

HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Astronaut Training, Accommodation, and Operations in Space (5)

Author: Ms. Elisabeth Jambor
European Astronaut Centre, Germany, elisabeth.jambor@esa.int

Mr. Matthew Day
European Astronaut Centre, Germany, matthew.day@esa.int

Mr. Luca Anniciello
European Astronaut Centre, Germany, luca.anniciello@esa.int

Mr. Olivier Lamborelle
Space Applications Services NV/SA, Germany, olivier.lamborelle@esa.int

Mr. Tom Hoppenbrouwers
Space Applications Services, Belgium, tom.hoppenbrouwers@spaceapplications.com

Mr. Simon Trim
European Astronaut Centre, Germany, simon.alexander.trim@gmail.com

TEST BED PAYLOAD VIDEO LESSON FOR ESA ON-BOARD TRAINING

Abstract

“A picture says more than a thousand words, a video says more than a thousand pictures”

Chris Hadfield, ISS Commander Exp35

Current astronaut training relies on well-established methods such as Instructor-led face-to-face sessions (using for example PowerPoint) to supplement training received on simulators, emulators and analogues. The current International Space Station (ISS) increment specific training template foresees 30 months of ground training before flight. Consequentially, payload training has to be either implemented close to launch or additional effort has to be made to maintain proficiency. In addition, the upcoming one-year mission to the ISS and possible future long-duration exploration missions will lead to an increased need for effective training and proficiency during flight. In-flight training cannot be achieved with the current Instructor-led face-to-face approach. One of the challenges for astronaut training will be finding ways to maintain crew proficiency, teach or refresh key skills close to the time that they are needed. To overcome this hurdle, different methods like Computer Based Training (CBT), video lessons and interactive 3D animations are being explored. ESA has already successfully implemented CBT in the frame of ATV proficiency training for rendezvous and docking and also video based training for Columbus maintenance activities. While the ATV CBT complements on ground ATV training, the Columbus maintenance video lesson was conducted purely as in-flight training. The objective of our study was to assess the suitability of video lessons to replace or complement on ground payload training and to create suitable development processes and organizational frameworks to facilitate this new training format. A “pilot” video lesson has been produced for the ESA ISS experiment FASTER (Facility for Surface Tension Research). This paper presents the current training methods and development processes, the conduct and outcome of our test development of a video lesson, and the lessons learned regarding applicability to other lessons and context, suitability of processes and organization. Furthermore it discusses advantages and disadvantages of the video lesson approach, its effectiveness and the applicability to different lesson types. The need for professional media support in terms of technical staff (filming, editing, animations...) and equipment (camera, sound, software...) is addressed.