

**A Global Earth in the Classroom:
Geographical Literacy and Epistemic Change in the
European School System as a Consequence of
Iberian Explorations
[RL-GEC]**

LEAD RESEARCHER: DAVID SALOMONI

Associates:

Carmo Lacerda

José María Moreno Madrid

Luana Giurgevich

The maritime expansion inaugurated between the fifteenth and sixteenth centuries by the Iberian monarchies of Portugal and Spain has never been considered by historians of education as a factor capable of affecting directly the institutional and pedagogical evolution of the European school system. However, geographical discoveries had a deep influence on European schools both in transmitting and producing knowledge. The history of education and schooling in the age of the Renaissance and the Reformation in Europe, in fact, is more complex than what stated so far by recent historiography. Among the most relevant aspects of early modern education, politics and religion are often emphasized to the detriment of science, understood in a broad sense, thus including geographical disciplines. The slow but steady erosion of scientific paradigms inherited by the Middle Ages from the Ancient world, which arrived up to the threshold of modernity, open the way to a new body of knowledge produced in Europe thanks to oceanic explorations. This knowledge profoundly changed the school curriculum and the foundations of geographical and scientific epistemology.

This research line thus focuses on the impact of the first globalization on the European educational system between the fifteenth and eighteenth century. The inquiry aims at understanding the emergence of geography as an independent discipline from the ashes of the medieval *Quadrivium*, which was gradually disintegrating as the scientific revolution took hold. Until the fifteenth century, corresponding more or less with the beginning of oceanic explorations, geography was taught in European universities and schools as a part of the liberal arts *cursus* together with other disciplines, such as geometry and astronomy. However, the slow but steady epistemological change based on direct observation of natural

phenomena at the expense of ancient and biblical authorities gave birth to a new and independent geographic discipline.

This new subject spread all over Europe thanks to the new educational system created between the sixteenth and seventeenth centuries by religious orders (Jesuits, Piarists, Barnabites, Theatines), which allowed an unprecedented capillarization and standardization of geographical and scientific literacy. This process played a key role in laying the ground for the mass dissemination of a new way of thinking about the world. Therefore, within the framework of a broad time span, from the fifteenth to the nineteenth century, this research aims at exploring these dynamics of knowledge diffusion in the European educational context.

The first question of this inquiry deals with the production of particular types of space conceptualization in protestant and catholic contexts. This aspect of the research stems from the assumption that the scientific and educational culture of the sixteenth century cannot be understood without starting from a religious anthropology, which pervades every aspect of the way of thinking and acting of Europeans in that era. Early modern Europe was torn apart by religious fractures and bloody conflict. Even the first voyages of discovery, after all, were driven by a mystical and religious zeal whose importance has recently been highlighted by historians. This interpretative key is also indispensable for understanding the history of geographical thought, particularly in the educational field. Teaching the conformation of the world, its physical characteristics, the distribution of land and water, meant teaching how God created everything. These simple considerations show the depth of the religious implications of this discipline at a time of profound cultural change and doctrinal crisis.

In such a perspective, the implicit values of geographical teaching in Catholic and Protestant contexts could vary profoundly. We see this difference in the use made within the two religious alignments of one of the main tools of geographical analysis: geometry. The fifteenth and sixteenth centuries saw a renewed diffusion of the last books of Euclid's *Elements*, whose impact on the conceptualization of new terrestrial space was enormous. The use of the three-dimensionality of spherical geometry allowed men to obtain a new homogeneous perspective on the Earth's sphere, which slowly canceled the dichotomy between sacred and profane spaces (Heaven/Earth). It is no coincidence that the oldest terrestrial globes date back to the fifteenth century, such as Martin Behaim's Erdapfel, made in 1492. This process of conceptualizing space, however, assumed different values in the Protestant and Catholic worlds. For Protestants, Euclidean geometry was dense with ethical and moral significance, because it allowed them to distinguish the false from the truth. In the Catholic world, the *Elements* represented a tremendous tool for analyzing the Creation and the natural world. The Jesuit Cristopher Clavius, who (not by chance) had studied in Coimbra, in Portugal, the land of merchants and sailors and home of

the great discoveries, was a formidable interpreter of this approach to geometry and science. However, in both cases, geometry and geography were tools to bring man closer to God. These ideas were discussed in a series of talks and roundtables organized within the framework of the Renaissance Society of America annual meetings held both virtually and in presence in 2021 and in 2022. The same issues were discussed in a series of two articles written with Prof. Henrique Leitão: [Schooling the Discoveries: Jesuit Education Between Science and Geographic Literacy in the Age of Iberian Expansion, 15th-18th c., I-II](#).

