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International Journal of Nursing Studies 43 (2006) 637–651
INTERNATIONAL JOURNAL OF NURSING STUDIES
www.elsevier.com/locate/ijnurstu

Review

Challenges and strategies in developing nursing research capacity: A review of the literature

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Received 21 January 2005; received in revised form 20 July 2005; accepted 28 July 2005

Abstract

Objectives: This paper reports the findings of a critical overview of the development of nursing research capacity in academic departments. It examines the major barriers to developing research capacity, the capacity building strategies adopted (or proposed) within the literature, and considers the wider context within which such endeavours take place.
Design: The literature review forms part of a longitudinal project utilising case study methodology. A key word search was used to locate relevant journal articles for the period 1999–2004, derived from the project's research question and an earlier literature review. A number of manual 'shelf searches' were conducted.
Data Sources: Bibliographic data were retrieved from The Cumulative Index of Nursing and Allied Health literature, The Social Science Citation Index, and Medline.
Review Methods: Approximately 150 articles were retrieved, of which 47 were included in the study. Given the paucity of work in this area papers were not excluded on the grounds of methodological weakness. Major themes were identified in each paper and an analytical framework was developed.
Results: Two main challenges affecting research capacity development were identified—*material constraints and organisational contexts*, and *the changing roles and expectations of nurse educators*. The importance of developing an overall strategic approach, clearly communicated, and accompanied by effective leadership was a point of common agreement. Debate existed on how research support should be managed, particularly the merits of inclusivity and the reconcilement of individual and organisational needs. Specific capacity strategies identified in the literature were the creation of infrastructures, the fostering of research cultures and environments, and the facilitation of training and collaboration.
Conclusions: The literature offers many examples of capacity building strategies. However, more empirical studies are needed to understand the situated process of implementing and evaluating capacity building in individual academic departments, and how this process differs between geographical settings.

Keywords: Nursing research; Research capacity; Nursing education

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doi:10.1016/j.ijnurstu.2005.07.011

Contents

What this paper adds to the literature

What is already known about this topic?

- Addressing low levels of research capacity in nursing is a key challenge.
- Nurse academics play a pivotal role in the development of nursing research, but they must negotiate competing external agendas, particularly where nurse education has moved into higher education.

What this paper adds

- The fragmented body of work on research capacity development is drawn together to provide a critical overview of major barriers and strategies discussed within the literature.
- There is a pressing need for more empirical studies which examine the situated process and outcomes of capacity building in specific organisational settings.

1. Introduction

This paper reviews the literature on strategies to develop the research capacity of nursing in academic departments, explores the challenges of building capacity, and considers the wider context within which individual departments operate. It forms part of a longitudinal case study examining how academic departments can develop their nursing research capacity, and updates and develops an earlier overview of the literature (Cooke and Green, 2000). The literature review undertaken in 2000 examined the factors which might affect the development of research capacity, addressing issues relating to qualifications and skills, time and funding, motivation and cultural values, and the type and quality of research being undertaken within the discipline. The present study is more concerned with the strategies that individual academic departments have implemented to build capacity, as well as identifying how the literature on this subject as a whole has moved on since 2000.

2. Background

Developing nursing research capacity is a challenge facing the profession world-wide, shaped by an interplay of professional and political drivers (Rafferty et al., 2002). The literature points to the continued lack of research capacity within nursing and low levels of funding (Franck, 2003; Rafferty et al., 2000; Scott, 2002). Many schools of nursing are developing their research capacity and output (Mead and Moseley, 2000; Wilson-Barnett, 2001), but more high-quality research is

needed (Finch, 2003), and there are limited data on research capacity within nursing (Crookes and Bradshaw, 2002; Franck, 2003).

Two important reasons for developing nursing research capacity are the growth of evidence-based practice, and the move of nursing education into universities in many countries (Clare and Hawes, 2001; Wilson-Barnett, 2001). The ultimate rationale for developing nursing research is the contribution it can make to enhancing patient care, through the creation of an evidence base to inform and evaluate practice in which nurse educators play a pivotal role (Campbell et al., 1999; Rafferty et al., 2002; Ross et al., 2002). The increasing responsibilities being taken on by nurses, and the growing prominence of the areas they work in (e.g. primary care) demand that practice is effective and cost efficient (Rafferty et al., 2002; Thomas and While, 2001). Educational courses at pre- and post-registration level are central to the production of future generations of research active and aware practitioners, and can be enhanced through drawing on research, producing critical, self reliant and adaptable practitioners (Mead and Moseley, 2000).

The relatively recent move of nurse education into higher education in countries such as Australia and the United Kingdom is a key driver for the development of research capacity within the discipline. The relocation of nursing academics into universities represents a major upheaval for the individuals involved, with new expectations and competing demands leaving certain staff feeling overwhelmed (Elkan and Robinson, 1995). But it also points to the fundamental differences in resources, culture and skills base between long-established academic subjects and those professions such as nursing which are still adjusting to the transition from hospital-based training. University nursing departments and academics are now expected to undertake research as an integral part of their roles, whilst still maintaining existing clinical and teaching commitments (Cooke and Green, 2000; Gething and Leelarthaepin, 2000; Newell, 2002). Individual promotion and career development depend upon the production of research (Waller et al., 1999) and universities are placing increased emphasis on departmental research ratings and excellence because of their importance in determining funding levels through mechanisms such as the UK Research Assessment Exercise. This may influence whether research produced is relevant to practice or is foremost a means to improve academic standing and departmental ratings.

