NURSING PAPERS
PERSPECTIVES EN NURSING

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Mothers of Disabled Children: A Study of Parental Stress

Institutional Collaboration in Extending Professional Educational Opportunities for Nurses

Fall/Automne 1982 **Vol. 14, No. 3**

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NURSING PAPERS/PERSPECTIVES EN NURSING is published quarterly under the joint sponsorship of the School of Nursing, McGill University, 3506 University Street, Montreal, Quebec, H3A 2A7, and the Faculty of Nursing, The University of Alberta, 3-118 Clinical Sciences Building, Edmonton, Alberta T6G 2G3. Letters regarding subscriptions, changes of address and other business matters should be sent to the Managing Editor, *Nursing Papers*, McGill University.

SUBSCRIPTION RATES: Institutions (including hospitals, schools, libraries and agencies): $15/one year; $29/two years. Individual subscriptions: $10/one year; $19/two years. Please add $5 per year for overseas airmail service.

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NURSING PAPERS/PERSPECTIVES EN NURSING est une publication trimestrielle réalisée conjointement par l'École des sciences infirmières de l'université McGill, 3506, rue University, Montréal (Québec) H3A 2A7, et la Faculté des sciences infirmières de l'université de l'Alberta, 3-118, Clinical Sciences Building, Edmonton (Alberta) T6G 2G3. Toute correspondance relative aux abonnements, à un changement d'adresse ou à d'autres questions doit être adressée à l'adjointe administrative à la rédaction, *Perspectives en Nursing*, Université McGill.

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ANNONCES: 200$ la page; 100$ la demi-page.

ANCIENS NUMÉROS: 4$ le numéro ou 15$ par année. on peut se procurer des photocopies d'articles pour 20¢ la page ou 2,50$ minimum par article.

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Dépôt légal: Bibliothèque du Québec.

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NURSING PAPERS
PERSPECTIVES EN NURSING

Volume 14, No. 3
Fall/Automne, 1982

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EDITORIAL

The greatest need in nursing as a discipline is to develop the scientific base of nursing practice for the purpose of improving nursing care. Is this not primarily the collective and individual responsibility of university nursing faculties where the majority of nurses with advanced education and research training are employed and where scholarly pursuit is not only an expectation but indeed a requirement?

Although there has been a remarkable increase in the number of Canadian nurses with doctoral preparation or involved in doctoral study over the past two years,* there has not been a concomitant increase in research pertaining to nursing practice. Many nurses with doctoral or master's preparation choose to focus their investigations only on nurses themselves, nursing education or the management of nursing services. While such studies may be addressing important questions, they do not help directly to develop the scientific base of practice, advance nursing knowledge, and promote research-based practice.

What are the major deterrents to nurses with research training not fulfilling this vitally important responsibility? While some may respond immediately that insufficient time and funds are contributing factors, they can scarcely be identified as the real impediments when non-practice research is being done by some nurse faculty at least.

Is unfamiliarity with current practice or meaningful involvement in nursing practice major impediments? One cannot formulate significant research questions in any field without current knowledge of that field. No amount of knowledge of research methods, or educational methods, or organizational theories can overcome lack of knowledge of nursing practice if one is expected to ask significant questions in relation to nursing practice. This is not implying that some nurse faculty have absolutely no knowledge of nursing practice, but rather that they have insufficient knowledge of current practice to ask meaningful research questions. Insufficient knowledge may be displayed in the assumptions made, variables selected, instrumentation used, or any facet of the research process. Fortunately, insufficient knowledge of nursing practice can be overcome, but only if recognized by the nurse researcher.

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* Evident in the 1982 update of 1980 *Canadian Nursing Doctoral Statistics*, currently being conducted by S. Stinson, J. Larsen and J. MacPhail.

To what extent does the discipline in which a nurse has graduate preparation influence the person's interest and ability to conduct research in nursing practice? Do nurses prepared in other disciplines and out of touch with current practice study phenomena from the perspective of that other discipline rather than from a nursing perspective? Or do they, in fact, avoid investigating nursing practice phenomena?

Closely related to the above deterrents to nurses conducting clinical research, is the lack of congruence between research purposes and research methods. Sometimes questions or problems are distorted to fit a method when instead the nature of the problem should determine the method.

Although the foregoing discussion of deterrents to research in nursing practice may suggest as a first priority the need for doctoral programs in nursing in Canada, it is important to recognize that a strong research program and faculty role models as researchers are essential ingredients of doctoral education in any discipline. Thus, the first priority is to commit ourselves, individually and collectively, to expanding the quality and quantity of research in nursing practice, that is, studies that focus on the type of knowledge nurses need and use in practice. Research to advance nursing knowledge and develop the scientific base for practice must be concerned with persons' behaviour in response to circumstances that require *nursing* action — in relation to both sick persons and well persons — and the behaviour of the individuals concerned and their families in response to that action.

In addition to individual and collective commitment to research in nursing practice, the incentive system in university nursing faculties must be changed to reward clinical research, research-based teaching, and giving leadership in the development of research-based practice.

Jannetta MacPhail, Ph.D., F.A.A.N.
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ÉDITORIAL

Ce dont les sciences infirmières, en tant que discipline, ont plus besoin est de développer des fondements scientifiques de la pratique du nursing dans le but d'améliorer les soins infirmiers. N'est-ce pas là principalement la responsabilité collective et individuelle des facultés des sciences infirmières où travaillent la majorité des infirmiers jouissant d'une formation poussée tant au niveau professionnel qu'en recherche et où la poursuite de l'excellence non seulement répond à une attente mais représente plutôt une condition d'admission?

Bien qu'on ait observé une augmentation remarquable du nombre d'infirmiers canadiens présentant une préparation doctorale ou participant à un programme de troisième cycle au cours des deux dernières années,* l'on n'a pas observé d'augmentation concomitante de travaux de recherche se rapportant à l'exercice de la profession. De nombreux infirmiers ayant une formation de deuxième ou de troisième cycle choisissent d'axer leurs recherches seulement sur les infirmiers eux-mêmes, sur la formation en soins infirmiers ou sur la gestion des services infirmiers. Bien que ces études traitent de questions importantes, elles ne contribuent pas directement à établir les fondements scientifiques de l'exercice de la profession, à faire progresser les connaissances en sciences infirmières et à promouvoir l'exercice axé sur la recherche.

Quels sont les principaux facteurs qui détournent les infirmiers jouissant d'une formation en recherche de cette responsabilité d'importance vitale? Bien que certains retorqueront spontanément que le manque de temps et des fonds insuffisants expliquent partiellement cet état de choses, on ne saurait reconnaître dans ces facteurs la cause réelle de la situation quand il se trouve des membres de facultés de sciences infirmières pour effectuer des travaux de recherche qui ne sont pas axés sur l'exercice de la profession.

Faut-il voir dans le manque de familiarité avec la pratique courante, ou le manque d'engagements significatifs dans l'exercice de la profession, des empêchements majeurs? On ne saurait formuler des questions de recherche significatives dans quelque domaine que ce soit sans avoir une bonne idée des connaissances actuelles de ce domaine. La

* Comme le démontre la mise à jour (1982) des *Canadian Nursing Doctoral Statistics (Statistiques relatives aux études de 3e cycle en sciences infirmières - 1980)* de S. Stinson, J. Larsen et J. MacPhail.

connaissance des méthodes de recherche, ou des méthodes éducatives ou des théories d'organisation ne peut combler les lacunes relatives à la pratique infirmière si le chercheur veut poser des questions pertinentes relatives à l'exercice de la profession infirmière. Nous ne sous-entendons pas par là que certains membres de facultés de sciences infirmières n'ont aucune connaissance de l'exercice de la profession, mais plutôt que leurs connaissances de la pratique courante sont insuffisantes pour leur permettre de formuler des questions de recherche importantes. Ce manque de connaissances apparaîtra dans la formulation des hypothèses, le choix des variables, de l'instrumentation ou dans un aspect quelconque de la démarche de la recherche. Heureusement, on peut circonvenir à l'insuffisance de connaissances sur la profession infirmière, mais seulement à condition d'en prendre conscience.

Jusqu'à quel point le domaine de spécialisation de l'infirmier influence-t-il les intérêts du chercheur de même que sa compétence en recherche sur l'exercice de la profession infirmière? Les infirmiers formés dans d'autres disciplines, ayant perdu contact avec la pratique courante, étudient-ils les phénomènes dans la perspective de l'autre discipline plutôt que dans une perspective de sciences infirmières? Ou bien évitent-ils plutôt, en fait, de se pencher sur les aspects de la profession infirmière?

Parmi les autres aspects étroitement associés aux facteurs qui nous détournent de la recherche qui influencent les infirmiers chargés de recherche clinique, évoquons, notamment, le manque d'harmonie entre les objectifs de la recherche et les méthodes utilisées. Il arrive parfois que des questions ou des problèmes soient déformés pour être ajustés à une méthode alors qu'en réalité la nature du problème devrait guider le choix de la démarche.

Bien que la discussion qui précède sur les facteurs qui nous détournent de la recherche dans l'exercice de la profession infirmière semble indiquer que le besoin de programme de troisième cycle en sciences infirmières constitue la plus grande priorité au Canada, il est important de reconnaître que de solides programmes de recherche et des modèles de rôles de chercheurs chez les professeurs sont des ingrédients essentiels de la formation de troisième cycle dans toute discipline. Ainsi notre plus grande priorité est de nous engager, individuellement et collectivement, à améliorer la qualité et la quantité de la recherche dans le domaine de l'exercice de la profession infirmière, c'est-à-dire de mettre sur pied des études axées sur le type de connaissances dont les infirmiers ont besoin et qu'ils utilisent dans l'exercice de leur fonction. La recherche visant à développer les connaissances de sciences infirmières et à préciser les fondements scientifiques de l'exercice de la profession doivent porter sur le comportement de la personne en réaction aux cir-

constances qui requièrent une intervention infirmière — en rapport tout autant avec des personnes malades qu'avec des personnes bien portantes — et le comportement des personnes intéressées et de leurs familles en réponse à cette intervention.

En plus de l'engagement individuel et collectif à l'égard de la recherche sur l'exercice de la profession infirmière, il faudra modifier le système d'encouragements au sein des facultés de sciences infirmières afin de récompenser la recherche clinique, l'enseignement axé sur la recherche, et offrir un leadership dans l'élaboration d'une profession axée sur la recherche.

Janetta MacPhail, Ph.D., F.A.A.N.
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LETTERS

Omitted Reference

The following reference was omitted from the article "Community Health Assessment" which appeared in Vol. 14, No. 1, pages 31-46:

Stewart, M., Lethbridge, B., & Somboon, O. *A description of the community of Sackville, Nova Scotia, focusing on health care and social isolation.* Unpublished manuscript, Halifax: Dalhousie University, 1976.

Miriam Stewart, Assistant Professor, School of Nursing, Dalhousie University.

Essence of Nursing

My letter today is basically to present an idea for a future edition of *Nursing Papers.* I am wondering if you would consider it timely and also significant to request the submission of articles on the essence of nursing. I attempt to keep abreast of *Nursing Papers,* however I may have overlooked an edition focusing on the definition of nursing in the past. Perhaps it is my own interest in the topic that leads me to think that such an edition would be well received. I have begun work on an article that attempts to examine the essence of nursing from a rather different point of view. Perhaps educators could be encouraged to view the problem of defining nursing with creative and open minds.

Edna M. Wallhead, Assistant Professor, School of Nursing, Lakehead University, Thunder Bay, Ontario.

Editor's Note: Are there some contributors for this idea?

A CLINICAL INSTRUCTION OBSERVATION TOOL

Caroline L. Park

In nursing the clinical education experienced by a student greatly affects future performance as a nurse. The clinical experience provides opportunity for the student to integrate classroom theory and laboratory skill. It is also often the time when a student and/or the clinical instructor make(s) a decision about whether the student will make a satisfactory nurse or not. The integration of knowledge and skill and student evaluation are powerful factors in the preparation of a nurse. These factors are influenced by the clinical instructor's ability to facilitate a smooth transition from learner to practitioner. It would be of value to know what clinical instructors do to assist students in making this transition.

LITERATURE REVIEW

A search of the literature pertaining to clinical instruction leads to the conclusion that little research has been directed toward the basic analysis of clinical teaching behavior. What are the behaviors associated with the clinical instructor role? Which behaviors are effective? Which are ineffective?

Authors have presented characteristics of effective clinical instructors drawn from clinical incident reports (Heidgerken, 1952; Barham, 1965; Jacobson, 1966) and from literature reviews (Butler & Geitgey, 1970; Rauen, 1974; Kiker, 1973; Norman & Haumann, 1978). Others (Infante, 1975; Guinée, 1978) draw ideas from general education writers such as Jerome Bruner, Robert Gagné and John Dewey and propose the optimum role of a nursing instructor. For example, "Instead of judging the student's practice, the teacher assists the student in investigating his own practice and leaves the valuing process and the decisions to change to the student" (Infante, 1975: 27). None have reported actual descriptions of clinical instruction and those with suggestions on teaching in the clinical area are not specific.

CLINICAL SETTING

Clinical setting is a very broad term encompassing any environment where a nurse interacts with a patient. The more obvious settings are

Caroline Park, B.N., M.Ed., is Assistant Professor, The University of Alberta. This study was the thesis requirement for a Master of Education.

hospital wards, clinics, nursing homes and other institutions but could also include private homes, business and industry. One reason why little observation research is done in any field is the necessity of informed consent of all involved. To observe a nurse clinical instructor, not only her permission is required but that of students and patients involved, and usually the management of the institution or industry as well.

OBSERVATION TOOL

The author shadowed four diploma nursing clinical instructors on wards of a large urban teaching hospital. The study form was non-participant observation. Subjects were chosen from those who volunteered after the project was explained to the teaching faculty of one school. The findings are not meant to be representative, so factors such as convenience for researcher and subjects were considered in the choice. During the eight hour observation of each instructor, interactions of patient-student-instructor were tape recorded. Non-verbal behaviors (defined as instruction activities, not facial expressions or voice tones) were manually recorded. These verbal and non-verbal behaviors constituted the data which were coded and analyzed by computer. Once the subject instructors had been chosen, dates for observations were established. On the observation date, all students being clinically supervised by the subject were asked to sign consent forms voluntarily. All patients, assigned to the above mentioned students were approached, informed about the study, and asked to sign consent forms. If a student or patient did not wish to participate (as was the case with one student and one patient) then the observer did not follow the subject instructor when she interacted with either of them.

Table 1

Descriptive Data on Observation Sessions

Subject	Level of Student	Number of Students	Number of Patients	Interaction Time	Number of Behaviors Recorded
1	Senior	5	11	105 min	472
2	Senior	5	21	45 min	261
3	Intermediate	7	7	180 min	818
4	Senior	2	4	30 min	156
Total		19	43	360 min	1707
Average		4.75	10.7	90 min	426

Direction of Behavior

With a minimum of three individuals involved in each interaction, the instructor's behavior must be identified by its direction, i.e., toward the student or toward the patient. Occasionally "others" become involved in the interaction, i.e., visitors, other patients, other employees, and this was recorded.

