

Determination of Science Teachers' Competencies: A Delphi Technique

Tugce Bostanci, Demet Sever

Anadolu University/ Education Faculty

ABSTRACT

The main purpose of this study is to identify science teacher competencies based on science education expert opinions. For this purpose, Delphi technique, is one of the qualitative research techniques has been applied in this study. In the first round of Delphi technique, 13 lecturers who are experts in the field of science education took part. In the second round, two of the 13 lecturers and one of in the third round were separated from the group. In the first round of the Delphi technique, open-ended questions sent to the expert group which were created after a detailed literature review. As a result of the reviewing national and international scientific publications, 10 categories have been identified: general competencies related to the science curriculum, competencies related to the elements of the curriculum (aim, content, learningteaching processes, assessment and evaluation), competencies to develop students learning domains (cognitive, affective, and psychomotor), competencies in instructional technologies and communicational competencies. Each identified category was transformed into an openended question. Descriptive analysis was applied for the qualitative data. As a result of the analysis, a 5-point Likert-type questionnaire consisting of 172 items in 10 categories was prepared. The questionnaire was sent to the experts in the second round. The experts indicated their participation levels for each item. The data obtained at second round were analyzed by quantitative methods. In the third round, the results of the analysis from the second round were added to the experts and the participants were asked to re-evaluate their responses in the previous round. At the end of the third round, 161 competencies statements were reached under 10 competencies areas.

Keywords: Delphi technique; qualitative method; science education; science teacher competencies; teacher competencies