Teaching Processes and Methods Suggested by Science Teachers for Overcoming Alternative Conceptions about Genetics

Abstract

The purpose of this study was to describe processes and methods suggested by science teachers for changing alternative conceptions about genetics. The study focused on a group of 17 (8 male and 9 female) science teachers who were graduate level students or completed a graduate program. Hence, the group was the case of this study. Qualitative data of the study was collected by detailed lesson plans prepared by the participants for overcoming two alternative conceptions about genetics (chromosome is an organelle and DNA is found as a whole set in the body) and follow-up interviews. The data was analyzed by descriptive analysis. The findings showed that the case group of this study represented fragmented processes to overcome the alternative conceptions. At the same time, they did not provide methods or processes in line with conceptual change models. These findings mean that science and technology teachers who have completed a graduate program or are currently graduate students of science education are not able to plan coherent teaching on alternative conceptions or are not aware of conceptual change processes and methods.

Keywords: alternative conceptions, genetics, conceptual change processes, science and technology teachers

Introduction

Technological improvements in the genetics field are frequently seen in nearly all aspects of life. For instance, the Human Genome Project and following technolo-