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Calling Planet Earth: Large Engagement and Communications Initiatives (6)

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ENGAGING THE GLOBAL COMMUNITY IN SPACE EXPLORATION: INSIGHTS FROM AN INTERDISCIPLINARY MOOC ABOUT MARS

Abstract

In an era where public engagement in science has become paramount, innovative approaches to outreach are essential. This presentation delves into the development, execution, and outcomes of a Massive Open Online Course (MOOC) titled "How to Survive on Mars: the Science Behind the Human Exploration of Mars." This course was designed to transcend traditional educational boundaries, offering a hands-on experience that explores the complexities and necessities of human survival and scientific exploration activities on Mars through challenge-based learning. The strategic framework and pedagogical approach aimed not only to educate but also to foster environmental stewardship and awareness of technological spin-offs of space exploration.

The MOOC attracted a diverse global audience, with 15,000 participants across four iterations. Notably, the demographic distribution was remarkably balanced across age groups, ranging from 18 to 65+, illustrating the universal appeal of space exploration. A significant fraction of participants were teachers looking to incorporate space exploration into their curriculums and non-STEM professionals aspiring to transition into the space industry, showcasing the course's relevance for space workforce upskilling. Participant feedback was overwhelmingly positive, with 47% rating the course as excellent and 37% as good, resulting in an aggregate score of 4.2 out of 5, which underscores the effectiveness of the course in engaging and satisfying a broad audience.

The course content emphasized the differences between Earth and Mars, revealing the harsh realities of the Martian environment. Through active participation in discussion forums, learners exhibited profound reflections on Earth's natural resources, recognizing the imperative of responsible management and conservation. The realization that space exploration, while seemingly extravagant, actually enhances our environmental awareness and stimulates the advancement of technology which can also improve life on Earth, was a recurring theme. Moreover, discussions often ventured into speculative yet insightful contemplations on the potential for establishing a sustainable and equitable society on Mars, and how such advancements could serve as a paradigm for addressing Earth's ecological and societal challenges.

The strategic design of this MOOC underscores the power of interdisciplinary, challenge-based learning in capturing the public's imagination and fostering a deeper appreciation for space exploration. The course's success in engaging thousands globally highlights the potential of non-traditional educational platforms in advancing public understanding and enthusiasm for space exploration. This initiative provides an example of how to design space outreach that resonates with and mobilizes the global community towards collective endeavours in space exploration.