The religious implications of geographic teaching in early modern Europe do not stop there. It is true, in fact, that an important role in the initiation to Protestant doctrines in the sixteenth century was played by school teachers. In this sense, therefore, this line of investigation seeks to understand if, and in what way, geographic teaching became an instrument of conversion to Protestantism. This aspect is directly linked to the explorations and oceanic navigations of the sixteenth century. These voyages, in fact, for more than a century were conducted almost exclusively by Catholic powers, Spain and Portugal, and to a lesser extent by France. Entire continents were initially explored by missionaries belonging to religious orders, such as the Franciscans and Jesuits. These friars made extensive propaganda of their missions in distant lands, such as India, China, Japan, or the Americas, contributing to spreading their knowledge in Europe. The need to answer these issues and the need to list in one publication the catalogue of missionary voyages prompted our Technical Note: [Jesuits on Board: A Reasoned Bibliography on the Early Modern Jesuit Trans-Oceanic Sailing Experiences](#). Not surprisingly, religious orders were deeply involved in the education of the Catholic youth. The question arises of how these lands of catholic exclusivity (at least until the seventeenth century) were perceived and represented within the Protestant educational world. Was there a reconceptualization in response to the Catholic narrative or rather a simple reception of data? To answer this question an important tool will be the commentaries to the Ancient Testament, especially those produced in Protestant lands, such as the *Thargum, hoc est, Paraphrasis Onkeli Chaldaica in sacra Biblia*, made by Paul Fagius.

Another path of investigation of this research line leads more specifically to an important type of documental source, namely geography textbooks in their various forms, such as atlases, treatises, and manuals, dating from the fifteenth to the eighteenth century. These documents are used to trace the processes of conceptualization of notions such as seas, oceans, continents, and regions.

The evolution over the centuries of this type of document is the path to follow in order to understand the development (and especially the diffusion) of geographic notions. Texts for proper educational use of geography can be traced back to the fifteenth century, coinciding with the rediscovery in Italy and Europe of Claudius

Ptolemy's *Geographia*. The need to investigate the link between the teaching of geography in the ancient world and the Renaissance gave rise to our article: "Teaching Geography: A Never-Ending Dialogue Between Late Antique and Renaissance Europe," where this conceptual knot is analyzed. There is, however, another important source for this type of literature: the thirteenth-century *Tractatus de Sphaera*, written by Englishman John Holywood. It is no coincidence that the Florentine geography manual of the early 1400s produced by the merchants Leonardo and Gregorio Dati, entitled *La Sfera*, has a structure inspired by Holywood's treatise, but it is accompanied by maps modeled on Ptolemaic projections. From this union of Ptolemy and Holywood, it can be said, a new scientific educational literary genre was born.

Modern school atlases, thus, begin to appear between the fifteenth and nineteenth century, displaying strong elements of rupture but also of continuity. In this regard, it should not be thought that geographic educational literature had a linear development. During the seventeenth century, texts whose titles make explicit reference to "the Sphere" gradually abandoned the more descriptive geographical aspects to evolve into works of stronger scientific, astronomical, and mathematical nature. This type of book, pertaining to the discipline of cosmography, would however decline over time, increasingly losing its specific educational character. Such decline was bolstered as well by the gradual rise of a new epistemology in which different branches of knowledge grew increasingly specialized to the detriment of their common root. Beginning in the seventeenth century, atlases and proper geography books for schools and for children became widespread (*Apparato all'istoria di tutte le nazioni et il modo di studiare la geografia*, Venice, 1598; *Scuola de' principi e de' cavalieri, cioè la geografia, la rettorica, la morale, l'economia, la politica* [...] Bologna, 1677; *A New Geography, or a Description of the Most Eminent Countries and Coasts of the World, with Maps of Them, and Tables of Their Latitude and Longitude*, London, 1681; *An Idea of Geography and Navigation Containing Easie Rules for Finding the Latitude*, London, 1695).

This phenomenon intensified considerably during the eighteenth century (*Geographia hierarchica*, Munich, 1703; *Eraste, ou, l'ami de la jeunesse: entretiens familiers, dans lesquels on donne aux jeunes gens de l'un et de l'autre sexe, des notions [...] l'astronomie, l'histoire naturelle, la géographie*, Paris, 1774; *Atlas elementaire*, Paris, 1774; *La géographie*, Ramier de Rudière, 1775; *Atlas géographique de toutes les parties connues du globe terrestre pour servir [...] à l'éducation de la jeunesse*, Paris, 1785; *Les études convenables aux demoiselles*, Paris, 1762; *A New Moral System of Geography: Containing an Account of the Different Nations Ancient and Modern*, London, 1790; *A New and Easy Introduction to Universal Geography in a Series of Letters to a Youth at School*, London, 1794. The structure of these texts often remained very similar to the old fifteenth-century's literature on the Sphere. They were both characterised by a

description of the parts of the world and its physical and moral geography, in relation to the people who inhabited them. A comprehensive list of early modern European geographic textbooks will be provided as the first such repository in a forthcoming technical note.

