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P07 - Examining the effects of a blended station rotation environment on students' motivation in earth and space science learning: a pretest–posttest study

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Motivation plays a critical role in students' engagement and persistence in learning Earth and Space Science, particularly when exploring abstract topics such as planetary systems, space exploration, and celestial phenomena. This study investigated the effects of a blended station rotation model on students' motivation toward Earth and Space Science learning. Employing a quasi-experimental one-group pretest–posttest design, the study involved 119 Grade 10 students from four intact classes enrolled in an Earth Science elective course at a university laboratory school in Northern Mindanao, Philippines. The four-week intervention covered selected Earth and Space Science topics, including the Solar System, terrestrial and Jovian planets, planetary exploration, and astronautics, through teacher-guided instruction, technology-supported learning, and collaborative hands-on activities. Students' motivation was measured before and after the intervention using an adapted Students' Science Motivation Questionnaire II (SMQ-II). Paired-samples t-tests revealed significant improvements in students' overall motivation, intrinsic motivation, self-efficacy, and career motivation. Effect size analysis further showed that intrinsic motivation demonstrated the largest standardized effect among the motivational dimensions. These findings suggest that blended station rotation models can foster motivation by providing authentic, interactive, and learner-centered astronomy learning experiences. The study underscores the potential of blended instructional approaches for promoting meaningful engagement in Earth and Space Science education.

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