PRE-SERVICE TEACHERS ERRORS AND DEFICIENCIES RELATED TO REFLECTION AND ROTATION CONCEPTS

Halime SERT, İsmet AYHAN

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When the studies on the subject of symmetry are examined, the concept of reflection symmetry is considered in the majority of the studies. New studies should be conducted on how students perceive the concept of rotation symmetry and where they have difficulties (Aksoy and Bayazit, 2009). Since transformation geometry, which is one of the main subjects of mathematics, is also used in daily life, children need to be taught correctly. For this reason, it is important that prospective teachers correct any deficiencies and errors related to mathematical concepts before starting the profession. For this purpose, the error and deficiencies of reflection and rotation concepts of prospective teachers were investigated using Reflection and Rotation Test developed by Dixon (1995).

The research is a continuation of the experimental design. Descriptive analysis method was used for qualitative data. The research was carried out with the participation of 66 prospective teachers studying in the Department of Elementary Mathematics Education of Pamukkale University Faculty of Education and taking Analytical Geometry course. In the study, the Reflection and Rotation Test adapted by the researcher was used as the data collection tool. The Reflection and Rotation Test was developed by Dixon (1995). The reflection and rotation test was applied to the prospective teachers and the errors and deficiencies of the prospective teachers were examined.

In this context, while 9 out of 10 reflection transformation questions are in rare error and 1 of them is in less error category, all of the 3 composition transformation questions fall into the rare error category. In addition, 4 of the 17 rotation transform questions fall into the less error category, 8 of them have middle, 3 are more, and 2 are common. Errors encountered in the concept of reflection are not equal to the distance of each point forming the shape perpendicular to the axis of symmetry. Errors encountered in the concept of rotation, rotating a single line segment witout rotating all the points forming the shape at the same angle, comparing the concept of rotation and reflection, not knowing in which direction it should rotate in positive and negative rotation, errors in rotating without paying attention to angle and center of rotation and failing to determine the center of rotation of two rotated shapes was determined.

Keywords: Reflection, Rotation, Errors