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SPACEBUZZ: CREATING AMBASSADORS OF PLANET EARTH//MAKING SPACE EDUCATION RELEVANT AND INCLUSIVE FOR ALL CHILDREN

Abstract

Making space education relevant and inspiring for all children is difficult given the high levels of abstraction and high-tech context. Another challenge is how to make a lasting impact, as many traditional space education programs are relatively short ad hoc interventions. A third, and often ignored, challenge is how to empower as much primary school teachers as possible to teach STEAM-related topics, other way than personal training.

SpaceBuzz developed a 12-lesson learning journey for children between 10-12 years old that uses experiential learning in combination with XR-technologies to inspire and teach children about space, Earth and STEAM-related topics.

The overarching narrative of the learning journey is that children become astronauts themselves. In a pre-flight program, children are trained to become an astrsdswonaut. Next, in a real live space rocket vehicle (¿ 17 meters long), they are 'launched into space' to experience the Overview Effect using VR and XR technologies, conduct research and engage in outreach activities.

The ultimate aim of SpaceBuzz is to turn children into ambassadors of planet Earth to keep "spaceship Earth" healthy. SpaceBuzz has reached tens of thousands of school children and hundreds of schools so far. SpaceBuzz has now also reached the United States, France, Italy, Germany, and Hungary with educational programs that have been adapted to the local needs and educational requirements of these countries. Empowering teachers was/is crucial for the success of the SpaceBuzz program. In order to help them teach STEAM-related topics, we developed an innovative and scalable online teaching tool called Mission Control that is used on a digital whiteboard or beamer in the classroom. Teachers rate the program with an 9.3/10.0 average and there is a waiting list until August 2023.

Another key aspect of the program is a strong focus on inclusivity, especially with regards to underprivileged children that have not been exposed to space-related topics before.

Lastly, all our educational activities are being rigorously tested with the help of our academic partners. Our scientific studies have demonstrated that using VR / XR to take children into space having them experience the Overview Effect, provoked feelings of awe, which in turn yielded learning gains. It was also demonstrated that it's is inclusive to all learning levels and empowers girls STEAM education.

Meanwhile, work is taking place to investigate how we can innovate learning processes by using educational technologies, including virtual reality, augmented reality, serious games, intelligent tutoring systems and learning analytics.