Self-Directed Learning in a Critical Care Nursing Program
Linda Hamilton, BScN
Frances Gregor, MN

Assisting a nurse to function effectively in a critical care setting and keeping an experienced practitioner in critical care nursing are challenges that most hospital managements face in the midst of technological advances and budget restraints. To educators in the continuous education of nurses, these challenges translate into the provision of programs that will adequately prepare a beginner to meet the demands of critical care nursing and will challenge the experienced to further development. Programs designed for these nurses need to differentiate the levels of knowledge as well as the appropriate learning strategies to acquire them. We have found self-directed learning through contracts appropriate in enhancing the experienced nurse’s development.

BACKGROUND
Our department offers two, three-month programs in critical care nursing. The Level I program provides the beginning practitioner with the knowledge and skills to function safely and effectively in a critical care setting. This beginning practitioner is a registered nurse (RN) who has at least one full year of experience in nursing. The Level II program is offered to an RN who has successfully completed the Level I program or the challenge exam and has a minimum of one full year of experience in critical care nursing.

Among the benefits of the Level I program are: the ability of the program graduates to accept responsibility for full patient care in half the time required by another nurse, and a better than average retention of these graduates in our agency. Of the 102 nurses who participated in this program over a four-year period (1978-1981), 78% were still on staff as of May 1982. Most of these nurses remained in critical care nursing.

The need for an advanced preparation in critical care beyond the Level I program emerged from questionnaires completed by the program graduates and their immediate supervisors. Staff nurses who worked in specialized intensive care units identified the need for advanced assessment skills and knowledge of complex pathophysiology. The Intensive Care Committee, consisting of physicians and nurse managers, recommended that a second level program be made available to the nurses in these units.

We faced with enthusiasm and anxiety the task of developing the curriculum for this program. While most of the staff nurses welcomed the development of the program, some were skeptical. One nurse with many years of experience asked, “What can you teach me about critical care nursing that I don’t already know?” We asked ourselves the same question as the process of curriculum development started.

THEORETICAL FOUNDATIONS
The program curriculum draws heavily from the humanist psychologists, namely: Rogers and Maslow. The humanistic philosophy of learning is oriented toward self-development or self-actualization. According to Rogers (1969), the goal of education is to facilitate the process of change in an individual so that he or she may function fully. Maslow (1970) believes that education helps the individual become the best of what he or she can be. The learner and the learning process becomes the focus of education. Subject matter is secondary, serving as the vehicle to self-development. Knowles (1980), a prominent advocate of this position, considers learning as a highly personal and internal process. It is determined by one’s goals, attitudes, beliefs, and experience.

ASSUMPTIONS ABOUT LEARNING
The following assumptions derived from Knowles (1980) guided our decisions regarding the program content and the choice of self-directed learning as one of the strategies for implementation.

1. Learning takes place when the subject matter is relevant to one’s purpose. The adult learner’s readiness and motivation to learn is influenced by social roles, develop-
mental tasks and pressures exerted from one's work.

2. The adult learner's experience serves as a rich resource for his own learning and that of others. Much significance is attached to active learning. Experience may also block learning. Fixed habits and attitudes are hard to unlearn and efforts to change these may be highly resisted.

3. The adult learner has a great need to be independent and self-directed. While new situations and lack of experience may render a learner temporarily dependent, imposed dependence threatens one's self-concept and will be resisted. Learning is maximized when self-directed activities are encouraged.

If the goal of education is self-development, than the focus of the learning becomes the learner and the learning process.

THE LEARNER

A profile of the typical learner is drawn from our updated records of the Level I program participants and from the staff nurses who responded to the needs assessment survey. The typical learner has the following characteristics: a graduate of a hospital-based diploma program; has at least six years of experience in nursing; three or four of which are in critical care nursing; and in his or her late 20s or early 30s.

This nurse feels reasonably secure in his/her ability as a critical care nurse and demonstrates a high degree of clinical competence, acts as a preceptor to new staff nurses and learners, and is occasionally in charge of the unit. According to Benner's (1984) description of the five levels of nursing practice, this nurse is at level 3-4, that is competent, if not proficient.

