

# NURSING RESEARCH AT THE BACCALAUREATE LEVEL: A UNIQUE TEACHING/LEARNING MODEL

Jacqueline G. Roberts . Joan M. Crook

"If you don't know where you are going,  
It doesn't matter what path you take"

— Anonymous

This statement reflects the confusion that has existed in baccalaureate nursing programs about the purpose and focus of research in the undergraduate curriculum. Although there is some agreement that the emphasis should be on developing informed consumers of research, it is unclear what informed means; thus there is confusion about how to achieve it. Most educators agree that undergraduate nursing students should be prepared to appraise the nursing research literature critically (Fleming, 1980; Levin, 1983; Overfield & Duffy, 1984). Some educators suggest the focus of research should be applied and should be relevant to clinical practice (Horsley, 1983; Levin, 1983) and that the student should develop a "positive attitude" toward research (Levin, 1983; Spector & Bleeks, 1980; Van Bree, 1981). Curriculum developers continue to wrestle with questions about what knowledge and skills are required concerning the subject of research and how this subject can be taught and learned most effectively.

In a review of the literature on teaching research, Overfield and Duffy (1984) divided the various approaches to learning into three major categories: 1) learning by critiquing; 2) learning by proposing to do; and 3) learning by doing. Our approach is to include "learning by doing in collaboration" among these categories. This approach requires the identification, co-ordination and collaboration of supportive faculty who are knowledgeable and who participate in on-going relevant clinical research.

## Course Description

The major focus of the "Doing in Collaboration" research course in the 4th year of our undergraduate nursing program is the development of the student's

Jacqueline G. Roberts, B.Sc.N., M.Sc. is Assistant Professor and Joan M. Crook, R.N., M.A., M.Sc. is Professor in the Faculty of Health Sciences at McMaster University in Hamilton, Ontario.
---

understanding of the research process through knowledge acquisition and practice experience. To accomplish this, emphasis is placed on the student's potential role as a generator of researchable questions, as an enthusiastic collaborator in research related to clinical practice, and as a critical appraiser of nursing and health care literature. Each student participates in an on-going research project where concepts of research methodology, literature review, implementation and analysis can be applied and focused.

The student's background on entry to the course is important. Throughout the four years of the program the learning environment and teaching methods include small group tutorials, a problem-based learning format, and individualized learning plans. The scientific method is used and the student develops a questioning approach to clinical practice, and a critical approach to learning. In addition, in Year III of the program, students are formally introduced to the principles of clinical research and statistical inference. The particular emphasis is on critical assessment of evidence that is related to the care of patients as presented in nursing and health sciences literature.

The structure of the 4th year research course includes the following key components: a series of large group sessions, a research practicum, a research day and an evaluation portfolio.

### *Large group sessions*

These large group lecture and discussion sessions are held weekly for 12 weeks and address the various steps of the research process. Various members of the School of Nursing faculty teach each session and relate the content to their own research projects. A summary of the schedule of topics is shown in Table 1.

**Table 1**

### *Schedule for Large Group Sessions*

- 
- A. Overview and Historical Development of Research in Health Care.
  - B. The Research Process and the Development of Knowledge.
  - C. Asking Questions and Developing the Research Problem.
  - D. Conducting a Literature Review: Critical Appraisal Revisited.
  - E. Research Designs: Hypothesis Generating.
  - F. Research Designs: Hypothesis Testing.
  - G. Measurement: Forms of Observation and Data Collection.
  - H. Measurement: Selecting an Instrument; Issues of Validity and Reliability.
  - I. Analysis: Descriptive.
  - J. Analysis: Inferential.
  - K. Ethics and Politics of Research
  - L. The "Critical Eye": Limitations, Bias, and the Evaluation of Proposals.
-

### *The research practicum*

The actual research activity is accomplished by means of "hands on" experience and attachment to faculty research teams. Students negotiate a role that they can perform within a research project. Collaboration provides a service to the project and a learning experience for the student. Placements on the teams are based on the best possible match between the student's area of interest and the researcher's project.

The exact nature of the student's role and task varies from project to project. Students discuss their learning objectives and plan their activities with the research faculty team leader. They attend research team meetings to review project activities and related methodology issues. In addition, these meetings provide an opportunity for the students to present their work and tasks. This attachment provides the student with a positive experience in research collaboration and the chance to apply knowledge of research methods to a clinical research problem.

