ABSTRACT

In baccalaureate in nursing programs, self-directed methods of education have been used for many decades. A major goal of this type of approach to education is to provide students with the necessary competencies to become lifelong learners. Students must be exposed to self-directed learning competencies to obtain the knowledge, skills, and attributes unique to their personal and professional growth. It has been proposed that six competencies are required for students to become self-directed learners: self-assessment of learning gaps; evaluation of self and others; reflection; information management; critical thinking; and critical appraisal. Each of these skills are not mutually exclusive but are interrelated in such a way that students use all or a combination of them simultaneously to direct and control their learning.

The bachelor of science in nursing (BScN) program at McMaster University in Hamilton, Ontario, Canada borrowed many concepts from Malcolm Knowles (1975) to guide the development of the self-directed component of the curriculum. In his book, Self-Directed Learning: A Guide for Learners and Teachers, Knowles (1975) defined self-directed learning (SDL) as: a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (p. 18).

Knowles viewed SDL as occurring in the formal educational system and in the world at large. The contextual background for this article is a baccalaureate in nursing program that has used problem-based, small group, and self-directed methods for many decades. The content of this discussion describes competencies for SDL that would be applicable across a variety of formal and informal contexts. This is an important topic for those involved in self-directed initiatives and those interested in developing research in this area. Future research could be focused on validating these competencies and determining the interrelationship of competencies for success in SDL.

In the BScN program at McMaster University, a major goal is to provide students with the necessary competencies to become lifelong learners. Nursing graduates will practice in a variety of health care settings both in the present and the future. No single program can ever prepare students for the many complex challenges and experiences within nursing. Students must be self-directed learners to obtain the knowledge, skills, and attributes unique to their personal and professional growth.

Students who are proactive learn more effectively than reactive students. They are more motivated and tend to retain information and use it better and for longer periods of time (Knowles, 1975). Knowles (1975) stated that “self-directed learning is more in tune with our natural processes of psychological development” (p. 14). An important phase of people’s maturation process is taking responsibility for their lives—“to become increasingly self-directing” (Knowles, 1975, p. 15). Self-directed learning is explicit in the terminal objectives of the curriculum and is evident and expected within each program course.
Self-directed learning is valued as necessary for achieving ownership of learning outcomes.

Knowles (1975) identified the competencies of SDL from the perspective of the individual. He included a variety of competencies, such as understanding the differences between teacher-directed and self-directed learning; determining one’s concept as a self-directed being; relating to peers collaboratively and as resources for learning; diagnosing learning needs and formulating objectives; viewing teachers as facilitators; identifying other resources; and collecting and validating evidence of accomplishments. Through educational experience and support from the literature (Brockett & Hiemstra, 1991; Candy, 1991; Collins, 1988; Houle, 1961; Tough, 1979), where available, the nursing faculty (i.e., tutors) proposed that six competencies are required for individuals to become self-directed learners:

- Assessment of learning gaps.
- Evaluation of self and others.
- Reflection.
- Information management.
- Critical thinking.
- Critical appraisal.

The difference between these competencies and those proposed by Knowles (1975) is that the nursing faculty identified a broader selection not based solely on the process of SDL, as Knowles defined it, but reflect the demand for evolving technological and professional skills necessary in today’s world.

Each of these skills are not mutually exclusive but are interrelated in such a way that students use all or a combination of them simultaneously to direct and control their learning experiences. In addition, students need to be reflective, flexible, empathetic, collegial, communicative, and insightful within the context of learning to take charge of their learning in a positive way. Competition is discouraged within the McMaster University program. Collaboration is encouraged and rewarded.

