Fiscal Year:	FY 2018	**Task Last Updated:**	FY 09/21/2017
PI Name:	Salas, Eduardo Ph.D.		
Project Title:	Dynamic Team Role Allocation in Long Duration, Exploration Missions: Identification of Roles, Triggers, and Measurement Tools		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Behavior and performance		
Joint Agency Name:		**TechPort:**	No
Human Research Program Elements:	(1) **HFBP**:Human Factors & Behavioral Performance (IRP Rev H)		
Human Research Program Risks:	(1) **BMed**:Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders (2) **Team**:Risk of Performance and Behavioral Health Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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PI Organization Type:	UNIVERSITY	**Phone:**	713-348-3917
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City:	Houston	**State:**	TX
Zip Code:	77005	**Congressional District:**	7
Comments:	NOTE: Previous affiliation was University of Central Florida, until mid-2015		
Project Type:	Ground	**Solicitation / Funding Source:**	2013 HERO NNJ13ZSA002N-Crew Health (FLAGSHIP & NSBRI)
Start Date:	11/03/2015	**End Date:**	11/02/2019
No. of Post Docs:	0	**No. of PhD Degrees:**	1
No. of PhD Candidates:	5	**No. of Master' Degrees:**	1
No. of Master's Candidates:	3	**No. of Bachelor's Degrees:**	0
No. of Bachelor's Candidates:	0	**Monitoring Center:**	NASA JSC
Contact Monitor:	Williams, Thomas	**Contact Phone:**	281-483-8773
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Flight Program:			
Flight Assignment:	NOTE: End date changed to 11/02/2019 per NSSC information (Ed., 8/6/18) NOTE: End date changed to 11/02/2018 per NSSC information (Ed., 9/27/17) NOTE: Element change to Human Factors & Behavioral Performance; previously Behavioral Health & Performance (Ed., 1/18/17)		
Key Personnel Changes/Previous PI:	None		
COI Name (Institution):	Burke, Shawn Ph.D. (University of Central Florida) Driskell, James Ph.D. (Florida Maxima Corp.) Fiore, Stephen Ph.D. (University of Central Florida)		
Grant/Contract No.:	NNX16AB08G		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	ED. NOTE (4/6/2016): Continuation of project (grant NNX14AM73G) with the same title and Principal Investigator, due to PI move in fall 2015 to Rice University from University of Central Florida. Long duration exploration missions present a unique environment characterized by many stressors (e.g., social isolation, danger, confinement, interpersonal dynamics, periods of over/under stimulation), with little ability to escape. Research has found that within such environments interpersonal dynamics occupy a key role in effective functioning (Forsyth, 2010). While the last few years have witnessed an increase in research examining the composition requirements of high performance teams, little work has examined these issues in light of teams embedded in long duration, exploration missions. Therefore, we describe a program of work which addresses Team Gaps 1, 4, and 8 in NASA's Human Research Roadmap. We seek to answer the following questions with regard to long duration, exploration missions: (1) what are the key social and team technical (task) roles which influence team function; (2) what are the behavioral and communicative markers which can be used to assess the degree to which key identified social and team technical roles are being fulfilled; (3) what contextual aspects serve to trigger a need for the dynamic shift of social roles; (4) what are the optimal combinations (i.e., profiles, algorithms) of social roles for the maintenance and regulation of team functions; (5) what are the markers that can be used to select for those most likely to fit social profiles and how do these profiles change across the duration of the mission (i.e., the team's life cycle). In answering these questions we seek to provide a series of scientifically grounded and experimentally validated taxonomies, guidelines, and measurement tools for team selection/composition. In exploring these questions, we take a multi-pronged approach consisting of analysis of archival data (e.g., astronaut diaries, historical accounts of teams operating in isolated, confined environments (ICE), prior collected University of Central Florida astronaut interviews), scientific literatures on group dynamics, personality, team roles, stress, and diversity, interviews, and experimentation in NASA analogs. Forsyth D. R. (2010). Group dynamics. J. D. Hague (ED.). Belmont CA: Wadsworth, Cengage Learning.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	Research contributes to a better understanding of the task and social roles needed for teams to effectively function, especially within the context of isolated, confined environments such as long duration spaceflight.
Task Progress:	During this past reporting period, we have been working on several tasks including but not limited to: conducting interviews with NASA subject matter experts in long duration spaceflight, collecting data in the Human Exploration Research Analog, thematic analysis of interview data, refinement of a team role taxonomy and collection of related validation evidence, development of a series of behavioral markers of key team roles, analysis of archival documentation describing crew interaction during spaceflight missions with an eye towards team roles. Interview Data. We have completed interviews with 15 NASA subject matter experts in long duration spaceflight. Those interviewed included astronauts, operational psychologists, flight engineers, and personnel that worked within mission control. Interviews were 30 minutes in length and focused on those team roles that were expected to be needed in long duration spaceflight, the role that personality plays in the enactment of informal team roles, and the contextual factors that may cause roles to shift over time. All of this was done with an eye towards those team roles needed as crews begin to move beyond low-Earth orbit. We are currently in the process of thematically analyzing the results of this data, but have already extracted several high level themes. Analog Data Collection. At this point in the project's life cycle, we have been involved in collecting data across three campaigns in the Human Exploration Research Analog (HERA). Each campaign is comprised of four missions which range from 14-45 days depending on the campaign. Currently we have data from 9 crews for a total of 36 individuals. Within this environment our focus has been on team roles and their relationship to key team outcomes and how the manifestation and importance of specific team roles may differ across time and based on stressors embedded within long duration spaceflight (e.g., periods of high and low workload). We have begun to conduct analyses on a subset of this data as well as examining portions of the crew's communication as another avenue through which to investigate the task and social roles which crew members engage in and the functionality of such roles. Examination of Archival Data. We have also employed a systematic approach to examining sources that document crew interaction during spaceflight. In this vein, we have investigated biographies and autobiographies, blogs, and journals with an eye towards understanding the task and social roles that have been employed by crew members and, when possible, their relation to key team outcomes. We are using the information that is being collected through multiple sources (see above) as a way to contextualize a team role taxonomy that will be applicable for use in measure development and countermeasure development within the context of long duration, distance exploration missions – an isolated, confined environment.
Bibliography Type:	Description: (Last Updated: 09/04/2023)
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