3. Methods

3.1. Search Strategy

The key words 'research' combined with 'capability', 'capacity', 'productivity', 'output' or 'strategy' were entered into three electronic databases: CINAHL, The Social Science Citation Index, and Medline. Approximately 150 articles were retrieved for the period 1999–2004. Forty-seven articles were included in the review, with the remainder being excluded because they were not relevant to the study or did not add major insights. Ten articles examined the overall process of building nursing research capacity in academic departments, although this is complicated by the fact that some of these papers used the term 'culture' rather than 'capacity' (see Table 1). A further 23 papers had a more narrow focus on specific aspects of capacity development in nursing education, such as productivity levels, or provided insights from practice settings or issues relating to policy agendas (see Table 2). In terms of geographical focus, the United Kingdom was either the sole or joint empirical focus in 21 of the 33 articles which were concerned with nursing. The other countries covered by the nursing-related papers in our review were Australia (five papers), the United States (five papers) and Spain (two papers). Whilst the specific issues facing each of these countries differ significantly, the Australian and British experiences of building capacity have strong resemblances, particularly since nursing education has moved into the university sector relatively recently in both countries (Tanner and Hale, 2002). The review also examined papers from beyond nursing (see Table 3), as much can be learnt from considering how other disciplines have approached the overall challenge of building research capacity (Crookes and Bradshaw, 2002), especially where their specific experiences resonate with those of nursing (e.g. dentistry and occupational health). Such studies also provide a window on the distinctive challenges of building research capacity in the developing world, a point on which the nursing literature is largely silent.

3.2. Defining research capacity

Our review has addressed the multiplicity of terms employed to discuss research capacity, and the varying meanings attached to them (Tanner and Hale, 2002). For Finch (2003, p.427) "research capacity-building… means enhancing the ability within a discipline or professional group to undertake high-quality research", and in this study is defined as the ability to undertake research in academic departments. The term is employed as an overarching concept, incorporating the totality of strategies that departments adopt to develop research, and the challenges they encounter. Thus whilst raising productivity or changing cultural attitudes are substantive issues in their own right, we consider them here as components of the overall process of building capacity. There is also a subtle but important distinction between developing *research*, and developing *research capacity*. The former focuses directly on the production of research and answering research questions, increasing

Table 1
Studies examining the overall process of developing nursing research capacity in academic departments

Author(s)	Main country studied	Methodology/ methods	Brief description/key findings
Clare and Hawes	Australia	Critical and feminist theory; questionnaire survey	Discusses the creation of a research culture in an academic nursing department, the specific strategies employed and their outcomes. It explores issues of empowerment.
Cleverly	United Kingdom	Not stated	Examines changing attitudes towards research, funding challenges, and possible strategies to develop academic nursing departments' research.
Cooke and Green	United Kingdom	Literature review	Reviews the literature on the development of research capacity in academic departments, and makes recommendations for future capacity building.
Crookes and Bradshaw	Australia, United Kingdom	Formal and informal conversations	Examines the ways in which individuals and educational managers are developing scholarship in academic nursing, with recommendations for the future.
Farrington	United Kingdom	Journal commentary	Puts forward strategies for developing a research culture in academic nursing including staff development and information dissemination/gathering.
Feldman and Acord	United States	Not stated	Describes how two schools of nursing developed research activity, including support networks, strategic direction and the distribution of teaching and research loads.
Gething and Leelarthaepin	Australia	Needs analysis and follow up survey	Describes the authors' experience of increasing research activity and fostering a research culture within a faculty of nursing, including evaluation of the strategies adopted.
Grey	United States	Not stated	The formation of research centres in academic schools can strengthen faculty capability, facilitate collaboration and assist staff in developing projects and funding proposals.
Jootun and McGhee	Mainly UK	Not stated	Fostering research cultures in academic departments is a key aspect of promoting research, and needs leadership, support and effective management.
Traynor and Rafferty	United Kingdom	Survey, interviews and literature review	Explores different approaches to building academic nursing research capacity, and the challenges of negotiating the contradictory policies of the NHS and higher education sectors.

the quantity and quality of research via research projects. Research capacity is about producing ability—enabling individuals and departments to undertake these activities, through creating the necessary infrastructure, environment, culture and credibility (D'Auria, 2000). The distinction between research and research capacity is however fluid. Whilst some departments adopt a largely *facilitative* approach to research capacity development by providing a framework of support, others take a more direct, *interventionist* approach, using research itself as a means to develop capacity, through organising projects and programmes, by which individuals can gain skills (Nchinda, 2002).

The key findings from the literature review are divided into three sections. Firstly, the challenges of building research capacity are discussed. Secondly, we consider the main approaches and strategies adopted to build capacity. The final section of the paper discusses the key findings and their wider implications for the future development of nursing research.

4. Findings

4.1. Barriers and challenges

Developing research capacity within nursing has its challenges and contradictions (Mead and Moseley, 2000), and two clusters of issues are highlighted by the literature. Firstly, 'material' constraints (such as ineffective funding) which hinder the development of research capacity within specific organisational contexts. Secondly, the changing roles and expectations which nurse educators are increasingly expected to embody are also of importance.

4.1.1. Material constraints and organisational contexts

Of particular salience are availability of time for research, linked to high teaching loads and the need to balance this work with administrative and clinical responsibilities (Fyffe and Hanley, 2002). Lack of funding, a shortage of appropriately skilled personnel,

