LEARNING IN A COLLEGE LABORATORY: 
AN EDUCATIONAL PRACTICE THAT 
DESERVES A HIGHER PROFILE 

by Margot Phaneuf

INTRODUCTION

If you want to teach, build your dream slowly, 
On a strong foundation of precepts 
Start small and your dream will become great 

The college laboratory is the ideal place to learn how to provide nursing care. It is certainly very useful to have some time to reflect on the nature of our practice, particularly for instructors who are at the beginning of their careers and are looking to find their way through the maze of teachings in our discipline. But this experience will also prove useful to more experienced instructors who would like to improve their teaching methods. The care techniques and communication strategies at our disposal are complex and significant in terms of the place they occupy in the overall scope of how we teach nursing care. It is also true that, for several reasons that are discussed below, the student must have an opportunity to test and even master these techniques and strategies before applying them in their work with patients.

These laboratories offer many opportunities, including very interesting applications of theoretical ideas, so they are appropriate for learning a range of care or communication techniques and even self-assessment strategies. For example, this type of learning can be achieved through microsimulations of information gathering, the therapeutic relationship, teaching the client and preparing a child for treatment through play, and through autoscopy assessments based on recording oneself applying different care techniques.
SOME QUALITIES OF LABORATORY LEARNING

The college laboratory offers very significant advantages to nursing students. It is also an important tool they can use to get the most out of their learning experience and even enhance the experience. The laboratory represents a critical means for students to acquire several skills. This paper begins with a review of some of the strengths of this method.

Respect for clients

One of the main reasons to provide good laboratory training is that this is an excellent way for students to develop respect for patients. For the instructor as well as for the student, laboratory learning is one way to assume ethical responsibilities towards patients. The students will eventually be taking care of patients in clinical practicums, and the patients they work with must receive quality care. There is no better way to ensure that the student nurse provides quality care than to have her first learn skills in the laboratory through simulation exercises that are as realistic as possible. The importance of this approach cannot be overemphasized; it ensures that the student learns and even masters the required technical and behavioural skills while still at college and before coming into contact with clients. The instructor also has a responsibility to ensure that clients do not become guinea pigs, as this would run counter to the ethical principle that we are obliged to respect individuals in their integrity (see Margot Phaneuf, “Ethics Elements – Serious Thoughts in a Cartoon, Part 2,” Infiresource Web site, Professional Crossroad).

REVIEW
College Laboratory Learning

- College laboratory learning complements and is a natural extension of theoretical studies. It prepares the student for work in a clinical setting.
- This teaching strategy establishes a link between the theory and the student’s clinical work. The student applies principles and technical skills in simulated situations, building a stronger foundation of knowledge in her mental representations of what she has learned.

TEACHING STRATEGIES
FOR THE COLLEGE LABORATORY

PREPARATORY INTELLECTUAL SKILLS
- Written exercises: usefulness of technique, principles, importance of specific details
- Case studies: when care or communications skills are involved (problems, risks)
- Problem resolution: situations that are appropriate to what is being learned
- Computer-aided learning: for demonstrations of specific types of care
- Programmed teaching: for the study of certain applications
- Conceptual maps: to situate a technique within an overall care plan
- Discovery matrix
The college laboratory, a testing ground for students

The laboratory is an ideal place for students to learn, in simulated work situations, how to care for future clients. A student can learn how to fulfil her role as nurse, try her hand at different approaches, and take risks without harming a care receiver and with as little stress as possible. This latter point is an important aspect of laboratory learning, since learning and memory creation can easily be inhibited by the inevitable stress and anxiety encountered in a practicum. In addition, simulated care situations give the student an opportunity to make mistakes, and this is simply not possible in any other forum.

The laboratory therefore represents a kind of springboard to reality, a place where a student can spread her wings and try them out. The instructor must support this process by fostering experimentation, giving the student a chance to learn how to make the best possible decisions and to act with assurance and precision in a situation that has been created for this express purpose. The student thereby grows through her experiences and learns from her mistakes. In addition, the laboratory offers the student an opportunity to see the techniques she has learned applied in different situations and decide how to adapt them to specific situations. The instructor establishes benchmarks, but also takes care to let the student draw on her own creativity when she applies what she has learned. (Jim Howden and Marguerite Kopiec, 2000, p. 55.)

