



Challenges and opportunities for Geography Education beyond the 21st century: the importance of speaking about climate change inspired by Chew-Hung Chang

Davide Pavia^a

^a Department of Letters and Modern Cultures, Sapienza University of Rome, Rome, Italy
Email: davide.pavia@uniroma1.it

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In the spring of 2018, Prof. Chew-Hung Chang (President of the Southeast Asian Geography Association and Co-Chair of the International Geographic Union – IGU – Commission on Geography Education)¹ spent time at the Sapienza University of Rome to discuss research and didactical perspectives with the colleagues of Geography from the Department of Letters and Modern Cultures.

During his visit at the University, Prof. Chew-Hung Chang noticed the panel placed inside the atrium of the Faculty of Letters and Philosophy, which represents Article 3 of the Italian Constitution that says: “All citizens have equal social dignity and are equal before the law, without distinction of sex, race, language, religion, political opinion, personal and social conditions”².

These were the words that he chose to start his speech with, entitled “Challenges and opportunities for Geography Education beyond the 21st century”, which took place on 8 May 2024 in front of a number of students from the “Geographical Sciences for Environment and Health” and “Archeological Sciences” courses and several Ph.D. students (Figures 1 and 2).

What the Professor found in this Article were some of the key concepts of Geographic Education that, according to the 2016 IGU International Charter on Geographical Education, “helps deepen [...] understanding of [the] human diversity” (p. 10), that is the “Earth’s diverse and interconnected mosaic of cultures and societies” (p. 5), “to exist harmoniously with all [the] living species” (*Ibidem*). To appreciate and understand human systems, it is indeed essential to take part in the international community as global citizens (Stoltman, 1990, p. 95), as much as it is to recognize the natural components of an

¹ He teaches “Geography Education” at the NIE (National Institute of Education) of Singapore, an institute of the Nanyang Technological University.

² The English version of the Italian Constitution is available at <https://www.senato.it/documenti/reposi->

[tory/istituzione/costituzione_inglese.pdf](#) (accessed on 23 May 2024).

ecosystem and, especially, to be aware and conscious of their interactions, “so that [the] future generations will have better stewardship of [the] natural inheritance” left by those who live today (Chang and Kidman, 2021, p. 93).

The “future” was one of the central keywords of the speech, due to the importance given by Chang to teaching geography with a long-term approach, which means being concerned not about only today’s chronicle, but also about the XXII century’s possible issues. Putting it differently, a strong “temporal turn” (Sörlin and Isberg, 2021, p. 718) is needed to understand and manage those environmental processes that are more difficult to be observed than the shorter temporal intervals (Francis, 2016, p. 430).

From such premises, Chang’s speech went on to focus on one of the major “threats to human well-being and planetary health” (IPCC, 2023, p. 55): Climate Change (CC). During his several attempts to give a context to the contents – very successfully and much appreciated by the audience – he mentioned what happened to the Roman Trevi Fountain some days ago, when the water was dyed black by the young activists of “Ultima Generazione” (“Last Generation”)³: a “high-profile” Italian movement which shows its members’ ecoanxiety right in its very name (Yearley, 2024, p. 84). Taking the episode as emblematic of the tensions surrounding CC, he pointed out the importance of Geographic Education in defusing these kinds of conflicts.

In the direction of older generations, this could allude to the understanding of the protesters’ reasons and, therefore, in a major involvement of the students in decision-making at all levels, taking advantage of their sensibility on Climate Change⁴. In that of the young,

Geographic Education could mark the intergenerational dimension of CC, to combine everyone’s efforts by not thinking of adults only as people who caused a problem with no intention of solving it.

Such aim requires not only a solid preparation in Geography’s domains that have stronger relationships with Climate Change (e.g. Climatology, Economy, Geomorphology, Urbanism etc.), but also a deep awareness of the teaching methodologies that have so far been developed by scholars of didactics all around the world, according to the pillars written in Delors’ (1996) UNESCO Report: learning to know, to do, to live together and to be, which “represent [the] different dimensions of learning, which are all essential to human development, both individual and social” (Cantell and Rikkinen, 2003, p. 302).