This nurse has invested a fair amount of time and energy in achieving this level of competence. She or he may be at the crossroads of a career, as decisions have to be made as to whether to remain in the same position, seek a transfer, a promotion, or return to school. Havighurst (1976) identifies the developmental tasks in this stage as; climbing the occupational ladder, desiring recognition and job mastery. This is a stage of unusual readiness to learn, full of "teachable moments."

In addition to increasing this nurse's clinical knowledge and skill in critical care nursing, other professional and personal developmental needs have to be enhanced. While there are numerous opportunities to develop and master clinical skills in the work setting, these opportunities are not as readily available in the development of skills in areas such as: communication, interpersonal relations, conflict management, teaching and managing. These areas are commonly named as sources of stress among critical care nurses (Stiehe, 1981).

LEVEL II PROGRAM

The Level II Program is designed so that the learners may: 1) increase clinical proficiency in caring for the patients with multi-system failure; 2) function effectively within a multidisciplinary health team in a critical care setting; 3) demonstrate skills in facilitating learning for patients, families and colleagues. This three-month program consists of a balance of pathophysiology, behavioral concepts, professional and current trends in nursing. The instructional strategies used are: lectures, case studies, role-playing, discussion groups, problem-solving and self-directed learning activities. Out of a possible 60 days, 20 days are learner directed.

SELF-DIRECTED LEARNING

Self-directed learning is an activity wherein the learner takes the initiative and responsibility for the learning process (Knowles, 1973). Descriptions of self-directed learning vary depending on the type of activity that is used in the learning process. The following have been labeled self-directed learning: informal activities such as reading, discussing, thinking; and non-traditional modes of education, as in distance education, programmed learning, computer assisted, and tele-conferencing. The common dimension among these examples is that the learner controls one or more of the variables in the learning process. These variables being: needs identification, learning goals, resources, time, place, and evaluation.

Tough (1979) brought attention to the individual's highly deliberate and intentional efforts to learn. According to Tough, 90% of adults undertake learning projects at an average of eight per year. Almost 75% of these projects are completely self-directed. Tough supports the notion that learners are fully committed to their projects.

Nurses have been studied for evidence of self-directed learning activities. Clark and Dickinson (1976), Moran (1977), and Bell and Rix (1979) found that nurses engage in more self-directed learning activities than other-directed ones.

Technology and the knowledge explosion in the sciences and in patient care are increasing in such a rapid rate that present knowledge is rendered obsolete in a short period of time. This forces one to become a pro-active learner, one who knows how to learn. The onus is on educators to assist individuals to become pro-active learners.

The skills needed in self-directed learning enhance one's self-responsibility, autonomy and accountability. These are the same attributes that mark a professional. Therefore, by encouraging self-directed learning, one is also assisting in an individual's professional development.

THE LEARNING CONTRACT

Knowles (1973) advocates the use of the learning contract to operationalize self-directed learning. According to Knowles (1980), contract learning is a means by which the learner's needs and interests can be reconciled with the needs and expectations for competence exerted by one's profession and/or organization. The learning contract provides for negotiating and mutual planning between a learner and the educator, or in some cases, the learner and the employer.

Knowles' book, Self-Directed Learners: A Guide for Learners and Teachers, (1973) is followed closely in the prepara-
tion of the program learner's contract. The learning contract becomes a binding agreement between the learner and the educator in the Level II critical care nursing program.

**PREPARING THE LEARNING CONTRACT**

The program participants receive a booklet describing the program, the concept of self-directed learning and guidelines in developing a learning contract. A sample learning contract is included, as well as references on self-directed learning. This booklet is sent to the program participants six weeks prior to the beginning of the program.

The first week of the program is devoted to the formulation of the contract. Each step in this process takes approximately one day, and is completed in two to three weeks time. A schedule of the contract development is seen in Table 1.

The steps in developing the learning contract are:
1. diagnosis of learning needs;
2. formulation of learning objectives;
3. determination of strategies and resources; and
4. determination of evidence of accomplishment and target dates.