Table 2
Other studies examining nursing research capacity development

Author(s)	Main country studied	Methodology/ methods	Brief description/key findings
Bowman and Gardner (2001)	United States	Qualitative, interviews	Collaboration, reshaping teaching curricula, mentorships, recruitment, and building a research environment are recommended as capacity building strategies.
Byrne and Keefe (2002)	United States	Literature review and personal reflections	Explores how mentoring can help build research competence in nursing, including the strengths of different models, and the importance of expert and sustained support.
Department of Health (2000)	United Kingdom	Government document	Report of a workshop held to discuss government nursing strategy. Highlights key barriers to developing nursing research and sets out priorities for action.
Elkan and Robinson (1995)	United Kingdom	Review of published research	Reports the findings of nine research projects which evaluated the implementation of Project 2000 reforms in the nursing education system in England and Wales.
Finch (2003)	—	Journal commentary	Defines research capacity, identifies its key aspects, and discusses the importance of examining the experience of specialities (e.g. paediatric nursing).
Francis and Humphreys (1999)	United Kingdom and Australia	Not stated	Examines the impact which funding arrangements had upon the integration of nurse education into higher education, and the influence of professionalisation and economic rationalisation.
Franck (2003)	United Kingdom	Literature search	Provides and overview of research capacity in paediatric nursing and sets forward strategies for developing future capacity in this area.
Fyffe and Hanley (2002)	Scotland, UK	Questionnaires, documentary analysis	Discusses the development of nursing and midwifery research strategy for Scotland and maps out the country's existing research capacity and the barriers to increasing it.
Lindsay et al. (2003)	United Kingdom	Questionnaire	Examines why academic nursing departments submitted to the RAE under non nursing units of assessment (UoAs), including a perceived lack of clarity about criteria for the Nursing UoA.
McLennan et al. (2001)	United Kingdom	Not stated	Explores the impact of educational culture on a group of nursing lecturers, specifically the rise of collaboration. Examines issues of planning, change, group dynamics and community.
Mead and Moseley (2000)	United Kingdom	Not stated	The development of nursing research is hampered by a combination of inadequate funding, unrealistic expectations to produce research and contradictory policy agendas.
Miers (2002)	United Kingdom	Not stated	Examines nursing's low status within higher education, and addresses cultural factors including the tensions between 'practical' and 'intellectual' knowledge.
Moreno-Casha and de Frutos-Sanchez (2002)	Spain	Literature review, fieldwork, Delphi method	Discusses the development of a national strategy to develop nursing research, including its aims regarding dissemination, training future researchers and international collaboration.
Newell (2002)	United Kingdom	Interrogation of literature	Nursing does not fully meet workforce training needs relating to research. The paper highlights the paucity of reference to clinical issues in journals and a government document.
Rafferty et al. (2002)	United Kingdom	Bibliometric analysis	Maps key parameters of nursing research output (such as impact rates and funding sources) and outlines how the discipline can improve its 'profile and performance'.
Rafferty et al. (2002)	United Kingdom	Literature based	Examines some of the key drivers for the development of nursing research, including the convergence of policy and professional agendas
Ramcharan et al. (2001)	United Kingdom	Literature review and consultation exercise	Examines how schools of nursing can promote and reward scholarship in teaching, research and practice in the context of the emphasis placed on research and outputs within universities.

Table 2 (*continued*)

Author(s)	Main country studied	Methodology/ methods	Brief description/key findings
Ross et al. (2002)	United Kingdom	Mapping and consultation exercise	Reports key findings from a mapping and consultation exercise relating to primary care nursing research, and sets out strategies for developing future capacity.
Scott (2002)	United Kingdom, Spain	Commentary	Commentary on three papers in the same journal issue which discuss research capacity. Stresses the importance of understanding nursing research's 'historical pathway'.
Sellers and Dean (1999)	Australia	Pan Australian survey	Examines nurse academics' expectations of the future development of nursing research, including issues of visibility and the amount of time its members devote to research.
Tanner and Hale (2002)	England	'Walkabout', database search and interviews	Reports findings from a scoping study of nurses' research activity in one hospital, and advocates defining research activity so as to aid assessment of capacity building strategies.
Waller et al. (1999)	United States	Questionnaire	Explored allied health deans' and directors' research productivity and the development of research environments within their institutions
Wilson-Barnett (2001)	—	Editorial	Highlights the need for increased research capacity in nursing and the importance of studies which disseminate successful capacity building strategies in different national contexts.

and the absence of a research infrastructure are also highlighted as important issues (Campbell et al., 1999). According to Fyffe and Hanley (2002), one of the barriers to expanding nursing and midwifery research is the slow progress in facilitating existing staff to become research active. Feldman and Acord (2002, p. 140) note in relation to the United States that "maintaining a high level of scholarship competes with the need to maintain the skills of the discipline and be involved in professional organisations". The values and priorities of individual academic departments also play an important role in affecting the ability to develop research capacity, especially where teaching is viewed as the most important activity and where teaching and research compete for resources (Fyffe and Hanley, 2002; Mead and Moseley, 2000).

Many of these challenges stem in part from the location of academic departments within wider institutional, professional and political networks, whose financial frameworks and competing agendas must be negotiated (Mead and Moseley, 2000). Academic departments have to balance expectations in relation to teaching, practice and research, and achieve the development of the latter without commensurate funding systems. Traynor and Rafferty (1999) observe that the English nursing education system is in a 'pincer movement' between the health and higher education sectors, with the need to earn income from National Health Service Training Consortia having to be reconciled with the push to perform well in the RAE. This may present difficulties in allocating funding for nurse educators to pursue further qualifications, particularly higher degrees. Clare and Hawes (2001) comment that in Australia there is a conflict between government policies of economic and educational reform which shape university agendas (leading to the promotion of research), and the belief held by nurse educators that offering effective educational programmes to meet health workforce needs is their core mission.

