



## Research Paper

# Teaching concepts in the social sciences: mapping concepts in Moroccan education as a model

Meryem El Jahechi

(Ph.D. Laboratory: Human, Society, Education. Faculty of Education Sciences, Mohammed V University, Rabat - Morocco)

**ABSTRACT:** Despite the great development that mapping has known at the level of study, use and applications, this has not been accompanied by a development at the level of teaching, as it remained a teaching that calls for memorization instead of analysis and composition.

Therefore, through this article, we tried to diagnose the reality of teaching mapping in the curriculum and textbooks at the secondary level, and then monitor the degree of control and comprehension of the concepts and competencies associated with reading, drawing, and using maps.

**KEYWORDS:** concept, mapping, didactic, social sciences.

Received 02 August, 2021; Revised: 14 August, 2021; Accepted 16 August, 2021 © The author(s) 2021. Published with open access at [www.questjournals.org](http://www.questjournals.org)

## I. INTRODUCTION

Maps aims to provide the student knowledge, competencies and skills that can be applied and employed in daily life. Its importance has increased significantly in recent decades due to the increasing need of users, especially geography and human sciences students.

Despite the great interest of specialists in mapping, its teaching was limited to presenting it in an abstract form and often without paying attention to student's abilities, interests and educational level, which made it difficult for them to understand.

## II. THE PROBLEMATIC

Teaching and learning geography is one of the basic topics throughout the educational system. It is noted that there has been a revolution in geographical knowledge concerning contents, curricula and functions, and this is particularly evident in the stages of higher education, where the geographer has become required in more than one field (urban and regional planning, environment...), in addition to teaching assignment.

However, we note that geography in the university has not yet found an application for it at the level of non-university education, where it considered as a "traditional geography" based on epistemological references that have become transcended. In this context, among the tools of geography we find mapping as a tool for communication, expression and settlement, but it is noticeable that having the skills and competencies of reading, drawing and employing maps in daily life remains limited in a country like Morocco, and the questions that are asked in this context can be as follows:

- What position does the teaching of geography allocate to handling the competencies of using maps, especially at the secondary level?
- To what extent do the students comprehend the skills of reading, drawing and using maps?

Based on the above we decided to accomplish our research on the topic of "Teaching concepts in the social sciences: mapping concepts in Moroccan education as a model" as an attempt to answer the questions we asked in advance.

## III. OBJECTIVES OF THE STUDY

Through this article, we seek to review the scientific literature on building and learning the concepts related to maps and its use in teaching, in addition to highlighting maps position in the curriculum and textbooks

at the secondary level (attendance, didactic presentation, objectives of maps in textbooks), and then monitor the degree of control and absorption of some concepts related to reading, drawing and using maps by high-school students.

#### **IV. HYPOTHESES OF THE STUDY**

Through this research, we will try to scrutinize a set of hypotheses that we continue as follows:

- The geography curriculum adequately addresses maps subject.
- Students control mapping abilities.
- Students differ in the degree of mastering mapping abilities (reading, using, drawing).

#### **V. THEORETICAL PREVIEW**

##### **1. Map's concept as a cartographic message that describes a geographical area**

Defining the concept of a map makes us in front of multiple definitions, whether it comes to the geographical map in particular or the map in general, so we will limit ourselves to some definitions that will help us understand and define the concept :

- F. Joly's definition: "Map is geometric representation of a simplified flat for all or a part of the surface of Earth, under similar and appropriate correlation which we call the scale".
- P. George's definition: "Map is an expressive and symbolic language, and the outcome of all that has been integrated into the overall picture of the field".
- Ahmed Jawdat Saadeh's definition: "Map is a schematic drawing representing the entire surface of the Earth or part of it, in which the relative size and location of that part is clarified based on the use of a specific drawing scale for miniaturization, and the adoption of a specific map projection from the known elevations, which helps to clarify natural phenomena or multiple human geographic activities area".
- Mohammed Zakour's definition: "Map is a document that expresses a field that includes spatially defined geographical data and is represented according to some idiomatic methods".

We conclude that map's definition is a cartographic message that describes a part of the geographical field with some of its qualitative or quantitative characteristics, and its surface is often formed from a page of paper divided by a network of coordinates that allows identifying all points of the represented field. And the cartographic discourse is above all a schema of localization and appreciation of distances and directions, and therefore the map is considered, thanks to a system of symbols, a discourse of information about real things or physical forms present in the studied field, while the scale provides the miniaturization relationship that exists between the map and the field.

##### **2. A brief history of maps**

Maps were used for a long time ago, the first map was built on mud and clay, its objective was to clarify the Euphrates River, the path across the plain of Mesopotamia (Iraq now) in the year 3800 BC. Also maps were built using materials available in that period (sticks, sand, mud, shells...)

Greek scientists were able to carry out a series of experiments with the aim of producing tight maps, and they used mathematics in their drawings to increase the scrutiny, but later they became a translation of the imaginations of scientists, travelers and thinkers and moved away from scientific accuracy.

