

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
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OVERCOMING OBSTACLES IN STEAM PROJECTS FOR WOMEN AND YOUTH IN DEVELOPING  
COUNTRIES

**Abstract**

This article aims to explore the main barriers encountered in a project aimed at young girls in public schools and university students in engineering, in low-income and deprived regions of Brazil. The project highlighted various difficulties in the implementation and execution of training courses, as well as challenges in organizational management, categorized into five major areas: communication, human resources, social, organizational, financial, and technological. In the communication dimension, the complexity of the message, communicative immaturity, and the distinct realities of the school and family contexts were faced, especially for girls living in poor regions of high vulnerability. Introducing the topic of space was something very distant from their reality. The human resources dimension presented factors such as lack of collaboration and equitable distribution of tasks, which overloaded the more active participants.

The social perspective highlighted barriers such as insufficient family income, lack of support, and the challenge of balancing studies, household work, and participation in the project, especially for those from more vulnerable layers of society. This aspect was exacerbated by the need for some girls to contribute economically to their families.

There was a shortage of resources in schools, difficulties in adopting active methodologies and cultural resistance, as well as a lack of adjustment in teachers' workload. Limited technological infrastructure in schools, such as insufficient computers and poor internet connections, also proved to be a significant obstacle, hindering full participation of students in proposed activities.

Bureaucracy related to financial support and documentation required for participation in the project proved to be a hindrance, requiring additional effort to train participants to meet administrative requirements. This scenario reflects the importance of strategic planning aligned between educational institutions and funding agencies to overcome barriers to the development and evolution of knowledge in new working groups. With the alignment of the school and the state education department, we were able to obtain a well-planned relationship to successfully develop activities because taking a student out of the classroom

to perform an external activity requires alignment among all involved actors. This project highlighted the need for integrated strategies to overcome communication, organizational, social, financial, and technological barriers, aiming to promote the inclusion of girls in science and engineering, especially in contexts of social vulnerability. Through the identification and confrontation of these challenges, it is possible to promote greater female participation in STEM areas, contributing to the educational and professional development of these young women.