

## 1 - Learning Science: Conceptual Understanding | Empirical

### SP - (15808) - PRIMARY SCHOOL STUDENTS' IDEAS ON THE SELF- OR HETERO- LUMINOSITY OF THE MOON

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#### Short Abstract

The present research examines 10-12-year-old students' ideas on the self- or hetero- luminosity of the Moon. The study of the relevant literature revealed that even though the idea of self-luminosity is mentioned in some studies, the explanatory mechanisms that students provide to support it have not been thoroughly researched (Barnett & Morran, 2002, Wilhelm, 2014). The aforementioned studies do not focus on the self- or hetero- luminosity question but rather simply mention it while examining students' ideas on various astronomical phenomena. The main aim of this research is the investigation of students' ideas on the self- or hetero- luminosity of the Moon, specifically focusing on their explanatory mechanisms. Furthermore, we examined whether their ideas on the lunar phases (an indication that students are aware – among other phenomena – of the relative movements of the Sun-Earth-Moon system) and the mechanisms of seeing hetero-luminous objects, affect their ideas on the luminosity of the Moon. The research was carried out using an open-ended questionnaire filled out by 176 students 10-12 years old (convenient sample) selected from fifteen (15) primary schools in the broader area of Athens. Data analysis was carried out using qualitative methods of content analysis (Erickson, 1998). From this research, it is deduced that students' ideas on the self- or hetero- luminosity of the Moon, are supported by simplistic explanatory reasonings, which are based on alternative ideas for various astronomical phenomena. Moreover, students either in favor of self- or hetero- luminosity both have similar ideas on the lunar phases and how we see hetero-luminous objects. Therefore, even the students that correctly believe the Moon to be hetero-luminous, in most cases cannot provide a coherent explanation to support their view; very few (approx. 14%) were able to do so through the scientifically accepted view.