Building Research Competence in Nursing Through Mentoring
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Purpose: To explore how mentoring can be used to build research competence in nursing in various professional and geographic settings.

Organizing construct: The traditional concept of mentoring in interdisciplinary health professions and its application to nursing research.

Methods: Literature review of MEDLINE and CINAHL databases 1990-2001 and personal reflections on mentoring and mentored experiences.

Findings: Mentoring relationship models identified include: traditional mentor and protégé, team, peer, inclusive, and mentoring forward. E-mentoring strategies facilitate interactions for long-distance relationships. Discrete projects, multiple mentor sources, and mutually beneficial peer relationships can enable mentoring across one's career. Psychosocial dimensions of mentoring support creative work. When scholarly productivity with funded research is the desired outcome, intense involvement of a protégé with an expert researcher is essential.

Conclusion: Choices among mentoring models can be made in accordance with resources, priorities, and objectives congruent with a given nursing setting and time, but optimum scholarly productivity requires experts and sustained support.

[Key words: mentoring, nursing education, faculty, international]

Mentoring has been an effective strategy in many disciplines, including all the health professions, to develop expertise and leadership within the profession. The traditional concept of mentoring involves a voluntary alliance between an experienced senior professional and a less advanced one, for the dual purposes of career development and the enhancement of the profession. The nursing literature shows the consensus seen in other disciplines regarding the concept and value of mentoring. The focus for mentoring in nursing has shifted over the past 3 decades, paralleling the emerging concerns of the profession; current emphasis is on mentoring in research. This growing national and international need generates concern about the necessary resources to effectively mentor researchers.

Mentorship

The essential characteristics of mentoring identified in the nursing literature are congruent with those of other disciplines and health professions. Yoder (1990) proposed a clinical mentoring model with two dimensions: instrumental or career functions (coaching, challenging assignments, protection, sponsorship, exposure, and visibility) and psychosocial functions (counseling, acceptance, role modeling, and friendship). Yoder's model mirrors the typology by Kram (1985) described earlier in organizational literature, in which eight mentoring behaviors are described, five related to career development (sponsoring, exposure, teaching the job, teaching the informal system, and protection) and three related to psychosocial support (role modeling, encouragement, and personal counseling). Stewart and Krueger (1996) extracted six essential attributes of mentoring from 82 research abstracts and journal articles: teaching-learning process, reciprocal role, career development relationship, knowledge differential between participants, duration of several years, and resonance. A more utilitarian list of mentor activities indicates the multiple aspects of the role and captures the day-to-day reality of what a mentor is: "Sounding board, joint problem solver, ratifier, mirror, coach, referee, devil's advocate, connector and networker, empathizer, guide" (Snell, 1999).
Mentoring for research

A shift can be seen in the nursing literature from an early emphasis on mentoring primarily for executive leadership roles (Vance, 1977) to a current emphasis on special mentorships for clinician, researcher, and other roles. Mentoring is now urged for leadership in academic settings (Nugent, Bradshaw, & Kito, 1999), clinical agencies (DeVito-Thomas, 1998), and policy arenas. Mentors guide movement from departmental to institution-wide faculty roles (Klauser Triolo, Pozehl, & Mahaffey, 1997), development of professional writing (Sheridan & Dowdney, 1998), and innovative enterprises (Wilson, 1998). Recommendations for mentoring of clinicians include support of new registered nurse graduates (Andrews & Wallis, 1999), novice nurse practitioners (Hayes, 1998; Hockenberry-Eaton & Kline, 1995), and nurses making specialty transitions (Esper, 1999).

Much of this literature is focused on the current need for clinical mentoring in an effort to increase satisfaction and retention in clinical roles. Research mentoring has received less attention but it is now in the forefront with the increase in both advanced degree programs and agendas for scientific inquiry. Strong consensus exists regarding the need for professional mentoring, especially research mentoring. However concern has been frequently expressed regarding the ability to adequately fulfill this need. (Madison, 1994; Morrison-Beady, Aronowitz, Dyne, & Mkandawire, 2001; Pappas, 1988; Pell, 1996).

Readiness for research productivity and the resources to achieve it vary widely across nursing settings and across regions and countries. The need for research capability is a global issue, and mentoring as one strategy to enhance research quality and quantity can be universally applied to different settings and venues. The current or available resources, the objectives, the time frame, and the priorities for research among other competing agendas, however, will determine the specific design of a mentorship model.

