

## **Abstract**

### **An Evaluation of an Innovation that allowed a Teacher to Participate in Developing a Ninth Grade Integrated - Science Unit**

The study aimed to evaluate an approach to teacher development that focused on the teacher's participation in developing a unit for grade nine, using an integrated science approach. It aimed also to study the effect of the teacher's participation in developing the unit on teaching, and students' learning.

To achieve the aims of this study, the following research questions were posed: To what degree did the different interventions (giving the teacher the opportunity of making decisions concerning curriculum and her learning methods, exchanging experience, sharing in the unit development, and using critical reflective practice) in addition to the change in students' outcomes affect the teacher's professional development. To what extent did these interventions affect students' learning and their attitudes towards learning? To what extent did the teacher's knowledge and beliefs affect the experiment's success or failure?

To answer these questions, we used a qualitative methodology. Information was collected from different sources that included: teacher's teaching plans, students, the teacher herself, the researcher, and the principal. Different instruments were used, such as audio records of the pre and post interviews

with the teacher and students, audio records of some of the teacher's periods, teacher's beliefs questionnaire, and an exam in the developed unit.

The data was analyzed through comparing between the answers on the interview questions before and after the development and teaching of the unit, noting the change in the teacher's practices through class- room observations, and comparing the change in students' outcomes in the pre and post test as a whole, and on each of its parts (recall, comprehension, and analysis).

The study showed that:

- 1) The used method positively influenced the teacher's professional development in four dimensions which were: teacher's role in students' personality development, teacher's role in integrating knowledge, teacher's role in teaching concepts and skills, and her role in planning for teaching. The teacher's beliefs in three dimensions (teacher's beliefs concerning student's learning, scientific knowledge, and her role) were found to have developed. The development in teacher's knowledge was found to occur in two dimensions: an increase in teacher's knowledge, and a better organization of that knowledge.
- 2) The preparation and planning period of the experiment had an important effect on teacher's professional development. The outcomes of the students'

learning process had also an important effect on the teacher's professional development, especially in changing the teacher's beliefs.

3- The Teacher's disposition for long-life learning, and her participation in teachers' development centers positively affected her readiness to make change.

4- Developing students' responsibility towards their learning, giving them the chance to interact with the surrounding environment, use of equipment, cooperation with other students, use of different information resources, allowing them to express their abilities, and challenging their abilities, helped in developing their attitudes towards science.

6- Using an integrated curriculum increased the ability of students to relate and analyze.

7- The use of different evaluation methods helped the students to develop as whole persons, and decreased individual differences. It also refuted the existence of two types of students: those able to learn science, and those unable to learn science.