

The Impact of Sustainable Development Goals (SDG) on University Teacher's Training: The MOOC of MYGEO

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Background

It is not easy to train university teachers as they are mainly focused on their own research topics.

Therefore, the experience of building a MOOC on using geographic information systems (GIS), to teach using SDGs has been a challenge.

MYGEO project has developed the MOOC "Geo Tools for Teachers" and created new exercises for both distance and on-site teaching using GIS.

Method to create the MOOC.

The required steps have included (De Lázaro et al., 2020):

- Previous research about teachers' experiences and needs (September 2019).
- Building a first draft to be discussed by a focus group (April 2019) and using a pilot of three modules on a teachers training course (December 2019) to assess the potential.
- Preparing the first MOOC to run (November 2020-December 2020)
- Making small adjustments and running a second version (January 2021-December 2021)
- Translating into mother tongue, based on previous results (mid March 2021-September 2021)
- Running the whole adjusted 2021 version, the 2022 version and beyond.

MOOC: GEOTOOLS FOR TEACHERS



"Geo Tools for Teachers" has the objective of promoting the use of geotechnologies in university teaching in order to improve the technological skills and employability of students.

It is organized in 7 modules exemplifying frequent topics in lectures, using free and quality geodata that facilitates research, analysis, information management and its visualization.

INFO

Length: 2 weeks.

Effort: 25 hours (Self-paced in your own time).

Price: Free (Co-funded by the Erasmus+ Program EU), except for official certification.

Certification: Yes (by applying for it).

<https://iedra.uned.es/login>

WHAT YOU'LL LEARN?

- ✓ Search, analyze and visualize geodata
- ✓ Cartography
- ✓ Geographical Information Systems
- ✓ Sources of data collection
- ✓ Management of satellite images
- ✓ 3D rendering

SYLLABUS

Module 0: Presentation Introduction.

Module 1: Where can I get and how can I see geodata? Cartography concepts and data source for Web GIS.

Module 2: How can data be manipulated? Vector map creation with free geodata.

Module 3: How to make decisions? Raster multicriteria analysis.

Module 4: How can I manage data with mobile geo-tools? How can I make a geolocated survey? Geo-apps.

Module 5: How can I share data on a Web GIS? Story maps.

Module 6: How can I explore the power of satellite images? Optical remote sensing, spectral signature and sensors.

Module 7: How can I make a 3D representation? Download, select, and process raster data by creating a 3D image.

SOFTWARE

2021 MOOC version currently online

The teaching approach is intended to transform the traditional descriptive character of geography teaching using GIS competencies and distance learning methods. Thus, the acquisition of skills and abilities in GIS are essential, so faculty have been encouraged to develop teaching and GIS skills to use as a crosscutting element in the teaching of any subject related to geography or with a spatial perspective.

The aim is to include the teaching of GIS tools naturally using geographical learning and teaching examples in university lectures in different subjects. Guidance to search for free and high quality geodata to facilitate the analysis, and the visualization and sharing of first-hand geodata information for the construction of syllabus topics from the use of processed by geotechnologies, are all key elements to aid critical thinking.

Most of the examples used are related to Sustainable Development Goals, such as global inequality, industrial and urban affairs, rises in the sea level and the loss of mass in glaciers as a consequence of climate change, water problems such as water grabbing, and the use of satellite images to assess the state of health of the Earth (e.g. using the NVDI index).

MOOC attendants can follow the course according to the topic they are interested in or the GIS tools they wish to employ.