Research Mentoring in Nursing

Development of nursing science is the foundation for the growth of the nursing discipline and profession. Knowledge development takes place in the various settings in which nursing is learned and practiced. The processes and products of knowledge-work belong in academic environments for many disciplines but the practice professions both use and create their knowledge beyond traditional scholastic settings. Practice professionals continually merge their knowing with their doing. Development of nursing science may be more concentrated in institutions of higher education but it can be seen in clinical sites where the scholarship of practice is also defined (Burgener, 2001). Consequently, programs of scientific inquiry in nursing are established in both university and clinical settings and they often flourish in academic health science centers where the two are merged.

Mentoring is a special way to transfer knowledge, and it can occur in all the settings in which scientific inquiry is being deliberately pursued. Research mentoring activities are appropriate in educational programs, especially at the highest academic levels, in research programs, in clinical practice arenas where research is being conducted, and in research partnerships established between academics and clinicians.

Research Mentoring of Nursing Students

The process of research mentoring, while sometimes begun in entry level nursing programs, is easier to identify at master's and doctoral levels. Providing it at the entry level is more difficult because of the limitations of time, competition with other areas of knowledge acquisition, and the need for foundational learning in a range of arts and sciences. Attempts have been made, nevertheless, to incorporate guided research experiences in some undergraduate programs. Inouye (1995) described an undergraduate honors research program at the University of Hawaii which provided mentoring for 2 years to minority students to assist them in completing and presenting research projects. The University of Maryland has used a bridge program for comprehensive enrichment of baccalaureate students from underrepresented groups including alliances with research faculty to produce scholarly projects (Perry, 1997). Some types of U.S. government-funded research awards include both undergraduate and graduate students and junior faculty on research teams. Under other conditions, college-based principal investigators can opt to take on the responsibility of promoting each team member to a higher level of knowledge and skills throughout the years of work related to the study (Morrison-Beady et al, 2001). All of these examples of research mentoring for undergraduates entail long-term involvement beyond the boundaries of a single course or semester. In scenarios without defined mentor-protected pairs, establishing mentoring throughout a large group can be overly ambitious and frustrating. Pappas' (1988) explored role conflict and coping of 16 baccalaureate nursing faculty in Texas, and found common patterns of stress related to multiple role expectations and a frequently mentioned desire for mentoring.

Research mentoring is more likely to occur in graduate nursing education at the master's level, particularly if more than one research course is offered, or a thesis is required, or faculty are senior investigators with active programs of research who seek students to include as research assistants. With the trend toward clinical advanced degrees and the growing pedagogical view that master's level graduates are evaluators and users rather than creators of research, less opportunity and inclination exists to include research mentoring activities at this level.

Research competency is an intrinsic part and outcome of doctoral education in nursing, particularly toward the PhD. The differences among mentor, teacher, and advisor can be difficult to discern and role clarifications have been debated, but mentoring at some level seems essential. Doctoral preparation includes a dissertation that is done under the supervision of a faculty sponsor and a small committee. The sponsor is also variously called a chair, advisor, and often a mentor. The role of guiding doctoral candidates through their first scientific investigations that will certify them as able to

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conduct research independently contains many characteristics of traditional mentoring. This process is relatively long, it requires individual attention, and it results in scholarly development of the candidate and the profession. Doctoral students are urged to select their dissertation chairs carefully with an eye toward a mutually beneficial partnership that will continue throughout their careers (Breaze, 2000; Robinson, 2001). Even this close, long-term, and research-oriented experience, which includes many mentoring activities, has been viewed as less than true mentoring because it is not established as a voluntary relationship based on commitment to an individual. One ethical perspective is that faculty have a moral responsibility to provide and adequately support the role of advisor for graduate students but the true role of “mentor” is voluntary (Weil, 2001). Well argued that the unbounded commitment of mentors requires an “honorary” definition according to which a mentor is virtuous like a saint or hero.” Circumstances may provide a traditional mentoring relationship over and above this essential advisement resource, but not every doctoral sponsor-candidate experience includes mentoring. This view changes the perspective on the nature of the relationship but it does not alter or minimize the substantial faculty resources and commitment needed to accomplish doctoral guidance.

Research Mentoring of Faculty

Research is an intrinsic part of the traditional academic triad of responsibility that includes scientific inquiry, teaching, and community service. Mentoring is an important resource for faculty to fulfill the research mission. Butler (1989) surveyed 305 doctoral female nursing faculty employed full time at United States NLN-accredited schools of nursing offering graduate degrees. Mentors for the academic role were reported by 56% of participants. Mentoring affected scholarly productivity by providing a specific focus on the research component of the academic role. Scholarly productivity was higher for participants with mentorships lasting more than 2 years, begin during doctoral programs, or crossing two or more periods of career development. Mentorships did not assure research productivity. Cosponsoring projects was an important vehicle for success but relationships characterized by intensity, friendship, and philosophical similarities also produced more scholarship, though not necessarily in the form of funded research.

