IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Interactive Presentations - IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (IP)

Author: Mr. Nordine Hocine
Universite Grenoble Alpes, France

Mr. Luca BISOGNIN
Grenoble Ecole de Management (GEM), France
Dr. Didier Donsez
Universite Grenoble Alpes, France
Dr. Mathieu Barthelemy
Universite Grenoble Alpes, France
Mrs. Tania McNamara
Universite Grenoble Alpes, France

FOSTERING CREATIVE PROBLEM SOLVING AND SUSTAINABILITY THROUGH AN INNOVATIVE EDUCATIONAL NEWSPACE EVENT

Abstract

The very first NewSpace Challenge organized by University Grenoble Alps aimed to disseminate multidisciplinary mindsets and promote scientific culture, sustainability and creativity. The event involved sixty students from various backgrounds and levels of study (from bachelor to doctorate), supported by ten industry coaches and five faculty members of the University Space Center, providing guidance and expertise. The pedagogical objectives included developing teamwork skills across diverse disciplines, fostering engagement with Space engineering concepts, and enhancing interdisciplinary discussions and presentation skills. Participants took one of the following challenges : the NewSpace Data challenge was about imagining new applications for Earth observation data, teams having to explore technical, social, economic, ecological, and artistic dimensions. The Space Engineering For Dummies challenge" was about devising strategies to make NewSpace engineering tools accessible to everyone. Here, students' solutions tackled software ergonomics, technical architectures, and development chain organization. To meet such challenges, participants progressed through subsequent immersive experiences, beginning with a promenade through museographical spaces thoughtfully customized as a spaceship and were presented tangible experiments through videos, models and prototypes of nanosatellites, photographs and evocative sound elements. This initial immersion awakened students' curiosity and will to engage. From there, participants embarked on a process of creative thinking, project development and value proposition elaboration. Besides, the project effectively addressed multidisciplinarity by encouraging teams to explore various perspectives through expert workshops and peer discussions. This approach ensured comprehensive problem solving and mitigated the "impostor syndrome" often encountered in educational workshops. This framework combined creativity and action-based learning, following a Creative Problem Solving (CPS) approach and Design Fiction methods, that enabled the generation of high-value ideas, architectures, prototypes, or proof of concepts within the constraints of time and topical complexity. This programme produced a number of notable results, both in terms of the content of the students' work and the impact on the development of interdisciplinarity on campus. The value propositions went from real-time remote sensing of forest fires to adoption of sharing economy for cubesat uses and all received high praise from the expert jury. This NewSpace education and outreach experiment has been regularly deployed by UGA onto large multidisciplinary student audiences, be it in the form of similar creative challenges or wider open-science events. Overall, these challenges help students cultivate not only their academic knowledge

but also their ability to come up with and make innovative NewSpace solutions and scenarios.