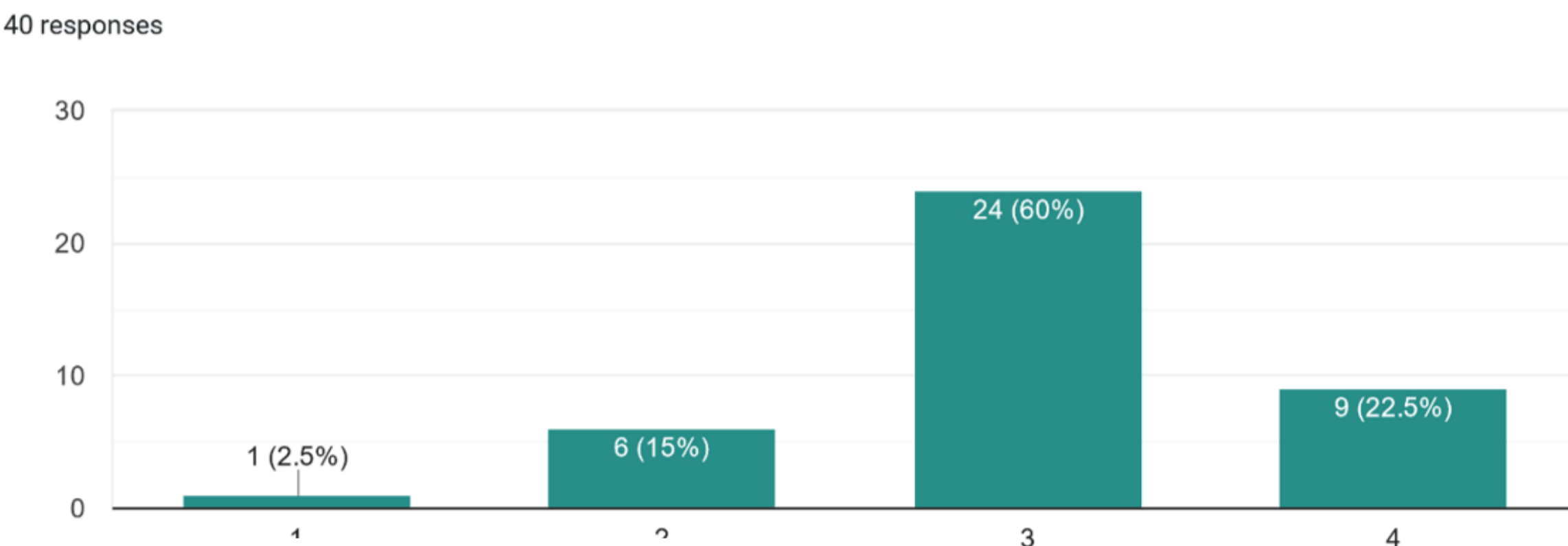
More information about the project results can be found at the project web page: <https://www.mygeoproject.eu/>

MOOC Geo Tools for teacher evaluation for the 2020 version

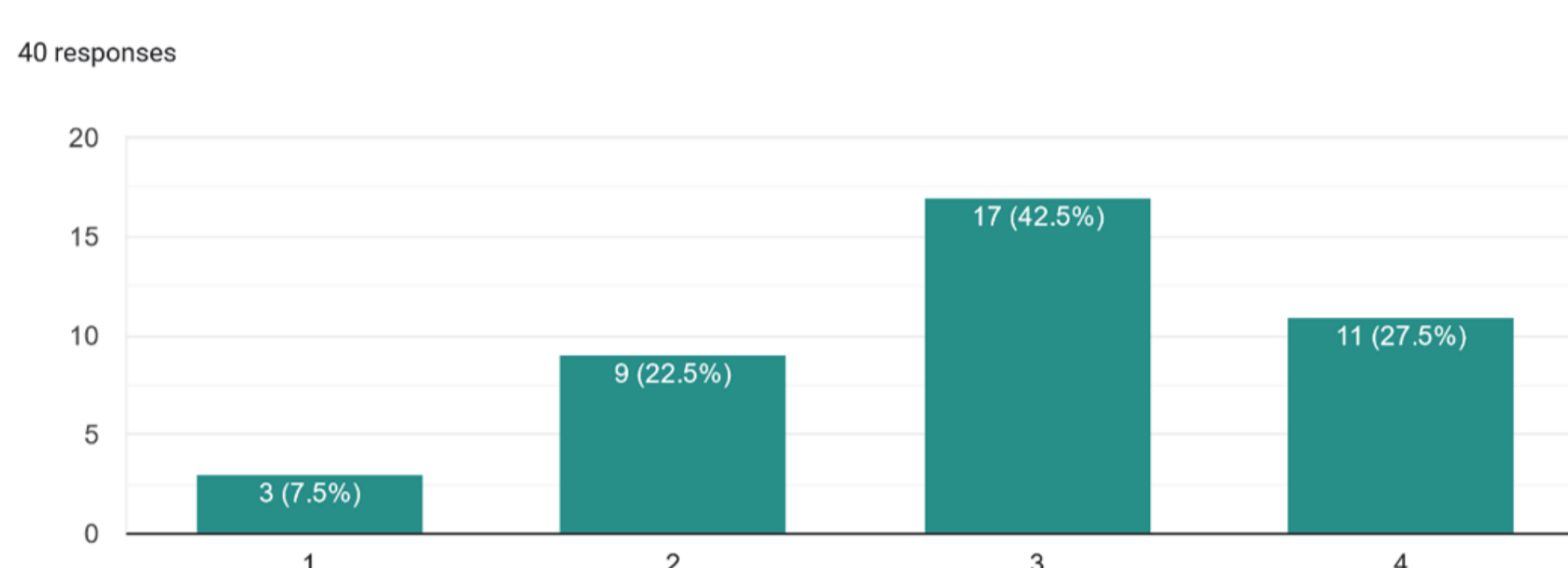
The MOOC was followed in 2020 by 212 attendants on the Spanish version and 142 on the English side. 62 UNED Cartography students who followed the Spanish version replied in a short survey that they were satisfied with this way of learning using videos, and a few added that they also enjoyed it. For some, this was their first MOOC experience. The 2021 version is now available until the middle of December 2021. It currently has 115 attendants on the Spanish version and 37 on the English side. These figures demonstrate that users prefer to follow the video in their mother tongue. Thus, the course will be translated into Italian and Flemish, as both countries are members of the project and most of the attendees comes from these countries.

