



Contribution ID: 1051

Type: Parallel Talk

Telling kids about Physics: the use of narration in interactive online communication formats for schools

Saturday, 9 July 2022 09:30 (15 minutes)

Physics, especially Astroparticle and Nuclear Physics, is a complex theme to tell kids, because it is very far away from their everyday life and from traditional school subjects. Nevertheless, to answer the demand of materials to support distance learning during the pandemic, the INFN Communications Office widened its activities with interactive live streaming events and online workshops for students: an opportunity to involve kids, between 8 and 13 years old, into the discovery of Physics.

We have fielded our first experience in spring 2020, with the project “Art&Science Kids”, a digital version for children of the European project “Art&Science Across Italy”, organized by INFN and CERN. Furthermore, for the digital edition of “National Geographic Festival delle Scienze 2020” in Rome, the project “FisicaxKids” was developed as a series of live streaming where researchers met students. The success of these first digital activities for children was the driving force for exploring other formats to engage the young public in Particle Physics. In the context of a continuous toggle between in-person school and distance learning, during 2021 and 2022, INFN Communications Office explored three different modalities to communicate science (interactive online workshop, Q&A live streaming, videos with animated illustrations), developing three different educational formats, to provide teachers with new instruments to engage kids in Physics.

With the purpose of preserving the interaction and the hands-on experience of each participant, interactive online workshops dedicated to students aged 8 to 12 were designed for the online edition of science festivals in Genoa, Rome, and Bergamo.

Inspired by the experience of “FisicaxKids”, two new online editions of dialogues with researchers were proposed to students aged 8-12, the first of which was followed by more than 230 classes for each event (approximately 4000 students each). The chosen format was a live streaming where a scientist dialogued with students about his or her research activity supported by a preliminary video, made with the chroma key technique, introducing the topic by using cartoons, animated illustrations, and fascinating infographics. The topics spanned from neutrino and high energy Physics to the Physics of the Universe, such as dark matter, gravitational waves, and antimatter.

The third explored format is represented by two series of short videos titled “La Fisica tra le Onde”. The series had the purpose to draw near Physics and the experimental method to children, by focusing on everyday experiences and by building a storytelling told by its protagonists, three siblings (4, 9, and 11 years old) making the experience of living in a boat with their family. The first series is focused on everyday Physics related to the concept of energy, while the second one explores experimental cosmic ray Physics, supported by a purpose-built detector realized and sent to the boat by INFN. The second series saw the addition of five live meetings between school classes and scientists working on experiments related to the videos. It engaged more than 60 classes per event, approximately 1200 students aged 10 to 13.

The evolution of these three modalities to communicate science and the online educational formats for kids will be presented, focusing on the different narrative structures and modes of interaction. Also, the aspects of communication strategy, kids and teachers’ engagement and evaluation methods will be discussed. The results of evaluation questionnaire will be shown focusing on critical aspects of the digital formats presented, and their communication procedures, in order to keep the discussion open on how they can be evaluated and aligned to school needs and expectations.

In-person participation

Yes

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Session Classification: Education and Outreach

Track Classification: Education and Outreach