Type of Behavior

The behaviors fell into three broad categories: questions, statements and actions. Each category is further divided into specific behavior descriptors.

Question Descriptors

1. closed
2. open-ended
3. rhetoric
4. query
5. direction
6. caution

Closed questions ask for a specific response, usually nothing beyond agreement or disagreement, or age, location, etc.

Open-ended questions allow the respondent to verbalize any amount or type of information he or she chooses.

Rhetoric questions are posed to emphasize a point or introduce a topic and no answer is expected.

A query is posed to ensure that the respondent comprehends a situation, i.e., OK?

A direction is an instruction how to do something in a question format, i.e., You want to put the light on?

A caution is a warning, i.e., Are you sure you want to do that?

Statement Descriptors

1. fact
2. explanation
3. positive acknowledgement
4. negative acknowledgement
5. direction
6. caution
7. opinion
8. encouragement
9. regulatory

Factual statements convey information which is known by actual observation or authentic testimony.

Explanations provide information to make one's meaning clear or to give an account of one's intentions or motives.

Positive acknowledgement admits truth, i.e., OK, yes.

Negative acknowledgement indicates incorrect or inappropriate behavior i.e., no, uh uh.

Directions regulate or guide behavior.

Cautions indicate a warning or monition.

Opinions include beliefs or feelings not based on proven knowledge.

Encouragement indicates statements of positive acknowledgement going beyond validation and expressing superiority, i.e., great, good.

Regulatory statements cover comments used to control or regulate communication or verbalizations of social custom.

Action Descriptors

1. demonstrate
2. assist
3. indicate
4. encourage
5. caution
6. habit
7. nursing practice

Demonstrate means showing by example how to do a task.

Assisting is demonstration when done by a role model but here indicates helping to complete a task, saving time, or lending a hand.

Indicate is the action of pointing at something.

Encouragement is a positive or supporting touch.

Caution is a negative or holding back touch.

Habit indicates a non-functional repetitive behavior.

Nursing practice includes behaviors which must be done to practice safely or efficiently but are not demonstration or assistance, i.e., hand washing.

External Validity

The tape recordings of verbal interactions were transcribed to print with descriptions of non-verbal behaviors integrated as they occurred. Five individuals were invited to independently code a sample of interactions using

the possible combinations of behaviors identified by the author. The reliability scores ranged from .81 to .91.

INSTRUCTOR PROFILES

The observation produced 1707 behaviors. These behaviors were coded into the possible combinations of behaviors and analyzed by computer for percentage distribution of occurrence.

Direction of Behavior

All four instructors directed more than 60 percent of their behavior toward the student. Twenty-six to thirty-six percent was directed toward the patient and only two to six percent was directed toward others.

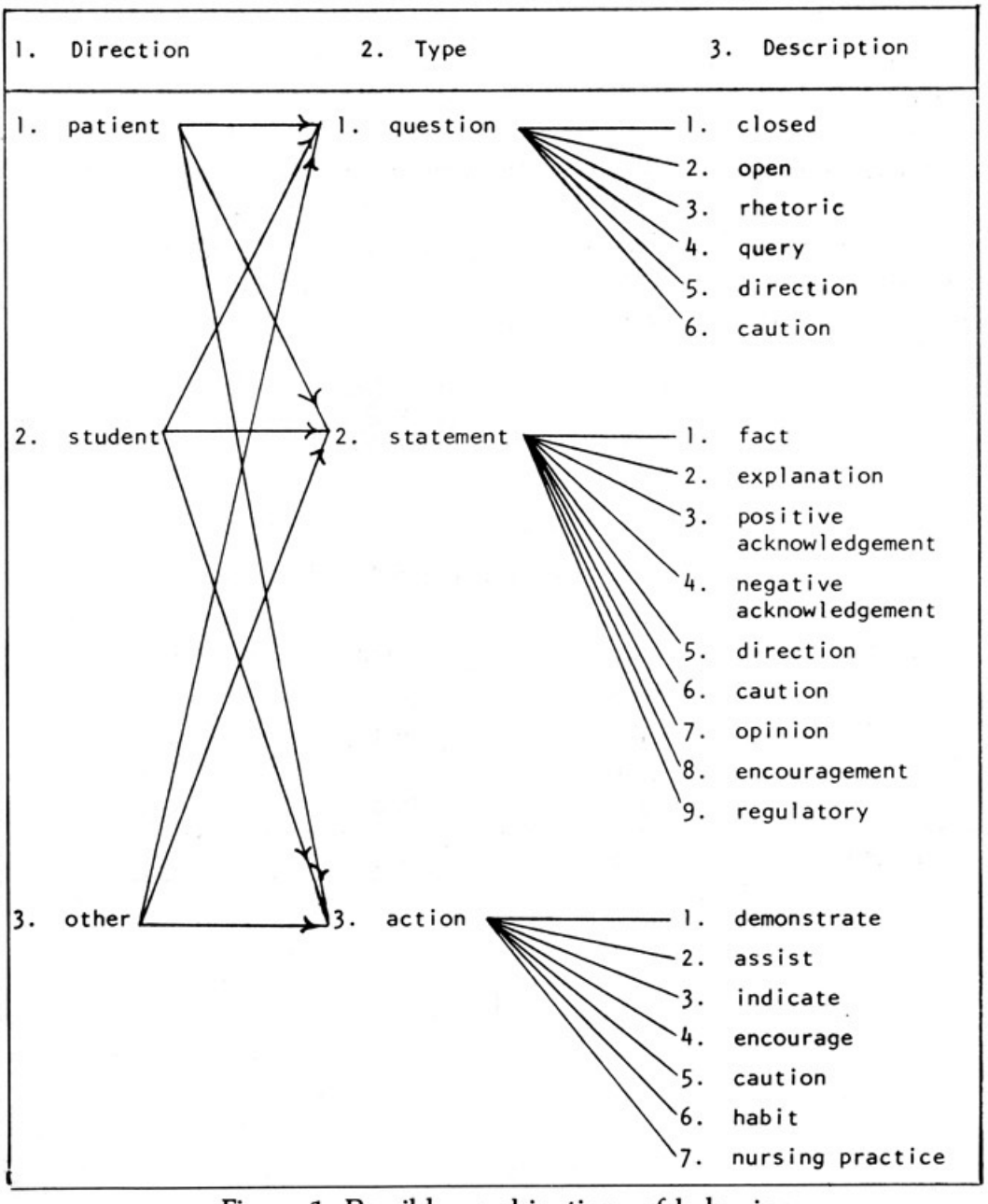

Figure 1. Possible combinations of behaviors.

Table 2

Percentage Distribution of Types of Behavior

Subject	Question	Statement	Action
1	20.6	73.7	5.7
2	21.1	70.9	8.0
3	25.1	67.8	7.0
4	23.1	54.5	22.4
Average	22.4	66.7	10.8

Type of Behavior

In all cases statements composed the largest percentage of the behaviors observed and actions the smallest. The distributions were similar for all subjects, with the exception of the higher percentage of actions for subject four and the lowest percentage of statement behaviors. This phenomenon might be explained by the fact that the patients in the clinical setting of subject four were children. Subject four appeared to touch the children and demonstrated nursing practice with the children more than instructors working with adult patients.

Table 3

Percentage Distribution of Directions of Behaviors

Subject	Student	Patient	Other
1	70.3	26.7	5.7
2	60.9	36.4	2.7
3	63.0	34.5	2.5
4	68.6	26.9	3.8
Average	65.6	31.1	3.7

Analysis

Analysis of the coded data led to a profile of behavior for each instructor. One profile is included as an example of the type of feedback each instructor received.

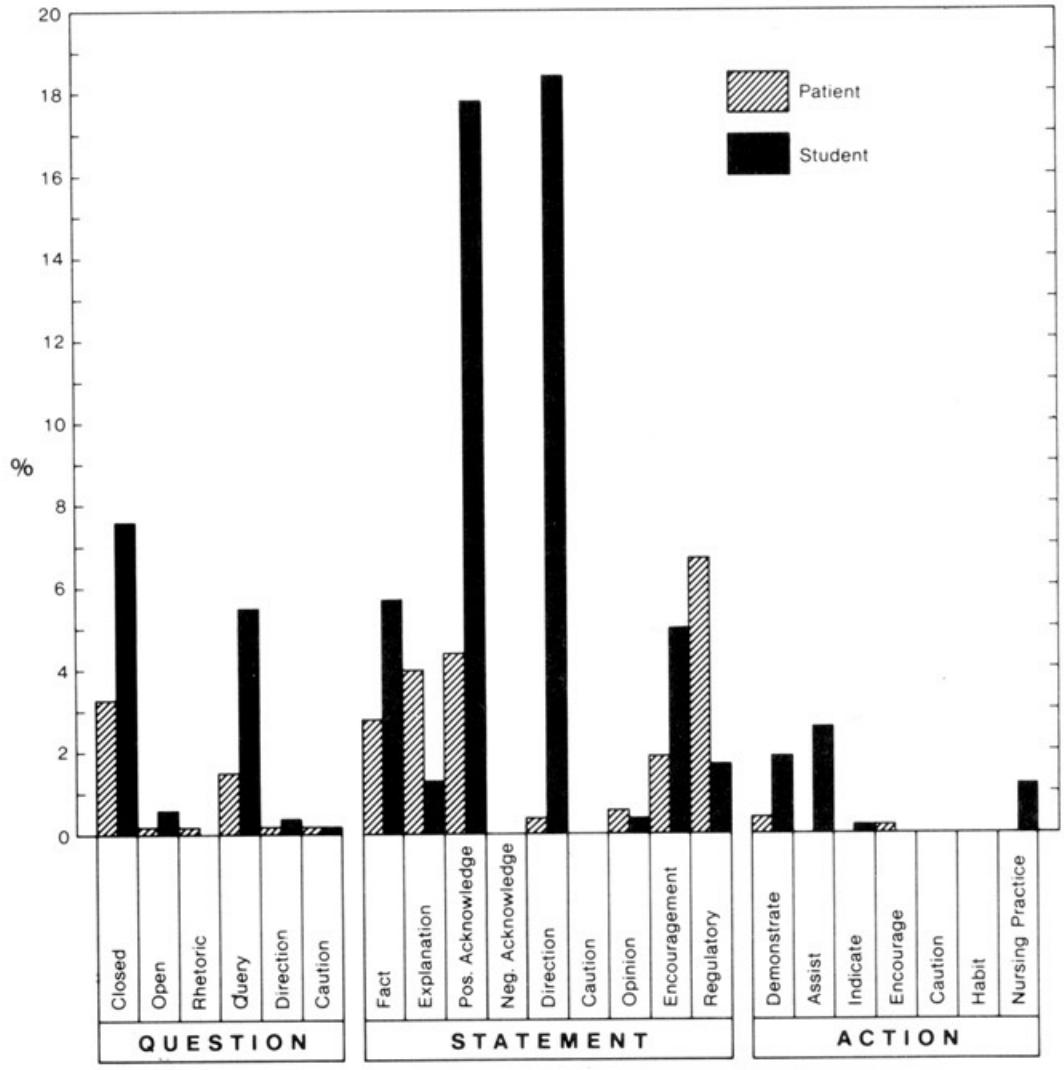

Figure 2. Instructor profile

CONCLUSIONS

An examination of the data indicated the following:

1. The clinical nursing instructors involved in this study used similar types of behavior in the clinical setting.
2. Most observed behaviors of the instructor were directed to the student.
3. Most questions asked were of a closed variety.
4. Most statements used were to give the student positive acknowledgement. This was followed by direction giving and then information giving.
5. Non-verbal behaviors did not have a pattern of frequency of use.
6. Behaviors directed toward the patient were mainly closed questions, fact giving or positive acknowledgement.

IMPLICATIONS FOR USE

Personal

It is particularly difficult for nursing instructors to obtain feedback about their clinical instruction ability. Those individuals normally involved in this setting are often preoccupied. Students are learners and have the added stress of being observed for the prupose of their evaluation. The patients have their own stresses related to illness and hospitalization, as well as those of being "practiced on" by a student nurse. Neither is in a good position to evaluate clinical instruction. An objective "outsider" with an impersonal check list tool could provide the clinical instructor with a performance profile.

Date:	Subject:	# Students:	# Patients:
Time:			

DIR	Patient																			
	Student																			
	Other																			
QUESTION	Closed																			
	Open																			
	Rhetoric																			
	Query																			
	Direction																			
	Caution																			
STATEMENT	Fact																			
	Explanation																			
	Pos. Acknowledge																			
	Neg. Acknowledge																			
	Direction																			
	Caution																			
	Opinion																			
	Encouragement																			
	Regulatory																			
ACTION	Demonstrate																			
	Assist																			
	Indicate																			
	Encourage																			
	Caution																			
	Habit																			
	Nursing Practice																			

Figure 3. Clinical instruction behavior observation tool

A bank of profiles made available with expanded use of the tool and correlational studies with student evaluation would provide the instructor with norms of the "desirable" profiles for comparison's sake.

Administrative

Isolated use of this observation tool does not have any place in administrative evaluation on its own. The small but significant aspect of clinical instruction assessed here is but one component of many that compose clinical instruction. The behaviors have not been identified as effective or ineffective in the instruction of student nurses in the clinical area and the value of specific behaviors may change with the circumstances, e.g., factual statements might be more appropriate with beginning students than with students nearing the end of their program.

Developmental

Information generated by repeated use of the tool by all levels of nursing instructors can be used to establish general behavioral norms and provide a basis for building and testing behavioral theory in clinical nursing instruction.

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RÉSUMÉ

Outil d'observation d'enseignement clinique

Nous avons utilisé l'analyse de bandes magnétiques et de notes de cours obtenues alors qu'on observait étroitement quatre professeurs de sciences infirmières du niveau du diplôme dans un contexte clinique; ceci nous a permis de reconnaître trois catégories de comportement chez le professeur: questions, affirmations et actions. Les sous-catégories de comportement délimité ont été utilisées dans la conception d'un outil d'observation du comportement. On trouvera dans le graphique 2 le profil du comportement d'un instructeur: il représente un exemple du type de données que l'on peut recueillir à l'aide de cet outil. Cet outil pourrait avoir des implications sur le plan personnel, administratif et développemental.

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PERFORMANCE APPRAISAL FOR COMMUNITY HEALTH NURSES THROUGH SELF-APPRAISAL AND GOAL SETTING

L. J. Knox • R. C. MacKay

INTRODUCTION

Evaluation of nursing performance is a difficult and complex task in any health care setting. Like anyone whose work is being questioned, nurses tend to feel defensive. They often respond to their supervisors' criticisms by trying to protect themselves and their work methods. In community health nursing there is an additional problem... the supervisor has infrequent opportunities to observe the nurse in action. In the past, supervisors have relied heavily on written records of nursing actions to evaluate performance. As more research into this area of practice is completed, it is becoming clear that there are a number of problems to overcome. Supervisors have difficulty in agreeing on the rating to be given a nursing record (Engle & Barkauskas, 1979), and the assumption that written records accurately reflect nursing performance has itself been questioned (Koerner, 1981). The future must bring a fresh approach. We need to move from a judgmental evaluation of records to a developmental appraisal of nursing behaviours. We need to focus on future goals rather than past omissions. Most important, we need to trust nurses to accept accountability for their own professional behaviour.

