

**SP - (15777) - AN APPROACH TO TEACHING THE CONDUCTIVITY OF ELECTRICITY IN WATER IN PRIMARY EDUCATION**

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**Short Abstract**

The educational research in the contemporary literature on the phenomenon of electrical conductivity of solid and liquid bodies mainly relates to students in secondary and tertiary education. The research has shown that these students tend to ascribe electrical conductivity in liquid bodies to the presence of free electrons in them. This idea seems to be backed up by their prior knowledge relating to the electrical conductivity of metals. This pilot study sought to study the extent to which k5 students are in a position to construct the scientifically accepted explanation for the electrical conductivity of water. In all, 24 students took part in the project, all of them from a k5 class in a Greek primary school. A teaching intervention was designed and implemented to capture the students' learning pathways during the teaching of the given phenomenon. The intervention focused on confronting the students' alternative idea that electrical conductivity in all materials is due to the existence of free electrons within them. The data was drawn from two sources: an analysis of the video recordings of the conversations which took place during the implementation of the intervention, and the responses provided by the students to two written questionnaires, one completed before and the other one month after the intervention. The results of the research show that, although initially very few students considered water to be electrically conductive—and that those that did mainly thought the water could 'push' the free electrons through the wires—, by the end of the intervention 3/4 of the students provided the scientifically accepted explanation. However, this was a pilot study and its results cannot be generalized. Consequently, we propose that the intervention be repeated with multiple small groups of students to enable the individual students' learning pathways to be studied in greater depth.