Adopting the role of client

Through role playing exercises that represent a variety of situations, students are also made aware of what the patient experiences, even what they feel. In the type of role-playing fostered in the laboratory method, one student plays the nurse and the other plays the patient, and each problem is placed in a specific context. This gives the student a chance to understand personal realities that would otherwise be difficult to grasp. By playing a role in a new situation and having the microsimulation recorded, or by applying a care technique in a laboratory situation, the student develops creativity, understanding and an ability to adapt to different situations. This is excellent preparation for the working world in terms of organization, technique and relationships. Activities can be presented in context and significant learning experiences result. (Rosée Morissette, 2002, p. 86)
The laboratory, an interactive and cooperative forum for learning

The laboratory experience also enriches learning through collaboration and interaction. Cooperative learning and learning through projects has recently become very popular, specifically because they foster these kinds of exchanges, and we have come to understand that young people learn more easily when they talk to each other and work together. (Pierre Brazeau, 1998, p. 100-111). The college laboratory provides this type of interaction.

Through practice in the laboratory, students can easily and profitably provide each other with support and help. Examples provided by friends who perform well and encouragement from colleagues represent real assets. But in the laboratory, students learn not only from their successes, they also learn from their mistakes. This cooperation works particularly well when supported by strategies of student pairing, mutual support and peer coaching.

In a way, these approaches are a kind of delegation of authority, by which the instructor gets the most out of independent action in a small group of students or in a more advanced student, who briefly steps in to help or support her colleagues. Organizing in this manner motivates students to improve and critique their own performance.
Promoting self-assessment

When laboratory experiences are well prepared, they also develop in the student an “internal locus” of self-control that allows the student to learn to work more independently and take a critical look at how she learns and what she accomplishes. The use of autoscopy through video feedback is particularly helpful in this type of personal development. This media-based self-image gives the student an opportunity to reflect on her performance. The image she receives of herself and her actions form the basis of her self-assessment and, subsequently, of any changes she implements. Small mutually-supportive teams of students, in which one of the members acts as an observer, can also help students develop greater independence in making this assessment (Jim Howden and Marguerite Kopiec, 2000, p. 76).

Nurses bear important responsibilities, and this should encourage us to foster a culture of metacognition and self-assessment in our students so that they can actively improve their own performance. As we can see, the college laboratory plays a very important role in training nursing students, so it makes sense for the educational program to include a clearly identified amount of time (a significant number of hours). It is therefore essential for the instructor to use appropriate strategies and maximize the time devoted to this type of learning.

Developing multiple intelligences

Learning in the laboratory also presents multiple aspects of the student’s development in different dimensions of her intelligence. Through the opportunities provided to solve concrete problems, she uses her emotional abilities to understand the patient on whom she will be applying her care techniques; her logical, kinesthetic and spatial abilities to
implement these techniques; her **linguistic and interpersonal** abilities to think the words and use the language needed to communicate, teach the client and engage in the therapeutic relationship; and even her **interpersonal** abilities for self-assessment (Bruce Campbell, 1999, p. 3, 4) (Margot Phaneuf, “Applying the Theory of Multiple Intelligences to Nursing,” Infiresources Web site, Educational Crossroad, Educational Viewpoints).

Clearly this significant theory must influence how we organize teaching for optimal student development (Thomas Armstrong, 1998, p. 48-53).

### Focus on psychomotor learning

Psychomotor learning is fundamental to many everyday nursing actions. The context of action in nursing includes everything from personal care to the treatments administered to patients. Actions also form a very large part of the learning that occurs in the laboratory. Actions are based on skills, which are built on the learner’s memory, detailed perception of sensory stimuli, and an ability to coordinate gestures in order to complete movements organized very precisely into a defined sequence.