British academic nursing departments are required to conduct research (both by their health and education taskmasters), but have not been provided with the requisite funding to fulfil this expectation. When nursing in the UK moved into the higher education sector, it continued to be funded mainly by the health sector (Francis and Humphreys, 1999), and has been denied equal access to research funding when compared with other academic disciplines (despite similar expectations in terms of research outputs) (Mead and Moseley, 2000). It is unrealistic to expect nurse education to compete for funds alongside far more established disciplines that have a long research track record, and are more able to secure financial support on the back of critical mass and expertise. As Campbell et al. (1999) argue, the priority should be to build capacity, and once this has been achieved attention can then focus on increasing productivity. Mead and Moseley (2000) suggest that the inequity of a 45-week teaching year and two student intakes per annum in nursing (compared with university norms of one student in-take taught over 35 weeks), combined with how research is funded, adds to the tension between teaching and research. Academic departments must also negotiate competing *research* agendas (Traynor and Rafferty, 1999). On the one hand,

Table 3
Studies on research capacity development from disciplines outside nursing

Author(s) and main discipline(s)	Main Country Studied	Methodology/ methods	Brief description/key findings
Bligh *Medical education*	United Kingdom	Journal editorial	Building research capacity includes supportive infrastructures, training, funded posts, and networks.
Brodin et al. *Dental education*	Various European	Group discussion + survey	Examines the issues affecting the productivity of dental schools, including resources, recruitment, support, monitoring, and the creation of research environments.
Campbell et al. *Primary care*	United Kingdom	Statistical analysis, survey, literature review, interviews	Maps primary care research capacity and funding, and suggests future capacity building strategies, including the creation of a sustainable infrastructure.
Crossley *Educational development*	Belize	Review of recent studies and theoretical literature	Explores how evaluation and research can aid 'educational development in small states', and examines the cultural aspects of 'north-south collaboration'.
D'Auria *Occupational medicine*	—	Journal editorial	Commentary on research capacity in occupational medicine, which sets out possible strategies, and emphasises the importance of collaboration and skills development.
Farmer and Weston *Primary care*	Australia	Not discussed	Sets out a conceptual model for research capacity development and evaluation in primary care, based around four types of 'participants' and six guiding principles.
Nchinda *Health research*	Southern countries of the World	Not stated	Outlines the inadequacy of current health research capacity in the global south, and discusses key capacity building strategies and the factors which determine their success.
Renfrew *Midwifery*	United Kingdom	Personal reflections and statistical analysis	Charts the history of the Midwifery Research Database, and discusses the quality of the work registered, and the challenges of building networks in a youthful discipline.
Sax et al. *Higher education research*	United States	Survey: descriptive statistics and regression analysis	'Family related factors' such as having dependant children do not significantly affect academics' research productivity.
Sitthi-amorn and Somrongthong *Health research*	Developing nations	Not stated	Discusses the growing health inequities between developing and developed nations, and sets out the challenges of and urgent need to build research capacity in the developing world.
Thomas and While *Primary care*	England	Statistical analysis and personal reflections	Account of the development of a network to enhance research capacity in primary care which adopted a 'whole system approach' to meet the competing aims of capacity development.
Velho *Development studies/Social Sciences*	Bolivia	Documentary analysis, on-site visits and interviews	Outlines a programme to develop research capacity, linking Bolivia and the Netherlands, and stresses the need for southern countries to retain ownership and autonomy in such schemes.
Wall *Public health and Epidemiology*	Northern and southern nations	Not stated	Discusses collaboration between northern and southern nations, including issues of cultural difference and ensuring that local communities benefit from involvement in research studies.
White *Public health*	Developing countries	Personal observations/ literature based	Examines the strategies which research managers in developing countries can adopt to build research capacity within specific organisations.

nursing research has a benevolent purpose, designed to address the concerns and questions of colleagues in practice via professional journals, and thus improve the lives of patients. On the other hand, the higher education sector's systems of funding and assessment (such as the UK RAE) impels academics to publish in high-impact journals, attract external research funding (often regardless of the benefits to practice) and more generally to pursue research as a way of attracting financial status and academic kudos.

4.1.2. Changing roles and expectations

Expectations and roles of nurse educators have been challenged by the move into higher education in the UK and Australia. Many have come from an environment where skills-based training as an integral part of preparation for professional practice has traditionally been prioritised and have moved into an arena where the institutional demands require research activity as an intrinsic part of the role. Most nurse educators who were transferred into the university sector lacked research experience or qualifications (Campbell et al., 1999; Cooke and Green, 2000; Fyffe and Hanley, 2002), and this, combined with the difficulties surrounding funding for nursing research has proved a major challenge to the development of academic nursing research.

Whilst a shortage of research skills and qualifications represents a significant barrier to the development of research active academic departments, individual feelings about 'doing' research, and collective attitudes towards its value, including sentiments of anti-intellectualism are also important (Crookes and Bradshaw, 2002; Miers, 2002; Newell, 2002). Reasons why nursing lecturers and other academics hold particular values are complex and multifaceted. As Jootun and McGhee (2003) point out, research activity is quite different from the applied, practice-based nature of a profession whose practically minded staff were more concerned with passing on craft knowledge. There may also be resistance to integration into higher education because of erosion of traditional career structures and clinical links. Clare and Hawes (2001), Miers (2002), and Sellers and Deans (1999) all make mention of gender as an issue in relation to advancement and achieving success (but see Sax et al., 2002 who found that similarities existed in the factors affecting both men and women academics' productivity). The suggestion is that both of these factors have an impact on the opportunities afforded to nurse academics and on their chances of success as a predominantly female profession in the mainly male-orientated environment of academe.

Authors such as Clare and Hawes (2001) and Feldman and Acord (2002) discuss the way in which the expectation that nurse educators undertake research has been added to existing teaching and clinical duties raising issues of time and workload. Institutions may not have adequately clarified expectations by including elements relating to research in their strategic plans. Clare and Hawes (2001) comment on the pressure created on staff with the demand to complete higher degrees whilst still carrying their other workloads which might impact on their willingness or ability to become involved in research. Wider debates about the value of teaching within the university sector, and the prominence of research activity as the means of obtaining promotion have particular resonance for nursing, leading to calls for a broader concept of academic scholarship (Waller et al., 1999).

The development of research capacity is thus a complex process, because it addresses a combination of structural and cultural challenges unfolding within specific contexts. Though some challenges appear more or less universal (confidence, workload, etc.) other problems are highly specific and situated (e.g. the ethos of a particular department). The strategies which some academic departments have adopted to address such challenges are now considered.