WHY SELF-APPRAISAL AND GOAL SETTING?

Nursing personnel are frequently in short supply, and nurses continue to leave the profession, often citing the scarcity of professional growth opportunities. It is increasingly essential for nurse managers to appraise nursing performance in a way which motivates nurses to utilize their full potential, to maximize their productivity, and to develop as professionals. One method which is receiving increased attention is self-appraisal. Particularly when it is combined with goal setting, self-appraisal has potential for stimulating improved work performance and professional growth.

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Self-appraisal, goal setting, and accountability are essential for professional growth. They provide an opportunity to emphasize achievements, to encourage initiative and originality, and to focus on future growth rather than past errors. Self-appraisals which are based on a specific description of criterion behaviours also clarify what is expected of professionals in their role.

THEORETICAL FRAMEWORK

By adapting the ideas of others, a theoretical framework has been developed in which self-appraisal and goal setting are components of a model of performance (Locke, Cartledge, & Kneer, 1970; Cummings & Schwab, 1973; Bandura, 1978). This model combines ability and motivation as determinants of performance (Figure 1). Performance results in organizational outcomes such as productivity and contributions to the organizational climate, and in intrinsic outcomes for the individual such as job satisfaction. For the individual, initial feelings about one's performance may lead to the cognitive process of self-appraisal.

For some individuals, self-appraisal and goal setting are most likely to occur when they are less than satisfied with their performance. However, individuals who are accustomed to a structured self-appraisal process also tend to use it to analyze situations in which they were pleased with their performance. In this way they identify successful behaviours which can be used again in appropriate future situations. This identification of strengths as well as weaknesses may be one of the factors which motivate individuals to use the self-appraisal and goal setting process regularly. It is also the key in promoting a consistently higher level of performance.

Effective self-appraisal is neither a simple nor an automatic process. Bandura (1978) describes it as involving: a) self-observation, b) evaluation or comparison of one's own performance to a standard of performance, and c) self-evaluative reaction, for example a feel of satisfaction. The performance standard to which these self-observations are compared may be based on social comparison with other individuals or groups, comparison with one's own previous performance, or comparison with an objective standard such as a list of behaviours. The organization has many opportunities to influence an individual's self-appraisal. For example, the role model provided by the supervisor enables one type of social comparison while written standards of practice provide an objective standard.

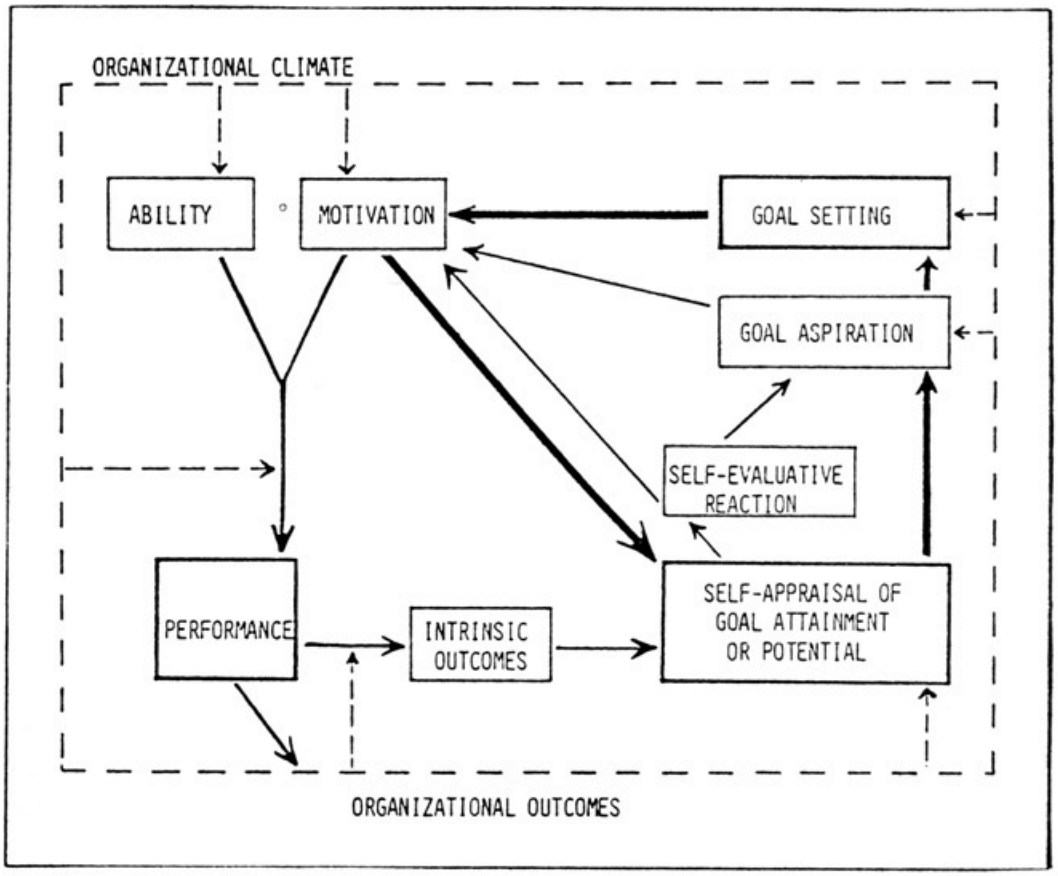

Figure 1. A model of the determinants of performance. (Adapted from L. L. Cummings and D. P. Schwab, *Performance in Organizations: Determinants and Appraisal.* (Glenview, Illinois: Scott, Foresman & Co., 1973), p. 47.)

Comparison of one's performance to a standard results in a self-evaluative reaction which may be neutral, positive or negative. This response is largely determined by one's personal standards, how highly one values the activity, and whether or not one feels responsible for one's own actions (Bandura, 1978).

Self-appraisal can result in satisfaction with one's performance and consequent maintenance of motivation to perform at the same level. Dissatisfaction can be a discouraging factor which lowers motivation to perform, or it can lead to determination to improve one's performance. This intention to do better or to change in some way is called goal aspiration. In the context used here it is developed as a general statement and usually includes the reason why the individual wants to change. For example, nurses may want to improve their communication skills so as to become more effective in their work. Since a goal aspiration does not state specifically what change is desired, it is

unlikely to be a strong motivating force. However, if the goal aspiration is translated into a more specifically stated performance goal during the goal setting process, then motivation towards behaviour change can result (Latham & Wexley, 1981, p. 148) (Figure 1).

The performance goal identifies the desired behaviour change in measurable terms. It specifies the "who, what, when, where", and states "how much" will be required for the behaviour change to be considered successful. In this way the performance goal not only provides direction and motivation for change, it also facilitates the individual's evaluation of progress toward the goal (McAshan, 1974, p. 27).

This model of performance represents an open system interacting with the larger organizational and environmental systems. It demonstrates the complexity of performance within today's rapidly changing world. Only the organizational influences will be discussed here. Cummings and Schwab (1973, pp. 48-49, 60-64) suggest that there are many ways in which the organization can influence an individual's performance. The personnel selection process, orientation procedures, and opportunities for continuing education can each have an effect on the ability of individuals to perform. The design of the tasks to be performed, and the way in which the organization describes these tasks will have a direct impact on performance. Organizations having participative developmentally oriented performance appraisal systems, can alter the meaning of performance for individuals, and the way they feel about the task itself. That is, the appraisal system influences the intrinsic outcome of performance and the consequent self-appraisal (Figure 1).

When an organization rewards or punishes behaviour, it is influencing the self-appraisal process. In a similar way, anything which clarifies the organization's expectations of its employees, will influence self-appraisal. A self-appraisal tool with specifically stated behavioural criteria provides one way of clarifying performance expectations. Such a tool also influences the goal aspiration component of the model, in that behaviours itemized on the tool are seen by some individuals as potential goals. Goal aspiration can also be influenced by participation in decision making, and by organizational factors which determine the likelihood of achieving difficult goals. For example, nurses who participate in the decision to develop a new procedure, or who contribute to its development, are more likely to aspire to become skilled at using the procedure. Organizational factors such as the supportiveness of the supervisor can also facilitate goal achievement. In addition, supervisory assistance or written instructions in setting specific performance goals can have an impact on

motivation and thus on performance. That is, individuals are more likely to be motivated to achieve difficult performance goals if they are specific, time limited, behavioural statements.

Finally, the organization can influence an individual's performance by providing incentives such as financial rewards or promotions. Both Locke (1968) and Terborg (1976) suggest that goal setting acts as a mediator between incentives and the individual's level of performance. A feedback loop in the model suggests that incentives which are intended to be motivating, may lead individuals to self-appraise their potential for attaining the proposed goal. An individual's willingness to aspire to the proposed goal will determine, at least in part, the potency of the incentive as a motivator for that individual at that time. Thus the motivating influence of the incentive is mediated by the cognitive process of self-appraisal and goal setting.

PURPOSE OF THE RESEARCH

A pilot study was designed to evaluate a portion of the theoretical model (Figure 1). In general, its purpose was to determine whether there was a relationship between the use of a self-appraisal tool and the independent goal setting behaviour of community health nurses. The literature review pointed to the usefulness of an objective list of standard behaviours against which one could compare oneself. A published list of behaviours specific to community health nursing was not found. As a result, a descriptive list of specific behaviours which are representative of current community health nursing practice was developed and pre-tested in Alberta. Detailed goal setting instructions were added. This self-appraisal tool and accompanying goal setting instructions became the focus of the study.

Study Questions

More specifically the study was designed to answer three questions. First, are there demographic factors which are related to the self-appraisal and goal setting behaviour of community health nurses? Second, when comparing the scores of nurses who use the tool to those who do not, does the use of the self-appraisal tool significantly increase a) the specificity of performance goals, or b) the job relatedness of performance goals, or c) the acceptability of the goal setting process? Third, is this self-appraisal tool valid and reliable, and what are its psychometric properties?

STUDY DESIGN

Participants were assigned at random to either experimental or control condition. The independent variable was the use of the self-appraisal tool (described in more detail later in this article). The con-

trol group was asked to self-appraise their performance and set goals without using the tool. Both groups received the goal setting instructions. The dependent variables to be assessed were the acceptability of the self-appraisal and goal setting process, the specificity of the goal which was set, and the job relatedness of the goal which was set. During the 10 week study period, these were measured for all participants both before and after the self-appraisal process. Using these pre-appraisal and post-appraisal measures, findings in the experimental group were compared to those in the control group.

The degree of acceptability of the self-appraisal and goal setting process was ranked from 1 to 4, based on the number of the following criteria present. The first criterion was the statement of at least one performance goal. Second, participants described themselves as at least "moderately" committed to the accomplishment of their performance goal (a five point scale ranged from highly to not committed). Third, content analysis of responses to open ended questions revealed at least two positive statements about the self-appraisal and goal setting process, e.g. necessary, interesting. Knowles (1975, pp. 81-89) suggests that most adults are willing to invest energy toward improving their performance of only a few selected behaviours at any one time. Thus it was not anticipated that participants would state very many performance goals. The fourth criterion however was the statement of more than one performance goal. None of the above criteria was considered to measure acceptability alone. In combination, these four criteria provided an operational definition of acceptability. Participants whose responses satisfied at least three of the criteria were rated as having accepted the self-appraisal and goal setting process.

Goal specificity was defined as the degree to which the performance goal provided direction for its accomplishment. Only the first goal stated was assessed. The specificity of the goal was ranked from 1 to 5 based on the number of required elements within the goal. Elements included in a highly specific performance goal were: whose goal it was, how it was to be accomplished, the success level desired, the situation and/or circumstances in which it was to be performed, and the target date for accomplishment of the performance goal.

Job relatedness of goals was defined as the degree to which goals were clearly related to, or required for, performance of community health nursing. Goals were ranked highly, moderately or slightly job related. Highly job related goals were closely associated with items on the self-appraisal tool. Moderate job relatedness described goals which were judged to contribute directly to community health nursing effectiveness, but which are not associated with tool items. Slightly job related described goals which were judged to be indirectly associated with community health nursing (e.g. time management).

Each of the three variables was rated by one rater after inter-rater reliability was achieved with the independent ratings of another individual. In rating acceptability, 100% agreement was achieved. The rating of specificity of goals was reliable at the .80 level. After nine hours of training, the .72 level of agreement was achieved in rating job relatedness. Scott's coefficient of agreement was used in calculating these inter-rater reliabilities (Krippendorff, 1970). Although this formula may be considered to provide a conservative estimate of reliability, the low levels of inter-rater reliability were viewed as a limitation of the study.

SAMPLE SELECTION AND POPULATION

One hundred nurses were randomly selected from the eligible population of 142 generalist community health nurses employed by the official community health agency in Nova Scotia. Community health nurses employed by voluntary agencies or private companies were not included in the study. Selected participants were assigned a numerical code to assure anonymity, and were provided with a written "agreement of participation" outlining the conditions under which the study was being conducted (anonymity, reporting procedures). Written invitations to participate were mailed to those selected. Nursing supervisors were informed by mail about the study; no personal contact was made.

Unfortunately only 21 nurses sent complete responses to all parts of the study in spite of a planned system of repeated written and phoned reminders. This low response rate may have been descriptive of the low level of interest in self-appraisal and goal setting among Nova Scotia community health nurses or it may have been due to the research methods, including the failure to build in supervisory support for participation in the study. It may also have been circumstantial. For example, there was a major reorganization of districts and caseloads in metropolitan areas one week prior to the introduction of the study. A national mail strike also complicated the method used to return the study materials. Both of these factors would have increased the nurses' work load and influenced their willingness to participate. The small sample gained was evaluated as a pilot study.

Participants were female, aged 20 to 65 with a mean age of 40. For the most part, they worked in non-metropolitan regions of Nova Scotia. Only four of these nurses had less than three years of community health nursing experience; most of them expected to continue working in community health for more than five years. A diploma in public health nursing was the highest level of nursing education achieved by 76%; the remaining 24% possessed a baccalaureate

degree in nursing. Over half of the participating nurses (57%) completed their last normal nursing education before 1957, more than 24 years ago. The findings of this study should be considered in light of the size and characteristics of the sample population.

Most participating nurses (81%) indicated at the beginning of the study that they had goals for improving their performance, and that they had initiated development of these goals themselves. However, 43% of participating nurses felt that they had only a 50% chance or less of achieving their goal. Individuals who do not feel they can achieve their goals are less likely to work towards their attainment (Latham & Locke, 1979). After using the goal setting instructions, 81% of participating nurses stated that they had a good chance of achieving their goal. It would appear that simply writing more specific goals guided these nurses to write more achievable goals. Alternatively it may have enabled them to view their goal in a more positive light. Goals which are seen as realistic and achievable are more likely to gain the commitment of the nurse, and thus are more likely to be successfully attained.