The teaching of psychomotor abilities can be divided into two parts: 1) the teacher’s demonstration and 2) the student’s application of the knowledge. The practice of skills is guided by the instructor, supervised by a laboratory technician or assisted by a peer/tutor. The
teacher’s demonstration must be made slowly, in a highly accessible language and be accompanied by simple and clear explanations. However, there are several critical aspects to the guided practice that follow:

- **Students need to be able to explore and manipulate the equipment.** This allows them to become familiar with the equipment and it reduces the anxiety they experience when they need to use the skills in a clinical setting. By the time the student is in her practicum, she must have a thorough understanding of the equipment and know all its functional components, including the risks involved in not using it well. This is why it is important for students to have an opportunity to examine the equipment in all its aspects and master its use.

- **Acknowledging that students will demonstrate different levels of manual dexterity.** Psychomotor abilities vary considerably from one person to the next; some students are less capable or more unsure of themselves. Others have been able to work in a variety of fields where they developed more dexterity, and this makes their learning easier. However, there are times when a student will have difficulties in this area because they lack motivation or self confidence. This latter quality is particularly important, because without self confidence, the student has little self esteem, and it becomes much more difficult for her to learn. This underscores the importance of positive reinforcement from instructors and an approach to teaching that is stimulating and has an impact on a student’s self image. The instructor’s skill in this area enables her to show respect for the student and communicate certainty that she can succeed; this alone is the better part of all good teaching.

- **Varied amounts of time required for practice.** Since students arrive in a nursing program with different levels of manual dexterity for care techniques and different levels of verbal fluency for carrying out interactive strategies, so the time needed to acquire a skill will vary significantly from one student to the next. The instructor must not only respect these differences, but she must also identify those students who will need a bit more time and support. Here again we see the advantages of this approach to teaching.

- **The need for feedback and positive reinforcement.** At times it is easy to forget that the student needs regular feedback on her performance. Learning occurs progressively, in a spiral, in which there may be hesitations or even some loss of ground. This is what makes comments from the instructor so valuable. Feedback acts like milestones in the student’s progress, marking her way. It is important that the feedback not feel like a series of reproaches; rather, it should take the form of encouragement to carry on and an understanding of her problems. Positive stimuli are much more productive than reprimands (Rosée Morissette, 2002, p. 194).

**COLLEGE LABORATORY LEARNING AND TEACHING STRATEGIES**

Many learning and teaching strategies can be used in the laboratory college. We will now present some strategies that are well known as ways to foster different types of learning.
There are many types of skills that can be developed in a laboratory setting. For example, this is a good forum for developing intellectual and motor skills, a capacity to interact and communication skills, as well as achieving self-development and self-actualization. Different strategies may be employed to attain the objectives suggested by each of these skills. These teaching methods may be used to prepare the laboratory session, to lead the student to reflect on and succeed at certain aspects of specific situations, to solve problems or to review her approaches and accomplishments.

However, a clear and realistic appraisal must be made of how these strategies can be applied in the time that the instructor and the student will have together. Unfortunately, laboratory time is limited. In addition, the appropriate teaching tools must be selected so that the experience is as effective as possible. Teaching objectives must be clear, and they must indicate what level of performance the student needs to attain before she can move on to her practicum. Then the instructor must find a direct, simple and effective way to communicate the content of the course; i.e. to combine the required theoretical and technical aspects needed for a particular type of care and to draw on the student’s psychomotor abilities.

Care techniques are based on organizational and psychomotor skills, so the teaching of care techniques must be founded in clear, concise principles that are presented sequentially and in an organized manner. With this approach, the student knows what needs to be done, how to do it, when and for what reasons. This learning strategy combines aspects of the “drill” (i.e., frequent repetitions) with the principles behind the action taken and the “rational” (i.e., the explanation of why the action is needed and how it is applied). Therefore, in order for the student to be able to precisely and directly carry out an action, care techniques must be presented in well-ordered sequences that the student can easily remember and execute well. However, it is also important that the student understands the usefulness of what she is doing, each component part of the technique and what to avoid. We cannot rely on memory alone to ensure that the technique will be applied appropriately in the future (Danielle Raymond, 2006, p. 134).
INTEGRATION OF KNOWLEDGE AND EXPERIENCE

Experimentation in a laboratory is part of a continuous, ongoing interrelationship between theoretical and clinical learning. This educational strategy makes it possible to apply theory in simulated situations, enabling the student to better incorporate knowledge into her own mental representations of reality. The experience encourages her to reflect on what she has learned and stimulates her organization and assimilation of new knowledge and abilities. This is why the instructor needs to create significant role playing exercises for the laboratory sessions. As much as possible, they should resemble experiences encountered in the practicum setting and be adapted to the student’s level of mastery of the learning material in order to help her integrate theory and practice. The role-playing situations must also be presented in an order of increasing difficulty.