The learners develop their individual contracts within a group setting. The coordinator of the program facilitates the process for the whole group and along with the two educators in the program assists the individual learner in the development of the contract.

The coordinator and the educators provide guidelines, interpret program objectives, explain expectations, assist in each step in the process, and suggest resources and learning strategies. The learners are encouraged to discuss their objectives with other members of the group and share resources. Often, they find a resource person among the other learners. For the most part, the educators serve as consultants and facilitators in this process.

**DIAGNOSIS OF LEARNING NEEDS**

A learning need is a gap between where one is and where one should be or wants to be according to the program competencies for critical care nurses. This process is accomplished in three ways: assessment of knowledge, clinical competence, and appraisal of role function as a member of the health team. A 100-item examination on pathophysiology and clinical management is administered. Clinical competence based on the nursing process is rated by the learner with the aid of a competency and psychomotor skills check list. This check list is adapted from a list compiled by an Intensive Care Unit ad hoc committee in this agency (Freeman, McMaster, & Hamilton, 1983). In addition, a performance appraisal is filled out by the learner's immediate supervisor. The learner is encouraged to discuss this appraisal and confirm role expectations with the head nurse or supervisor prior to the program.

Finally, the learner has been asked to keep a log of patient assignments in the last three to four weeks. Specific questions are posed to the learner with regard to these assignments related to the learner's clinical abilities, communication and interpersonal skills, and beliefs or aspirations as a nurse. Examples of these questions are:
- What difficulties did you encounter in your patient care? Would you have been able to overcome these difficulties if you had certain information? What areas of nursing care did you require assistance with? Does this happen often?
- When you are on charge duty, which activities do you enjoy the most? the least? Why?
- Reflect on the activities in your unit. Which ones do you wish you could influence to ensure efficiency? Do you have the skills to do this?
- Reflect on your interactions with your patients, their families, your peers. Are you satisfied with these interactions?

The other sources suggested to the learner in assessing learning needs are current literature in critical care nursing. Once the needs are identified, these are grouped according to priority, that is, learning needs required to perform a job, and learning needs that are of interest to the learner.

**LEARNING OBJECTIVES**

The learning needs are translated into learning objectives. Several learning objectives may come under one main learning objective. Distinction is made between cognitive, psychomotor, and affective domains. These questions serve as a guideline for determining objectives:

1. What do you need to be able to do/acquire?
2. How would you like to do it/acquire it?
3. How do you know when you can do it? When you have it?

| TABLE 1 |
| SCHEDULE: FORMULATION OF LEARNING CONTRACT |
| Monday |
| A.M.: Orientation |
| P.M.: Needs Assessment |
| Tuesday |
| A.M.: Needs Assessment |
| P.M.: Learning Objectives |
| Wednesday |
| A.M.: Learning Objectives |
| P.M.: Tour of Libraries; Introduction to Resources |
| Thursday |
| A.M.: Time Management; Resources; Strategies |
| P.M.: Individual interviews with educator |
| Friday |
| A.M.: Locate resources, make arrangements |
| P.M.: Write up tentative contracts; Interview with advisor; Submit contract to coordinator |

Arrangements with resources, facilities and learning activities are finalized in two-three weeks time.
TABLE 2
A SAMPLE OF LEARNING OBJECTIVES

1. To perform a comprehensive assessment of a patient with a complex respiratory problem, i.e., Adult Respiratory Distress Syndrome.
   a. To perform chest auscultation and percussion accurately.
   b. To identify gross cardiac and respiratory abnormalities in an x-ray film.
   c. To interpret the acid-base laboratory values.
   d. To determine the presence of V2 abnormalities.
   e. To interpret the values obtained from hemodynamic monitoring obtained from the Swan-Ganz catheter.
   f. To interpret the patient's presenting signs and symptoms in relation to the above assessment data.
2. To determine the nursing diagnosis based on the above assessment.
3. To develop a teaching plan on the hemodynamic monitoring via a pulmonary catheter for new staff nurses.
4. To develop skills in conflict resolution on selected situations involving peers in the nursing unit.

