

سياسة تشجع المعلم على تكملة دراسته العليا، بالإضافة إلى وضع معايير لتعيين المعلمين الجدد تأخذ بعين الاعتبار معرفتهم بكيفية تعليم المحتوى.

The Relationship Between Science Teachers' Pedagogical Content Knowledge About Density In Grade Seven and Student Achievement

Prepared by: Mahmoud Fawzi Habbas
Supervisor: Dr. Maher Hashweh

Abstract

This study aimed at investigating the effect of teachers' pedagogical content knowledge (PCK) on student achievement. The topic of teaching density for seventh grade was selected due to its importance and difficulty of learning the concept by seventh grade students. The model of Hashweh, 2005 was used which proposed that teacher pedagogical content knowledge is composed of seven components: knowledge of content, strategies, goals, students characteristics, curriculum, context and resources. Two written test were developed; one to assess teachers' pedagogical content knowledge about the teaching of density for seventh grade, and the other to assess student achievement.

The population of the study was composed of all teachers of science for seventh grade who taught in governmental schools in Al-Quds Suburb Education District whose number was 37 teachers. Twenty nine of them agreed to participate in teachers' test, while all their students, whose number was 768 students, participated in students' achievement test.

The study showed the weakness of teachers' pedagogical content knowledge, (the mean of teachers scores on the test was 49.8 %), and that was due to their weakness of their knowledge in the all seven components. However, the greatest influence resulted from their extreme weakness in knowledge of goals and their knowledge of student characteristics. There were no differences of in teachers' pedagogical content knowledge attributed to variables of sex, specialization, overall experience and experience in teaching seventh grade. However, there was a differences of statistical significance in teachers' pedagogical content

knowledge attributed to the qualification variable in favor of master degree holders. Students' achievement was low with an average 23.46 %. Moreover, there are differences in students achievement attributed to sex in favor of females. Several alternative conceptions were found for teachers and students.

Correlations of statistical significance were found between pedagogical content knowledge and each of its seven components. In addition to that, it was found that there were positive correlations between the different components of teachers pedagogical content knowledge. Knowledge of strategies correlated with all components of pedagogical content knowledge with Pearson coefficients which were of statistical significance at the level of evidence < 0.05 . A strong positive correlation of statistical significance was found between PCK scores and student achievement scores, where Pearson correlation factor was 0.599. It was found also that there was strong positive correlations of statistical significance between five components of teachers' pedagogical content knowledge and students' achievement; while the correlations between students' achievement and knowledge of context and resources were not significance.