Although the study population was very small, two factors were identified as being related to the self-appraisal and goal setting behaviour of community health nurses. The five participating nurses with baccalaureate education were more receptive to the self-appraisal process. They wrote more goals, and were more committed to achieving their goals. In addition, they were more likely to describe themselves as feeling positive about the self-appraisal and goal setting process. Participants who completed their nursing education prior to 1968 were less likely to write specific goals. Presumably they were less comfortable with this process.

FINDINGS

Self-appraisal and Goal Setting Behaviour

Using the Mann-Whitney U Test, no significant differences were found between experimental and control groups (Table 1). During this pilot study the use of a self-appraisal tool over a two week period did not significantly alter the self-appraisal and goal setting behaviour of community health nurses.

Changes within each group from pre-appraisal and post-appraisal measurements were assessed using the Wilcoxon Matched Pairs Signed-Ranks Test. Both the experimental and the control group wrote goals which were significantly more specific ($p < .01$) after using the goal setting instructions (Table 2). This finding suggests that goal setting instructions can have an impact on the process of goal setting. Job relatedness of goals increased significantly ($p < .05$) only in

the experimental group, suggesting that use of the self-appraisal tool encouraged participants to write goals which were more highly job related.

Acceptability of the self-appraisal and goal setting process decreased in both the experimental and control groups, although the decrease was more marked in the control group (Table 2). Both groups of participating nurses wrote fewer goals after using the goal setting instructions. Perhaps writing more specific goals increased their awareness that they were committing themselves to change. An equally possible explanation is that the support of nursing management was not planned as part of the study. In this study, self-appraisal and goal setting were required in addition to the nurses' usual workload and the agency's regular process of performance appraisal.

Table 1

Standard Scores of Pre-appraisal and Post-appraisal Differences between Experimental [a] and Control [b] Groups for Dependent Variables (Mann-Whitney U Test)

Dependent Variable	Standard Score	
	Pre-treatment	Post-treatment
acceptability	.9025*	.8153*
specificity	.3131*	.3792*
job relatedness	1.7824**	1.4308*

Note. [a] $n = 12$, [b] $n = 9$.
*one-tailed $p > .05$ (not significant), **one-tailed $p < .05$.

Table 2

Standard Scores of Intra-group Changes in Dependent Variables between Pre-appraisal and Post-appraisal Measures (Wilcoxon Matched Pairs Signed-Ranks Test)

Dependent Variable	Group	
	Experimental [a]	Control [b]
acceptability	−1.677**	−2.366***
specificity	2.803***	2.666***
job relatedness	2.201**	1.483*

Note. [a] $n = 12$, [b] $n = 9$; *one-tailed $p > .05$ (not significant), **one-tailed $p < .05$, ***one-tailed $p < .01$.

The Self-appraisal Tool

The self-appraisal tool tested in this study included 73 items stated in personal and behavioural terms (See Table 3 for examples). Each behavioural item was allocated to one of seven job dimensions associated with giving nursing care: assessing, planning, implementing, and evaluating (the nursing process), teaching, communicating, and developing professional behaviour. The nursing process was chosen as the basis for the tool so as to ensure that all aspects of nursing care were included. Teaching, communicating, and professional behaviours were added to this framework because they were considered particularly critical behaviours for community health nurses. Thus the seven job dimensions provided a framework which encompassed both the science and the art of nursing.

The reliability of the tool was assessed by using Cronbach's alpha coefficient to estimate internal consistency within each dimension of the tool. Reliabilities ranged from .71 to .95 (n=12) and were considered satisfactory.

Table 3

Sample Items from Self-appraisal and Goal Setting Tool©

In implementing nursing care... I modify care on the basis of ongoing assessments.
I teach my colleagues... by sharing new information.
In furthering my development as a professional... I appraise my nursing performance regularly.
To establish a climate for a helping relationship... I clarify the purpose of the interview.

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The face validity, content validity, and construct validity of the self-appraisal tool were assessed. Face validity was claimed based on input from practising community health nurses in a variety of locations. Content validity was evident in the strong support in the literature for the dimensions included in the tool (ANA, 1980; CNA, 1980; CPHA, 1977; Freeman, 1970; Freeman & Heinrich, 1981; Gazda, Walters, & Childers, 1975; Leahy, Cobb, & Jones, 1977). The nursing process, teaching, and communication have been widely accepted as components of community health nursing for over two decades; more recently professional development has also been viewed as essential (Cooper, 1980, p. 50; O'Connor, 1978, pp. 405-406).

Discriminant construct validity using the "known groups" technique was not successfully demonstrated at this time. The "known groups" used were based on type and date of completion of nursing education (Table 4). In this small study population, these factors did not adequately discriminate among the self-appraisal frequency of performing the nursing behaviours described in the self-appraisal tool. Further assessment of this type of validity will be carried out in a subsequent study, using "known groups" identified by supervisors.

Table 4

Means of Total Scores [a] of Self-appraisal Ratings by "Known Groups" of Public Health Nurses

"Known Groups"	Group Mean
< 1 year public health experience [b]	28.0
>1 year public health experience [c]	28.4
With 1 year public health experience:	
nursing education 1967-1981[d]	27.6
nursing education before 1967[e]	29.4

Note. [a] Total scores for each case represent the sum of the median scores from each of the seven dimensions on the self-appraisal tool.
Maximum possible total score = 35. [b] $\underline{n} = 1$, [c] $\underline{n} = 20$, [d] $\underline{n} = 11$, [e] $\underline{n} = 9$.

The way in which the tool was used by participants was also assessed. Contrary to the expectations of some administrators, nurses did not tend to be lenient, nor to exhibit central tendency in rating their performance on all dimensions of the tool. The full range of the five point Likert-type frequency scale was used, from "rarely" to "always" perform this behaviour. Participating nurses were also able to recognize their skill in performing one performance dimension from their skill in performing another of the seven dimensions of community health nursing behaviour. That is, in general, their appraisals did not demonstrate a halo effect. Intercorrelations among the total median scores of each dimension of the self-appraisal tool were computed using the Pearson product moment correlation coefficient. With all but two dimensions the correlations were sufficiently low (ranging from .19 to .67) that it was reasonable to assume that the dimensions were measuring unique aspects of community health nursing performance.

The "assessing" and "planning" dimensions of the tool were an exception since they were perfectly correlated ($r = 1$, $p = .001$). These two dimensions appeared to overlap, or were perceived by participating nurses to be measuring similar aspects of performance. Subsequent studies will determine whether this was an idiosyncratic response. The lack of halo effect in most parts of the tool supports the literature which predicts that nurses will be more familiar with their work performance than their supervisors. Particularly in community health nursing, the supervisor's appraisal is likely to be overly influenced by the one or two aspects of the nurse's performance with which she is familiar, resulting in the problem of halo effect.

SUMMARY OF FINDINGS

This pilot study examined the self-appraisal and goal setting behaviours of a small sample of Nova Scotian community health nurses working in mainly non-metropolitan areas. Participating nurses appraised their own work behaviour and established performance goals. The appraisals completed were based on a self-appraisal tool and reflected the ability of participating nurses to recognize their relative skill in performing nursing behaviours. Detailed goal setting instructions helped participating nurses to develop highly specific goals which they viewed as being more achievable than goals which they had set previously. These goals were job related, and aimed at improving the performance of nursing skills. The findings of this pilot study suggest that participating community health nurses were able to self-appraise their nursing behaviours, and set goals for improving those behaviours.

Although the reliability, validity, and psychometric properties of this self-appraisal tool were assessed, the small sample size did not allow the investigator to view the findings with confidence. The findings were sufficiently positive however to encourage further research.

SUBSEQUENT STUDY

In the course of this pilot study, four factors having major implications for subsequent studies were identified. First, it was felt that the validity, reliability and psychometric properties of the self-appraisal tool needed to be demonstrated more firmly before more complex studies involving the use of the tool were undertaken. A subsequent study now under way in Alberta does not attempt to assess the complex relationships between self-appraisal and goal setting; rather, it is focused on the self-appraisal tool. Only minor changes were made in the tool prior to using it in the subsequent study.

Second, it seemed clear that nursing supervisors would need to be involved a) by being knowledgeable about the self-appraisal and goal setting process, b) by endorsing study participation as a legitimate activity for community health nurses, and c) by identifying community health nurses thought to be highly skilled. As a result, the Alberta study required the attendance of nursing supervisors at a two hour workshop. During the workshop the investigator explained the process of self-appraisal and goal setting, and described the study. Nursing directors and supervisors committed themselves to participate and also undertook to encourage their community health nurses to participate.

Third, a much larger study population appeared essential. Although it was felt that nursing supervisor involvement would improve the response rate, the subsequent study attempted to gain the participation of the total community health nursing population in Alberta.

Fourth, the pilot study findings suggested that some demographic factors, including type and recency of nursing education, might influence the self-appraisal process. Analysis of selected demographic factors is planned in the Alberta study.

CONCLUSION

The pilot study reported here suggested that self-appraisal and goal setting may be a viable process for community health nurses. Both the literature review and these preliminary findings indicate that a specific list of behaviours representative of community health nursing may be useful in focusing the self-appraisal process. Detailed goal setting instructions appeared to assist nurses in writing highly specific goals. However, no firm conclusions can be drawn from this small pilot study except to suggest that further study is required. A subsequent study focusing on the self-appraisal tool is now under way in Alberta.

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RÉSUMÉ

Évaluation de rendement des infirmiers en santé communautaire par l'auto-évaluation et la formulation d'objectifs

Il arrive trop souvent que l'évaluation de la qualité du travail soit à l'origine d'un comportement défensif plutôt que de l'amélioration du rendement professionnel. Lorsqu'on associe l'auto-évaluation à la formulation d'objectifs, les infirmiers sont mieux en mesure d'identifier leurs besoins d'améliorer la qualité de leur travail et de demander l'appui de leurs supérieurs pour faire face à ces besoins. Le présent article décrit une étude pilote concernant le processus d'évaluation du rendement chez des infirmières en santé communautaire et il fait appel à l'utilisation d'un outil d'auto-évaluation ainsi qu'à des instructions relatives à la formulation d'objectifs.

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THE ROLE OF COMPLEX EQUIPMENT IN NURSES' WORK: TOWARD THE DEVELOPMENT OF A MEASURE

Sharon Campbell • Peggy Leatt

One result of recent advances in medical science has been a phenomenal increase in the availability of sophisticated equipment with which to diagnose, monitor and treat disease conditions. This has been a major factor in altering the work environment of nursing staff as nurses are called upon more and more frequently to monitor and operate sophisticated equipment and to use mechanical devices in their practice (Lenihan, 1977). In some nursing speciality areas, such as ICU's, CCU's, and renal units, reliance on equipment is an important factor in treatment.

Most discussion to date has entered upon nursing roles in relation to technological change (Henderson, 1978; Peplau, 1977). Few attempts have been made to measure, define or even classify the levels and/or types of equipment which may be employed in giving nursing care. Definition of equipment technology seems particularly imperative at this point in order to scientifically examine the impact that increased use of equipment has on work environments and on nursing care.

The purpose of this research was to obtain a measure of nursing technology in different nursing units. Specific research objectives were: 1) to develop a measure of equipment technology that would measure the impact and use of equipment and differentiate between nursing speciality units; 2) to explore nurses' perceptions of the technological dimensions "uncertainty", "instability" and "variability" in selected nursing units; and 3) to examine the relationships between the above named technological dimensions and the measure of equipment technology. It was expected that nurses working in units with a high degree of equipment technology would hold low uncertainty, high instability and high variability perceptions.

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Nursing Technology

Generally studies of nursing technology have focused on delineating tasks, functions, procedures, and technical skills in relation to hospital nursing practice (Ellis, 1977). Farmer (1978) in a descriptive study of nursing activities relative to technology asked nurses in different hospital units to identify technical objects (instruments and machines) in their work area, and to count the average number of contacts per hour. Nurses working in units with many mechanical supports were subsequently ranked as having the highest technical activity. Leonard and Rogers (1978) surveyed 40 graduate and student nurses to find out the extent to which nursing functions were evaluated in terms of traditional or technical skills. Traditional skills were defined as those providing physical and emotional support for patients; technical skills were those utilizing mechanical equipment to provide care.

Ogonowski (cited in Birckhead, 1978) looked at nursing time spent in computer related activities, patient teaching activities and bedside care activities in the psychiatric and surgical units of a large hospital. Nurses (N = 49) spent 22.6% of their time giving basic nursing care, 15.6% performing computer related activities and 5.1% teaching, counselling or socializing with patients. Ogonowski concluded that computer technology did not necessarily allow for increased nurse-patient contact.

Lewandowski and Kramer (1980) rank ordered four types of nursing units on the a priori assumption of specialized nursing knowledge and skills. Special care units were ranked most technical, followed by parent child units, medical-surgical speciality units, and medical-surgical units. This study recommended that an empirical measure of nursing technology be developed that could be used to differentiate between nursing speciality units.

Organizational Technology

At an organizational level, technology has been defined by Perrow as those actions performed by an individual to bring about changes in the raw material (Perrow, 1967), and included the conditions of work, the type of raw material and the degree of routineness or non-routineness. Variability of work referred to the number of exceptional cases encountered and analyzability of search behaviors referred to the extent that knowledge about raw materials was known and available to bring about the desired change. Kovner (1966) measured two aspects of technology; the variability and predictability of work in relation to decision making and communication skills. Overton,

Schneck and Hazlett (1977) utilized Perrow's framework to describe three technological dimensions: uncertainty, instability, and variability; and differentiated between seven types of nursing subunits (N = 71). Intensive care subunits had a distinct technology while auxiliary and psychiatric subunits had similar technologies with pediatric, obstetrical, rehabilitative and surgical units being of similar type.

Leatt and Schneck (1981) replicated the Overton et al. study using nine different nursing units (N = 157) to establish reliability and validity of the tool. The same dimensions of technology emerged and nursing units showed the same pattern of differentiation. Given the increasing use of equipment in health care systems, it would seem appropriate to continue toward developing a measure of technology in order to study the impact of such on nurses and nursing.

METHOD

The main purpose of this study was to describe and examine the relationships between four variables of technology. The variables examined in this study were organizational technology — specifically uncertainty, instability and variability; and equipment technology. The following theoretical and operational definitions of these variables were used.

1) *Equipment Technology:* the degree to which the machinery was used to assist or replace some or all aspects of human functioning (Amber & Amber, 1962). Operationally this referred to the type, function, and use of equipment in providing patient care (life support, monitoring); the physical features (alarms); prominence in patient care areas; and degree to which nurses needed specialized knowledge.

2) *Organization Technology:*
   a) Degree of Uncertainty: the degree to which there was insufficient knowledge about the nature of raw materials and the probability of success when different techniques were applied. This was measured by the number of patients with multidiagnoses presenting complex nursing problems; and the extent to which nursing techniques were complex, relied on nurses' intuition and feedback from patients (Overton et al.).
   b) Degree of Instability: the degree to which there were fluctuations in raw materials and techniques as measured by the number of emergencies and the number of patients requiring technical monitoring, frequent nursing observations and attendance (Overton et al.).
   c) Degree of Variability: the degree to which there are variations among the raw materials and techniques. The number of pa-

tients who presented a wide variety of health problems and the extent to which nursing techniques varied for each patient (Overton et al.).

