

# A Pilot Project to Evaluate the Effect of the Pale Blue Dot Hypothesis

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**Abstract.** Astronomy and Space topics are perceived as holding universal fascination. It is widely considered that exposure to such topics inspires people, changes their perspective and leads to an uptake in science and STEM subjects. But very rarely is the impact of such communication evaluated rigorously and scientifically. There is a need for more rigorous evaluation methods which would reveal the successes and failures of current methods and tools of astronomy communication and whether they might lead to any inadvertent harm. The IAU Office of Astronomy for Development (OAD) and Hosei University together with the South African Astronomical Observatory conducted a randomised controlled trial (RCT) in Cape Town, South Africa to test whether exposure to an astronomy intervention affects empathy and altruism in children. The pilot demonstrated that it is possible to use such methods to evaluate impact of science communication in an inexpensive manner.

**Keywords.** randomized controlled trial, evaluation, pale blue dot

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## 1. Experiment

From October to November 2015, the astronomy outreach project One World Experiment was carried out among 938 secondary school students in Cape Town, South Africa. The main objectives of the study were a) to test whether exposure to an astronomy intervention affects empathy and altruism in children b) prove feasibility of evaluating an astronomy intervention in a low-cost manner. Participants were randomly assigned (as a class group) into experimental and control groups. The experimental group received an astronomy intervention where a qualified Physics teacher taught the students about their place on Earth and in the solar system. The students were taken on a tour of the solar system to foster the idea of One Common Humanity. The intervention was followed by two measurements: 1) a voting process intended to test the helping behaviour of the children toward children from other groups. 2) questionnaire to test their feelings towards children from ingroup and outgroup. There were two sets of five questions, one for the home country and the other for the chosen foreign country.

## 2. Conclusion

The RCT was implemented as a pilot project to test the feasibility of adding and running a low-cost evaluation component to a typical educational intervention at the school level. We hope this pilot initiative will guide others interested in repeating this experiment. Full analysis of the data, which will compare the control group and experimental group results and focus on the impact of the astronomy intervention, will be published in the future.