6 - Nature of Science: History, Philosophy and Sociology of Science | Empirical

SP - (15870) - THE RELATIONSHIP BETWEEN STUDENTS' UNDERSTANDING OF NATURE OF SCIENCE AND THEIR METACOGNITIVE AWARENESS

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Short Abstract

This study which is conducted as a part of a funded project aims to investigate the relationship between middle school students' understanding of nature of science (NOS) and their metacognitive awareness. Erduran and Dagher's (2014) reconceptualization of Family Resemblance Approach (FRA) describes science as epistemic-cognitive and social-institutional systems. Epistemic-cognitive aspects of science include the aims and values of science, scientific practices, methods and methodological rules of science, and scientific knowledge, social-institutional categories include scientific ethos, social certification and dissemination, social values, professional activities, political power structures, social organization and interactions and financial systems. Kaya and Erduran (2016) coined the term of "Reconceptualized Family Resemblance Approach to Nature of Science" or RFN to emphasize the educational aspects of FRA. A total of 701 middle school students from different grade levels (180 5th, 167 6th, 170 7th and 184 8th grade students) attended to this study. Data was collected through RFN Student Questionnaire (Cilekrenkli, 2019), and Metacognitive Awareness Inventory Form A and Form B (Karakelle & Sarac, 2007). The relationship between variables was investigated for each grade level separately and middle schoolers (6th,7th and 8th) as a whole with Pearson r correlation test. Further, the linear regression analysis was proceeded to examine predictive ability of metacognitive awareness on RFN understanding. The results show that there is a significant positive relationship between RFN understanding and metacognitive awareness for 5th, 6th, 7th and 8th graders separately. Similarly, a significant positive relationship was found for all middle schoolers (6th,7th and 8th) as a whole. The results of linear regression analysis show that metacognitive awareness significantly predicted RFN understanding. The findings suggest that the inclusion of metacognitive prompts or strategies to promote students' understanding of RFN can be examined in future studies.