### COMPETENCIES FOR SELF-DIRECTED LEARNING

#### Assessment of Learning Gaps

<table>
<thead>
<tr>
<th>Skills</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
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<tbody>
<tr>
<td>Assessing knowledge gaps</td>
<td>Students identify gaps with the assistance of the tutor.</td>
<td>Students develop independence in identifying knowledge gaps.</td>
<td>Students identify gaps because of their awareness and comfort in their strengths and areas of improvement.</td>
<td>Students are independent and confident in identifying gaps through the integration of data from a variety of sources within a broader context of learning.</td>
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<tr>
<td>Learning about ambiguity in expectations</td>
<td>Students are confused in the expectations for learning related to limited accountability, responsibility, and knowledge base.</td>
<td>Students’ ambiguity is more focused on group learning process and their role as self-directed learners.</td>
<td>Students are more comfortable in the blend of group and individual SDL skills, making expectations clearer.</td>
<td>Students pay attention to discrepancies in self versus tutors/peers/preceptors’ expectations in knowledge, attitudes, and skills.</td>
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<tr>
<td>Exploring learning styles</td>
<td>Students identify learning styles using prescribed learning styles inventory.</td>
<td>Students integrate role as group members and self-directed learners with their personal learning style(s).</td>
<td>Students develop awareness of alternate learning styles.</td>
<td>Students develop their ability to work with individuals with different learning styles.</td>
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For some people, narrow life experiences limit knowledge exploration and analysis. It is not until Level 2 that...
students become more independent in identifying their knowledge gaps. They have acquired a beginning level of knowledge in sciences, humanities, and nursing assessment and communication. They have developed their problem-solving abilities through exposure to patient-centered scenarios, problem-based learning groups, and discussions that allow them to identify obvious issues within the problem. With tutor guidance, they appreciate the complexity of knowledge necessary for solving these problems. According to Barrows (1988, p. 3), the questions a tutor may ask to stimulate discussion are:

- “What is going on here?”
- “Do I have the entire picture?”
- “Have I thought of all the possibilities?”
- “What data do I need to consider such possibilities?”
- “Do I have all the facts needed?”
- “What does this finding mean?”
- “What is the best way to manage this?”
- “Have I had experiences with situations such as this in the past?”
- “Am I right about this or is there another way of looking at this?”

In the transition from Level 3 to the end of Level 4, students gain independence and confidence in identifying knowledge gaps through integration of data from a variety of sources within a broader context of learning. They begin to ask themselves and their learning group the questions above with less tutor direction. Through interaction with their colleagues, attention is paid to discrepancies in expectations between self and others (e.g., tutors, peers, preceptors). These discrepancies serve to stimulate reflection, problem solving, and professional growth. There is an increasing appreciation for what students know, confidence to assess their level of knowledge and its gaps in solving more complex problems, and a need to seek out new knowledge in clinical, work, and personal situations to further redefine and develop their reality.

Throughout the process of learning to assess knowledge acquisition, students also are learning to assess and develop their learning styles within the learning experience. In Level 1, they identify their primary learning style(s) and are introduced to complementary learning strategies. In Level 2, they begin to integrate, challenge, and question their personal learning style(s) within the context of their role as group member and emerging self-directed learner. This may involve risk taking as students leave the comfort zone of their past learning experiences and personal preferences. After they achieve a sense of comfort with a style(s), they develop awareness of alternate learning styles that may be used by other learners. These alternative styles often anger and frustrate students as they attempt to work toward a common goal in their learning group. By Level 3, the anger and frustration dissipate as students value the diversity and richness of different perspectives of achieving the learning goal. By the time they have completed Level 4, students have tested a number of learning styles to augment and demon-

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<tr>
<td>Evaluating</td>
<td>Students meet program and tutor expectations.</td>
<td>Students rely on tutors for assistance but clearly are aware of the expectations regarding group and self-evaluation.</td>
<td>Students are more comprehensive in identifying strengths and limitations in their knowledge, skills, and attitudes.</td>
<td>Students request feedback from a number of evaluative resources.</td>
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<td>Students need guidance for constructive feedback on areas of improvement in self and others</td>
<td>Students develop some comfort in identifying areas of success and improvement.</td>
<td>Students are more flexible using self, peer, tutor, and/or program evaluation criteria for areas of growth.</td>
<td>Students incorporate self-evaluation into everyday practice.</td>
<td>Students test concepts.</td>
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<tr>
<td>Students begin to determine their level of achievement of course objectives using preset criteria for grading.</td>
<td>Students are able to identify evidence that reflects objectives.</td>
<td>Students have increased confidence in giving objective peer evaluation.</td>
<td>Students incorporate or reject concepts from their own view or paradigm of nursing.</td>
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<td>Students have increased confidence in responding to challenges and feedback.</td>
<td>Students develop their own criteria for evaluation.</td>
<td>Students test concepts.</td>
<td>Students incorporate self-evaluation into everyday practice.</td>
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<tr>
<td>Students incorporate or reject concepts from their own view or paradigm of nursing.</td>
<td>Students develop their own evaluation forms for enhanced peer and tutor feedback.</td>
<td>Students test concepts.</td>
<td>Students incorporate self-evaluation into everyday practice.</td>
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strate their learning. They have developed their ability to work with individuals with different learning styles, a necessary skill for health teaching. By developing flexibility in learning styles, growth of knowledge and personal freedom evolve.