4.2. Developing and managing an overall approach

Research capacity building involves developing an overall strategic approach realised through specific objectives, with clear targets for individuals and departments (Farrington, 1996; Feldman and Acord, 2002; Gething and Leelarthaepin, 2000; Jootun and McGhee, 2003; Nchinda, 2002). An important precursor is to map current capacity including the nature and extent of staff research training needs to determine which strategies to select (Crookes and Bradshaw, 2002; Department of Health, 2000; Gething and Leelarthaepin, 2000; Nchinda, 2002; Scott, 2002).

White (2002) believes that there are two main dimensions to building capacity—the strategic and the operational, and that good management of capacity building is as important as determining the nature of the research to be conducted. Effective research capacity strategies should be well organised, with suitable structures put in place, accompanied by strong leadership (Brodin et al., 2002; Clare and Hawes, 2001; Jootun and McGhee, 2003; Nchinda, 2002; Sitthi-amorn and Somrongthong, 2000). This involves communicating the importance and value of research, and demonstrating real commitment to its development exists (Brodin et al., 2002; Crookes and Bradshaw, 2002; Feldman and Acord, 2002; Gething and Leelarthaepin, 2000; Jootun and McGhee, 2003; White, 2002). Research must be included in the wider mission of a department, and the interrelations between research and other academic activities should be addressed (Brodin et al., 2002; White, 2002). There is a need to avoid emphasising research development in ways that devalue teaching activity (Farrington, 1996; Feldman and Acord, 2002,

Jootun and McGhee, 2003). The necessity of measuring the impact of strategies is stressed by many authors, and evaluation might include changes in key outputs, levels of research participation, and shifting attitudes towards research (Clare and Hawes, 2001; Farmer and Weston, 2002; Feldman and Acord, 2002; Gething and Leelarthaepin, 2000; Sitthi-amorn and Somrongthong, 2000).

The need for an overall approach, translated into clear strategies which are well managed and evaluated therefore represents common ground within the literature. More diversity of opinion exists on the nature of the approach which departments should adopt in developing research capacity.

4.2.1. Support

Support is a dominant term in the literature, suggesting that departments need to encourage proactively the development of research capacity if it is to succeed. A number of authors argue that support and encouragement must be accompanied by clear expectations (Brodin et al., 2002; White, 2002). For instance, there should be a clear understanding that staff who are supported to undertake higher degrees will use their skills and training to support others post-completion (Crookes and Bradshaw, 2002). Ensuring that staff make the best use of time and opportunities is also recommended. Gething and Leelarthaepin (2000) advise that departments should offer involvement in research to staff in the knowledge that opportunities will not be taken by all, whilst Brodin et al. (2002) recommend the withdrawal of support from colleagues who do not achieve reasonable outputs. The issue of how support should be organised and provided is a key focus of debate, which can be summarised around two problematics—the merits of inclusivity, and the challenge of reconciling the needs of individuals and organisations.

4.2.2. Negotiating inclusivity

For some writers, research capacity building should adopt a 'holistic' or 'egalitarian' approach, whereby all staff are given the chance to develop research skills and undertake research activities (Gething and Leelarthaepin, 2000). Such an approach can be framed as a form of empowerment (Clare and Hawes, 2001), but it also brings with it an expectation that all members of staff will undertake research in some form, placing pressure on individuals who do not wish to do research (or who lack the skills) and in this sense does not make the best use of limited resources (Traynor and Rafferty, 1999). The alternative approach is termed the 'elitist' or 'natural talents' approach by Traynor and Rafferty. This focuses support and resources on certain individuals who show particular interest and talent, allows individuals to choose their own direction to some extent, and avoids placing pressure on the unable or the unwilling. Certain members of staff can be relieved of the expectation to undertake research and take on a greater share of the teaching, allowing greater resources and time for others (Feldman and Acord, 2002). In some departments, formal demarcations of staff whose main role is to teach, such as academic-related tutors in the UK or non-tenured staff in the United States, achieve a similar outcome to the 'natural talents' model (Feldman and Acord, 2002; Traynor and Rafferty, 1999).

The literature poses inclusivity as something of a dilemma, bereft of easy solutions. On the one hand, all university academics are expected to undertake research as part of their core duties. The existence of nursing lecturers who teach but do not research might call into question the rationale of moving the discipline into higher education, and disadvantages the individuals concerned, since status and career development are linked to research within the higher education sector (Traynor and Rafferty, 1999). It fails to emphasise research as something embedded in the life of an entire department, which can have a positive impact on learning and teaching activities (Cleverly, 1998). On the other hand, there is little point in forcing people to do research when they lack interest or ability (Cooke and Green, 2000). However, the creation of different individual career trajectories (focusing on teaching or research) needs to allow for the eventuality that individuals' 'natural talents' can change over time—the teacher of today may wish to become the researcher of tomorrow (Traynor and Rafferty, 1999). For Gething and Leelarthaepin (2000) one way of addressing this tension is for initial strategies to build research capacity to be inclusive. At a later stage, resources and support can be targeted towards those people who have demonstrated interest, whilst also allowing for 'late starters'—individuals who, whilst initially unresponsive, later wish to undertake research (see also Brodin et al., 2002).

