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A COMPARATIVE ANALYSIS OF THREE THESES IN SPACE ARCHITECTURE EDUCATION

Abstract

Space architecture is increasingly making its way into the educational landscape, attracting more students to explore and begin their journey with the subject. Courses in space architecture are being offered worldwide, concurring to the teaching of this discipline's principles. However, this is not the only way students are beginning to tackle the subject. For many, the initial encounter with space architecture occurs within the context of a master's thesis, offering an opportunity to conduct an in-depth, guided yet independent research. Since 2022, Politecnico di Torino has initiated a series of master's theses in space architecture that immerse students in methodological research with the goal of designing lunar habitats, keeping track of the evolution of their work.

This paper delves into the exploration of three different theses developed between 2022 and 2023. The methodological challenge posed to the students is to start from their competences as 'Earth architects,' and approach a project in an entirely unfamiliar context such as the lunar one. Rather than following a traditional trajectory of theoretical study of the entire state of the art before delving into the project, students are encouraged to develop an initial design proposal from the outset. This often emerges as an 'unrealizable futuristic idea,' driven by their personal imagination. Building on the first "project," students are pushed to delve into the relevant literature and compare their proposal with known case studies, iteratively modifying their project to root it as they go along in the lunar reality, assessing what the conditions are for the project to be realized. This transformative experience compels students to challenge established paradigms in terrestrial design, questioning elements taken for granted on Earth, from the configuration of living spaces to the need to source energy resources and the use of different building systems.

The project thus becomes the object of scientific research through the practice of the students, their actions and the products of those actions. Their proposals are then discussed and evaluated not on the basis of principles of quality as much as on their ability to respond effectively and credibly to the implications emerging from their self-produced analysis of the context in which the projects are situated. Thanks to the methodical documentation of the research phases, it is possible to analyze and compare the three works, drawing some useful conclusions both for the methodology of space architecture and for the educational observations and strategies of the discipline.