Educational geography texts allow to follow the evolution of important spatial concepts, such as those of “ocean” and “continent”. Throughout the early modern age (broadly understood from the fifteenth to the early nineteenth century), different ways of understanding and defining what a continent or ocean is remained in competition. With regard to the oceans, for a long time political considerations influenced the way of conceiving their domesticability, even their place on the map. Regarding the continents, the idea of America as the “fourth part of the world” after its discovery in 1492, had several variations. In fact, despite this conceptualization of the earth’s conformation taking hold during the sixteenth century, it was not the only existing way of thinking about the terrestrial orb. By the end of the 1400s, and for a long time after, competing representations of the world would remain. For example, an Italian geography textbook dating back to the middle decades of the eighteenth century defines Europe as “the smallest of the three parts of the ancient continent”, while Asia is defined as “the largest part of the ancient continent”, and Africa is called “the largest peninsula in the world”. America, on the other hand, is described as “the largest region of the world which alone makes a continent.”¹

In these excerpts, the world is represented symmetrically, with two components opposed to each other: the ancient and the new continent. The ancient continent is made up of three parts: Africa, Asia and Europe, the ancient *Orbis Terrarum*, while the new continent, America, is defined as the largest region of the world. This specular geographical conception echoes a Ptolemaic perspective, which was still alive in the middle of the eighteenth century. The problem of conceptualizing geographic notions doesn’t deal only with their development, but also with their creation. It is interesting to understand, for example, how and when the idea of Oceania as a continent was born. This name makes its appearance between the end of the eighteenth and the beginning of the nineteenth century, and despite its delay, it fits directly into the cultural path that began after the American discovery. This space, defined as an oceanic continent, a terrestrial space defined by water and insularity, is peculiar and reflects the complexity of these cultural mechanisms.

Finally, another important aspect offered by geography textbooks concerns the ethnographic and ethnological definition of cultures and peoples in the world. For example, in the aforementioned eighteenth-century geography manual, Europe is defined as the “most beautiful” of the “three parts of the ancient continent”, for “the cleanliness and number of its inhabitants”, who are then defined as “brave, honest

1 Biblioteca da Ajuda (Lisbon), manuscript. 51-I-55.

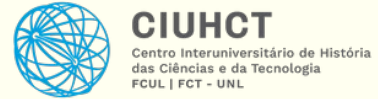
and civilized.”² Asia, on the other hand, is defined for its wealth and its history, particularly the biblical and ancient past. The manual states that Asia “in the distribution that was made of the world after the flood, was assigned to Sem, the firstborn son of Noah. There Abraham was born [...] and the monarchies of the Medes, the Babylonians, the Assyrians and the Persians flourished.” If the peoples of Asia, out of respect for its history and for having been the cradle of Christianity, are at least celebrated, for the peoples of Africa the anonymous author does not spend many words. Of the African continent, in fact, it is said that because it falls for the most part “under the torrid zone, where the heat is excessive, it is not very populated, especially in the interior of the country.” Its inhabitants are said to be “of fine stature and very sturdy, but very deceitful and coward.” Finally, as for America, its inhabitants are defined as being of Asian origin, arrived in the course of ancient migrations. This is just one example to show the complex layering characterizing geography textbooks as sources for studying the evolution and diffusion of scientific concepts.

More broadly, this research deals with the reciprocal influences in the mechanisms of knowledge production between the educational world and the world of oceanic navigation. Among the most important aspects, there is the use in education of texts and tools produced in the nautical field: travel diaries, nautical routes, tools for astronomical calculations. These objects are explicitly mentioned by the Jesuit mathematician Cristopher Clavius in his suggestions for the 1599 Society of Jesus’ *Ratio Studiorum*, and were widely used in their colleges throughout Europe. This line of inquiry is concerned with understanding the direct link between these two worlds, and how they contributed to their mutual development. Still at the beginning of the nineteenth century, sailing texts were used in European schools as geography readings. Another object of study concerns cartography. Maps became a common presence in classrooms beginning in the seventeenth century. Once again, religious orders gave an impulse to this diffusion, also thanks to their mapping activity such as the Jesuits in India.

This line of research is inserted in a dense crossroads of research areas, to which it aims at making a groundbreaking contribution. Among the fields involved we find the history of education and culture, the history of globalization and the transmission of ideas, and the history of science and philosophy. Understanding how through schools the modern concept of the global earth has evolved and spread plays a crucial role within the Rutter project. It is about understanding how the ocean routes, which first allowed humans to have a complete and unified experience of the earth as a globe, culturally and scientifically influenced the great masses of people who could not make those voyages. If on the one hand it is true that in the early modern age ever greater numbers of people were able to move to various parts

2 *Ibid.*

of the world, it is equally true that even greater masses remained in their countryside, villages and cities. Through this research, it will be possible to understand how the world was first thought of in a unitary way by the multitudes in the early modern age.



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