4. How can another person tell that you can do it? — that you have it?

The objectives that the learners choose are specific to nursing situations normally encountered in a specialized intensive care unit. Objectives related to teaching, interpersonal skills and management are also chosen (Table 2).

LEARNING STRATEGIES AND RESOURCES

In conjunction with this process, a class on Time Management is held, and tours of the hospital and university libraries are arranged. A list of material and human resources are generated. The learners themselves become resources for each other. The learners are encouraged to make the necessary arrangements with resource persons; otherwise, these arrangements are made by the coordinator of the program. Among the resources chosen by the learners are: the clinical nurse specialist, educators in the department, head nurses, supervisors, peers, physicians, and other members of the team. The facilities chosen are the clinical units, diagnostic laboratories, the operating room, community agencies, and the libraries, among others.

EVIDENCE OF ACCOMPLISHMENT AND TARGET DATES

The criteria for accomplishing the objectives are decided upon by the learner, in consultation with an adult educator or the resource person. Once these are decided, the target dates for evaluation are scheduled.

When the process of contract formulation is completed, the learner meets with an adult educator designated as his or her main advisor. The objectives are clarified, the items in the contract are discussed, and expectations are established. The learner understands that there is room for flexibility and renegotiation on these items depending on circumstances that may affect the learning plan.

A copy of the contract is kept by the learner, the adult educator, and the program coordinator. A time table is prepared showing the learners' activities, resources, dates, time, and places. Final arrangements with resources and other agencies are made. Learners may be asked to change a schedule depending on resource limitations, conflicts in schedule, or availability of other resources. This process of shifting or changing of plans and schedules goes on throughout the program due to unforeseen circumstances. However, despite these changes, most of the objectives remain the same.

EVALUATION OF THE PROCESS

To date, two programs have been completed, participated in by a total of 15 staff nurses, six and nine respectively. It is too soon to make conclusive statements regarding the outcomes based on the program objectives. We would like to share the preliminary evaluations of the learners' perceptions, attitudes, cognitive, psychomotor, and some affective behavioral changes. These are based on questionnaires completed by the learner during the program, immediately upon completion and six months after completion of the program. The learners' head nurses were also asked to complete a similar questionnaire at the six-month period.

If satisfaction and overall positive feelings about the program are the only measure of success, the program could be considered a total success. The program participants consistently rated the quality of the program to be above average and have highly recommended the program to their peers. Among the behavioral changes reported by the staff nurses and confirmed by the head nurses were: increased theoretical knowledge and assessment skills; increased ability to care for the patient in a holistic manner; better preparation and willingness to teach others; improved skills in delegation of duties and in decision making; increased confidence and continued involvement in continuing education activities. Some of the staff nurses have been encouraged by this experience to pursue university courses toward their degree in nursing. Most of the learners admitted that the program has been instrumental in developing their sense of responsibility in their own development and learning.

We would like to share an evaluation of the program from our perspective as educators. Since contract learning is a novel approach for us, the experience alerted us to possible determinants of success or failure. Our conclusions are based on observed learner behaviors at specific times during the program. Modifications have been made to the program based on these observations and learner evaluations. In retrospect, these behaviors are closely linked to the assumptions on learning and the learner as discussed earlier in this paper.

DETERMINANTS OF SUCCESS/FAILURE

The variation in the learners' background and experi-
ence gave rise to diverse learning objectives and plans. This diversity in clinical competence, educational experience, role expectations, and learning preferences among the learners is a convincing reason for the use of the self-directed learning approach. Each contract is unique and specific to each individual. It would have been impossible to meet their learning needs otherwise.

The learners' experiences proved to be a rich resource for their own learning. The learners drew on each other's expertise and learning needs to meet their learning objectives. Contracts were drawn among the learners for teaching sessions on clinical skills or procedures specific to a nursing specialty, as in emergency, or neurological intensive care nursing. These teaching sessions occurred regularly as the learners assumed the role of a teacher or the student. A side benefit resulting from these sessions was the growth of mutual respect, trust, and support among the learners. As well, they became comfortable in performing peer evaluations.

