

Teaching on the ethical use of geographic information in America

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SUMMARY

Within the framework of the United Nations Academic Network for the Americas for the Global Management of Geographic Information, we are conducting research on the different levels of teaching ethics in the use of geographic information in the Americas. For which, we have carried out a survey that has more than 80 responses; a fact that allows us to make a first reflection on the situation regarding the teaching of ethics in geographic information in our countries.

SUMMARY

En el marco de la Red Académica para las Américas de Naciones Unidas para el Manejo Global de la Información Geográfica, estamos realizando la investigación sobre los diferentes niveles de enseñanza de la ética en el uso de los datos geográficos en las Américas. Para lo cual, hemos llevado adelante una encuesta que cuenta con más de 80 respuestas. Hecho que nos permite realizar una primera reflexión sobre la situación sobre la enseñanza sobre ética en datos geográficos en nuestros países.

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1. INTRODUCTION

In recent times, geographic information, promoted by exposure during the COVID-19 pandemic, has gained great visibility and its use has been expanded strongly.

Geographical data and the use of geomatic tools provided by geographic information systems (GIS) are now playing a prominent role in facing this pandemic.

One of the strengths of GIS is the ability to integrate diverse georeferenced data sets, which facilitates the aggregation of health data with contextual characteristics. There are several descriptive model investigations that take advantage of this ability and have examined the spatial associations of COVID-19 with the socioeconomic and environmental characteristics of the region. In particular, a research carried out by academics Charlotte Smith and Jeremy Mennis (2020) found that lower income and income inequality, higher temperature and humidity, exposure to fine particle air pollution, and mobility and transportation networks were associated with a higher prevalence of COVID-19 cases or mortality. Geomatics therefore, offers approaches to investigate statistical spatial effects and spatial heterogeneity, such as spatial autoregressive models and geographically weighted regression, to account for the modeling of geographic processes such as spatial diffusion and variation in the relationships between variables in space.

Other recent research used approaches to demonstrate spatial heterogeneity in the relationships between observed COVID-19 cases and mortality with georeferenced socioeconomic and environmental variables.

Research such as those by Adekunle, Onanuga, Wahab, and Akinola (2020) and Rosenkrantz, Schuurman, Bell, and Amrman (2020), found that the influence of area-based socioeconomic status, pre-existing health, conditions, and environmental characteristics of the Disease transmission can vary from place to place.

Due to the above, it is clear that the ethical use of geographic information plays a leading role in these aspects.

Although it is not a new topic and there are several investigations and proposals in this regard, these particular moments and the aforementioned visibility, provide the opportunity to highlight the relevance of the teaching of these aspects as well as to try to include the subject in the geographical agenda.

In this sense, from the United Nations Academic Network for the Americas for the Global Management of Geographic Information, we are conducting research on the different levels of approach to teaching ethics in the use of geographic data in the Americas.

2. DEVELOPEMENT

In order to carry out an initial diagnosis on the teaching and current norms on ethics in the use of geographic information in the member countries of the United Nations, two surveys have

been carried out, asking about the teaching of these aspects, as well as, in cases where training is provided, the different levels at which it is provided.

Additionally, the different member countries have been consulted on conceptual and regulatory aspects regarding the ethical use of geographic information.

Since the objective of this article refers to the teaching of geographic information, the results of the survey indicated in the first place are developed.

A total of 83 responses have been received, distributed among the different countries that make up UN-GGIM: Americas. Given the linguistic diversity of these countries, two versions have been included; one in Spanish and the other in English, which makes it possible to identify some differences between the two groups of countries.