The study population consisted of 89 full time nurses employed on four distinct, randomly selected, nursing units in one acute care hospital in Edmonton, Alberta; 14 nurses from the renal unit, 16 from the medical unit, 26 from the psychiatric units and 33 from the intensive care unit. These types of nursing units were chosen based on the results of Overton et al. and Leatt and Schneck. Participation was voluntary and anonymity of responses assured.

A 25 item questionnaire (Appendix) was used to collect the data. Nine items, three from each technological dimension were randomly selected from Leatt and Schneck. Items 19, 24 and 25 provided a measure of variability, items 20, 22 and 23 measured uncertainty and items 15, 18 and 21 instability. The wording of the questions, the range of possible responses and the scoring of responses were identical. Items were measured on a five point scale of percentages ranging from 0-5%, 6-25%, 26-50%, 51-75% to 76-100%. The 5 point response scale was considered conceptually equidistant and for analysis purposes the points were given numerical values ranging from 1 to 5. Based on the literature and personal experience of the author 16 items were generated to measure equipment technology. Five items (Nos. 7, 8, 10, 12, 14) were intended to describe certain features of the equipment, two items to give a measure of the purpose for which equipment was used (Nos. 1, 2), and nine items (Nos. 3, 4, 5, 6, 9, 11, 13, 16, 17), the use of equipment in performing nursing care. Eleven of the 16 items were measured on a four point Likert type scale, identical to that used by Leatt and Schneck, with a range of numerical values from 1 to 4; three questions relating to nursing time used a five point percentage scale, and two questions required dichotomous yes-no answers.

Face validity of these 16 items was established through review by 14 nurses with clinical and teaching experience. All items received agreement from at least 12 of the 14 experts.

The questionnaire was administered to individual nurses over a period of one month in the spring of 1980 and there was a 97.8% response rate.

RESULTS

Nursing Organization Technology

Composite scores were calculated for each dimension by adding nurses' responses to items measuring the same technological variables, and analysis performed on these results. It was anticipated that the

three dimensions of organization technology, uncertainty, instability and variability, would discriminate between nurses on different types of nursing units and this was confirmed (Table 1). Rank ordered mean scores indicated that nurses in the intensive care unit perceived their patients to be highly unstable physiologically, while psychiatric nurses, also with a high score, perceived their patients to be psychologically unstable. The medical and renal nurses had lower scores. Uncertainty which largely measured psychosocial needs, was ranked highest by psychiatric nurses, then renal nurses, medical and intensive care nurses. When variability of patients' diagnoses and nursing tasks was examined, medical nurses and psychiatric nurses ranked highest. Nurses working in the intensive care unit and the renal unit reported lower variability scores.

Table 1

Ordering of Nurses from Different Types of Units on Mean Scores for Technology Variables

Variability

High					Low
	MED NURSES	PSYCH NURSES	ICU NURSES	RENAL NURSES	
	9.13	8.36	7.34	4.21	

Uncertainty

High					Low
	PSYCH NURSES	RENAL NURSES	MED NURSES	ICU NURSES	
	11.40	8.00	7.50	7.25	

Instability

High					Low
	ICU NURSES	PSYCH NURSES	MED NURSES	RENAL NURSES	
	10.06	8.50	7.88	7.86	

Equipment Technology

Factor analyses were performed on all responses for the 16 items and a three factor orthogonal solution with varimax rotation was found to be the most interpretable (Table 2). One item was eliminated and the remaining 15 items accounted for 59.6% of the total variance.

Table 2

Factor Analysis Orthogonal Solution Varimax Rotation

Item Number*	Item Content	Commun-alities	Critical Care Equipment	Diagnostic Equipment	Equipment Apprehension
01	Use of monitoring equipment	0.765	0.578	0.584	0.015
02	Use of life support equipment	0.890	0.921	0.203	−0.004
03	Nurse frequently operates equipment	0.836	0.874	0.178	−0.201
04	Nurse repairs equipment	0.345	0.573	0.122	−0.030
06	Equipment alarms	0.781	0.817	0.326	0.086
07	Equipment noisy	0.601	0.762	0.047	0.134
11	Assembling equipment	0.492	0.604	−0.041	0.354
12	Equipment in bedside area	0.667	0.804	0.112	0.085
14	Extensive training required	0.499	0.664	−0.140	0.197
13	Assist others who use equipment	0.608	0.324	0.650	0.285
17	Work load decreased	0.734	0.053	−0.835	0.185
05	Patient care delayed	0.465	0.126	0.148	0.572
08	Frustration with equipment	0.416	0.373	0.208	0.527
09	Apprehension re: operating equipment	0.487	−0.240	−0.097	0.648
16	Time with patient decreased	0.496	−0.061	0.357	−0.604
		8.936	5.818	1.858	1.260

* The items have been re-ordered from the original (Appendix) for ease of viewing loadings of .50 and greater on each factor. Loadings of .50 and greater are underlined.

The first factor, critical care equipment, accounted for 38.8% of the total variance. This factor indicated that nurses were frequently responsible for the use and/or operation of monitoring or life support equipment (items 1, 2, 3, 4, 11) in performing nursing care. Complexity of equipment was measured by nurses' frequent response to alarms (items 7, 16) and expressed need for extensive training (item 14). A large proportion of the patients' bedside area was reported taken up by equipment (item 12) suggesting the predominance of technical equipment.

Diagnostic equipment accounted for 12.4% of the total variance. Nurses were frequently required to assist other health professionals using monitoring equipment (items 1, 13) thereby increasing nurses' perception of their workload (item 17). The monitoring equipment was likely used for diagnostic or investigational procedures and required much task oriented nursing time.

Equipment apprehension, the third factor accounted for 8.4% of the variance. The infrequent use of equipment (items 1, 2) caused nurses to be apprehensive (item 9) and frustrated (item 8). Nurses reported they spent more time at the bedside (item 16), probably due to the unfamiliar equipment or delayed patient treatments because needed equipment was not available (item 5).

Table 3

Ordering of Nurses from Different Types of Units on Mean Factor Scores

Factor I: Critical Care Equipment

High	RENAL NURSES	ICU NURSES	MED NURSES	PSYCH NURSES	Low
	1.25	0.52	−0.62	−1.24	

Factor II: Diagnostic Equipment

High	ICU NURSES	PSYCH NURSES	MED NURSES	RENAL NURSES	Low
	0.65	0.48	−0.02	−0.75	

Factor III: Equipment Apprehension

High	MED NURSES	RENAL NURSES	ICU NURSES	PSYCH NURSES	Low
	0.32	0.14	−0.11	−0.20	

DIFFERENCES IN FACTOR SCORES BETWEEN NURSES

In order to discriminate between nurses working on different nursing units for the three equipment technology factors, factor scores were calculated with a mean of 0 and a standard deviation of 1 (Table 3).

Nurses from the renal unit ranked highest for critical care equipment, because of the complexity and predominance of dialysis machines, followed by nurses in the intensive care unit, and then medical nurses and psychiatric nurses. Intensive care nurses had the highest mean score for diagnostic equipment since this type of patient usually required many tests and procedures. Renal unit nurses had the lowest mean score with nurses working in psychiatry and medicine between these two. Mean scores for equipment apprehension showed, not surprisingly, that medical nurses were highest and renal nurses were next highest, probably because equipment failure delayed patient care. Psychiatric and intensive care nurses had the lowest ranked scores.

RELATIONSHIPS BETWEEN SUBUNIT TECHNOLOGY AND EQUIPMENT TECHNOLOGY

The nature and magnitude of the relationships between subunit technology and equipment technology were measured using the Pearson product-moment correlation coefficient (Table 4).

Table 4

Pearson Correlation Coefficient Relationships Among Measures of Instrumentation and Subunit Technology

	Instability	Uncertainty	Variability
Instability			
Uncertainty	0.08		
Variability	0	0.07	
Critical Care Equipment	0.16	−0.44	−0.54
Diagnostic Equipment	0.39	−0.19	0.21
Equipment Apprehension	0.10	−0.03	−0.04

Note: If it is assumed that these nurses were randomly sampled from a larger population a Pearson correlation coefficient of 0.25 or greater would be significant at 0.05 level.

Critical care equipment was negatively correlated with variability (−0.54) and uncertainty (−0.44), suggesting that the greater the use of complex equipment the less variation there was in patients and nursing tasks and the more certainty there was in applying successful nursing techniques. There was a positive correlation between the instability factor and diagnostic equipment (0.39). Fluctuations in patients' conditions were associated with a need for many diagnostic procedures, and collaboration with other health professionals (task interdependence) and subsequent increased workload. No other strong relationships were found among the other factors.

DISCUSSION

Overall nurses' scores for these factors seemed logically related to each type of nursing unit when patient characteristics and nursing tasks and responsibilities were considered. Although the correlation coefficients were not high, the mean scores were in the predicted direction, suggesting that nurses' speciality units were consistent.

It was not surprising to find a positive relationship between the instability dimension of subunit technology and the factor diagnostic equipment. Nurses working in areas where patients' physiological condition fluctuated unpredictably and emergencies frequently occurred were also involved in assisting with diagnostic procedures. Rank ordering of the different units were in the same order for both measures, with intensive care nurses being highest and renal nurses lowest.

The majority of patients in the intensive care unit required technical monitoring of physiological instabilities, frequent nursing observations and many diagnostic tests. Nurses worked closely with other health professionals, particularly physicians, in responding to emergencies and changes in patients' conditions. Renal nurses cared for patients with chronic, stable conditions who experienced few emergencies. Patients with end stage renal failure were treated on an outpatient basis and seldom required diagnostic tests or procedures that involved these nurses.

The negative correlation between critical care equipment and uncertainty implied that the greater involvement nurses had with the operation of complex equipment, and the greater technical training and skills required, the more likely nurses were to be certain about what nursing techniques would be successful. Patients had similar health problems, required the same type of nursing care. Nurses working in units with low uncertainty and high critical care equipment (intensive care and renal) relied on feedback from equipment monitoring systems. Psychiatric nurses, on the other hand often had insufficient

knowledge about patients' conditions and about the likelihood of being successful in providing patient care. Nurses relied on patient input, nursing intuition and independent decision making in planning care.

There was a negative correlation between critical care equipment and variability, suggesting that in nursing units where complex equipment was a major factor in treatment plans, patients were likely to have similar diagnoses and there was little diversity in nursing techniques that could be successfully applied. Although patients in the intensive care unit were seriously ill, all had "multi-system failure" and required sophisticated but somewhat routine nursing care. Nurses working in medicine however, dealt with a variety of patients but had little contact with life support or monitoring equipment. Individualized patient care planning and attention to the psychosocial needs of the patient and family were major factors inherent in the uncertainty variable, and were evident on the medical unit.

The expected relationships between a high degree of equipment technology and low uncertainty, high variability and high instability were generally met, as seen by scores of the intensive care nurses. Psychiatric nurses were the opposite with high uncertainty and low scores for critical care equipment.

NURSING IMPLICATIONS

Results of this study have implications for both nursing practice and education. The limitations of this study should be kept in mind when reviewing the implications.

Nurses working in intensive care units, because of the emphasis on equipment oriented activities, would benefit from frequent inservice programs focusing on new procedures or equipment. Although much nursing time is spent with equipment, nurses should be encouraged to also spend time attending to the psychosocial comfort of patients and families. The renal nurses had high scores on uncertainty suggesting a strong focus on patients' psychosocial needs. This practice should be supported as the success of treating patients with end stage renal failure is partly dependent on helping them adapt. Since complex equipment is infrequently required on the medical unit, clinical specialists familiar with technical equipment could be available to advise and teach nurses thereby reducing their apprehension and frustration. Psychiatric nurses use very little equipment but do require the effective use of team conferences to discuss and plan appropriate nursing care to meet the psychosocial needs of patients. Education can be directed toward helping nurses plan individualized care.

CONCLUSIONS

Results obtained in this study were similar to those obtained by Overton et al. and Leatt and Schneck suggesting some degree of construct validity. The relationships demonstrated between equipment technology and organization technology were in a logical direction offering further evidence of the concurrent validity of the Leatt and Schneck technology measure.

The findings are limited to the population studied and different results may be obtained with other nurses, types of units, or hospitals. Repeated study is suggested to further establish reliability and validity. The development of a reliable and valid measure of nursing equipment technology will allow other researchers to study impacts of increasing technology on many different aspects of nursing care and nursing behaviors.

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APPENDIX

EVEN THOUGH SOME OF THE QUESTIONS ARE COMPLEX WE WOULD APPRECIATE YOUR ANSWERING ALL ITEMS AND GIVING YOUR OPINIONS ABOUT THE QUESTIONS ASKED.

A. ABOUT YOUR WORK ENVIRONMENT

BESIDE EACH OF THE STATEMENTS BELOW, PLEASE INDICATE BY CHECKING (✓) THE ONE ANSWER THAT MOST CLOSELY REPRESENTS YOUR OPINION.