The first MOOC version has been followed by University teachers and training teachers (the majority have nearly finished), as well as students who have been following their own syllabus in specific modules (mainly 1 and 4).

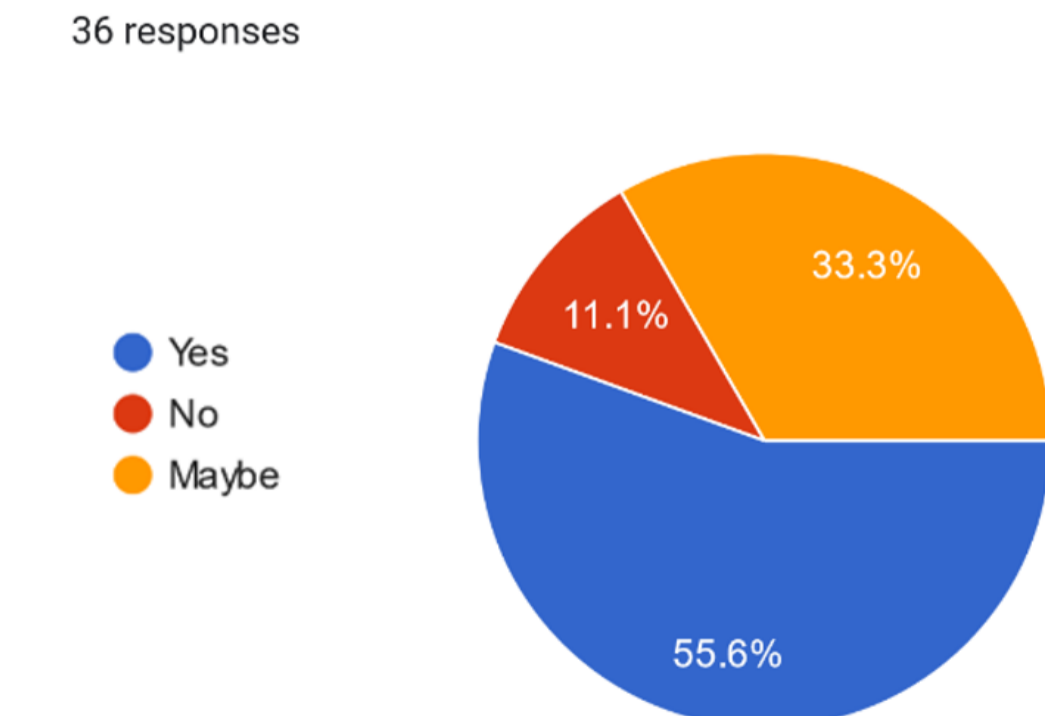
On a scale of 1 to 4 how useful was the MOOC/training for you / your teaching?