The model used is comparable to a clinical practice placement. Students learn while providing service by designing studies, interviewing patients, analyzing and summarizing data, determining reliability and validity of instruments and reviewing the literature. Specific experts within the Faculty of Health Sciences (statisticians, computer experts) act as additional resources and are called upon if necessary.

Each year, approximately 110 students are placed on 40 – 42 research teams within the Faculty and the local nursing community. Some projects change each year, some do not. Often a new group of students join a project at a later stage of its development. Table 2 summarizes the scope and variety of the projects. Examples of the particular activities that students have negotiated within three representative research studies are shown in Figure 1.

### *Research day*

An important component of research is communicating the progress and results of the research activity. A day, patterned along the lines of a nursing research conference, is held at the end of term; posters are displayed and oral presentations are given. This approach has also been used by others (Sweeney, 1984).

Students submit abstracts of their presentations for evaluation by faculty. Criteria for evaluation include: clarity of the stated purpose or objectives of the study; whether the components of the research process applicable to the study were addressed; proper identification of the present stage of the study; implications for the advancement of knowledge in the area; and, finally,

whether the abstract was well organized, followed a logical sequence and was written in a scholarly manner. A Likert scale is used for rating each of the criteria.

Student teams design and display a poster on Research Day. In addition, posters are evaluated by the course co-ordinators, faculty, peers and visitors to the poster station. They are assessed for clarity, conciseness, organization, creativity, attractiveness and whether the presenters were able to clarify issues related to their project.

**Table 2**

***Clinical and Educational Research Projects Presented at Research Day***

Focus of Research Question	Target Study Population				
	Inpatient	Clinical Outpatient	Cross Cultural Subjects	Health Service Organization	Educational (Patient Teaching)
Determining Health Needs	*	**** ****	**		*
Therapy: Efficacy	**	***		*	***
Effectiveness	*	**		**	****
Health Care Coverage		*		* *	*
Methodological Research		*****		*	
Historical Research				*	
Basic					*

Each \* represents one study

Project Name/Research Question or Area of Focus:	Focus of Student's "Hands On" Experience
1. Pain Measurement	
Validity and reliability testing of an assessment tool for chronic pain patients.	Structured interviews of new patients admitted to Pain Clinic. Attending physician assessment data interviews and collecting assessment data for validity testing. Data analysis: Correlations.
2. Sleep Habits	
Sleep disorders in selected elderly populations (well elderly and those with a chronic health problem).	Telephone interviews with structured questionnaire. Data analysis: prevalence, descriptive and inferential statistics (t-tests).
3. Primary Nursing Randomized Trial	
Comparing primary nursing versus team nursing on nurse absenteeism, work environment scores, patient satisfaction, and clinicians' assessment of quality of nursing care.	Distributing patient questionnaires. Scoring questionnaires. Descriptive statistics. Inferential statistics (t-tests and chi-square). Use of microcomputer.

**Figure 1: Student Activities**

### *The evaluation portfolio*

The student is responsible for developing an evaluation portfolio for the purpose of her or his own evaluation. The portfolio includes a written abstract, poster and abstract evaluations and a summary of participation in team meetings and project (the "hands on" experience). The research team faculty reviews the portfolio with the student, evaluates and assigns a grade. Descriptors of excellent, very good, good, satisfactory and unsatisfactory are provided to assist with the final evaluation. As an example, the descriptor for an excellent grade is as follows.

The student demonstrates in-depth knowledge of research concepts and the research process. She demonstrates consistent use of critical thinking in the application of the research process through project participation. The student engages in on-going, realistic self evaluation,

seeks and follows through on feedback to improve performance. The student is curious, creative, self-directed and is able to negotiate and carry through a responsible role with the research team. Resources are used effectively.

### Course Evaluation

In order to evaluate the response by students to the course methods and objectives, structured questionnaires were developed and administered to the students, immediately following the completion of the course. The questionnaire included items that addressed each course component – large group sessions, poster presentation or abstract, evaluation tools, research day and research attachment.

Eighty-five percent indicated that they thought Research Day and writing abstracts were useful learning experiences. Of importance is that students consistently rated these learning opportunities highly. However, students least liked the large group sessions; 25% stated they had "heard it all before". As well, students evaluated their research attachments and course involvement for various opportunities. The percentage of students responding to each descriptor of learning opportunities is given in Table 3.