A good strategy for encouraging this integration is the portfolio, which serves as a true instrument in student development. As described by Richard Desjardins (2002, p. 8), the portfolio encourages the student to become more independent, develop a sense of her responsibilities and integrate the knowledge required to develop a professional identity.
CONDITIONS APPROPRIATE FOR LABORATORY LEARNING

Successful laboratory instruction requires that a certain numbers of conditions be met (David A. Sousa, 2002, p. 134). Although many conditions need to be fulfilled, we will limit our discussion to two of them: the availability of an appropriate location and support for the student’s independent practice.

Available and appropriate facilities

Clearly the laboratory sessions must be held in appropriate facilities. The facilities must be able to offer the student an environment suitable for the learning techniques and demonstrations, but also for role playing and the simulations required for learning and integrating the theoretical knowledge. In addition to the usual equipment found in a hospital setting, it is important that the laboratories are equipped with audiovisual equipment for viewing and recording the exercises, either on videotape and or on digital media, as well as projection equipment. The equipment can be used for learning and self-assessment purposes and applied in various ways to certain techniques and to the communication process. (See “The Mirror Effect – Mediator of Knowledge and Self Image” and the related situations on the Infiresources Web site, Educational Crossroad, Being or becoming a teacher).

Coaching in the laboratory

In addition, laboratory learning requires continuous coaching by a nursing laboratory technician. The role played by the technician is crucial in terms of the support it provides to both teaching and learning. The technician fulfils many functions, from supervision to assessments of training.

The technician represents a first-class resource in terms of the quality of support provided as well as the feedback given to students. There also must be clear communication and a strong working relationship between the technician and the instructor, so that they give identical instructions on how to apply the techniques.

As well, the technician’s role goes far beyond simple supervision of techniques practiced in the laboratory. Through her warm approach and the example she sets, the technician becomes a kind of role model and a source of motivational support. As a result, the technician should be encouraged to cultivate the student’s desire to excel, and her position gives her a perfect opportunity to fulfil this role.

Other points

In the interest of optimizing learning, the nursing technician plays an important role in the application/assessment/improvement process. The instructor notes the weaknesses of certain students and can speak to the technician about them or even write an “education prescription,” indicating where the learner needs to pay extra attention during the practice
sessions. The nurse technician then makes a point of seeing that this prescription is properly filled. This approach becomes a highly useful complement to the instructor’s work.

There will be occasions when the student’s time with the instructor and the technician will not be enough for her to master the care and communication techniques, and an alternative method must be found. The students themselves can respond to this need by creating a system of peer supervision and support. Selecting some of the more advanced and better-performing students to play the role of tutor can bring surprising results. The tutored students work on their lessons and the tutors themselves develop observation and facilitation skills and refine their own approaches. This is a win-win strategy, an interesting application of cooperative teaching and an excellent way to develop a range of skills.

CONCLUSION

Given their importance in a nurse’s training, college laboratory require particular attention from the instructor. In the teaching of technical manipulations, there is a real risk that a routine will develop that is entirely superficial, made up of automatic responses rather than based on truly thinking about what is being learned. We need to remain vigilant and, as part of our professional commitment, maintain our creativity and our will to go that extra mile in our teaching. Laboratory colleges are not the place for second-class lessons, and the instruction given therein should not be limited to routine protocols. They can be places to reflect on the nature of care and the profession, raise awareness and help students develop professionally.

This text comes from an important document entitled “Structures pédagogiques pour le programme des soins infirmiers 180.01.” It has been revised and updated. The original text can be found on the Infiresources Web site, in the French Professional Crossroad section, under the heading “Chronique de la recherche en pédagogie.”

BIBLIOGRAPHY


Phaneuf, Margot. Applying the Theory of Multiple Intelligences to Nursing, Infiresources Web site, Educational Crossroad, Educational Viewpoints section.
