academic role and enabled communities of interest to thrive. Furthermore the professional nursing role expanded through innovative care model testing and development.
52. Mold and Peterson (2005)	United States	To document the role of primary care practice based research networks (PBRN).	Primary Care	Primary care clinicians (doctors and nurses)	Case studies Document analysis Interviews	PBRN are participative learning communities which resolve clinical problems and improve systems.
53. Moule (2006)	England	To examine whether healthcare students were able to develop characteristics of CoP when engaged in an online module.	University	Healthcare	Case study Questionnaire Document analysis Interviews	CoP did develop, although they differed in their success. Establishing trust, interaction and identity is a challenge in a virtual environment.

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
54.	Noe et al. (2007)	United States	To inquire as to whether community-based participatory research (CBPR) principles influence participation in research.	University	Health students	Descriptive study Survey (using vignettes) 1066 participants	Used appropriately CBPR can be successful with indigenous communities as they involve participants as partners in all phases of the research process.
55.	Parboosingh (2002)	Canada	To describe a program of research that is examining the effectiveness of information and communication technologies to support and enhance learning in practice.	Professional association	Doctors	Descriptive study	Promoting CoP enhances learning in practice and supports clinicians in their work. Techniques to promote participation include peer interaction, brainstorming, sharing and validating information, join decision making, and constructing care protocols.
56.	Pearson, Aldridge and Winkel (2006)	United States	To examine the influence of a CoP on ethical decision making.	Industry	Pharmacists	Descriptive study Survey, 116 participants Interviews, 52 participants	A CoP shapes how professionals behave but can be overlooked in research particularly by survey questionnaires. When conducting quality assurance attention to CoP is necessary to avoid obstacles.
57.	Penn et al. (2006)	Australia	To describe a participatory action research project that developed a CoP.	Community Health	Mental Health professionals	Descriptive study	The online technologies utilised built a sense of community, trust and shared values. Importantly the development process was participative and face-

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
						to-face.
58. Pereles, Lockyer and Fidler (2002)	Canada	To examine the learning that occurs in permanent small groups of physicians.	Hospital	Doctors	Descriptive study Semi-structured interviews, 32 participants Constant comparative method for data analysis	The groups have the potential but did not become CoPs. They were supportive and help validate clinical experience but stopped short of being more substantive mechanisms for learning and change. A facilitator was important in keeping the groups meeting.
59. Plack (2006)	United States	To understand how students and new graduates learn professional communication and interpersonal skills.	University Clinical settings	Physical Therapists	Descriptive study Interview, 19 participants Focus groups, 2 Document analysis (344 critical incidents)	A model of learning within a CoP was identified. The model involves participation in the clinical setting, dialogue as a meaning making strategy, and aligning with the values, beliefs and attitudes of professional colleagues.
60. Richardson (2004)	United States	To investigate perceptions of personal and professional development of post-graduate students.	University	Occupational Therapists	Descriptive study Document analysis Survey 14 participants	An on-line collaborative learning community supported personal and professional growth and enhanced clinical practice.
61. Richardson and Cooper (2003)	United Kingdom	To examine a strategy that developed a virtual community network based on computer-	University	Health professionals	Descriptive study	Within the CoP relationships developed that were both real and

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
			mediated communication.				virtual; these changed the culture of the research community, the teaching and learning that occured.
62.	Robinson and Cottell (2005)	United Kingdom	To reflect on the learning and working of professionals in multi-agency teams.	Health Services (five different services)	Health professionals	Descriptive study Document analysis Interviews Focus groups	Interprofessional working is a challenge as boundaries blur and identities merge and change. Dealing with potential and real conflict is necessary. Conflict is about roles, identities, status, power, information sharing and external links.
63.	Rosenbaum et al. (2007)	United States	To understand the impact of learning communities on students' experience.	University	Doctors	Case study Survey	The learning communities have a positive impact on interactions between students (increasing interactions and leadership development) and their learning experience, both within the university and broader community.
64.	Rosenheck (2001a)	United States	To describe strategies for implementing research findings into practice.	Veterans Affairs	Mental Health	Descriptive study	Key strategies for moving research into practice include constructing decision-making coalitions; linking new initiatives to legitimate goals and values; quantitative monitoring of implementation and performance; and the development of self-sustaining communities of

