

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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THE NEED OF CURRICULUM DESIGN FOR SCHOOL & COLLEGE: AN EMERGING NEED FOR
SPACE POPULARIZATION FROM GRASSROOTS LEVEL

Abstract

This research contribution is an effort to present a case study of school and college curriculum of Pakistan while addressing the content related with space science, technology and its applications. It aims to describe the anomalies, evaluate the current standard of content in the curriculum and propose practical methodologies for implementation. The current state of space science and technology education in the Pakistani curriculum is a matter of significant concern. Analysis shows that the existing curriculum of the Provincial Educational Boards of Pakistan has a paucity of content related to space science, technology and its application. The authors have gathered and analyzed all the space related content in curriculum from grade 1 to grade 12. The page and word count have been analyzed along with the duplication of concepts, sequence of concepts and the authenticity of the concepts. The paper highlights the importance of space science and technology education for promoting global cooperation, inspiring STEM careers, and driving innovation and discovery. The significant gap in content incorporates the misalignment of contents, lack of visibility of learning trajectories, and scantiness of practical learning approaches in the domain of space science and technology. The paper suggests development approaches for the incorporation of space related concepts at all levels suggesting the formulation of a new curriculum for different levels of education, establishing a focus group of school/college academicians to design an improved curriculum with sequenced and sufficient information to expand the scope of and exposure to space science and technology. The proposed curriculum will cover topics such as earth and atmosphere, astronomy and astrophysics, rocketry, space application, emerging technologies, satellite technology, and aviation, aligned in a proper sequence for a comprehensive understanding. The successful implementation of the proposed solutions will ensure a skilled and knowledgeable workforce in the field of space science and technology for Pakistan's future generations.