The framework given by those pillars seems to become more and more important as the new technologies become available for all, such as Generative AI (Chang and Kidman, 2023, p. 88) or Google Earth, which has rapidly become the most widely used virtual globe available (Patterson, 2021, p. 241), changing the way people explore the surface of the Earth and other planets⁵. Having the possibility to search for a location’s coordinates in a few seconds, the students, especially the younger ones, should be taught more about what to look for, rather than how to do it, due to several reasons like the rapid technological developments and the presence of several applications with common functionalities but almost completely different user interfaces.

³ The episode dates back to 6 May 2023 and is described at <https://edition.cnn.com/2023/05/07/europe/italy-climate-protesters-dye-rome-fountain-black-intl-hnk/index.html> (accessed on 20 May 2024).

⁴ Meanwhile, the Italian Parliament approved a law (No. 6 of 22 January 2024) to raise the fines against the people who commit “destruction, dispersal, deterioration, defacement, defilement and illicit use” of the National Cultural Heritage (p. 1 of <https://www.gazzettaufficiale.it/eli/gu/2024/01/24/19/sg/pdf>, accessed on 21 May 2024).

⁵ Apart from the one of the Earth, Google Earth Pro (v. 7.3.6.9796) provides digital models of Mars, the Moon and the Sky. The latter “shows the visible universe and [...] a mosaic of images from the Sloan Digital Sky Survey, the Digitized Sky Survey and the Hubble Space Telescope” (<https://www.google.com/sky/abo-ut.html>, accessed on 23 May 2024).

This topic – the one of geotechnologies applied to Climate Change – increased the attention of the audience before the conclusions to the speech, due to the way geographic tools contextualize and deal with current issues and, at the same time, create job opportunities for the future geographers and archeologists who attend the course “GIS applications and geography methodology”, held by Prof. Cristiano Pesaresi (President of the Teaching area council in Theoretical and Applied Geography at the Sapienza University of Rome and Editor in Chief of J-READING). Answering his question on the importance of Geographic Information Systems both for ecological transition and environmental regeneration, Prof. Chew-Hung Chang focused the attention on the difference between today and a few years ago, when working with the maps was much more laborious from various points of view, from the economical to the temporal one.

Citing his words, there is absolutely “a place for GIS in helping us” with the SDGs (Sustainable Development Goals), due to the large number of capabilities embedded in next generation software that make it possible, for instance, to “look at changes over time” to represent and measure the urbanization that has risen up across the world – something Italians know from their direct experience⁶ –, putting together layers that come from the growing data lake of territorial data, where contents on “space, place, time [and] human environment” are almost countless⁷.

⁶ According to 2023 version of the Italian “Atlas of the soil consumption”, published by the Italian Institute for Environmental Protection and Research (<https://www.isprambiente.gov.it/files2023/publicazioni/publicazioni-di-pregio/atlane-nazio-nale-del-consumo-di-suolo.pdf>, accessed on 24 May 2024), the country’s soil was consumed at the rate of 2.2 sq m/s.

⁷ Among the examples of GIS applied to CC’s topics, a mention is deserved by the NOAA (National Oceanic and Atmospheric Administration)’s “Sea Level Rise Viewer” (<https://coast.noaa.gov/slr/>, accessed on 29 May 2024), a webGIS aimed to represent the possible flooding scenarios coming from the Global warming.

From a didactic point of view, the use of geotechnologies can “fully contribute in forming students’ critical personalities, autonomy, and self-awareness” (Azzari et al., 2013, p. 39), making them leading actors of the learning process by choosing what to map, together with the geoprocessing tools requested to perform a spatial analysis. This makes them feel “enriched and gratified in having gained a baggage of knowledge and abilities, which makes them more self-confident and able to work concretely using applied tools” (Pesaresi, 2019, p. 254).

The various contributions to the conclusive discussion demonstrate the audience’s appreciation of the morning’s topics, but the success of the event was certainly thanks to the merit of its speaker, who established a connection with those participating from the very first part of the morning, despite the difference of language.

While awaiting future opportunities for collaboration – such as the ones connected to the survey on the misconceptions of the Climate Change by Chang et al. (2018), that soon will be shared with a sample of Italian high school students –, the many ideas that came out of the speech, much greater in number than those recorded in this note, will undoubtedly be inspiring for many of those that attended.



Figures 1 and 2. Two moments of the speech held by Prof. Chew-Hung Chang on 8 May 2024 at Sapienza University of Rome. Above, Prof. Chang during his speech. Below a photo that includes some of the participants.

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