

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

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DEVELOPING A REFLECTIVE PORTFOLIO FOR SPACE SECTOR EDUCATION: ACTIVE
METHODOLOGIES AND COLLABORATIVE LEARNING

Abstract

This article aims to outline the development process of a reflective portfolio on the space sector, employing active methodologies in a training course carried out by the Federal University of Rio Grande do Norte (UFRN) and supported by the Brazilian Space Agency and the United Nations Development Program (UNDP). The project's main objective was to develop skills in young women, promoting their interest in the space area, and training leaders in their communities. The project's initial phase was grounded in the use of active methodologies. It began with an intensive course on active methodologies, led by two university professors, involving 15 female students from various educational levels, including 5 postgraduate and 10 undergraduate students. Conducted remotely, the 4-hour sessions facilitated the sharing and discussion on the effectiveness of each methodology explored, addressing their strengths and weaknesses. For the activity execution, the project's students were divided into 5 groups, each headed by a postgraduate student and including two undergraduate students. The group work focused on developing and researching exercises suitable for both high school and elementary education within the space sector. Each educational strategy was designed with different levels of difficulty: basic, medium, and high. The team sought cases and activities in books, movies and reports to craft the targeted material, which became an inspiration source for its development. The third phase focused on technical training in specific themes, such as introduction to astronautics, the physics of rockets, and sustainable development goals, culminating in the creation of portfolios with actives of various difficulty levels. These portfolios were later compiled by the teaching staff and coordination into a single activity portfolio. The portfolio's activities has a multi-step validation process: (1) the course professors, (2) the project coordination, (3) the Brazilian Space Agency, which provided essential feedback for material finalization. These activities were compiled into a single portfolio comprising 25 activities and with 7 different types of active learning methodologies, designed to serve as examples and/or inspiration with the goal of being replicated in the schools. This resource not only facilitated the adoption of active methodologies by educators but also served as a valuable teaching tool for students, who implemented approximately 60