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
						practice as well as learning organisations.
65. Rosenheck (2001b)	United States	To explore the organisational characteristics and strategies that have been used to implement programs in large, complex organisations.	Veteran Affairs	Mental Health	Descriptive study	Effective engagement with organisational processes improves the dissemination of new treatment methods. Effective strategies include: construct decision-making coalitions; link new initiatives to existing goals and values; monitor performance quantitatively; and develop self-sustaining CoP and learning organisations.
66. Russell et al. (2004)	United Kingdom	To understand the process of knowledge exchange and factors that promote its success. The focus is an informal email network for evidence based health care.	Health services	Healthcare professionals	Descriptive study Document analysis Interviews	The network enabled exchange of information, experience, ideas and participation between members. As common interests emerged CoP formed and cross boundary collaboration took place. Social processes facilitated information exchange. Success factors were: broad membership; a fluid network structure; a focusing messages based on the interest of members; a culture of reciprocity; and new members learning through observation.

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
67.	Ryan, Ali and Carlton (2002)	United States	To detail the use of electronic networking to integrate cultural diversity into a post-graduate curriculum.	University	Nurses	Descriptive study Document analysis	Regional schools were linked into a virtual "Community of Communities" (CoC). The CoC displayed information and case studies and schools linked courses to the information. The links improved the awareness of students about the role of culture in health care.
68.	Sharma et al. (2006)	England	To design an online system to allow the sharing of critical incidents.	Hospitals; regional network	Doctors	Descriptive study Observation Interviews 10 participants	Having the ability to share and discuss incidents with peers in a CoP was valued highly by clinicians.
69.	Sparacia et al. (2007)	Philippines	To evaluate two e-learning systems.	Radiology	Doctors	Descriptive study Semi-structured survey	E-learning systems were used to construct learning communities that were supportive and effective at sharing information. Such systems overcome the problem of geographically distributed professionals.
70.	Steinert and McLeod (2006)	Canada	To consider the impact of a teaching scholars program for health educators. The program was designed to promote professional development.	University	Doctors	Descriptive study	The program increased participants' knowledge and skills, and introduced them to a CoP and new career paths and opportunities.
71.	Strack et al.	Canada	To examine how to translate	Health services	Doctors	Descriptive	CoP provided an effective

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
	(2005)		research into practice using CoP as networks linking clinicians.			study	strategy by which to link distributed clinicians, circulate information effectively and improve care.
72.	Thidemann (2005)		To determine what factors enable or inhibit competence development of professionals in the first five years following graduation.	Health service	Nurses	Descriptive study	Professional competence development is through participation in a CoP. Power relations inhibit competence development. The characteristics of power relations are access to knowledge and abstraction of practice, the use of authority and the act of participating (using resources and prioritising).
73.	Tilley, Boswell and Cannon (2006)	United States	To understand what characteristics promote learning communities.	University	Nurses	Descriptive study	The characteristics that promote learning communities include supportiveness, open sharing of oneself and socialisation.
74.	Tolson et al. (2006)	Scotland	To describe a participatory research project which aimed to develop evidence-based practice.	Gerontology	Nurses	Descriptive study Document analysis	A procedural model for evidence-based practice was developed, underpinned by a set of principles. The participatory research method was effective in engaging participants and clients.
75.	Tolson et al. (2005)	Scotland	To explore how participation in a network project progressed	Gerontology	Nurses	Case study	Participation increased confidence of individuals

Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
		the achievement of evidence-based practice.			Interviews	and involvement in the CoP increased status, sense of identity and promoted a culture of change. Evidence-based practice was promoted by the project. The project overcame distance problems for isolated nurses and offered a new professional development activity.
76. Vanhanen, Makitalo and Pietila (1998)	Finland	To describe students' perceptions of learning their profession.	University (polytechnic)	Nursing	Case study Survey	The professional learning community was not valued by students. Individuals focused on their own actions and personal growth as the important goals.
77. Velde and Lust (2004)	United States	To evaluate a learning community in order to access its impact on members' ability to integrate their educational experience.	University	Occupational therapy	Case study Interviews Focus groups Survey 9 participants	The learning community enhanced the experience for the students and their ability to integrate information.
78. Wild et al. (2004)	United States	To examine how a project created a CoP involving agencies distributed geographically.	Public health agencies	Health professionals	Descriptive study	The development of a information system engaged the agencies into a CoP. The project enabled shared learning of best practices to address common challenges and complex issues.

	Author (year)	Country	Purpose	Practice setting	Professionals involved	Method	Outcome
79.	Yeoman, Urquhart and Sharp (2003)	United Kingdom	To understand how specialist portals were developing as CoP to support continuing professional development.		Librarians	Descriptive study Document analysis Interviews	The portals provided a focus and enabled a supportive CoP to emerge for dispersed and professionally isolated individuals.