As Thomas and While (2001) suggest, one of the reasons for the difficulty in selecting from these approaches is because research capacity building has multiple aims. A 'top-down' approach, whereby research project teams are led by experienced researchers often produces rapid outputs, but may be less successful in developing individuals. A 'bottom-up' approach (project teams formed of inexperienced researchers) leads to significant increases in research capacity, but is slower at producing research outputs. Neither approach is designed to bring about organisational cultural change, arguably an important facet of building capacity. Building research capacity can also have differing objectives depending on the institutional and national context in which it takes place. Whilst accounts of capacity building in 'developed' nations describe it as a means of improving the *effectiveness* of healthcare, writers such as Nchinda (2002) frame its purpose in

'developing' countries more in terms of creating *equity* in the provision of care. What Thomas and While (2001) put forward (see also Farmer and Weston, 2002) is a whole system approach, which combines coalitions (to achieve cultural change), bottom-up projects (to develop capacity) and top-down projects (to produce rapid results), with effective dissemination addressing the necessary limits to the number of people who can be involved in such networks.

4.2.3. Balancing the needs of individuals and organisations

The second key question concerns how the needs of individuals and institutions can be reconciled (Nchinda, 2002). One perspective is that research capacity needs to embrace diversity, and to develop individuals even where their needs and interests deviate from institutional priorities (Farmer and Weston, 2002; White, 2002). Cleverly (1998) advocates provision of a contingency fund to support research outside of a school's priority areas to allow individuals to develop their talents. Other writers advocate focusing a department's efforts in a particular direction (Traynor and Rafferty, 1999), though as Farrington (1996) suggests, this can be based on existing staff research interests. Feldman and Acord (2002) describe how their departments' Masters degrees were harnessed to serve the needs of the organisation, with students selecting particular aspects of key research areas, rather than suggesting their own topics for study. White (2002) suggests that departments should consider their comparative advantages and areas of expertise, and not merely contribute to national priorities. These differing perspectives on the interface between individual and institution can shape how support is attributed and distributed. Research capacity must be built through focused objectives and strategies, but these must be flexible enough to allow individual creativity and freedom which are hallmarks of research (Cleverly, 1998). The question of how we define research is also pertinent—as part of a broad notion of scholarship, or more tightly defined around publications and grant money (Ramcharan et al., 2001; Tanner and Hale, 2002).

4.3. Turning support into action

4.3.1. Building infrastructures

Despite the divergence of opinion on how support should be attributed, more common ground exists on some of its key components. Of particular importance is the creation of an infrastructure, such as a research manager or research office to provide strategic direction, and support individuals in writing papers and grant applications, and managing projects (Bligh, 2000; Campbell et al., 1999; Clare and Hawes, 2001; Crookes and Bradshaw, 2002; Feldman and Acord, 2002; Gething and Leelarthaepin, 2000; Grey, 2002; Thomas and While, 2001). The creation of a pool of research leaders and supervisors is also important (Campbell et al., 1999; Cleverly, 1998). Another strategy open to academic departments is to appoint new staff who are experienced researchers, and can provide support and mentorship to less experienced colleagues (Bowman and Gardner, 2001). Crookes and Bradshaw (2002) suggest that supporting other staff should be formally included in job descriptions for such posts. The appointment of research assistants and senior 'research only' staff is also recommended (Crookes and Bradshaw, 2002; Grey, 2002). Building research capacity requires a financial commitment to invest in research capability (i.e. training) (Franck, 2003) and research capacity (funding research projects) (Gething and Leelarthaepin, 2000; Grey, 2002; Ross et al., 2002). Internal funding of research activity enables individuals to become involved, to develop a track record in undertaking research projects, and may assist them in obtaining future external funding, to create the financial underpinning for research capacity. When efforts are concentrated on obtaining funding for a school's strategic areas of interest this can help bring greater focus to research activity (Crookes and Bradshaw, 2002).

4.3.2. Research culture and environment

Specific interventions are important, but it is also crucial to create an all embracing research culture and environment if such strategies are to be fully effective (Bowman and Gardner, 2001; Brodin et al., 2002; Clare and Hawes, 2001; Feldman and Acord, 2002; Finch, 2003; Gething and Leelarthaepin, 2000, Jootun and McGhee, 2003; Nchinda, 2002). 'Research environment' refers mainly to the enabling of research, through providing a critical mass of researchers, support, lending research importance within a department, and generally creating an atmosphere that is conducive to research activity (Brodin et al., 2002; Finch, 2003). 'Culture' relates to the cultivation of particular values and beliefs, including the building of trust, open discussion, leadership and networking (Jootun and McGhee, 2003).

4.3.3. Providing training and facilitating collaboration

Research training is a key way in which academic departments can increase research capability and capacity, particularly through the provision of higher degree programmes, partly because a shortage of skilled individuals makes recruitment difficult (D'Auria, 2000; Feldman and Acord, 2002; Grey, 2002; Nchinda, 2002; Tanner and Hale, 2002). Studentships and fellowships provide an important means by which academic staff (with full-time jobs) can access funding and some designated time to complete a Masters or doctoral degree (Bligh, 2000; Department of Health, 2000; Gething and Leelarthaepin, 2000; Ross et al., 2002;

Sitthi-amorn and Somrongthong, 2000; Wilson-Barnett, 2001). This underlines the point that departments need actively to support staff in gaining research skills in addition to providing a framework of opportunities. Given the shortage of research experienced staff within the nursing discipline (Feldman and Acord, 2002), the retention of personnel is particularly important (Brodin et al., 2002; White, 2002), especially where people have been given significant financial and temporal support, to ensure that investment in research training repays itself.

A sabbatical or study leave system also provides individuals with the chance to concentrate on their research activities for a set period (through financial commitment and the co-operation of colleagues) (Cleverly, 1998; Feldman and Acord, 2002). Gething and Leelarthaepin (2000) describe a 'fast tracking' scheme allowing members of staff to complete their Ph.D. studies more quickly, and then develop a publishing career and support other colleagues. Crookes and Bradshaw (2002) suggest that sabbaticals should be focused, objective-driven and short term. Another possible strategy is to reduce the amount of time devoted to teaching activities, through streamlining, alternative teaching methods, and the delegation of some personal tutoring and pastoral roles to central university support systems (Gething and Leelarthaepin, 2000). As Crookes and Bradshaw (2002) argue, reorganising teaching in this way means redefining relationships with students, and some nurse educators may be reluctant to relinquish their traditional 'caring role'.

