

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
In Orbit: Postgraduate Space Education (4)

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EXPLORING WOMEN'S CONTRIBUTIONS IN SPACE: A GAMIFIED EDUCATIONAL APPROACH

**Abstract**

This research aimed to create a comprehensive timeline documenting the contributions of women in the space sector up to the year 2023, detailing their characteristics, names, countries, and statuses. Following this, a game utilizing each woman as a card was developed, employing gamification techniques with the objective of aiding students in learning about prominent female astronauts and their nationalities. The game underwent validation with the participation of 75 girls from public schools in the state of Rio Grande do Norte, Brazil.

Additionally, the study sought to organize and categorize government programs conducted globally by various space agencies. Through these endeavors, the article aims to emphasize the achievements and roles of women in space exploration while also promoting involvement and stimulation in the aerospace field through innovative gamified learning strategies. This initiative illustrates the significant impact of integrating space technology with education to address social challenges, providing a replicable model for similar projects worldwide. This research demonstrates the potential of integrating space exploration into educational practices to address gender inequality in the field, aligning with the Sustainable Development Goals (SDGs) outlined in the 2030 Agenda. By creating a gamified educational tool that highlights the contributions of women in space, this initiative aims to foster inclusivity and engagement in aerospace subjects among students. Implementing such practices in schools could contribute to reducing gender disparities in the space sector while promoting sustainable development. Through collaboration between space agencies, international organizations, and educational institutions, this model presents a scalable approach for empowering future generations and advancing gender equality in STEM fields.

The collaboration between the Brazilian Space Agency, UNDP, and Department of Education of the Government of Rio Grande do Norte showcased how space technology can be leveraged for societal benefits, particularly in underserved areas. The outcomes of this project offer valuable insights into managing educational technology initiatives, engaging young students—especially girls—in STEM fields, and the potential for educational advancement through active learning methods.

By presenting this project at the International Astronautical Conference (IAC), our goal is to underscore the role of space agencies in fostering educational and social progress, and to share effective approaches for involving young learners in technology and science. This case study not only highlights successful collaboration between international and local entities but also establishes a standard for integrating space technology into educational frameworks to empower future generations.