1. HOW MANY OF THE PATIENTS ON YOUR UNIT REQUIRE SOPHISTICATED MONITORING EQUIPMENT (E.G., CARDIAC MONITOR, IVAC IV REGULATOR) AT SOME TIME DURING THEIR STAY ON YOUR UNIT? (CHECK ONE)

_____ALMOST ALL OR ALL
_____MANY
_____FEW
_____ALMOST NONE OR NONE

2. HOW MANY OF THE PATIENTS ON YOUR UNIT REQUIRE LIFE SUPPORT EQUIPMENT (E.G., VENTILATORS, DIALYSIS MACHINE) AT SOME TIME DURING THEIR STAY ON YOUR UNIT? (CHECK ONE)

_____ALMOST ALL OR ALL
_____MANY
_____FEW
_____ALMOST NONE OR NONE

3. HOW OFTEN ARE YOU RESPONSIBLE FOR OPERATING MONITORING OR LIFE SUPPORT EQUIPMENT NEEDED FOR PATIENT CARE? (CHECK ONE)

_____ONCE A WEEK OR LESS OFTEN
_____2 OR 3 TIMES PER WEEK
_____ABOUT ONCE EVERY SHIFT
_____SEVERAL TIMES PER SHIFT OR CONTINUOUSLY

4. ON YOUR UNIT HOW OFTEN DO YOU REPAIR OR "TROUBLE SHOOT" EQUIPMENT THAT IS NOT WORKING PROPERLY AND IS NEEDED FOR PATIENT CARE? (CHECK ONE)

_____ONCE A WEEK OR LESS OFTEN
_____2 OR 3 TIMES PER WEEK
_____ABOUT ONCE EVERY 24 HRS.
_____SEVERAL TIMES PER SHIFT OR MORE OFTEN

5. HOW OFTEN IS PATIENT CARE ON YOUR UNIT DELAYED BECAUSE NEEDED TECHNICAL EQUIPMENT (NOT INCLUDING PROCEDURE TRAYS) IS NOT AVAILABLE? (CHECK ONE)

_____VERY FREQUENTLY
_____FREQUENTLY
_____INFREQUENTLY
_____VERY INFREQUENTLY

6. HOW FREQUENTLY DURING A SHIFT IS IT NECESSARY FOR YOU TO RESPOND TO EQUIPMENT ALARMS, INCLUDING FALSE ALARMS? (CHECK ONE)

_____VERY FREQUENTLY
_____FREQUENTLY
_____INFREQUENTLY
_____VERY INFREQUENTLY

7. HOW FREQENTLY DO YOU FIND THE TECHNICAL EQUIPMENT USED ON YOUR NURSING UNIT NOISY? (CHECK ONE)

_____VERY FREQUENTLY
_____FREQUENTLY
_____INFREQUENTLY
_____VERY INFREQUENTLY

8. TO WHAT EXTENT DO YOU FIND THE TECHNICAL EQUIPMENT USED ON YOUR UNIT TO BE FRUSTRATING? (CHECK ONE)

_____NOT AT ALL
_____TO SOME EXTENT
_____TO A MODERATE EXTENT
_____TO A GREAT EXTENT

9. TO WHAT EXTENT DO YOU FEEL APPREHENSIVE ABOUT BEING RESPONSIBLE FOR THE OPERATION OF TECHNICAL EQUIPMENT ON YOUR UNIT? (CHECK ONE)

_____TO NO EXTENT
_____TO SOME EXTENT
_____TO A MODERATE EXTENT
_____TO A GREAT EXTENT

10. WHAT KINDS OF ALARMS DOES THE MAJORITY OF THE TECHNICAL EQUIPMENT ON YOUR UNIT HAVE? (CHECK ONE)

_____ONLY AUDITORY ALARMS
_____ONLY VISUAL ALARMS
_____BOTH AUDITORY AND VISUAL ALARMS
_____OTHER (SPECIFY)

11. APPROXIMATELY WHAT PERCENTAGE OF NURSING TIME PER DAY DO YOU SPEND ASSEMBLING OR CALIBRATING EQUIPMENT BEFORE STARTING DIRECT PATIENT CARE ACTIVITIES? (CHECK ONE)

_____0 - 5%
_____6 - 25%
_____26 - 50%
_____51 - 75%
_____76 - 100%

12. APPROXIMATELY WHAT PERCENTAGE OF THE PATIENT'S BEDSIDE AREA IS TAKEN UP BY TECHNICAL EQUIPMENT? (CHECK ONE)

_____0 - 5%
_____6 - 25%
_____26 - 50%
_____51 - 75%
_____76 - 100%

13. APPROXIMATELY WHAT PERCENTAGE OF YOUR SHIFT IS SPENT ASSISTING PHYSICIANS OR OTHER HEALTH PROFESSIONALS WITH PROCEDURES IN WHICH TECHNICAL EQUIPMENT IS USED ON YOUR UNIT? (CHECK ONE)

_____0 - 5%
_____6 - 25%
_____26 - 50%
_____51 - 75%
_____76 - 100%

14. HOW MUCH TRAINING DO NURSES ON YOUR UNIT NEED BEFORE USING ANY OF THE STANDARD TECHNICAL EQUIPMENT WITHOUT SUPERVISION? (CHECK ONE)

_____LESS THAN ONE WEEK
_____1 - 2 WEEKS
_____3 - 6 WEEKS
_____MORE THAN 6 WEEKS

15. ON YOUR UNIT THERE ARE MANY EMERGENCIES WHEN IMMEDIATE NURSING ACTIONS MUST BE TAKEN IN RESPONSE TO CHANGES IN PATIENTS' CONDITIONS. (CHECK ONE)

_____STRONGLY AGREE _____DISAGREE

_____AGREE _____STRONGLY DISAGREE

16. IN GENERAL, DOES THE EQUIPMENT USED ON YOUR UNIT ALLOW YOU TO SPEND MORE TIME GIVING DIRECT PATIENT CARE? (CHECK ONE)

_____YES _____NO

17. IN GENERAL, DOES THE EQUIPMENT USED ON YOUR UNIT DECREASE YOUR WORK LOAD? (CHECK ONE)

_____YES _____NO

BESIDE EACH OF THE FOLLOWING STATEMENTS PLEASE INDICATE YOUR RESPONSE BY CHECKING (✓) ONE.

IN ALL QUESTIONS YOU ARE ASKED TO ESTIMATE A PERCENTAGE.

	PERCENT				
	0-5%	6-25%	26-50%	51-75%	76-100%
18. IN YOUR ESTIMATION, WHAT PERCENTAGE OF PATIENTS ON YOUR UNIT NEED NURSING OBSERVATIONS MORE OFTEN THAN ONCE EVERY HALF HOUR?	( )	( )	( )	( )	( )
19. WHAT PERCENTAGE OF THE PATIENTS WOULD YOU SAY HAVE SIMILAR HEALTH PROBLEMS (OR DIAGNOSES)?	( )	( )	( )	( )	( )
20. WHAT PERCENTAGE OF THE PATIENTS ON YOUR UNIT HAVE COMPLEX PROBLEMS THAT ARE NOT WELL UNDERSTOOD?	( )	( )	( )	( )	( )
21. ON SOME UNITS THERE IS GREATER PRESSURE TO GIVE NURSING CARE QUICKLY BECAUSE OF PATIENTS' CRITICAL CONDITIONS. WHAT PERCENTAGE OF THE TIME IS THERE A GREATER TIME PRESSURE ON YOUR UNIT?	( )	( )	( )	( )	( )
22. WHAT PERCENTAGE OF THE NURSING CARE ON YOUR UNIT IS DIRECTED AT MEETING PATIENT'S SOCIO-PSYCHOLOGICAL NEEDS (AS OPPOSED TO PHYSICAL NEEDS)?	( )	( )	( )	( )	( )
23. WHAT PERCENTAGE OF THE NURSING CARE GIVEN RELIES UPON NURSES' INTUITION RATHER THAN ON SET PROCEDURES OR ROUTINES?	( )	( )	( )	( )	( )
24. WHAT PERCENTAGE OF THE NURSING CARE PROCEDURES ARE SIMILAR FOR MOST OF THE PATIENTS ON YOUR UNIT?	( )	( )	( )	( )	( )
25. WHAT PERCENTAGE OF THE DECISIONS MADE BY NURSES DURING THEIR WORK ARE REPETITIVE FROM ONE DAY TO THE NEXT?	( )	( )	( )	( )	( )

RÉSUMÉ

Le rôle de l'équipement complexe dans le travail infirmier: vers la mise au point d'une mesure

Cette étude avait trois objectifs: 1) décrire les techniques de soins infirmiers en termes de facteurs d'organisation; 2) mettre au point une mesure de l'effet et de l'utilisation de l'équipement au sein des unités de soins infirmiers et 3) étudier les rapports entre les techniques d'organisation et les techniques relatives à l'équipement. Bien que l'on reconnaisse généralement l'importance relative de la technologie croissante et de son effet sur les milieux de travail, peu de tentatives visant à établir une mesure de l'équipement qui pourrait être utilisée en pratique infirmière, ont été effectuées.

Des infirmiers de quatre unités spécialisées (médecine, psychiatrie, dialyse rénale et soins intensifs) ont participé à l'étude (N=89). On a administré un questionnaire de 25 points pour lequel on a obtenu un taux de réponse de 97.8%. Les analyses de données ont été réalisées sur le total des résultats des réponses individuelles des infirmiers. Les méthodes statistiques utilisées ont été les analyses factorielles et les coefficients de corrélation de Pearson.

L'analyse factorielle de la mesure de la technologie de l'équipement semble indiquer que trois variables sous-tendent l'utilisation de l'équipement en soins infirmiers: 1) l'utilisation directe d'équipement complexe de survie et (ou) d'équipement de surveillance, 2) l'utilisation de l'équipement d'épreuves diagnostiques qui requiert la participation de l'infirmier dans le cadre d'une tâche spécifique et 3) l'appréhension des infirmiers qui doivent se servir d'un équipement qui ne leur est pas familier. On a tenté de préciser une mesure de la technologie de l'organisation d'après les résultats de l'étude Overton, Schneck et Hazlett (1977). Les trois facteurs mesurés se rapportaient à l'incertitude, la variabilité et l'instabilité de l'état des malades et des tâches des infirmiers chargés des soins aux malades. Les rapports démontrés entre la technologie de l'équipement et la technologie de l'organisation sont compatibles avec les caractéristiques des unités de soins infirmiers et les types de tâches infirmières réalisées. Les observations semblent indiquer que les unités de soins infirmiers présentent différents types de technologie d'équipement et d'organisation qui peuvent dépendre du type de patients et de soins dispensés. Les résultats de cette étude sont surtout de nature descriptive et l'on recommande de poursuivre la recherche dans ce domaine.

MOTHERS OF DISABLED CHILDREN: A STUDY OF PARENTAL STRESS

Marilyn Mardiros

INTRODUCTION

Parents of a child with a disability have an expanded and exaggerated role. Both mother and father are expected to fulfill societal requirements in being parents, as well as being expected to meet the specific needs arising due to the disability. This child demands more time and attention. Acceptance of the child is difficult, being hindered by accompanying feelings of guilt, anger, depression, self-blame and/or blaming the spouse (Copel, 1973). Society expects the parents to cope with having a disabled child, holds the parents responsible for socializing a disabled child to be like other children and yet expects the child to know his place among the "not normal", the stigmatized (Goffman, 1963).

The mother is the primary socializing agent of the child. She must help the child learn to conform in his social behavior and to learn the skills of daily living even when the child is handicapped. Yet she is not provided with supports when her child is not capable of achieving the same as the non-handicapped child.

This study was designed to gain understanding into the mother's perception of her experience vis-a-vis her child, given that her perception determines her emotional state, her attitude toward her child, herself, and her family, and dictates her current intervention with this child.

REVIEW OF THE LITERATURE

A woman prepares herself for her role with her child during pregnancy (Blum, 1980). The mother anticipates her future role and begins social and psychological adjustment to the role by learning the expectations of the role (Thornton & Nardi, 1975). The mother, and the father, separately develop an image of the ideal child. After the birth parents resolve the differences between the ideal and the real child (Solnit & Stark, 1961). This becomes a difficult task when the infant deviates from the normal, societally acceptable baby. The shock

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of having an abnormal child may make it difficult for a parent to accept the child (Crout, 1979). Parents grieve the loss of the normal child while acceptance of the defective child begins. This grief is reactivated throughout the life of the parent at significant developmental stages (Olshansky, 1962). Crout (1979) traces this chronic sorrow through school age, as parents become more aware of the stigma attached to the child's abnormality and on to adulthood, when care becomes more difficult for the aging parents who worry about the child after their death.

The mother is particularly vulnerable when a child is handicapped (Featherstone, 1980). Typically the mother is closer to the situation, is more aware than the father of the disability, and feels more responsible (Marcus, 1977). The mother is the primary care giver and the main object of attachment for a child and her attitudes are in large part determined by the characteristics of the child (Blumberg, 1975). Her sense of achievement rests far more on her children's physical and emotional perfection than does her husband's (Featherstone, 1980). A mother hopes others will see her child as socially worthwhile, productive and accepted. The mother's perception of the situation and her infant's and others' response to her in her role influence her behavioral responses toward the child (Russell, 1974). Adaptive maternal behavior is influenced favorably by the mother's perceptions of the amount of positive support she receives (Mercer, 1981).

Feelings of anguish, guilt, shame, self-degradation, self-blame, and depressive attitudes are common among mothers of infants with any kind of physical defect whether congenital or acquired after birth (Copel, 1973). She does not receive the positive feedback, the smiles, the passing of developmental milestones, the social amenities afforded the parent of a healthy child. Developmental and emotional progress is slower, and time, energy and money don't seem to pay off in comparison to the energy invested in the handicapped child (Tyler & Kogan, 1972).

Klaus and Kennell (1976) identify that society has no customs, traditions, or rites to support parents when they need it most, when they have a baby who is abnormal. This, in part, has resulted from rapid urbanization and industrialization which have altered the role expectations, decreased access to the extended family, and have compounded the isolation and practical difficulties experienced by families in caring for the severely handicapped (Darling, 1979; Crout, 1979). Without norms governing parent-child interactions and expectations when the child is different, the mother has no criteria by which to evaluate herself in her role as a mother of a handicapped child (Strom et al., 1981).

The lack of societal guidelines in parenting a handicapped child, the loss of a normal child, and unrealistic expectations placed on the mother led this investigator to ask the questions guiding this study:

1. What is the mother's perception of her role in parenting a disabled child?
2. What are the stresses associated with the mother's role in parenting a disabled child?
3. Are there specific factors which act as supports to the mother of a child having a disability?

METHODOLOGY

An ethnographic study was developed for the purpose of exploring the experience of female parents of children with disabilities. A qualitative approach was taken so that women would tell about how their lives were influenced by their child who was different from the 'norm'. The study occurred over eight months in 1981 and was conducted by this investigator.

Setting

Participant observation occurred at a small university based clinic which provided services to the public in corrective therapy for orthopedic problems resulting from neuro-muscular dysfunction. Interviews were done in the mother's home and, on occasion, at a restaurant upon a mother's request.

Population

Twelve mothers, each having a child with cerebral palsy, consented to serve as informants for the study. The mothers comprised the total population of mother-child dyads attending the clinic. The study was approved by subject's rights committee of the university.

Participant observation

Eight hours per week over the eight months were spent by the investigator in interacting with, observing, and recording the mother's behaviors while at the clinic. Fieldnotes were taken on maternal-child-therapist interactions, on staff attitudes toward the mothers and children, on nonverbal and verbal communication, and on the mother's behavior toward her child and the therapy. This information served to give the investigator insight into the mother's experience and was necessary for developing interview questions. Observations were used in conjunction with informant interviews (Pelto & Pelto, 1978).

Interviews

Each mother was interviewed outside of the clinic for two hours per month. Three questions were asked at the initial interview. What services have you attended because of your child? What did you expect from each service? What did you think was expected of you at each service? Demographic information was also obtained at this interview. This was the only structured interview and was developed in order to obtain chronological information about the mother's experience. Questions 2 and 3 came into being because the word "expect" was frequently heard by the investigator at the clinic, being used by therapists and mothers.

The remaining interviews were either semi structured or unstructured and evolved from observations at the clinic and from content taken from prior interviews as well as focusing on topics of the mother's choice. Fieldnotes were taken during the interviews.

Analysis of Data

Demographic information was collected and tabulated to identify charactistics of this population. Information on services attended and expectations of these services, as well as observations from the clinic, served as input into interviews and as such are not included in this report. A componential analysis was done on the interviews to discover the psychological reality of the informant's world. Interviews were searched for contrasts in themes and entered into a paradigm. This process occurred for each interview and the information was shared with the informants who validated and added further information (Spradley, 1979).

FINDINGS

Demographic information revealed a relatively homogeneous population. All families were of European background, intact, nuclear, with both biological parents present. All parents had completed high school with 60% of mothers and 80% of fathers holding college degrees. 90% of mothers were between the ages of 27 and 35.

Information about the disabled children is seen in Table 1. The children ranged in age from 3 to 17 years with nine children below the age of seven. Ten were male. Two children, both male, were considered to be subnormal in intelligence and were being mainstreamed in schools. Five were youngest children, three were oldest and four were only children, with nine being first born. Only two had more than one sibling and these two children were both oldest. No child had younger and older siblings.