Williams and Blackburn (1988) focused on research productivity in comparisons of senior and junior faculty in mentor relationships with those not in such relationships. They found that only working together on projects increased research output and that it clearly separated them from faculty not in mentor-mentee relationships. This increase occurred for both mentors and protégés. Although advocacy, socialization, and encouragement did occur in these mentoring relationships, these psychosocial activities did not measurably influence research productivity.

A survey of faculty in nursing and the health sciences in Australia (Roberts, 1997) revealed that, overall, academics surveyed had low levels of scholarly productivity especially in publication; however, productivity was higher for those with access to mentoring, research participation, and leave for professional development. The author concluded that the need for programs of nursing mentorship was an urgent one and active encouragement to undertake research was needed.

Efforts to provide research facilitation to faculty have been reported, using both internal and external resources. When schools have a cadre of senior investigators and an established infrastructure, they can support an internal program of research mentoring. When these resources are lacking, faculty might outsource and use consultants especially while building a strong research program. As part of an institution-wide initiative to strengthen the research stature of the University of Louisville, the school of nursing established targeted mentoring relationships with productive researchers outside their institution who assisted faculty with research program development (Mundt, 2001). This successful approach was replicated in other schools in the university. Schools with both beginning and established research programs are increasing their use and development of collaborative networks across regions and nations (Lorensen, 2002).

International Research Mentoring

Global research mentoring has been accelerated by wide interest in internationalization in nursing and by development of sophisticated global communication technologies. These two trends in globalization and technological communication have blended to facilitate research mentoring in a range of settings and world circumstances. Opportunities to apply mentoring strategies to the worldwide nursing community increase as people of the world become more connected and the nursing profession becomes more globally focused. Increases in international conferences, journals, and nursing organizations have promoted agendas for collaboration in research and practice.

As nursing leaders have directed constituencies to look across national boundaries at common patient care issues, collaborative cross-national research has increased. Disparity among programs and nations in resources for research has made mentoring relationships a natural and necessary part of this effort. University partnerships among nations have often begun with student and faculty exchanges and moved toward mentored programs of collaborative research. The projects of the University of Pennsylvania School of Nursing with the Henrietta Szold Hadassah/Hebrew University in Israel related to maternal-child health (Medoff-Cooper & Dekeyser, 1998), Columbia University School of Nursing with Gothenburg University in Sweden related to pediatric home care (Byrne, 1998; Lundblad, Byrne, & Hellstrom, 2001), and Pace University School of Nursing with the University of Utrecht in the Netherlands related to management self-efficacy in diabetes mellitus (Shortridge-Baggett & van der Bijl, 1996) are just a few examples. Several schools of nursing have had increased requests for international educational exchange programs as well as increased international doctoral student applicants.
Such programs require extended periods to accomplish mentoring objectives. “E-mentoring” requires efficient electronic communication modes that quickly bridge substantial distances and time zones. Modalities include electronic mail, facsimile copying, and overnight package deliveries. Although E-mentoring offers unprecedented means to sustain mentor-protégé contact for long-distance research collaboration, it cannot preclude face-to-face encounters that must still be carefully planned, financed, and implemented. Personal connections and personal responsibility are hallmarks for E-mentoring as much as for traditional mentoring.

International research mentoring has opened new opportunities for mutual exchange and benefit. Senior nurse researchers from different participating nations have been available to cosponsor projects and to participate in the mentoring of junior researchers. Both novice and senior researchers from countries with greater material research resources can expect to be enriched by theoretical frameworks and specific methodologies that may be better defined or differentially viewed in another country or culture. Increased experiential knowledge of cultural life-worlds and respect for cultural diversity have been reciprocal benefits in collaborative international research and has increased validity of research questions, methods, and interpretations. Translation equivalence within cultural contexts has been one concomitant of cross-national mentored research efforts and it remains an ongoing need.

**Issues Relevant to Research Mentoring in Nursing**

Several issues in research mentoring are of special significance to nurses, such as differences between research mentoring activities and a defined relationship with a mentor, peer versus expert mentoring, female gender considerations, and mentoring as a resource and a competitor for resources.

