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O50 - From Abstract Space Science to Hands-on Inquiry: A Pilot Learning Framework for Children Aged 9–12

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Astronomy is often taught to primary students through facts and memorization, despite its potential for visual, spatial, and inquiry-based learning. This practice paper presents ASTRO KIDS SUMMER CAMP, a one-day learning framework developed by the National Astronomical Research Institute of Thailand (NARIT). It aims to translate abstract space-science concepts into tangible experiences through which children observe, construct, question, and explain.

The framework was piloted in four sessions for children aged 9–12, with 30–36 participants per session. Participants joined through open, fee-based public enrollment and therefore introduced a bias upon economic status, rather than reflecting the true population. Each session combined an age-adapted planetarium program, one or two hands-on workshops, and telescope observation. Selected sessions also included guided visits to NARIT facilities, such as satellite assembly and testing areas, cleanrooms, telescope-maintenance facilities, and telescope-control rooms.

The workshops emphasized active construction and scientifically guided imagination. Children assembled beginner telescopes, designed imaginary organisms adapted to specified environments, created exoplanet models, and explored astronomical concepts through embodied activities. The resulting artifacts could be taken home for continued exploration.

Evidence from the pilot consisted of facilitator observation, informal interviews, and examination of participants' work. These sources indicated active participation and opportunities for children to describe spatial relationships, justify design choices, ask questions, and revise their ideas. However, the pilot included no pre- and post-assessments, comparison group, independent observers, or longitudinal follow-up. It therefore demonstrates feasibility but does not establish cognitive improvement or long-term learning outcomes.

The framework shows how planetarium experiences, hands-on construction, authentic research environments, and sky observation can be integrated into an informal learning program. It positions astronomy not only as subject content, but also as a context for practising scientific questioning, spatial representation, evidence-based imagination, and communication.

Primary author: MARKJARD, DANUPON (National Astronomical Research Institute of Thailand (NARIT))

Presenter: MARKJARD, DANUPON (National Astronomical Research Institute of Thailand (NARIT))

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