The role of experience has not always been positive. The learners who were not familiar with the concept of self-directed learning and who were accustomed to structured, teacher controlled educational activities were intimidated and expressed skepticism. The process of formulating the learning objectives proved to be frustrating for most of the learners. The frustration and skepticism expressed by some of the learners affected the group’s motivation. Some of the learners felt that it was unrealistic if not unreasonable to be expected to write their learning objectives. One learner related, "I was so angry at her (the coordinator) for making me write those objectives. I knew she could have written them for me in no time at all."

The same learner commented afterward, "Now I am glad that she (the coordinator) made me write my own objectives. Because I know they are my objectives, my learning." Another learner wrote, "I now understand the significance of my contract. The stress involved in its development and completion has become more meaningful. It represents the personal goals that I have now achieved."

It was just as difficult for the educators who were assisting the learners. Many times, it would have been easier to slip into our expert role and fulfill their expectations. Frequent consultations and sharing of our ideas and feelings among us helped in maintaining our roles as facilitators. That we were successful in our roles as facilitators was confirmed later as the learners commented on the atmosphere of self-exploration that was encouraged and the help and support that we provided.

Cognizant of the learners' difficulties in formulating the contracts, we invited one of the participants in the first program to speak to the second group of learners. She convinced them that they could write their own objectives and that these efforts will prove worthwhile. This proved very helpful in raising the learners' optimism and enthusiasm over the task.

As well as the learners' depth of experience, their readiness to learn influenced the scope of their learning objectives. Learners who were fully aware of their shortcomings, career goals and their head nurse's role expectations had no difficulty deciding their objectives. These objectives were mostly specific, realistic and comprehensive. On the other hand, some learners were overzealous in that they aimed for a variety of learning objectives. They expressed interest in a number of areas and had difficulty deciding on priorities. Others chose a limited number of objectives and expressed doubts as to whether they would be able to accomplish as much. To assist these learners, we drew up minimum criteria for the learning experience. They were assured that their contracts could be renegotiated if necessary.

The lack of structure was a source of anxiety and insecurity for most learners. These feelings were heightened by the knowledge that they were responsible for their own learning. Being self-directed also meant being accountable. This anxiety dissipated and was replaced with enthusiasm as the learning plans materialized.

We realized that self-direction could not be developed overnight and that we had to be sensitive to the learners' needs for direction and guidance. Regular meetings were scheduled with them and we made ourselves accessible to them as necessary. Initially, tentative judgments regarding each learner's ability to be self-directed were made and assistance was given accordingly. This is an area that we need to assess in a more systematic manner. We have recently acquired Guglielmino's Learning Style Assessment, and we plan to use this. A valid tool will aid us in determining how much guidance and structure may be needed by an individual learner.

A big determinant of success or failure is the availability of learning resources and facilities. We are fortunate in that our agency has a diversity of experts who were more than willing to teach, assist in the learning projects and refer learners to other resources. The learners were welcomed everywhere they went. The facilities were rich resources for learning. This encouraged the learners who began to rearrange their schedule so that they could seek other learning opportunities that their plans did not allow.

This experience opened the learners' eyes to the various resources and learning opportunities available to them at any time. Their confidence increased when they realized that they could really be self-directed in their own learning. When asked to identify their greatest difficulty with this process, most of them identified their own feelings of insecurity and doubt. One learner summed it up succinctly when she wrote, "The biggest asset you can offer yourself is to be responsible. You can only hope to receive from this program what you are willing to put into it."

CONCLUSION

We have described the process of self-directed learning in enhancing an experienced critical care nurse's professional and personal development. The learning contract is used to operationalize the concept of self-directed learn-
ing. This experience has alerted us to the factors that may determine the success or failure in this approach.

As well, we identified the need to systematically determine the learner's degree of self-directedness so that appropriate guidance may be given. Guglielmino's assessment tool, Learning Style Assessment, (1982) may aid us in this, as well as help us in determining any changes with the learner's self-direction in learning over time. It will be worthwhile to follow-up the program participants with regard to their continuing education activities as well.

REFERENCES