Within nursing the experience of mentoring has sometimes been perceived as a learning continuum which extends from peer support and role modeling, through instructive preceptorship, self-initiated and guided networking, and finally the intense and personal occurrence of focused mentorship (Belcher & Sibbald, 1998; Kelly, 2000). More typically the concept of mentorship relates only to that last phase of that continuum—an intense, personal, and concentrated relationship with one or more experts with the aim of professional development. As described above, however, many situations are possible in which mentoring activities can be offered that approximate but do not completely fulfill the concept of mentorship. Guided research projects over shorter terms, training team members within the context of a study, and assigned doctoral advisement are examples that incorporate more or less mentorship attributes but they may not include the comprehensive, individualized, and voluntary aspects of classic mentor relationships.

Relationships that offer mentoring activities can be valuable and effective especially in situations without the resources, opportunities, or serendipity for full mentorship. A study of 430 faculty at two U.S. research institutions showed that different mentoring sources were available and selected at different career stages, including intraorganizational, intraprofessional, outside the work place, and interprofessional options (Peluchette & Jeanquart, 2000). Career stage also influences availability and motivation for being a mentor. Achievement of promotion and job security allows greater freedom for mentoring (Carlson & Rotondo, 2001) but also essential is having a personal inclination toward generativity and commitment to succession planning through the development of the next generation of nurse leaders.

Peer-mentoring relationships are not exclusive to women but they seem to be particularly important in nursing. Peer mentoring is valuable both in the absence of traditional mentoring and as an adjunct to it. Female friendship has been identified as a reinforcing component of mentoring between women (Glass & Walter, 1998). A national study of mentoring relationships among New Zealand nurses indicated numerous supportive relationships among women peers (Hall 1998) in contrast with only moderate levels of mentoring as typified by Kram (1985). Emphasis on peer mentoring indicates horizontal mentoring models that might supplement traditional, vertical, and hierarchical models. Alternate mentoring activities can help to develop associates who are not considered protégés. Such support can enhance self-esteem and creative work. Traditional mentoring can also be expanded through a “mentoring forward” approach undertaken by mentored scientists who reach out to mentor others during and following their own mentoring (see Figure).

Women’s valuing of peer mentoring with overtones of friendship puts a different cast on the positive effects of mentoring’s psychosocial functions even if they are not directly measured in research productivity. Personal support has been demonstrated as important to mental health and self-esteem in all creative endeavors (Bennetts, 2000). Women in the professions pursue balance between their professional and family-personal expectations and agendas and actively seek mentors who have achieved such balance (Gordinier et al., 2000).

While mentors within nursing are often the same sex, crossgender mentoring can take place and often occurs when mentoring crosses disciplines, bringing with it added context stressors and perceptual and power issues. Both cross gender and cross discipline mentoring experiences can be rich growth opportunities for stretching boundaries and intensifying the learning curve. New frameworks and varying roles and strategies can be explored and evaluated for incorporation into the mentee’s style and approach.

Mentoring can be used in diverse forms to address needs related to research growth emergent in different nursing settings and geographical areas. Mentoring activities can be offered in limited ways when more traditional mentoring is not possible. It is important to realize that limited mentoring efforts can only have limited effects. When the goal is to build research productivity no more effective strategy has been documented than intense and long-term involvement in research projects with an expert.
Successful research mentoring at any level requires resources and traditional mentoring requires experts, money, and institutional support systems. Mentoring is situated in altruistic concern by seasoned researchers for selected novices and for the profession. Mentoring depends on motivations of these “saintly” to borrow Weil’s (2001) view, but cannot be sustained nor extended without consistent and continuous resources. Competition for scarce resources can leave mentoring programs with inadequate or interrupted support. This is more likely to occur when total resources are sparse and when long-term planning and advocacy for research are neglected.

Conclusions

Advancement of educational programs and agendas for systematic research inquiry in nursing are illuminating and expanding nursing science. They also give rise to the universal need for research mentoring. Mentoring strategies can be tailored to education, academic life, clinical settings and academic and clinician partnerships with local, regional, and international scope. Mentoring activities can be incorporated into various stages of education and professional development. Projects over short periods, multiple sources of mentors across careers, and mutually beneficial peer relationships all provide infusions of mentoring techniques requiring limited resources. Psychosocial aspects of mentoring offer essential supportive functions that are especially valued by women. In terms of scholarly productivity, however, there is no substitute for a sustained relationship grounded in research projects sponsored by one or more experts and supported by continuous resources.