

The Development, Implementation And Evaluation Of A Chemistry Curriculum

For Nursing Schools In Israel

Thesis for the Degree of Doctor of Philosophy

By Yehudit Dori

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Abstract

A very diverse population of students choose nursing as a profession in Israel. Although chemistry is basic for studying nursing, most of those students have not studied chemistry in school for longer than a single year – usually in Grade 10 (age 16).

I have developed, tried out and evaluated a new chemistry curriculum for nursing schools. This curriculum meets four aims, which were identified in a preliminary needs assessment:

- It forms a basis for advanced nursing courses, such as biochemistry and pharmacology.
- It is relevant to the activities of nurses in both hospitals and clinics.
- It can be applied to students with different backgrounds in science.
- It can increase the usual lack of interest of nursing students in studying chemistry.

A chemistry curriculum "Chemistry for Nursing Schools", was developed in the form of a book containing the following eight chapters:

- a) Why Chemistry for Nurses?
- b) Molecules in the Human Body
- c) Ions in the Human Body
- d) Introduction to Quantitative Chemistry: Clinical Laboratory Tests
- e) Acids and Bases
- f) Acid-Base Equilibrium in the Human Kidney
- g) Functional Groups in Organic Chemistry
- h) Summary

During the academic year 1985 "Chemistry for Nursing Schools" course was studied by 400 student nurses in ten nursing schools. The implementation of this course included discussions with teachers teaching the new curriculum, the development of teaching aids and an evaluation using pre and post achievement and attitude tests.

The curriculum, which takes 25-50 lessons (of about one hour), was used in two types of nursing schools, those that prepare their students for a B.A. degree in nursing (academic schools), and those that prepare their students to be registered nurses.

Half of the schools used the full curriculum, including all the questions and exercises, the teaching aids, and used examinations suggested by us. In these schools, the gap, which had existed between students in academic and in non-academic schools, was closed, or considerably reduced. The gap, which had existed between high and low ability students of non-academic schools, was also reduced. In schools which used the curriculum merely as auxiliary learning material, only high ability students gained any measurable benefit.

In the affective domain, students who read the "Chemistry for Nursing Schools" textbook, reported that the material was clear, and helped them to understand the various subjects. They also indicated that the case studies and other examples contributed to their understanding the relationship between nursing and chemistry. In the post-course evaluation, using an open attitude questionnaire, it was found that students are generally enthusiastic about the new textbook. Both teachers and student nurses indicated that the new curriculum fulfilled a need for a chemistry course for nursing schools, contributed significantly to the improvement of the image of chemistry, and, not least, diminished the anxiety the study of chemistry often caused.