Table 1

Characteristics of the Disabled Child

Sex		Age at Diagnosis		Current Age in Years			Number of Siblings				Rank Order of Siblings	
Male	Female	Birth	8-9 mos	3-5	6-10	11-17	0	1	2	3+	older	younger
10	2	5	7	7	4	1	4	6	1	1	5	3

Six mothers stated that they were afraid to have any more children although four of these had one younger child; two having only one child. "There's no guarantee of having a normal child." "We waited seven years to have him. Nothing should have gone wrong." "We're afraid to try again." The responsibility of caring for another child and the need to focus on self was also expressed. "That's it! I want to go back to work," and "I have no time for myself now!"

Each mother stated her reason for the disability. These included: intra-uterine hemorrhage, intrauterine infection from working in a viral lab, "poor facilities" (the family was working in a remote village in South America), no MD present at time of delivery, high forceps delivery, no oxygen available and Rh incompatibility. Only one mother stated that there was no reason. All mothers in the study were familiar with the literature on cerebral palsy, and that the etiology could be traced to physical maternal factors. These mothers assumed the responsibility (guilt) for the disability.

Componential analysis revealed that mothers of children with a disability saw themselves as being under stresses unique to the female parent role. This tacit premise permeated all interviews and interactions and was the major cultural theme of the paradigm. Positive attributes/supports were also identified which helped mothers cope with their situation. Table 2 summarizes the results of the study as related to the cultural theme of stress.

Mothers delineated and placed in priority six major sources which resulted in stress. There was 100% agreement on the identification and ordering of this list. Stress was seen as something negative which made life more difficult for the mother. Each source generated specific stresses which placed demands on the mother. Mothers then identified positive attributes that were helpful in alleviating stress. It should be noted that of these attributes many had not been personally experienced, as seen by the numbers in Table 2, but all attributes had been identified as ideals and were optimistically relied upon to make life better for both mother and child.

Table 2

Components of the Cultural Theme of Stress

Major Sources of Stress	Specific Stresses Experienced	Positive Attributes/ Supports
1. SELF	Feelings of guilt (12) Being the main care giver (12) Having an abnormal child (12) Feelings of stagnation/ isolation (12) Unrealistic expectations of self and others (12) Inadequate energy to meet own and others' needs (12) Low self-concept (12) Inability to return to work as planned (8 out of 8)	Maintaining a hopeful attitude (11) Having healthy children (8) Sharing self with spouse (5) Satisfaction with role and responsibilities (6) Setting realistic goals (5) Previous experience in coping with stress (4) Realistic grieving (8)
2. CHILD (DISABLED)	Lack of acceptance by others (11) Meeting physical demands/ pain, discomfort of the child (12) Inability to communicate with the child (7) Slow progress (12) Concern about the child's future (12)	Personality of the child (11) Strengths within the child (11) Reciprocating of needs (11) Belief in the sanctity of life (12) Being MY child (12)
3. HUSBAND	Lack of communication and support (11) Financial burden (12) Needing his support (11) Lack of intimacy (11)	Sharing responsibility (5) Communicating openly (1) Providing monies (12) Male companionship (7)
4. PROFES-SIONALS	Inaccurate/inconsistent information (12) Lack of support (12) Fragmentation of services (12) Emphasis on negative aspects of the disability (12)	Not harming child (3) Providing support for mother (5) Providing information, alternatives and outcomes about treatment (7)
5. SOCIETY	Lack of customs/supports (12) Imposed isolation and roles on mother and child (12) Stigmatization of child (12) Superstitions about disability (12)	Treating the child fairly as a unique individual (3) Acceptance of mother and child (2) Parent support groups (10)
6. FAMILY & FRIENDS	Lack of support/acceptance/ understanding (12) Inadequate time and energy for others (12) Being isolated from others (12)	Support and acceptance of mother and child (8) Valuing father's involvement with child (7)

NOTE: Numbers indicate the number of mothers having actually experienced each dimension of stress and of support.

Mothers identified themselves as the major stress causing agent and their child as the second most important source. Two themes reoccurred consistently in the interviews. The first was that mothers blamed themselves as being the direct cause or contributing to the cause of the disability. Self blame and guilt were reinforced every time the mother was made aware of the child's deviation from the norm, the mother being constantly reminded that this child would never be the socially ideal child. The second theme that continuously generated stress was that mothers felt themselves to be the primary, and often only care giver. Rarely could these mothers physically and emotionally release themselves from their child and entrust the child's care to another.

The only positive attribute stemming from within each mother was hope. Two levels of hope were identified. One level was considered to be realistic. All mothers had faith that others would accept the disability, hoped for autonomy, happiness and productivity in the child's future. The second level was considered to be unrealistic, that of a reversal of the disability or at least of some of its effects.

Mothers were able to assess the positive attributes of the child and placed the negative attributes of the disability in perspective, focusing on the whole child. Mothers were also cognizant that the child fulfilled needs within her.

Husbands were identified as the third most common source of stress. Only one mother spoke positively about her husband, attributing this to good communication between them. Attitudes are best summarized by one mother who stated, "He has retreated into his work. He only hears about the outcomes but never experiences what I have to go through when we get more bad news or when our son cries because he's afraid or in pain."

Worth noting is that 10 of the children were male. Mothers were uncertain whether this influenced fathers' involvement, although they thought it might. Two mothers made specific reference to this. "He tries but he's just not sure what to do for this child of ours. He wanted a son so badly." Another father, the parent of a severely retarded child, had never touched his son in the five years since birth, although he was very affectionate to a younger female child.

Anger was expressed toward some husbands for not being involved in the labour and delivery of the child. One mother states, "He just left when things were getting tough. That's when I really needed him." This anger remains with her after eight years.

Health and education professionals were identified as the fourth source of stress. Mothers were asked to identify the most difficult ex-

perience in having this child. All responses referred to the helping professions. Being given conflicting diagnoses, being told the child was mentally retarded when he was not, being told to institutionalize the child (none of the children in this study had been institutionalized), and not being given hope, were common complaints. To quote: "I've been disappointed over and over in professionals," "Professionals! I guess they mean well, but they don't understand how to help," and "They've never really helped me."

The mothers who brought their children to the physician at eight or nine months already knew something was wrong because the child could not stand. One mother brought her child to a family physician who had the child examined by a team of specialists. "On Friday he called to tell me the team had bad news and that my husband and I were to come to his office Monday morning. Well! You can just imagine the type of weekend I had."

Mothers were asked about the usefulness of professionals. Mothers wanted help, but acknowledged that what they needed as help, and what professionals saw as being helpful and necessary, were frequently quite different things. "You see, again I have to fight with them to make them understand what my child needs. Why won't they listen to me. I know my child."

The final areas identified as generating stress included society, and family and friends. All mothers found it difficult to tell others about the disability. There was little social conversation about the child. People would not ask about the child and mothers did not receive positive feedback. Friends and relatives appeared to be uneasy around the child and mother. Talking on the phone and visiting or being visited decreased after the diagnosis of the child in all instances. Society has no traditions to support parents when they need it most, that is, when they have a baby who is abnormal. A mother pointed out, "When you've got a normal baby everyone has advice to give. But that's not when the advice is needed."

All mothers described a self-imposed isolation. This was done to conserve resources. "I just can't handle not talking about him as if he didn't exist." Mothers would look toward the husband for the support once provided by friends. When this support was not forthcoming mothers turned to their relationship with their child.

The most helpful support was the parent support group. These were self groups made up mostly of mothers with disabled children. The orientations of the groups were social with secondary psychological and educational objectives.

DISCUSSION

All mothers in this study saw themselves as alienated and isolated from society. They were above all else mothers of children for whom society had no significant, inclusive or consistent support. Mothers were expected to fulfill the female parent role with no outside direction, or alteration in expectations in parenting for the special needs of this child.

This study is limited by the homogeneity of the population, sample size and non-random selection of informants. However, the results of the study as seen in Table 2 and through the quotations in this report demonstrate complex psychodynamic and sociocultural factors acting on the female parent. Statements were made by mothers that reflected their view of life. Whether experiences occurred years ago or yesterday made little difference. What happened in the past, both stress and support, became an intricate part of the present. Current perceptions are based on the past. The mothers in this study did not develop an inclusive list of stress and support. They recalled what was meaningful to them now.

One of the responsibilities of nursing is to work within the framework of any given individual to assist that individual to maximize health, according to his or her definition of health, and to achieve the highest state of quality of life within his or her capability and desire. However, as individuals and professionals we, like the people we serve, are bound by our society, and, as such, are frustrated by the lack of guidelines available to the parents of handicapped children. The framework that guides our interventions is nebulous. The mothers in this study begin to give us the guidelines in what they found made life more difficult for them and in what they found, or would like to have available to them as supports.

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RÉSUMÉ

Mères d'enfants handicapés: étude du stress chez les parents

L'éducation de l'enfant handicapé physique est une responsabilité à laquelle la plupart des parents sont mal préparés. Les besoins spéciaux de l'enfant handicapé sont à l'origine d'un stress additionnel chez les parents; il s'agit par ailleurs d'un stress auquel peu de parents peuvent faire face efficacement. Les modes d'adaptation existants sont mis à l'épreuve chez chaque mère ou père.

Le présent article traite de l'expérience subjective de la mère et examine sa vie face à son enfant. Une étude ethnographique a été réalisée pendant huit mois auprès de douze mères d'enfants atteints de paralysie cérébrale. L'analyse des notes recueillies sur le terrain fait apparaître un thème culturel de stress unique chez la mère. Les mères ont raconté comment elles prenaient soin de leurs enfants et elles ont identifié six sources de stress: la mère elle-même, l'enfant infirme, le mari, les spécialistes, la société, enfin la famille et les amis. Les sources ont été analysées et l'on a identifié des stress spécifiques émanant de chaque source. Les mères ont également identifié les points forts ou les attributs positifs de chaque source. Les résultats de l'étude sont résumés et des citations pertinentes soulignent les observations utiles dans le contexte clinique.

INSTITUTIONAL COLLABORATION IN EXTENDING PROFESSIONAL EDUCATIONAL OPPORTUNITIES FOR NURSES

Roberta Carey • Geoff Peruniak

INTRODUCTION

Baccalaureate education is widely recognized as being desirable for an increased number of practising nurses. The Alberta Association of Registered Nurses has been on record for many years as supporting university level preparation for nurses.

There are a number of approaches available to educational institutions so that they may open their doors to more students. One is to increase the enrolment in the basic baccalaureate program, a step under consideration by the Faculty of Nursing at the University of Alberta. But what about the many nurses with R.N. diplomas practising in the field? How can we assist them to obtain a B.Sc.N. degree? Post-R.N. degree programs are now available at three Alberta universities: Edmonton, Calgary and Lethbridge. Provisions are also made in other provinces in Canada to integrate the R.N. in the baccalaureate program (*Canadian Nurse*, 1980). However, these programs generally require the student to attend university for at least two years, a block of time available to only a small percentage of the R.N. population. In addition, the R.N., as an adult learner, possesses unique characteristics that must be taken into consideration by the institution offering the up-grading (Cross, 1981). For example, the mature nurse-student at the University of Alberta will be a woman, on the average 33 years old, married with a number of family responsibilities. Given today's economic conditions, she is also frequently working and her income is a necessary contribution to her family or to her personal support. University attendance entails a loss of essential income. Because the programs are centered in major cities, a move is often required, causing a major disruption in the student's life and that of her family. Also, she may be in a particular career position which she is loathe to sacrifice.

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Because of these characteristics of the nurse-learner, the Faculty of Nursing of the University of Alberta committed itself in two ways to facilitate baccalaureate education. Arrangements were made to take the university to the students rather than requiring the students to come to the university. This was done by making courses leading to the baccalaureate degree available to students outside of Edmonton. Courses were offered in two centres, 150 and 250 kilometres from Edmonton. The first-year courses of the programs are spaced over a period of two years at the end of which the students enroll full-time in Edmonton for two terms to complete their residential requirement. Consequently, R.N.'s with family and work commitments can work toward their degree without any major personal upheavals, though it will take them approximately a year longer than it would if they were on-campus students.

The second way the faculty endeavored to facilitate degree attainment was in collaboration with Athabasca University in the development of the required non-clinical nursing courses. Athabasca University is a unique distance-learning institution in Edmonton. Students do not attend classes. They complete the course work at home with the help of a tutor from Athabasca University.

THE COLLABORATIVE RESPONSE

Athabasca University, established in 1970, is Alberta's fourth university. It is a regular member of the Association of Universities and Colleges of Canada, and offers three-year undergraduate degrees leading to the Bachelor of Arts, Bachelor of General Studies, and Bachelor of Administration. Its mandate is to provide opportunities for higher education to adults who, because of choice or circumstances, cannot attend a traditional university. Athabasca University has tried to remove many of the barriers which have prevented adults from participating in higher education. For instance, the university has minimal prerequisites for entry to its courses, enrolments occur all year round, and the course materials are modularized to allow for self pacing. The courses make use of a combination of print, television, radio and telephone, and more recently, satellite. However, print still provides the main framework for most courses. All courses are supported by a tutorial network which allows students an important human resource during the course.

Learning in any university course involves both content and process. Because of the uniqueness of the delivery process at Athabasca University, courses are developed by teams in which each member contributes personal expertise to the final product.

It is interesting to note that Athabasca University has found the post-R.N. students to be one sector of its adult student population which does extremely well in this delivery system. They are achievement-motivated, goal-directed and capable of imposing the self-discipline necessary for distance learning. For instance, approximately one-third of Athabasca's introductory psychology course is made up of nurses (133). In general they complete the course with the highest marks, in the least time, and have the fewest dropouts. While it is typically part of the phenomenon for open universities such as Athabasca to have completion rates between 30-50% (Shale, 1980, 1982), nurses tend to complete at much higher rates, between 60-70%.

Athabasca University and the Faculty of Nursing at the University of Alberta worked jointly on the production of several courses geared to the educational needs of practising nurses. Athabasca benefits by adding both courses and students to its programs at reduced cost and the University of Alberta Faculty of Nursing benefits by diminishing pressure on its oversubscribed post-R.N. program. Hopefully, practising nurses would benefit by having access to courses which they otherwise would not have been able to take.

The idea of the collaboration was for both universities to contribute to the development of the courses and for Athabasca University to deliver those courses subsequently. Some of the courses developed were exclusively for nurses, while others had a more general application in view of the undergraduate population of Athabasca University (e.g., adult development, child development, introductory psychology). The Faculty of Nursing provided subject-matter consultants and Athabasca University provided the delivery and process experts. Each course was produced by a different team made up of the following members: a subject-matter consultant from the Faculty of Nursing; a course manager, an instructional developer, a visual designer and an editor from Athabasca University.