**Evaluation of Self and Others**

Evaluation of self is a skill that brings the most discomfort to students. In Levels 1 and 2, the tutor plays a major role in introducing and setting expectations regarding evaluation of group and self. During the first 2 years, students determine their level of achievement of course objectives using preset criteria for grading. As they move through Level 3, they are comprehensive in identifying strengths and limitations not only in knowledge but also in level of SDL skills. They are aware of the effect of attitudes, assumptions, values, and beliefs on thinking, learning, and practice. They use self-evaluation criteria, peer evaluation criteria, tutor evaluation criteria, program evaluation criteria, or all four to identify areas for growth. They display confidence in responding to challenges and feedback from peers, tutors, and clinical colleagues. They personalize their own evaluation forms to enhance peer and tutor feedback. By the time they are ready to graduate, they request feedback from a number of evaluative sources and incorporate self-evaluation into everyday practice.

Throughout the 4 years of the program, students become self-evaluators who are more objective than subjective and gain a greater appreciation for the value and role of others in the evaluation process. Objectivity in evaluation is difficult to achieve and unlikely to be developed fully within the confines of a 4-year program. However, students gain a greater appreciation of the personal, professional, ethical, and legal consequences of evaluation (Table 2).

While students are developing skills in evaluation of self, they are challenged to evaluate the contributions of tutors, peers, and the course to group learning. In Level 1, evaluations often are based on personal feelings of like and dislike and must be guided by the tutor, course objectives, and criteria. The focus of Level 1 is on learning the process of evaluation, not on the quality of the product. Therefore, it is not reflected in the grade. There is difficulty providing honest, verbal, face-to-face feedback because of students' discomfort with identifying limitations they perceive to be negative and punitive.

In Level 2, evaluation is anchored by contributions to content and is defined by predetermined criteria. Feedback generally is positive and lacks the objectivity necessary for transformative individual growth, group growth, or both. By Level 3, the personal aspect becomes less important, and contributions to learning are the primary focus. In Level 4, feedback relates to the application of ideas and theories to practice, group-building skills, and "thinking outside the box." Interpersonal issues are faced head on, but still with difficulty. Feedback relates to the effect of behavior and contributions to personal and group learning. Peer pressure is a powerful motivator for behavioral change.

Feedback to tutors develops from "everything is fine," to the "things you do to help me learn" and "things that hinder my learning." In Levels 3 and 4, assessment of collegiality and power sharing in the educational experience between tutors and students are discussed, in addition to learning issues. Course evaluation feedback remains highly personal in that the course met, challenged, or exceeded individual expectations. During the course of 4 years, students develop the skills of self-evaluation and evaluation of others. A connected skill that assists in evaluative ability is reflection. (Saylor, 1990).

**Reflection**

Reflection is an important ingredient in the process of SDL in that it allows for introspection into what has hap-
pened and how the events influence future actions (Saylor, 1990). In Level 1, the reflective process may seem somewhat obscure and difficult to achieve if it has not been internalized in students’ personal lives (Table 3). Basically, students at this level are able to describe personal and clinical incidents in which they felt uncomfortable. They are able, with guidance, to explore a clinical or group situation but need encouragement to describe their own strengths and areas of improvement. Similarly, they need guidance to articulate both what feels good and what does not in the learning context. It is through this experiential process of describing feelings that they begin to understand what creates discomfort and comfort in the learning context.

In Level 2, the tutor attempts to move students further toward identifying what was good about a clinical or learning experience and what could be done differently by the students in the future to make the situation better. In addition, students explore their own beliefs and values about nursing, clients, and health. There is an acute awareness of the discomfort in being exposed to legal and ethical issues, which is a new experience.

In Level 3, they formally examine an ethical situation using theory to formulate their approach. This experience demands a depth of reflection within the confines of a safe assignment. As students move through the last 2 years of the program, they use the literature to enhance awareness of their own attitudes and values and those of others and the impact of attitudes and values on nurse-client relationships. Eventually, they discriminate, with the use of literature and reflection, on past experiences to discern the elements of successful options in their situation.

By Level 4, students are capable of externalizing evidence of reflective abilities in a portfolio to enumerate their strengths, areas of learning needs, and strategies used to achieve goals. Reflection helps students deter-

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<td><strong>Skills</strong></td>
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<th>Table 5: Critical Thinking</th>
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<td><strong>Skill</strong></td>
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<tr>
<td>Purposeful and goal-directed thinking</td>
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mine their professional marketability as their skill levels develop and change and as markets and professional demands change. By incorporating self-reflection into daily practice, there is ever-growing awareness of how values and beliefs relate to the legal and ethical issues in nursing.