The following graph presents the proportion of responses, distributed according to the country of origin:

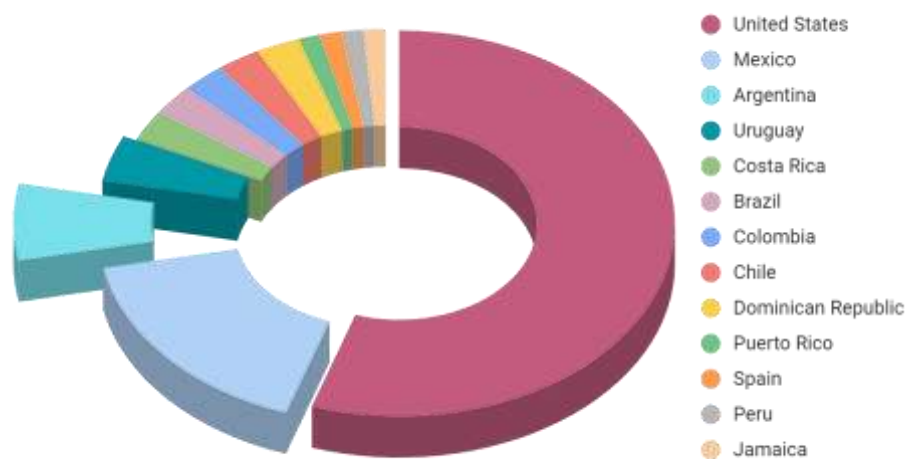


Figure 1. Proportion of responses of both surveys (English and Spanish) according to the country of origin. Source: own elaboration. 2021.

Following are some of the most remarkable results obtained with the different questions.

After asking if the person teaches any courses related to geographic information, generally speaking, both surveys ask about whether it includes any training about the ethical use of it. The answers are as follows:

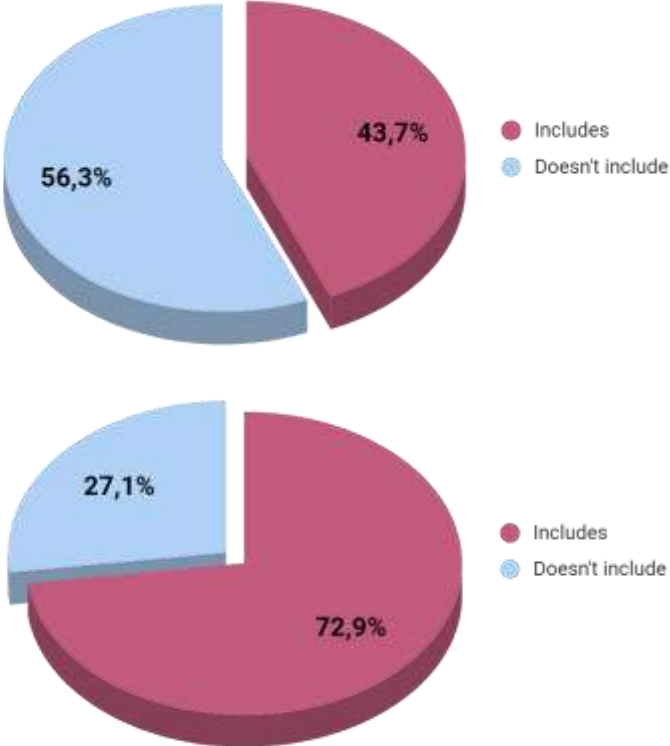


Figure 2. Responses referring to the question "Does it (the course about geographic information, generally speaking) include any training regarding the ethical use of geospatial data?" in its version in Spanish and English, respectively. Source: own elaboration.

Subsequently, it is investigated about the different time assignments that they offer to training in ethics, ranging from courses intended exclusively for this topic, to courses in which the subject is simply mentioned. The results are the following:



Figure 3. Answers referring to the different levels of teaching ethics regarding geographical information, according to the different amount of time reserved for the topic. Spanish and English versions, respectively. Source: own elaboration, 2021.

