ABSTRACT

In recent years, there has been a growing awareness of the importance of inquiry skills in science education. This is reflected on the modern science programmes which emphasized that product and process are complementary and interdependent. Psychologists such as Piaget, Bruner and Gagne' founded the psychological basis for the inquiry-oriented model. Suchman, Schwab, Shulman and Gagne' believed that explosion of scientific knowledge must be dealt with by organizing knowledge in a well structured manner and promoting inquiry skills and processes. In this respect, Suchman advocated the Inquiry Training Model which assures that inquiry is the pursuit of meaning.

Suchman, Novak, Rutherford, Neal, Gagne', Schwab and Peterson defined inquiry and all agree that inquiry is the search of meaning. Schwab in particular differentiates between two modes of inquiry; stable and fluid inquiry. Among the factors that affect inquiry skills are: motivation, feedback, instructional techniques, attitudes and interest.

The hypothesis of this study stated that there are no significant differences($P < .05$) among means of scores of students in the Inquiry Skills Test that can be attributed to sex, levels of achievement in science and levels of achievement in science interest.

Four inquiry skills were selected in this study, hypothesizing, predicting, experimenting, and explaining which were conceptually and operationally defined. Studies and research related to inquiry approaches are numerious and can be categorized into effectiveness of inquiry teaching methods, effectiveness of conventional and new curriculum materials on promoting students' ability in using inquiry skills, different measures of inquiry skills and relationship of inquiry skills and other variables.

The population for this study consisted of all preparatory students(2999 students: 1691 males and 1308 females) of the eighth and Ninth graders of UNRWA/UNESCO schools of West Bank, Nablus Area.

The sample consisted of 518 students that were randomly selected. The variables in this study were measured by the Inquiry

Skills Test, the science Interest Scale Test and Achievement in Science. The independent variables were achievement in science and has three levels; science interest and has three levels, and sex. The dependent variable was the score of the Inquiry Skills Test.

The design of this study was 2 x 3 x 3 factorial for each of the grades Nine and Eight. Analysis of variance of unweighted means was used to analyze data, and the statistical hypothesis was tested at the .05 level of significance. Newman-Keuls Comparison Test and t-test were used to identify significant differences amon the means.

Analysis of variance of unweighted means of mean scores of grade Nine indicated that achievement in science, science interest and sex were significant ($p < .05$). No interaction effect was significant except (Achievemnt x Interest). In grade Eight, analysis showed that achievement in science only was significant at the .05 level. This means that acquisition of the inquiry skills is related to science achievement which is consistent with Stevens and Atwood. Significance of interest in grade Nine is possibly due to the relative stability of science interest for that grade; whereas, significance of sex factor might be due to the traditional feminine role which society upholds, as well as females' conception of low expectation for achievement.

The findings of this study involving grade Nine indicated that high achievers of high and medium levels of interest of both sexes seem to have attained the minimum level of developing their inquiry skills on their own. Further research is needed in this area to substantiate this assumption.

It is recommended that inquiry skills must be promoted and developed at all levels of elementary and preparatory.