

## Abstract

This study aimed at identifies the Jerusalem district high school teachers' beliefs on using experiments in science education. It focused on teaching practices and barriers that enhance practicing experiment. Eleven main questions addressed the interrelationships between beliefs, practices and barriers, in addition to the effects of some independent variables on teachers' beliefs and practices.

A questionnaire was designed to achieve previous goals. A twelve of panel experts was asked to check content validity, their suggestions advices were took in consideration. Also, construct validity was achieved by applying SPSS factor analysis and with Kaiser Normalization to the sample responses to the questionnaire.

Questionnaire reliability was achieved by using Cronbach's Alpha formula. It was 0.92 for the whole questionnaire.

A convenience sample that consisted of 196 science teachers was selected from Palestinian authority schools, private schools and Jerusalem municipality teachers. Data analyses revealed the following conclusions:

1. Science teachers' beliefs about using experiments were positive. The percentage of teachers who use experiments was low. Science teachers think that curriculum and schools' environment are barriers to the use of experiments, but teachers' characteristics are not.
2. There was a statistical relationship between teachers' beliefs on using experiments and their practices to achieve certain goals. There were weak negative relationships between barriers and teachers' beliefs and their practices to achieve certain goals.

3. There were no significant statistical differences among the means of teachers' beliefs about the use of experiment that are related to sex, specialization, scientific degree, teaching experience and the supervising authority.
4. There were no significant statistical differences among the means of teaching strategies that are related to sex, scientific degree and teaching experience. On the other hand, there were significant differences according to the specialization on teaching strategy centered on teachers' emerged between teachers of physics and biology in favor to the biology teachers. Another significant difference was between Jerusalem municipality school teachers and those of private and Palestinian Authority schools in favor to the last one.
5. There were no significant differences in the mean of the use of experiment in science classrooms that are related to sex, specialization and teaching experience. But there were significant differences related to the types of the school in favor to Palestinian Authority school teachers. There were significant differences in the means of conducting experiments in science classrooms that are related to scientific degree among teachers who had diploma degree, and teachers who had B.S. with diploma in education in favor to teachers who had diploma degree.

Recommendations of this study can be stated as follows: There is a need to conduct more qualitative research on this subject; Ministry of Education should review the curriculum and methods of evaluation; also, there is a need to review the education diploma programs given by some universities; and finally, researcher propose that teachers conduct the maximum number of experiments within the available environments.