There is also a need for departments to put in place research career structures and paths to aid longer-term staff development, encompassing different stages of people's research careers, and not only for neophyte researchers (Campbell et al., 1999; Crookes and Bradshaw, 2002; Farmer and Weston, 2002; Nchinda, 2002; Tanner and Hale, 2002). A number of authors argue that rewards (such as remuneration and promotion) need to be linked to research activity, providing focus and demonstrating that research is valued (Brodin et al., 2002; Cleverly, 1998; Nchinda, 2002). It is also important to take into consideration that nursing departments work within the strictures of wider central university career structures and rewards systems and so the provision of the incentives outlined above may not be straightforward.

Alongside formal training programmes, departments need to facilitate the creation of research collaboration, although the literature tends to presume this is axiomatic, rather than making the benefits (and costs) explicit. Collaboration facilitates the circulation of knowledge and expertise (Ross et al., 2002), and different partnerships can be forged in this way. An institution with research expertise and a proven track record in obtaining funding can lend assistance and credibility to a fellow department embarking on the early stages of building a research profile (Campbell et al., 1999). Similarly, the use of mentorships whereby experienced researchers provide assistance and direction to less experienced colleagues is also seen as an effective means of building capacity (Byrne and Keefe, 2002). However, the literature provides few examples of such collaboration in practice, nor the way in which the competitive nature of the education system in many countries hampers such initiatives (Traynor and Rafferty, 1999). Departmental research networks and groups provide support mechanisms and channels for the sharing of knowledge and ideas (Bligh, 2000; D'Auria, 2000). The formation of such groups can also aid the strategic development of research around focused themes or programmes.

In addition to partnerships between 'expert' and novice, collaboration can involve more 'equal' exchanges and the pooling of different kinds of knowledge (e.g. expertise in contrasting methods). For Renfrew (2000), information networks are particularly important in emerging academic disciplines to enable disparate researchers to gain a sense of what other colleagues are working on. As Farmer and Weston (2002) point out, multi-centre research teams can provide the necessary combination of skills to answer contemporary research questions in primary care (in this instance). International exchanges and links allow for the sharing of different cultural and geographically situated insights into research processes and issues (Moreno-Casha and de Frutos-Sanchez, 2002) A number of papers (though not in relation to nursing) discuss the particular challenges and benefits of collaboration linking scholars in developed and developing countries, including issues of cultural difference, ownership and trust (Crossley, 2001; Velho, 2004; Wall, 2000).

5. Discussion

5.1. Key issues and insights from the literature

Our literature review indicates that the key dimensions of research capacity development within academic nursing have been identified, if not subjected to sustained investigation. A general consensus exists on the need to build research capacity, and there is widespread acceptance that current capacity is inadequate (Franck, 2003; Scott, 2002), with certain aspects of its development poorly understood (Crookes and Bradshaw, 2002; Franck, 2003). The challenges facing the development of research capacity within nursing have been well-rehearsed, but it is worth noting that they are multi-layered and constantly evolving. Building capacity in academic departments must deal with a

paucity of funding and time, a shortage of research skills, and negotiate competing health and education sector agendas (Traynor and Rafferty, 1999). Capacity building is also shaped by individual and organisational attitudes towards research, often linked to issues of identity and self confidence (Clare and Hawes, 2001). Thus the complexity of research capacity stems in part from the interaction of cultural and structural problems operating at different scales: individuals, academic departments, universities, funding bodies, professional associations and national governments.

The literature also advocates many strategies academic departments can utilise to build their research capacity. There is a general consensus regarding the need to develop a coherent vision and visible strategies to address successfully the challenges outlined above (Feldman and Acord, 2002). Research capacity building requires an overall approach that braids together multiple strategies (Finch, 2003). The literature presents research as an activity which needs positive support and active encouragement to succeed—it cannot thrive on the basis of tacit endorsement alone (Cleverly, 1998). The development of a coherent approach to developing capacity must be followed through by its translation into practice, though debate exists within the literature on how strategies should be implemented. Of key importance are the creation of a suitable infrastructure, fostering a research culture or environment, the provision of training and facilitation of collaborative networks, recruitment and retention of staff, and the supply of time.

One of the most important issues highlighted by the literature relates to the need for research capacity development to balance competing goals and agendas (Mead and Moseley, 2000; Traynor and Rafferty, 1999). So whilst the provision of support is widely regarded as a central element of capacity development, its distribution is a contested issue. Providing assistance for all staff is egalitarian and furthers the development of research as something embedded within the life of an academic department (Clare and Hawes, 2001; Cleverly, 1998). But this approach may spread resources too thinly, slowing the pace of development, and restricting the help available to those individuals most enthusiastic or erudite in relation to research. The holistic approach can also put staff under pressure, and may not serve a department's best strategic interests in terms of external assessment mechanisms, such as the UK RAE (Traynor and Rafferty, 1999). Equally, the focusing of resources and support on a smaller group of individuals within a department may provoke feelings of inequity, and arguably fails to promote research as something which all nurse academics need to engage with (Cleverly, 1998). Linked to this problem is the vexed issue of focus. The literature makes it clear that to be successful in the development of research capacity academic departments must be focused, through developing a coherent strategy (Traynor and Rafferty, 1999). Part of such a strategy is seen by a number of authors as identifying a department's core research interests, as this enables the development of critical mass and the transfer of knowledge between colleagues (Feldman and Acord, 2002). But departments must also be flexible and allow individuals the creative space to develop their own interests, even if these do not represent core priorities (Cleverly, 1998; Farmer and Weston, 2002; White, 2002).