**Table 3**

***Course Evaluation:  
Students' Rating of Learning Opportunities***

	Excellent	Satisfactory	Poor
The course provided the opportunity to:			
1. Develop clinical knowledge in your area of interest.	85%	15%	0%
2. Meet learning objectives.	75%	19%	6%
3. Discuss and share research knowledge and ideas with peers.	92%	4%	4%
4. Receive feedback.	77%	17%	6%
5. Excite your need to know more about research.	81%	15%	4%
6. Identify areas of weakness.	88%	8%	4%
7. Ability to apply research knowledge.	75%	14%	11%



Students indicated, in the comment section of the questionnaire, that they especially enjoyed the posters on Research Day and working with research teams. However, they also indicated there was some "lack of consistency in workloads between groups".

### Conclusion

Expected and unexpected benefits have occurred for students and faculty as a result of this research course. The visibility of nursing research within the student group, the faculty, and the community has increased substantially.

Approximately 300 people attended Research Day and ten research teams presented their work at Nursing Academic Seminars. Several proposals were submitted for funding and several articles were submitted for publication. While we have not attempted to collect data systematically, student pride in being able to demonstrate the knowledge that was gained has been noticeable. The course gives real support to the research teams and subsequent activities, not only in terms of time committed by the students, but also through the suggestions for research methods. Often the student's "critical eye" adds to revisions in the project's research techniques. Faculty spend approximately one hour per week in related activities with students and student involvement in projects varies.

The benefit for the students appears to be mainly in the knowledge they acquired, and the positive attachment they enjoyed with the research team. They expressed the feeling that they were contributing to "real" work that had the potential to contribute to the quality of nursing care.

Other spin-offs were evident. Some students continued in a research role when some of the projects were funded. The research course has developed undergraduates who now have expertise in defining relevant clinical problems through hands-on experience and collaboration. Through informal reports this method appears to be helpful in developing research knowledge and stimulating research interest. Now further evaluation of the long term results of this method of teaching research is necessary.

### REFERENCES

- Fleming, J. (1980). Teaching nursing research content. *Nurse Educator*, 5(1), 24-26.
- Horsley, J. (1983). *Using research to improve nursing practice, a guide*. New York: Green and Stratton.
- Levin, R.F. (1983). Research for the undergraduate: Too much too soon? *Nursing Outlook*, 31(5), 258-259.

- Overfield, T., & Duffy, M. (1984). Research on teaching research in the baccalaureate nursing curriculum. *Journal of Advanced Nursing*, 9(2), 189-196.
- Spector, N., & Bleeks, S. (1980). Strategies to improve students' attitudes to research. *Nursing Outlook*, 28, 300-304.
- Sweeney, S.S. (1984). Strategies for teaching nursing research: Poster sessions for undergraduate students: A useful tool for learning and communicating nursing research. *Western Journal of Nursing Research*, 6(1), 135-139.
- Van Bree, N.S. (1981). Undergraduate research. *Nursing Outlook*, 29, 39-41.

## RÉSUMÉ

### **La recherche en sciences infirmières dans les études menant au baccalaureate universitaire: Une système unique d'apprentissage**

L'Université McMaster a introduit un nouveau cours dans son programme d'études menant les infirmières au baccalauréat universitaire. C'est un cours d'introduction à la recherche pour les étudiantes-infirmières de quatrième année. Ce cours comprend une série de séminaires auxquels toutes les étudiantes participent et durant lesquels les diverses étapes du processus de recherche sont identifiées, analysées et illustrées par des exemples tirés de projets en cours. De plus, les étudiantes sont rattachées à divers projets de recherche, en cours ou nouveau. Chaque équipe d'étudiantes prépare un précis de sa contribution au projet (par exemple, recherche bibliographique, et les différentes équipes préparent un placard au sujet de leur projet de recherche, ou d'un de ses aspects particuliers, qui sera exposé durant le "jour de la recherche". Chaque étudiante soumet à l'évaluation de ses professeurs un dossier qui contient les résultats de son travail et les connaissances qu'elle a acquises.

Ce cours essaye de répondre à la double expectative des études menant à un diplôme d'infirmière: le besoin de préparer les étudiantes-infirmières à la recherche clinique, et de les préparer à mettre en pratique les résultats de ces recherches. A cette fin, le processus d'apprentissage a été unifié au processus de recherches cliniques. A court terme, le projet a rendu plus visible les chercheurs infirmières au sein de la faculté des sciences de la santé, et au sein des diverses aires cliniques dans lesquelles les projets sont effectués. De plus, les professeurs ont bénéficié de cet apport de main d'oeuvre humaine à leurs projets, et les étudiantes ont bénéficiées de cet apprentissage "en collaboration".