Finally, the possibility of including the topic in the future is consulted, obtaining the following answers:

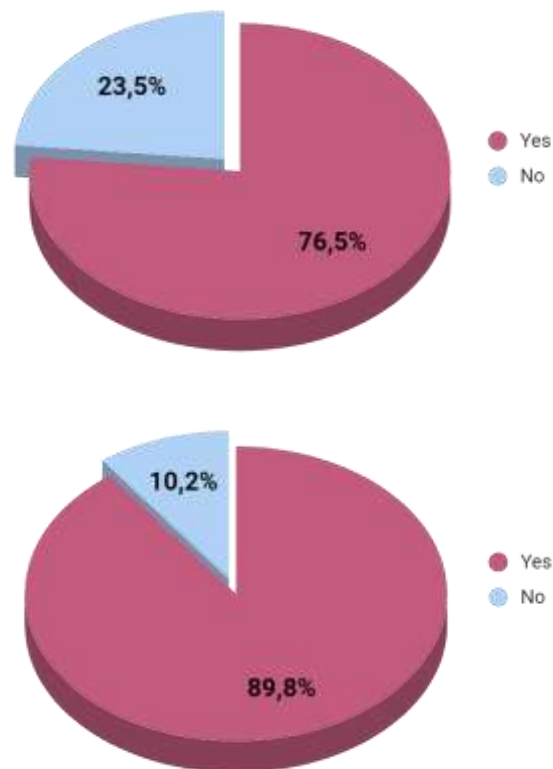


Figure 4. Answers referring to the possibility of including the subject in further courses, according to the version in English and Spanish, respectively. Source: own elaboration, 2021.

3. CONCLUSIONS

Initially, it can be seen that the number of responses obtained is greater within the English speakers, rather than the Spanish or Portuguese-speaking countries. Placing ourselves in this context, the first ones have a greater number of people who currently address the subject (72.9% of people), against 43.8% who currently do not include it.

Among the Spanish speakers, this percentage of people decreases to 43.7% of people who actually address the subject in their courses.

Additionally, it can be seen that there is a high interest and concern in the academic world, to incorporate this issue on the agenda, in different degrees of education.

In any case, the percentage of people who do not plan to include the teaching of ethics in the use of geographic information in their courses is not less; 23.5% and 10.2% of the people who answered the survey in Spanish and in English, respectively. It would be important to delve into

the subject and identify if this refusal responds to the lack of knowledge on the subject or the lack of previous training.

This data is of great importance, since it allows to obtain a primary diagnosis of countries where awareness of the importance of the subject could be raised, opening the doors to future activities or training or at least for its inclusion in the educator's discussion agenda.

In addition, the low percentage of people who currently teach an entire course on ethics in the use of geographic information can also be highlighted; values of 8.6% in the case of the survey in English, and 11.1% in the case of the Spanish version.

We understand that, although this is a first approach, it allows opening the doors to community reflection on the need and opportunity to include teaching in the ethical use of geographic information in the curricula of our courses. Complementarily, it gives us the opportunity to exchange knowledge between academics from different countries, especially those who accumulate experience in the subject.

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BIOGRAPHICAL NOTES

Rosario Casanova (Uruguay) is a Land Surveyor Engineering, expert in geomatics, geo-technologies, urban planning, she has a master's degree and a doctorate in these areas.

Since 1994 she is a professor at the Institute of Land Surveying of the Faculty of Engineering of the University of the Republic, Uruguay. Being the Director of the Institute of Surveying from 2014 to March of this year.

She is the chair of the United Nations Academic Network for the Americas for Geospatial Data Management (UN-GGIM) since it was created in 2017.

She has served as professor in the Lincoln Institute of Land Policy (LILP) in the Latin America and Caribbean Program and carried out several research projects on the informal land market.

She has presented research in regional and international events.

Paula Caram (Uruguay) is a student of Surveying Engineering in the University of the Republic in Uruguay, currently doing the final degree project on updating images of photogrammetric flights from UAV technology.

Since May 2020 she is a professor at the Geomatics Department of the Engineering Faculty, assisting in the Photogrammetry and Remote Sensing Data Capture courses and participating in research on ethics in the use of geographic information.

In the private sphere, she works as a surveying assistant for industrial assemblies.

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