5.2. *Refocusing the debate: from problems and solutions to processes and outcomes*

The literature is characterised by a number of problems, both in terms of overall development and current emphasis. Only 10 of the 47 articles included in our analysis dealt specifically with research capacity in academic nursing settings, though a number of other studies addressed particular aspects, such as increasing productivity levels. In addition, a number of papers address the development of research within academic departments, but use differing terms to name this process. The result is a rather disjointed literature, with a blurring of terms, and plurality of meaning attached to them. Nursing is the largest healthcare profession in many countries, and it is surely concerning that so little has been written about how its academic departments are addressing the challenge of building capacity, particularly in relation to developing countries.

The virtual absence of empirical studies of capacity development in individual academic departments is especially problematic. What the literature offers us at present is a fairly comprehensive picture of the challenges of developing capacity, and the main strategies than have or can be implemented. Certain papers tend to present generalised solutions or formulae which individual academic departments (or the profession as a whole) are encouraged to adopt, presenting research capacity building as universal project. But there are very few contributions to the literature that provide specific examples of the *process* of capacity development, discussing the selection, implementation and evaluation of individual strategies, fleshing out the connections between these stages and exploring why particular strategies produce the outcomes that they do. The way in which this process varies geographically (both internationally and locally) is something that we currently know very little about. A related point is that some of the papers included in our review neglected to provide adequate discussion of their methodology and methods, failed to elucidate how conclusions had been arrived at, or did not state whether capacity development interventions had actually been evaluated, hindering the ability to draw wider insights from such work.

The time has come to move away from rehearsing generalised problems and potential solutions, and to start investigating how individual academic departments are actually putting strategies into practice, shedding light on the situated process of building capacity. Our own research demonstrates that academic departments do not simply adopt 'ready made' strategies, but rather engage in an active process of formulating and implementing an approach that will meet their distinctive needs. What works in one setting may be totally inappropriate in another, even where the aims and background of the organisations appear similar. There is a danger that research capacity becomes a subject which is perceived as 'well rehearsed' and over researched, when in fact we know very little about how successful capacity building strategies are in different contexts, nor how easy or difficult they are to implement. The power of detailed studies of capacity building lies in their ability to challenge the simplicity of generalised formulae and to unsettle the 'received wisdom' on this subject.

Another criticism that can be levelled at much of the work we have examined is that blanket calls for nursing departments to adopt strategies (such as providing time for research or revising remuneration frameworks) fail adequately to consider the interaction between different scales—the academic department, wider university, and national governments and professional bodies. They fall into the trap of viewing individual nursing departments as hermetically sealed off from the outside world, operating within a social vacuum. Nursing departments' strategies can be constrained or redirected by virtue of their place within wider schools of health science and central university agendas (Lindsay et al., 2003). This is not to say that studies taking a wider frame of reference (such as the study of research capacity in a particular country, or a national government's funding policies) lack importance. Such studies (e.g. Fyffe and Hanley, 2002; Mead and Moseley, 2000) highlight the strictures and inequities which academic departments of nursing work within. It should also be noted that national political and professional contexts differ hugely—the process of building research capacity in Wales is very different from that of Spain, for instance. But it is important to understand how academic departments negotiate actively such wider policies and agendas, and how national frameworks and visions for action interact with existing organisational cultures and values. Studies of individual academic departments allow us to unpick the complex and important connections between different geographical scales. The importance of large-scale studies and international comparisons which provide broad pictures needs to be balanced with the understanding we gain from in-depth engagement with capacity building 'on the ground'.

6. Conclusion

This paper reviewed the literature on the development of nursing research capacity in academic departments. It has identified the key capacity building strategies currently being implemented or recommended, the challenges which such endeavours have to overcome, and the wider contexts within which this process takes place. For what may be very different reasons, capacity building is a pressing concern in many countries, and we have thus sought to be international—both in terms of scope and relevance in our review. It is however important to acknowledge its partiality and situatedness. Certain countries' experiences have received far more investigation in the literature, and inevitably our geographical location as researchers affects our background knowledge, conceptual frameworks and access to information. As we have made clear, the pronouncement of generalised recommendations is problematic. What *can* be said in generalised terms, however, is firstly that capacity building is globally important, because it can improve the quality of nurse education, the calibre of nurses, and the standard of care which patients receive. Secondly, the literature also makes it clear that many academic departments are engaged in building capacity, even if it tells us very little about the processes and outcomes involved. Thirdly, regardless of the specific interventions taken to develop capacity, academic departments need to adopt a clear overall approach, well-defined strategies, and must ensure that effective communication, leadership and managerial commitment are in place.

The importance of research capacity building and the fact that attempts are being made to put it into practice heighten the need for a sustained body of research which engages with and evaluates this process in particular academic departments (what Bassey (1999) might refer to as a 'science of singularities'), being open to the influence of wider educational, political and professional agendas. A coherent body of work needs to be developed, with each study building cumulatively upon the insights of its predecessors and contributing new knowledge (Bassey, 1999). The strategic remedies that the literature prescribes for the development of research capacity need to be reabsorbed into the literature itself. A critical mass of such studies might allow us to make 'fuzzy' generalisations—to harness the specific insights from capacity building in one institution to inform (but not determine) the development of strategies in another, rather than seeking a-priori universalised solutions which can be applied in any given situation. According to Bassey (1999, p.52), "A fuzzy generalisation carries an element of uncertainty. It reports that something has happened in one place and that it may also happen elsewhere. There is a possibility but no surety. There is an invitation to 'try it and see if the same happens for you.'"

Since most, if not all academic departments are attempting to increase their nursing research capacity in some way, this area of inquiry provides a ready opportunity for study, and has the potential to bring significant benefits to the profession as a whole. Our hope is that the issues and insights highlighted in this paper will facilitate the development of such a body of work, through a process of critical reflection and application. We invite you to try them, and see if they work for you.

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