Mezirow (1990) and Wong, Kember, Chung, and Yan (1995) described similar observations, in that three levels of reflection can be identified:

- **Content reflection.**
- **Process reflection.**
- **Premise reflection.**

In the content reflection phase, people are referred to as non-reflectors capable of describing what is happening in concrete and impersonal terms (Mezirow, 1990). Process reflection involves identifying relationships with new knowledge and allows learners to modify new situations into new learning opportunities. The last phase, premise reflection, is described as transformation of meaning in which knowledge is made one’s own. As people become critical reflectors, they:

- May challenge validity of prior learning.
- Are concerned with “why.”
- Pursue alternatives and multiple perspectives.
- Examine self and knowledge in a critical manner.

It has been the authors’ experience that not all students achieve the transformative phase of reflection but may achieve some of the skills inherent in it.

**Information Management**

Information management may be divided into skills of searching and filing (Bayley, Bhatnagar, & Chan, 1998). As self-directed learners, students must have some way of preserving useful information for current and future activities. Searching probably is one of the more difficult skills to achieve. It requires students to learn about databases, to develop search strategies relevant to the learning objectives, and to use critical appraisal strategies to select literature (Table 4). In Level 1, students are guided through a process of systematically learning to search, select, and evaluate resources appropriate to the problem scenario. The fine tuning of searching and evaluating is achieved during the 4 years as students are required to demonstrate evidence-based practice in clinical settings and tutorials.

Filing of information begins in Level 1 as students work with tutors and librarians to develop different ways of creating a filing system (Table 4). Throughout the next 3 years, they work on establishing a general filing system, personalizing, and refining it to meet their needs as health care providers.

**Critical Thinking**

Critical thinking in nursing involves purposeful, goal-directed thinking that aims to make judgments based on evidence and application of principles of science. The outcome of critical thinking is maximizing human potential (Alafaro-LeFevre, 1995). In the authors’ experience, the tutor is the facilitator in the development of critical thinking in Level 1 (Table 5). The students rely on the tutor for stimulating thinking through critical questioning, developing personal learning goals from course objectives, and analyzing data. It is not until Level 2 that students have developed the ability to formulate their own questions, create basic goals relevant to the case, and analyze from a narrow perspective, limited by the case, knowledge level, search abilities, and clinical experience.

By Level 3, students’ critical thinking has become more independent, purposeful, and goal directed. They are becoming efficient at independently formulating critical questions based on data and analysis of a broad range of literature from various disciplines. In the discussion of the problem, analysis is more in depth, with consideration of a broader range of socioeconomic, psychological, political, and biological issues. In the learning group, members challenge their peers to think critically based on the data of the problem. In the last year, students are able to formulate questions and answer them using multiple databases, clinical experiences, and a broad range of personal resources. They have more confidence and skill in identifying actual and potential goals based on a broader context of health practices, policies, and administration. The analysis of global factors in various situations leads students to further analysis and research.

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**TABLE 6**

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<tbody>
<tr>
<td>Discriminating</td>
<td>Students describe personal usefulness of resources to the task.</td>
<td>Students identify, at a novice level, the relationship of research to practice, with the assistance of the tutor and their peers.</td>
<td>Students use critical appraisal skills to identify relevant data to solve problems.</td>
<td>Students are more successful at identifying appropriate research to guide practice.</td>
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<td>Students select best evidence for the case and clinical practice.</td>
<td>Students become evidence-based practitioners.</td>
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Critical Appraisal

Critical appraisal is introduced formally to students in a Level 3 course. In the first 2 years, students begin to develop critical appraisal skills by describing usefulness of resources to the task (Table 6). They eventually identify the relationship of research to practice with the assistance of the tutor and their peers. In Level 3, students receive the knowledge and skill to begin appraising research in a scholarly fashion. This allows them to use critical appraisal skills to identify relevant data to solve problems and select the best evidence for the case and clinical practice. By Level 4, effectiveness, efficiency, and cost effectiveness are parameters used to evaluate practice patterns. In addition to selecting the best evidence for the case, graduating students are better equipped to contrast and compare health care service delivery.

CONCLUSION

This article describes the changes that occur in six competencies over 4 years of BScN education. These competencies are essential for SDL. The outcomes for learners who embrace SDL are many, both as learners and professionals. Throughout the BScN program, students are faced with many challenges, such as limited knowledge base and mastery of skills. However, eventually they gain confidence, skills, and knowledge in these competencies in Levels 2 and 3. In Level 4, the competencies are operationalized as students become efficient in using them in their practice.

REFERENCES