A comparison between 2010 and 2020 primary school student drawings on science and scientists: what ethical and social implication emerge for future generations?

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An analysis of the perceived image of science, scientists and inventions was conducted over drawings made in 2010 by children for a calendar competition promoted by INGV in Italian primary schools. A similar competition was proposed in 2020 with a related purpose of analyzing the image children have of the world of science, its potential and future perspective.

The title of the 2010 competition was "Scienziato anche io! La Scienza e gli scienziati visti dai bambini" - I'm a scientist too! Science and scientists from the children point of view-

Children were asked to realize a drawing regarding: 1) How do you imagine a scientist? How do you imagine the daily activities of a researcher? 2) What is the invention you consider the most important among all those you know? 3) What would you invent?

We collected 986 drawings, realized by 6 - 10 years old children from 48 schools distributed throughout the Italian territory.

For the 2020 competition we proposed: “La Scienza in crescita, immaginare la scienza del Futuro” - Growing Science, let's imagine the science of the Future!

We asked children to develop the following topics: 1) How do you figure a scientist life? 2) How do you imagine the daily research activities in the future? 3) and what tools will research work with? 4) if you were a scientist what would you invent?

In this case, the collection of drawings took place mainly during the months in which Italian schools were forced to distance learning because of the Covid pandemic crisis. Despite the difficulties, 28 primary schools participated by sending 350 drawings.

Drawings were coded and values stored in data sheets. A similar classification scheme was designed in order to be able to synthetically describe these sets of images and analyze it. A coarse-grained, quantitative analysis were conducted on both sets of data in order to test and tune the classification scheme, as well as to infer some considerations which may would be comparable with studies in literature.
Work we present and compare the results of the two datasets set apart by ten years, highlighting differences, similarities, convergences. Do boys and girls image a scientist in the same way? and what are their relationships with science and technology? Do stereotypical images of science and scientists persist, or something is changing? Is there a gap between children's perceptions and scientists' reality? and how can this gap be filled? Has something changed in ten years?

From the data, a generally positive picture of the work of scientists emerge as well as a great level of confidence in the potential of science, capable to respond to needs and problems of the humanity and of the environment in which we live.

What arises from children's drawings has ethical, societal and social implications on global problems investing issues at the intersection between science, humanities, and social sciences, and provides us a direct and unconventional approach to analyze how we convey our science - a strategic topic for a suitable future of the humanity - to the players of the world of tomorrow.