The subject-matter consultant provided the content expertise for the course, formulated learning objectives, and authored the study guide. The course manager facilitated the whole oparation and attempted to maintain the time schedule. The responsibility of the instructional developer was to ensure a high quality of teaching by matching course objectives to the learning materials and, subsequently, to the formative and summative evaluation mechanisms. The instructional developer assisted in the modularization of the course, tailoring it to the media involved and ensuring that tests were based on what, in fact, had been taught. The visual designer undertook responsibility for graphic illustrations, photographs, and cartoons which were used to highlight particular aspects of the content. The editor's responsibili-

ty was to review all the materials, particularly print materials, for logic, sequencing, coherence and unity. The editor also formed a key link between the author's final manuscript and the physical production of the materials. The developmental process of the course was a large-scale operation and took up to six months to complete, not including physical production. Much of the time was taken up in preparing instructionally sound material that was sufficiently structured in nature to allow it to be learned in a setting much less structured than a classroom with its live instructor.

Besides being a stimulating interdisciplinary exercise for faculty from the two universities, the students benefitted from the best of a number of worlds. Disagreement inevitably arose during the course development and, if consensus and compromise could not be reached, the decision was usually deferred to the subject-matter consultant. However, given both institutions' dedication to effective teaching and a client-centred perspective, disagreements were infrequent and usually handled easily. The faculties of both institutions seemed to realize that high quality content was a necessary but not sufficient condition for effective learning.

IMPLICATIONS

What has this collaboration meant to both institutions and what does it mean for the future? On a general level, the commitment to explore each other's fields, experience the problems and probe for solutions, has resulted in numerous useful insights for both institutions. Overspecialization often results in irrelevance, stagnation and inflexibility at a time in our educational history when adaptability and diversity are more important than ever (Glenny, 1980). More specifically, we have come to recognize how important it is for cooperation, that both institutions are committed to a socially-relevant, action-based philosophy of higher education which is reflected in a dedication to effective teaching. At the moment we are attempting to complete the rest of the non-clinical courses for the nursing program. The next large test of collaboration may take place when we consider clinical teaching out in the field, possibly with some sort of decentralized internship.

There are a number of other approaches to be taken now and in the future to increase accessibility to professional education for the adult learner. We are told that we shall soon have a computer in every home (Toffler, 1981) and computer-based instruction courses are presently being developed by many faculties. Satellite transmission is being used by an increasing number of educational institutions. Telidon is an information-retrieval service presently being explored, which promises to answer a telephone request for information from data banks by displaying it on your television.

The advantages in using such non-traditional methods are many. The most obvious one is the facilitation of post-diploma education of nurses, thereby increasing the numbers of B.Sc.N. prepared nurses in the field. In addition, because limited institutional and faculty resources are real problems in expanding existing programs to accommodate these students, we can take encouragement from the knowledge that on-campus education is not the only way to go.

Experience with post-diploma students has shown us that they are an incredibly competitive group of students, mark-conscious and, consequently, quite anxious. We believe that individual, self-directed course work will eliminate exposure to rampant infectious anxiety thus encouraging more "personal best" work. Another potential advantage is that the courses presented through Athabasca University and through other alternative routes will be standardized, thus eliminating the problem of differences between sections of the same course.

There are some disadvantages to be considered. We are well aware of the need for the nurse student to be socialized over time into baccalaureate thinking, socialization which, of course, will not occur quite as thoroughly with reduced group work in courses and reduced exposure to nursing faculty. On campus, we encounter students who have difficulty integrating content from course to course, seeing associations and relationships, and discovering patterns.

It is our contention that the education of the adult learner in professional faculties needs to be approached in a creative, innovative manner, a manner which takes into consideration the unique characteristics of adult learners and their unique social, professional and personal situations. Distance learning such as that which is offered by Athabasca University is one such approach.

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RÉSUMÉ

Collaboration des universités à la formation universitaire des infirmiers

Il est de plus en plus admis que des études supérieures au niveau du baccalauréat sont souhaitables pour un nombre croissant d'infirmiers. Toutefois, l'adulte qui cherche à parfaire sa formation professionnelle possède des caractéristiques uniques dont doit tenir compte l'établissement qui offre ce genre de programme. Le système actuel qui exige que les infirmiers suivent des cours à l'université ne convient pas à ces derniers en raison des nombreuses contraintes auxquelles ils sont soumis. Il convient d'étudier des méthodes pédagogiques novatrices afin que l'adulte puisse obtenir son baccalauréat tout en s'acquittant de ses multiples responsabilités d'ordre professionnel, familial et personnel. La faculté des sciences infirmières de l'université d'Alberta a mis au point, en collaboration avec l'université d'Athabasca, des cours de nursing non clinique. L'université d'Athabasca à Edmonton est un établissement de cours par correspondance unique en son genre. Les étudiants n'ont pas besoin d'assister aux cours et ils travaillent à la maison avec l'aide d'un professeur particulier de l'université d'Athabasca. La faculté des sciences infirmières de l'université d'Alberta a fourni un expert-conseil pour ce qui est du contenu des cours tandis que l'université d'Athabasca a fourni les autres membres de l'équipe: un directeur de programme, un concepteur pédagogique, un concepteur visuel et un éditeur. Le fruit de cette collaboration est que, désormais, les étudiants peuvent suivre la majeure partie de leurs cours hors campus, ce qui facilite la tâche à un nombre croissant d'infirmiers et infirmières de métier.

NATIONAL CONFERENCE ON AUTISM, Toronto, Canada — May 25-28, 1983
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RESPONSES

Edward Burnett

In the provision of further education services the need for inter-institutional collaboration and for the pooling of resources of other staff specialists such as computer soft-ware developers, media experts, visual designers, etc., is quite clear. The demerits of traditional approaches are also evident: the administrative arrangements, the physical classroom situation, and the approach by "pre-occupied" professors can fall far short of suitability. Students can be faced with unproductive competition and other anxiety arousing elements, trick or misleading questions, deadlines that suit some students but are unreasonable for others. There must be encouragement for pioneering efforts such as those described in the article by Roberta Carey and Geoff Peruniak. Too much analysis and academic hesitation must not be allowed to discourage the general direction of this effort. The comments following are not intended to state a case for one or the other side of the issue, but rather to open various questions. Most likely there are answers which can provide a rationale and persuade one to choose among the various alternatives.

In dealing with the issue of institutional collaboration in the provision of extended professional education the article by Carey and Peruniak focuses on a particular case in nursing education.

A number of assumptions are made (some explicitly and others implicitly) in assessing the desirability of the Alberta arrangements. These assumptions may be questioned.

What are the pros and cons of inter-institutional collaboration? The combined wisdom of a group developing a course may result in a superior product but could also stifle some important initiatives in such a creative venture. One may also question the arrangements that should exist between the various faculty groups that offer courses in a particular subject area i.e. Faculties of Arts, Science, Education, Social Work and Nursing. Which of these authorities is to be followed in subjects relating to statistics, physiology, psychology, etc?

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The time frame of the efforts must also be considered. For how long and for what number of nurses are these services to be offered? What will be the result on the total health care system? Will it lead to further educational development for the graduate nurse? Will it change the relative positions of the many professional groups interacting in health care delivery? Will it lead to high quality personal care and cost-effective services?

Will those nurses taking the non-clinical courses be assured of an opportunity to complete this program? How long will it be to completion? Was some thought given to the relative costs of providing grants (essential income and job security included) to successive cohorts of nurses to attend in residence and experience the many socializing and other effects of university life?

Is it really better to prevent students from "being exposed to rampant infectious anxiety"?

Is it implied that for most students personal best efforts are inhibited by the competitive classroom situation, or is it that this particularly applies to the registered nurse?

The standardization of courses across sections is certainly a benefit. That the problems of variation in approach, standards or outcomes would be eliminated by the means described seems a trifle exaggerated. Be that as it may, the reasons for the variation must be clearly defined. Is it sub-standard teaching that is to be defended against, substandard effort of students or poor quality at the administrative level, or all of these?

As far as the student integration of course materials is concerned, why would the result be poorer or better under one condition or the other? Presumably, if a team is developing a coherent group of courses, this should result in the patterns associating a diversity of materials being seen clearly by the student. The danger might lie in too facile an integration rather than the "danger" that the students might put two and two together in their own "unique" way. If the collaborative method is successful and cost-effective in its own right, why not move further to this type of model and route resources away from more traditional approaches?

The last words here must emphasize the real opportunities existing for inter-institutional collaboration. We have particular problems within institutions, between institutions, between levels and types of institutions and between educational jurisdiction, notably provincial divisions. The evident success and the student benefit resulting from the case described must be heartily applauded and sincerely questioned.

Margaret L. Bradley

With the apparent agreement across Canada that the baccalaureate degree in nursing be the required academic level for entry to professional practice, nursing educators must find a variety of ways to accommodate the many registered nurses who will wish to obtain a university degree. The collaboration between Athabasca University and the University of Alberta as desribed by Roberta Carey and Geoff Peruniak, is an innovative method indeed and they should be applauded for their initiative.

I am not surprised that Athabasca University found the Post R.N. students were "achievement-motivated, goal directed and quite capable of imposing self-discipline." Professors at Dalhousie have recognised these characteristics in the Post R.N. students for some time. It is for this reason, as well as their knowledge of and experience in nursing, that their course of study leading to a B.N. is structured differently at Dalhousie to that of the basic degree student, though the terminal objectives are similar.

We are considering ways to reach out to potential students. Our B.N. program already lends itself to part-time study, with a final full-time year (2 terms) as a stipulation. The program has a requirement of 15 full credits, six in professional nursing classes, and nine in general academic classes. Of the latter nine classes up to half may be taken at other universities, prior agreement being negotiated with Dalhousie. Others can be taken at Dalhousie in summer session or late afternoon/early evening schedules. Consideration is being given to nursing classes being offered at these times, and in fact summer session nursing credits are already offered.

We are also exploring class delivery by teleconferencing, and Dalhousie's Department of Extension and Part-Time Studies is negotiating with Maritime Tel & Tel for equipment so that pilot projects based on the "meet-me-bridge" concept can be developed. The "meet-me-bridge" method of teleconferencing is telephone-based distance teaching which uses a variety of teaching methods such as: face-to-face interactions between teachers and students at the beginning of the sessions and at other times if appropriate; on site student discussion groups with regional leaders or preceptors. It requires preparation of audiovisual materials, handouts, study guides and a manual with all the chalkboard and overhead transparency work that usually goes on in class.

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All distant site locations are networked so that verbal interaction amongst the groups can occur during teleconferencing sessions. Class design is basically that of an independent study program with planned group discussions via teleconferencing. When lecture is required, it is usually placed on audiotape and sent to site locations. Site locations usually have a designated coordinator who receives all materials, orients students to the process and arranges for local discussion groups or other activities. The coordinator may be a student in the course who has tuition waived in lieu of the responsibilities undertaken.

Teleconferencing equipment is relatively simple and consists of a hook-up wall jack, telephone with amplified speaker and speaker phone to allow for group listening and interaction. Groups are hooked together at a central site through a switchboard called a meet-me-bridge. Equipment is supplied through telephone companies at a modest cost in comparison to other modern technologies. A good quality teleconferencing unit can be purchased for $150. The telephone cost of sessions has been estimated at $30 per hour.

This technology offers an exciting, challenging answer to providing adults with the opportunity to receive credit courses and other types of continuing education programs.

Underlying all our developments however is the question of available finances. Distance learning is expensive, both in time and money. It seems that Alberta is sponsoring classes that are not only creditable but similar in content and expectations to those required in the traditional program. The cost, however, must be great when one considers the number of experts required on any one team to produce the course. The question of library holdings and accessibility was not discussed, and I wonder if resource material for classes is a problem. We recognize this as a possible deterrent to offerings, particularly in professional classes.

As noted, a tutorial network is required, but what is the student: tutor ratio requirement? I am also interested in those classes which have a clinical component. Is there faculty from University of Alberta available to go to outlying areas or are preceptors employed?

We must find ways to "deliver" our educational programs to those too far distant to take advantage of standard university courses. We must not forget, however, that nurses should have equal opportunity with students from other faculties to take advantage of scholarships and bursaries offered for full-time study at university.

Margaret D. McLean

It is a pleasure to respond to this article. The authors describe an innovative approach to higher education in nursing achieved through the collaborative efforts of two universities. The article appears at the psychological moment. The moment when the Canadian Nurses Association Board of Directors' position that "the entry to nursing practice will be the baccalaureate degree in nursing by the year 2000" has been supported overwhelmingly by the voting delegates on June 23, 1982 at the Annual Meeting and Convention in St. John's, Newfoundland. Although the number of registered nurses studying for a B.N. degree has been increasing in Newfoundland since 1975, the numbers will increase at an unprecedented rate here and in all Canada in the very near future. We need to be innovative in how, where, and when we offer baccalaureate nursing educational programs for registered nurses.

Memorial University of Newfoundland has a well developed telecommunication system (Teleconference) with approximately 75 sites in the Province. The School of Nursing uses this system for continuing nursing education for a weekly session during the academic year. Two credit courses have also been given by Teleconference and more are being developed. We used the satellite Hermes in 1976 for continuing nursing education also. These systems are advantageous here because of our geography and weather. It is not easy to take courses to various centres on a weekly basis. In the Fall of 1974 we offered a credit course in Corner Brook on Saturdays. The first class went well, the second week the faculty member ended up in Goose Bay for the day because of the weather, and the third week she spent the class time in the St. John's airport. Thus, the Teleconference system and use of a satellite is a great boon, although I am sure something is lost when students do not have face-to-face relationships with a teacher. Be as it may, our limited experience has shown no statistical difference in achievement of students taking courses in a classroom with the teacher. This may be due to the high motivation of students who take Teleconference courses.

Obviously, there are some nursing courses that cannot be given by telecommunication such as clinical nursing courses. However, one might try giving one by a combination of Teleconference, workshops and clinical experiences as a pilot project.

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I believe the two terms (which I assume is an academic year) on campus are vital as group work, contact with teachers and teacher-guided experiences will contribute to the development of the baccalaureate way of thinking and approach to nursing care as well as the development of health assessment, decision making and leadership skills. The integration of the concepts and knowledge from the physical and behavioural sciences and the humanities into the practice of nursing can be learned best by students working with a master teacher who is a master clinician. I am handicapped in that I do not have the total curriculum of this post-R.N. baccalaureate program. I wonder if the sciences (biology and chemistry) are included. These courses not only give a strong science knowledge base for nursing practice, but contribute to the development of analytical thinking which is essential in the assessment, planning and evaluating of nursing care and in research. Another difficulty I see is the availability of library resources. Students can buy a few books, use the nearest hospital library, and some photocopied articles can be sent out to them. However, students in many settings would largely miss the searching out of pertinent information in a good library. Thus, they would not have the same opportunity as students in the university to become self learners which is one of the goals of baccalaureate education.

Canadian universities are well respected internationally. Canadian degrees represent the achievement of a high standard of education. This we must preserve. The integrity of the B.Sc.N. or B.N. must be maintained and it must continue to mean a high standard of education. Some countries have university programs for all comers but Canadian universities to date have offered high quality higher education. While we must look to innovative ways to achieve 100% baccalaureate nurses by the year 2000, we must be sure that the degree is a worthwhile degree and one that is accepted for admission to graduate studies. I believe we can do this by a combination of on-campus and off-campus courses and I look forward to more innovations in nursing education.

INFORMATION FOR AUTHORS

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