

Examining the Skills of Establishing Number and Space Relations of Science Students with the 'Integrative Perception Test'

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Abstract : The ability of correlation the number and space relations, one of the basic scientific process skills, is being used in the transformation of a two-dimensional object into a three-dimensional image or in the expression of symmetry axes of the object. With this research, it is aimed to determine the ability of science students to establish number and space relations. The research was carried out with a total of 90 students studying in the first semester of the Science Education program of a state university located in the Turkey's Black Sea Region in the fall semester of 2017-2018 academic year. An 'Integrative Perception Test (IPT)' was designed by the researchers to collect the data. Within the scope of IPT, the courses and workbooks specific to the field of science were scanned and the ones without symmetrical structure from the visual items belonging to the 'Physics - Chemistry - Biology' sub-fields were selected and listed. During the application, it was expected that students would imagine and draw images of the missing half of the visual items that were given incomplete in the first place. The data obtained from the test in which there are 30 images or pictures in total (f Physics = 10, f Chemistry = 10, f Biology = 10) were analyzed descriptively based on the drawings created by the students as 'complete (2 points), incomplete/wrong (1 point), empty (0 point)'. For the teaching of new concepts in small aged groups, images or pictures showing symmetrical structures and similar applications can also be used.

Keywords : integrative perception, number and space relations, science education, scientific process skills

Conference Title : ICSEED 2018 : International Conference on Science Education, Research and Development

Conference Location : Paris, France

Conference Dates : March 15-16, 2018