

Science fiction is not put to good use in teaching

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This image shows a "2001, A Space Odyssey" artwork. Credit: 2001, A Space Odyssey artwork (Robert T. McCall), Smithsonian Air and Space Museum.
Martin Kalfatovic

A study at the University of Valencia (Spain) ensures that science fiction, especially the cinema, is very popular amongst secondary school students and teachers see it as a good way of motivating interest in the sciences. However, out of the 31 textbooks analysed, only nine make some form of reference to science fiction cinema as a teaching resource.

"A current concern is that students are no longer [studying science](#) and engineering and this trend is more common amongst females. [Science fiction](#) can be useful in awakening the scientific vocation of younger students," as explained to SINC by Jordi Solbes Matarredona, researcher

at the University of Valencia and coauthor of the study published in the *Enseñanza de las Ciencias* journal.

The researchers Fanny Petit and Jordi Solbes gave a questionnaire to 173 students at four different state and grant-maintained schools in both rural and urban areas with the aim of understanding levels of science fiction knowledge and acceptance in schools. The experts obtained a total of 578 specific references to science fiction. The most important mentions by number were Stars Wars, with 90 visits, Matrix (60), X-Men (41), I Robot (36), Spiderman (32) and The Day after Tomorrow (24).

"In addition there were 78 references that demonstrated confusion between science fiction and magic, action and adventure, since the likes of Harry Potter and The Lord of the Rings were mentioned with 59 and 50 references respectively, along with the Neverending Story and Mission Impossible," outlines Solbes. Some of the classic genre films have hardly been mentioned. These include 2001, A Space Odyssey (with two mentions), Planet of the Apes (nine mentions) and Blade Runner (no mentions).

Some 24% of the answers gathered by the researchers value science fiction positively and 31% speak of advances in both science and technology. Furthermore, 47% had a [positive outlook](#) on scientists, 35% had a distorted or exaggerated outlook and 12% had an unfavourable outlook. As such, some comments towards scientists included "they are selfish", "they spend their life in the lab" upholding the typical image of the "crazy scientist" or "people who want to rule the world".

Scientists hardly make an appearance in the most popular films (Star Wars, Matrix) or they are portrayed in a negative way in superhero films (X-Men, Spiderman, Hulk). "In these films, the antagonist is usually the crazy scientist that wants to rule the world or even increase their power after finding a powerful 'weapon'," says the researcher.

Almost absent in books

The study also analyses the presence or lack of science fiction in 31 compulsory education and upper school science and technology textbooks for physics and chemistry, biology and geology and technology subjects along with teacher books, CD-ROMS and activity books. These texts came from seven of the main publishing houses between 2000 and 2008.

"Out of the 31 secondary and upper school books analysed, in 22 of them not one single reference to science fiction is made neither in photographs, comments, texts, activities or web references," states the researcher.

An element of science fiction was found in five of the books (either in the form of a photo, text and a problem-question), three books displayed evidence of two of these elements and just one book (Physics and Chemistry) contained all three science fiction elements.

"The most salient of these was a photograph of Superman found in one of the complimentary texts on the discovery of the mineral jadarite, whose chemical formula is very similar to that of the fictitious mineral kryptonite," explain the researchers.

They have also found a text book with an image of the starship Enterprise which accompanies a complementary text on the energy sources of ships and the distance problems that Captain Nemo could face on his underwater journey. Another problem found was the reference to the revolutions per minute that the space station from 2001, A Space Odyssey would need to undergo to simulate the Earth's gravity.

In Technology books an activity was found involving the design of a car in 2050, as well as a reference to the robotics laws of Isaac Asimov and

another that mentions a science fiction cinema series with examples of films such as Matrix and Blade Runner.

"Since texts books make up the bulk of what it taught, this tells us that, along with the scarce number of activities proposed by teaching staff, science fiction is hardly present in the classroom despite it being viewed positively by teachers," conclude the researchers.

Teachers' opinions of it are positive yet it remains unused.

In addition to the study performed on students, a survey was also conducted on 35 teachers undertaking a PGCE equivalent and 21 fully qualified teachers. They were asked what science fiction they are familiar with, whether in cinema, television series or book format.

According to its results, references amongst this group to films in the Starwars saga are still predominant, and this is also the case for Back to the Future and Matrix. However, other classic films like Metrópolis, Blade Runner, 2001, A Space Odyssey and I Robot enjoy more references than in the younger group.

In general, the teaching staff mentioned books twice as much as the pupils, they clearly made more references to cinema and referred slightly more to series. "Some 38% of responses directly refer to improved motivation and more interest in sciences amongst pupils," points out Solbes.

In light of these results, the researchers propose learning activities based on science fiction films and series as a way of verifying if these activities do actually improve the image that students have of science and scientists.

More information: M^a Francisca Petit Pérez y Jordi Solbes

Matarredona. "La ciencia ficción y la Enseñanza de las Ciencias",
Enseñanza de las Ciencias, 30 (2): 69-86.

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