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P08 - Students' motivational experiences in planetary science learning through a blended station rotation model: A multiple case study with creative artifacts

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Understanding how students experience motivation within blended learning environments remains an important yet underexplored area in science education. This multiple case study explored students' motivational experiences during a blended station rotation model implemented in a Grade 10 planetary science unit. Guided by Self-Determination Theory, the study examined four motivational cases: intrinsic motivation, self-efficacy, self-determination, and academic grit, and synthesized common motivational patterns across cases while analyzing students' creative artifacts as representations of their learning experiences. Data were collected through individual open-ended responses, focus group discussions, and student-generated artifacts, and were analyzed using within-case and cross-case thematic analyses. Findings revealed that motivation developed as an interconnected process in which curiosity initiated engagement, successful task completion strengthened confidence, autonomy fostered ownership of learning, and perseverance sustained participation through increasingly challenging activities. Creative artifacts, including the Saturn gown, Martian robot, Jupiter cake analogy, and Neptune–Uranus comic, demonstrated how students transformed scientific concepts into meaningful visual representations while reflecting distinct motivational experiences. The cross-case synthesis further showed that these motivational dimensions mutually reinforced one another rather than functioning independently. The findings extend theoretical understanding of motivation in blended science learning while providing implications for science teaching practice, curriculum and instructional design, and future research on student-centered learning environments.

Primary authors: Mr MIGALANG, Gilden Maecah (MSU Iligan Institute of Technology; University of the Philippines Open University); Mr ACUT, Dharel (Cebu Technological University; Cebu Normal University)

Presenters: Mr MIGALANG, Gilden Maecah (MSU Iligan Institute of Technology; University of the Philippines Open University); Mr ACUT, Dharel (Cebu Technological University; Cebu Normal University)

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