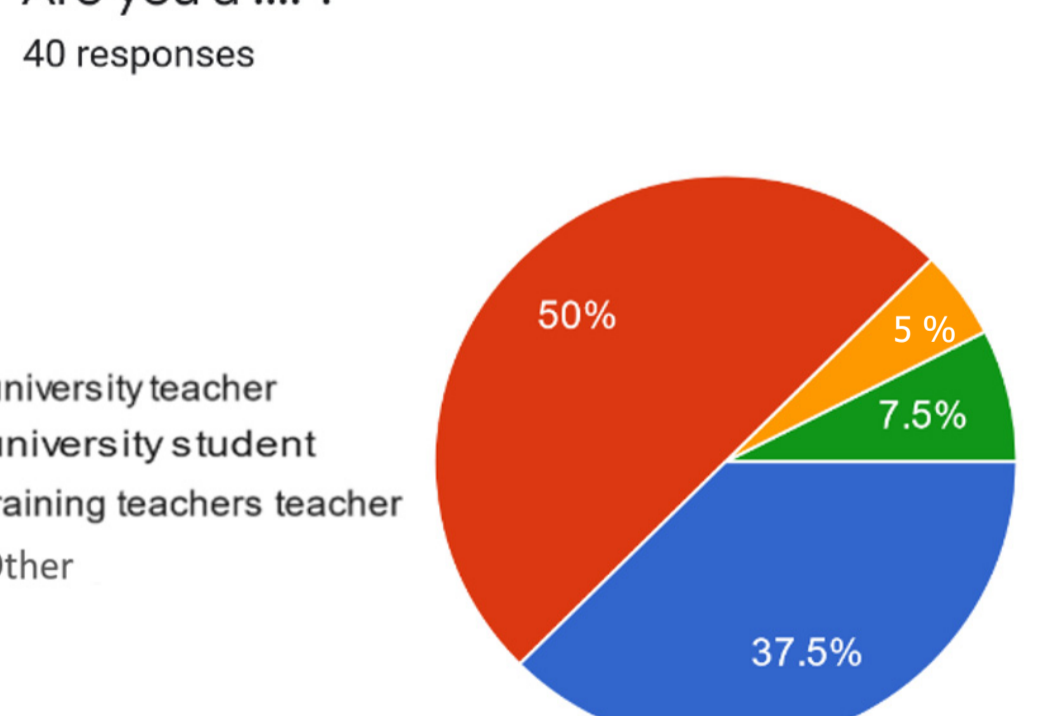
On a scale of 1 to 4 how useful was the MOOC/training for your research?



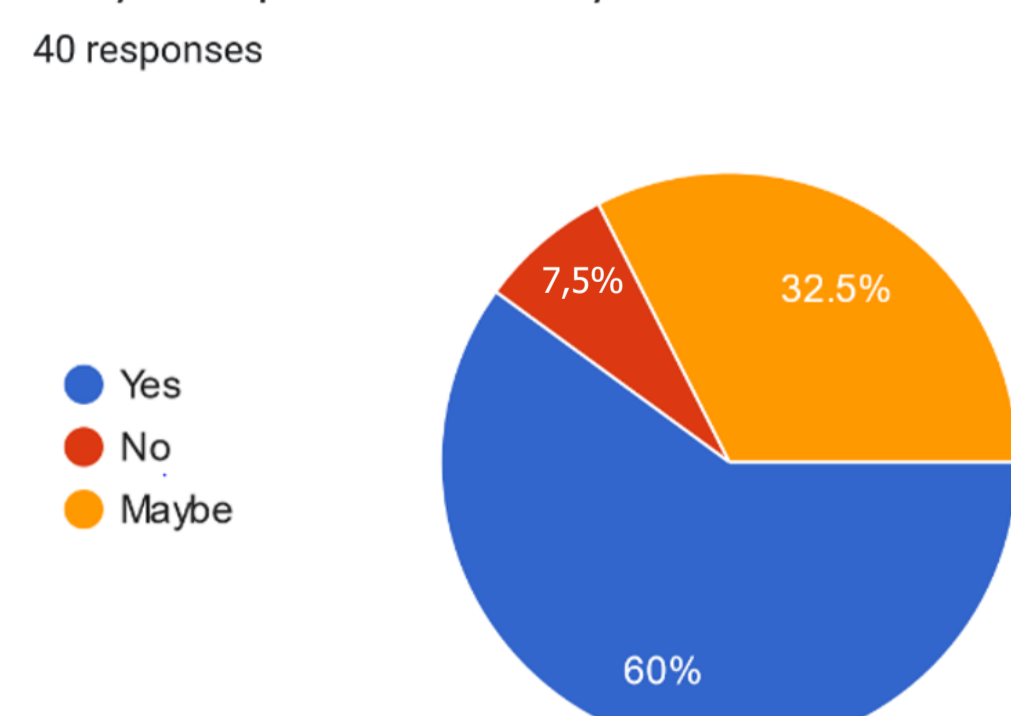
Will you implement this in your teaching?



Are you a ... ?



Will you implement this in your research?



References

- De Lázaro, M.L., De Miguel, R., Morales, F.J., & Sebastián, M. (2020). Teaching with GIS at the University, a proposal for employability: the Erasmus+ MYGEO project. In the Spanish Committee of the International Geographical Union. *Spain, bridge between continents*. Spanish contribution to 34th IGC. Istanbul 2020. <https://doi.org/10.7419/162.38.2020>

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