

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Behaviour, Performance and Psychosocial Issues in Space (1)

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BEHAVIOURAL SCIENCE FOR FACILITATING ORGANISATIONAL CHANGE AND IMPROVE
THE MENTAL HEALTH OF AN ISS FLIGHT CONTROLLER TEAM

Abstract

Abstract We implemented a leading-edge, three-day human performance training programme for ISS flight controllers based on well-established organisational development (OD) strategies and evidence-based forms of contextual behavioural science (CBS). Over five days prior the training, we collected data through approximately 13 interviews, role and task observations, panel discussions, and informal discussions. Based on the data collection strategy, we worked closely with the space agency to agree the overall strategy of the three-day training programme and tailored the training to industrial needs to directly target the objectives set: 1) facilitate a significant change process, 2) enhancing participants' ability to communicate more effectively with each other 3) increasing participants' ability to adapt more swiftly and efficiently to the changing needs. These targets were achieved using OD, functional analytic psychotherapy, acceptance and commitment therapy, meaning-based psychotherapy, mindfulness-based cognitive therapy and focusing-based psychotherapy exercises. We modified and underpinned these exercises with behavioural science, functional-contextualism, and existentialism and then integrated and fine-tuned them towards the objectives and industrial needs on the following way: 1) Delivering mindfulness and focusing exercises to change the relationship to one's private experiences to highlight the nature of mind and different narratives of personal meaning in order to help individuals establish an understanding over the validity of each others' perspectives; 2) Hierarchical restructuring of values from intra- to interpersonal levels ("we are in this together, now"). 3) Value based actions based on intrapersonal values for the benefit of the group in order to create new group identity. 4) Change management from micro to macro levels: helping flight controllers to evolve new group identity and job description and elect their patron; while highlighting the management the benefits of supportive actions when the newly evolved team acts as one, while highlighting the possibility of major downfall if refused. The results showed significantly improved mental health scores, ($F=18.87$; $df=1,14$; $p<.001$; Pretest: $M=20.73$; $PreSD=2.4$; Post-test: $M=11.71$; $SD=5.36$), and the thematic analysis of qualitative data a shift of perception of past difficulties and in-group-outgroup issues towards a new group identity and desired future outcomes. Due to the quasi-experimental design and low number of participants involved ($N=7$), it is difficult to claim that change was due the intervention itself, however over 20 years of research shows similar outcomes in other populations, including those performing in difficult contexts (military or premiere athletes). We draw on conclusions by discussing how using CBS/existentialism based OD interventions across the space industry could significantly increase the productivity, mental health, innovation and cohesion, and improve leadership competencies of management.