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CHOICE ARCHITECTURE AS A SUCCESS DETERMINATOR OF AN ANALOG ASTRONAUT TRAINING CENTER IN COSTA RICA

Abstract

The making of an analog training center involves the analysis of key factors that end up determining things such as the sustainability and durability of the center, or the success of the missions that are to be carried out in them. Some of these factors include environmental determinants like the physical space in which the center will be built, the materials and the layout, or human deciders such as the physical and mental state of the trainees. It is important to consider these factors from the early design stages, as its results and consideration can determine the basis and sustainability of the project in the long term. Under this context, choice architecture presents itself as a useful option to take into account when planning the construction of an analog astronaut center, as it considers the environment and cognition to be mutually affected by the other and directly involved in human behavior outcomes. In the present paper, we discuss how choice architecture can influence analog astronaut trainees' performance for the better in STARLAB, the soon-to-be first analog astronaut training center in Costa Rica. To reach this goal, a systematic review methodology was chosen, in which 13 scientific articles describing the different choice architecture techniques and their effects on human behavior were analyzed. The results showed that choice architecture design techniques, in general, influence a variety of human behaviors and subconscious cognitive processes such as motivation, circadian rhythms, patience levels, likelihood of socializing, comfort, productivity, and the decision-making process as a whole. Choice architecture achieves these nudges to certain behaviors through the design and arrangement of variables like lighting, wall colors, sound systems, design of public and private spaces, entertainment spaces, prompting, temperature, construction materials, and furniture arrangement in buildings. Considering the results, we discuss that such choice architecture techniques can be used to improve the chances of success of STARLAB, in a way that architectural considerations, such as ergonomics, spatial distribution, lighting, and environmental functionality, have a significant impact on the psychological response of participants in analog training and missions. These factors influence their ability to cope with stress, their performance, and their adaptability in extreme and isolated environments. Therefore, the synergistic integration of architecture and psychology in space projects is essential for designing environments that not only meet technical and operational requirements but also promote the comprehensive health and cognitive performance of their occupants.