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CULTURAL ETHOLOGY AS NEW APPROACH OF INTERPLANETARY CREW'S BEHAVIOR

Abstract

Introduction: From an evolutionary perspective, during short-term and medium-term orbital flights, human beings developed new spatial and motor behaviors to compensate for the lack of terrestrial gravity. Past space ethological studies have shown adaptive strategies to the tri-dimensional environment with the goal of optimizing relationships between the astronaut and unusual sensorial-motor conditions of moving. During a long-term interplanetary journey, crewmembers will have to develop new individual and social behaviors to adapt, far from Earth, to isolation and confinement and as a result to extreme conditions of living and working together. Recent space psychological studies pointed out that heterogeneity is the feature of interplanetary crews; based on personality, gender mixing, internationality and diversity of backgrounds. Intercultural issues could arise between space voyagers. As a new approach we propose to emphasize the behavioral strategies of the human group's adaption to this new multicultural dimension of the environment. Methodology: Potential outcomes of applying ethological methods to the study of culture-specific human behaviors are investigated. They use anthropological tools based on observations and descriptions of individuals acting in a microsociety with their rules for living, their work habits and their specific customs and values. We intend to focus the present study on interpersonal communications and organizations in diverse space simulation experiments and analogous environments (Mars-500 experiment, Mars Desert Research Station - MDRS, Tara-Arctic expedition and Concordia South pole station). Results: During the Mars-500 experiment, the crewmembers (RU, EU, CH) were differently involved in the daily life activities. At MDRS in the Desert of Utah, the crewmembers (F, USA, AUS, D) differently communicated in verbal discussions. During the Tara drift in the pack ice, the crewmembers (F, USA, EST, NZ, N, RUS) were diversely positioned in the collective space. At Concordia station, the crewmembers (I, F) were grouped preferentially according to their living habits. The results show that cultural heterogeneity has different impacts on interpersonal communications and organizations. When considering the isolated and confined crews like an evolving microsociety in unexplored environments, our preliminary analysis raises new questions on phylogenetic and epigenetic bases to witch cultural ethology associated with anthropology may help to answer. Conclusion: Cultural values in addition to social values and personal values, have to be taken into consideration for future space exploration.