

ÁLVARO FRANCISCO MOROTE SEGUIDO* & JORGE OLCINA CANTOS**

*Universidad de Valencia. **Universidad de Alicante

How is flood risk explained in school Geography? An approach from the Social Sciences textbooks (Primary Education)

I. INTRODUCTION

One of the main natural risks that occur in the Mediterranean region is flooding. In recent decades, this phenomenon has been aggravated by the increase in human exposure and, furthermore, it will be accentuated in the future due to the increase in frequency and intensity of intense rains according to the forecast of climate change scenarios. These scenarios, if fulfilled, urge the need to achieve a society that is more aware, trained and adapted to these phenomena where school training must be a fundamental pillar. Education is one of the most important non-structural factors in combating climate change. However, until recently this factor has also been ignored when contemplating risk. For this reason, dealing with these issues in the classroom and teacher training should be a priority as established in the current Primary Education curriculum (Social Sciences area).

The interest aroused by the analysis of Social Sciences school textbooks in educational research is due to the fact that they constitute privileged documentary sources that allow us to approach what happens in the classroom. However, despite the fact that in recent years their use has decreased, authors such as BEL and others (2019) explain that in Primary Education these resources continue to be the main tool used in Social Sciences classes. In Spain, from the Didactics of Geography, the study of textbooks is a classic line of research, although with a small number of works compared to other topics. For this reason, in the case of flood risk, the scarcity of works on the analysis of school textbooks is even worse, especially

in the Primary Education stage. It is only worth noting the work of Cuello and García (2019) on how the fluvial network of a city is treated.

The objective of this research is to carry out an analysis of the contents on the risk of flooding proposed by the Social Sciences textbooks (3rd cycle; 5th and 6th years) of Primary Education from the main publishers that are used in the Valencian Community. Special attention will be paid to the definitions of this phenomenon, its causes and consequences, the factors involved (climatic and human) and an analysis of the images that are inserted to explain this phenomenon. As a starting hypothesis, it should be mentioned that this subject receives little attention in school textbooks and, mainly, it would be related to explaining the danger factor (the atmospheric event), that is, without contemplating the action of the human being. On the other hand, one of the main causes of these events would be linked to climate change. And regarding the images, these would give a catastrophic image. Therefore, it would be a vulgar explanation of these phenomena (so characteristic of the Mediterranean climate) and where the human being and its incidence in the risk would go unnoticed.

II. SOURCES AND METHODOLOGY

For this research, we have analysed the Social Sciences textbooks (3rd cycle; 5th and 6th years) from the main publishers used in the Valencian Community (Spain), which coincide with those with the highest representation

at the national level (Anaya, Bromera, Santillana, SM and Vicens Vives). In this regard, Valls (2008) has verified that these publishers represent 75% of the whole of the Spanish territory.

Regarding the geographical framework (Valencian Community), the justification for its choice is due to several reasons: 1) there are previous investigations on the analysis of Social Sciences textbooks that have justified the use of the main publishers (Santillana, Vicens Vives, Anaya, SM and Bromera) both for the review of History content (BEL and others, 2019; SÁIZ, 2011; VALLS, 2007; 2008) and Geography (MOROTE and OLCINA, 2020); and 2) the Valencian region is one of the Mediterranean areas most vulnerable to the effects of climate change (IPCC, 2022).

III. RESULTS

Flood content in the Social Science subject in the primary school textbooks are inserted in the index related to Climatology. Regarding the definitions, it should first be explained that there are differences between “flood risk” and “flood”. For the first case, the risk is explained as the sum of the hazard factor (climate factor) plus the vulnerability factor (human being), while the second refers to the episode of torrential rains, that is, the atmospheric event that can have consequences such as material, economic, human damage, etc. After analysing the textbooks consulted (both in 5th and 6th grade), it should be noted that no correct explanation of risk (hazard + vulnerability + exposure) is carried out in any manual, and this term is frequently confused with danger. The only editorial that introduces the human being as a factor that can influence floods (and as a mitigation factor) is Bromera (5th grade of Primary Education). This manual explains that wetlands

[...] they avoid the rapid growth of the flows of the rivers on which they are built, thereby avoiding overflows [GREGORI and VIU, 2014: 64].

All editorials and manuals include an explanation of the flood phenomenon, that is, an explanation from the atmospheric origin since “flooding” is associated with “torrential rains”. In addition, it should be noted that this phenomenon is normally linked to the Mediterranean climate, although other Spanish regions are also cited, for example, in the Anaya publishing house (5th). It should also be noted that information that is usually included

is the classic explanation of the river cycle, where information is given on the basic concepts of fluvial regimes (source, course, bed, mouth), their characteristics (length, flow, regular regime or irregular) and the factors that can influence these regimes (relief and climate). In the didactic units analysed they are associated with a characteristic phenomenon of the Mediterranean climate, but later their direct relationship with climate change is pointed out.

Regarding the causes of floods, except in one case (Bromera’s 5th grade manual), the rest of the consulted editorials state that one of the main causes of these phenomena is climate change. It should also be noted that in some publishers there is confusion when it comes to knowing the causes (characteristics of the Mediterranean climate itself and the effects of climate change) (5th year of Santillana and SM). Even one of them, Vicens Vives (6th) does not include any explanation of the causes. And, regarding the consequences, most publishers agree on the human, economic and environmental losses.

In relation to the images, a total of 640 images have been identified and analysed. Of these, 5.3% (n=34) have to do with some type of natural risk, being those linked to floods the most numerous (29.4%; n=10). The results show that most of the latter (90%; n=9) are characterised by presenting a catastrophic image and are incorporated for a purely aesthetic purpose, that is, to capture the attention of the students and create a sensation of an episode calamitous and without any explanatory or instructive purpose. Thus, for example, in the SM book (5th year) a section entitled “The strangest day” is inserted where it is described that

In the news, they have talked about the rarest atmospheric phenomena that have been recorded in Spain in recent months [PARRA and others, 2014: 40].

IV. CONCLUSIONS

Floods are the main risk affecting the Mediterranean region, considered a risk region. For this reason, carrying out correct teaching of this phenomenon in the school environment is of vital importance, not only because of its repercussions but also because it is established in the current Primary Education curriculum. To this, it should be added that this risk can be aggravated if climate change scenarios are considered.

Finally, it should be noted that it is very positive that content on flood risk is included in textbooks, as has been verified here. However, there is a notable challenge such

as being able to adapt and improve the explanation of these phenomena in these resources. The not confusing risk with danger and integrating the human factor should be a priority and raising awareness that this last variable

is just as important (or more) than the climatic factor (danger). With all this, citizens would be more aware and educated about these risks as a priority to improve resilience to climate change.