SPACE FLIGHT RESOURCE MANAGEMENT FOR ISS OPERATIONS

Lacey L. Schmidt, Kelley J. Slack, William O'Keefe, Therese Huning, Walter E. Sipes, and Albert W. Holland

Although the astronaut training flow for the International Space Station (ISS) spans 2 ½ years, each astronaut or cosmonaut often spends most of their training alone. Rarely is it operationally feasible for all six ISS crewmembers to train together, even more unlikely that crewmembers can practice living together before launch. Likewise, ISS Flight Controller training spans 18 months of learning to manage incredibly complex systems remotely in plug-and-play ground teams that have little to no exposure to crewmembers before a mission. How then do all of these people quickly become a team—a team that must respond flexibly yet decisively to a variety of situations? The answer implemented at NASA is Space Flight Resource Management (SFRM), the so-called "soft skills" or team performance skills. Based on Crew Resource Management, SFRM was developed first for shuttle astronauts and focused on managing human errors during time-critical events (Rogers, et al. 2002). Given the nature of life on ISS, the scope of SFRM for ISS broadened to include teamwork during prolonged and routine operations (O'Keefe, 2008). The ISS SFRM model resembles a star with one competency for each point: Communication, Cross-Culture, Teamwork, Decision Making, Team Care, Leadership/Followership, Conflict Management, and Situation Awareness. These eight competencies were developed with international participation by the Human Behavior and Performance Training Working Group. Over the last two years, these competencies have been used to build a multi-modal SFRM training flow for astronaut candidates and flight controllers that integrates team performance skills into the practice of technical skills. Preliminary results show trainee skill increases as the flow progresses; and participants find the training invaluable to performing well and staying healthy during ISS operations. Future development of SFRM training will aim to help support indirect handovers as ISS operations evolve further with the retirement of the Space Shuttle Program.