When the Arab and Muslim travelers came, an important development occurred in mapping. They relied on direct observation and accurate description of the areas they reached, and embodied this by drawing maps that were of great importance throughout the Middle Ages until the beginning of the Renaissance, and one of the most famous of these maps was drawn by Al-Idrisi (the world map), and before him Al-Massaoudi and Ibn Hawqal.

At the European Renaissance, and as a result of geographical discoveries, an important change occurred in maps, as they became somewhat scientifically accurate, but scientists introduced the aspect of myths, ghosts and monsters, and then began to get rid of superstitious matters, and they depended on precise mechanisms in drawing maps.

The invention of printing and color photography contributed to the development of mapping, which made it possible to produce it in large quantities and thus reduce its price. Thus, maps became in the hands of large numbers of users.

The printing was followed by the aerial photography process which increased proficiency in mapping. Scientific advances from satellites have contributed to remote imaging.

The use of the computer achieved a qualitative addition in the field of mapping, as it became possible to store huge amounts of information, and to draw maps easily and with great accuracy, which were easily printed.

Maps have scientific importance and illustrative benefits as they are used to facilitate the understanding of natural and human phenomena, and thus it is difficult to abandon them in social studies and in geography in particular.

### **3. Semiotics and mapping**

Maps use recognized symbols, so that we can consider it as a language. But some will ask: Why would we use a different communication system from writing or mathematics?

These last two are what we call linear communication. They reveal the message that they want to deliver by revealing the full content it contains. Map is characterized by several characteristics that we will discuss later.

Due to the special capabilities of visual perception, understanding the content of the map is achieved through a set of visual glimpses that scan the area occupied by the map (Dobson, 1977). This ability allows us to take a double look at the drawn message:

- The holistic view of the map: through the initial survey, the eye captures at first sight the most prominent elements (the symbols size, the difference in shading...), and therefore the first part of the speech reaches the recipient at the first sight.
- A closer look at the map: During the next survey, attention will be paid to details, which will enable supplementary information to be obtained.

The map has spatial features that enable it to:

- Localization of phenomena : The main purpose of the map remains to localize and identify phenomena, in addition to quantifying them at other levels.
- Valuation of spatial relations: which can be considered the basic characteristic. The availability of the map for the possibility of juxtaposition or overlapping information allows the reader to understand the phenomena of proximity and density, analyze them and link them to obtain coherent data in a way that may sometimes be difficult to express in writing.

The symbols used in mapping are universally accepted symbols. For example, the expression for the forest in green is shared by the African, the European, the Asian and the American.

And as a whole means of communication, map is the result of the selection and interpretation of self - data by its author. The same applies to the reader who gives the data he selects from the map a subjective color in its interpretation.

In this regard, according to a study conducted by Thomas Saarinen (University of Arizona) on students of different nationalities about their outlook for the world to the influence of nationality and culture of the reader. Here we can mention two notable examples :

- Geographic geocentrism : Where the individual is the center of his world. This view is formed as a result of strengthening the national feeling of the individual, as it is nourished by the economic position of the country at the global level .
- European egocentrism : Where Europe is the center of the world. This view is formed mainly by cultural influence, and is nourished by the great geographical explorations that started from Europe, which produced abundant writings and maps that make the old continent at the center of the world, and the adoption of the Greenwich line in 1884 and the tendency of the majority of cartographers to place Europe in the middle of the world maps to avoid the oceans.

### **4. Cartography and Social Studies**

Map represents one of the important and effective tools in daily life, as well as they are among the necessary and vital means of teaching social studies content from a variety of sciences such as geography, history, economics, and sociology. Thus, maps are among the effective tools in conveying facts and information about the relationship of humans to the place in which they live and the space that surrounds them.

Among the facts and geographical information are the following:

- The place (absolute and relative)
- The distance
- Landforms, including highlands and plains
- The shape, size and distribution of natural and human phenomena
- Different relationships
- Changes and transformations

The map is a product that represents an important aspect of human culture, and reading maps is not an easy process, but rather an organization that starts from the simple to the complex, and from the regular reading

of the map and its contents to the interpretation of those contents and phenomena that highlight them in an accurate and logical manner.

#### 5. The importance of teaching map skills

Maps are necessary and most tools widely used in the educational process, and the teacher have to focus on building skills for students through various activities using images, atlases, charts and various maps.

The aim of teaching cartography remains :

- Introducing the concept of a geographical map.
- Comparing multiple definitions of the concept of map, to show the similarities and differences.
- Deduce the most important facts about people's relationships with the place in which they live.
- Enable students to own the ability to read maps symbols .

Actually, reading a map is as basic a skill as doing arithmetic. Like any other language, we find that it is necessary to learn maps language before starting to use it. We do not read the map for the sake of reading itself, but rather in order to learn more about the globe and its phenomena.

### VI. APPLIED ASPECTS OF LEARNING SOME CARTOGRAPHIC CONCEPTS

#### 1. The study's sample

The sample included 90 students from the second year of the baccalaureate course at Allal El Fassi High School in Rabat. This sample includes 26.7% of males and 73.3% of females. The second year level was chosen because it is the last year of high school and the gateway to the transition towards university.

An exercise was distributed to these respondents that revolved around three levels: cartographic reading (determining longitude and latitude, determining directions, scale ...), cartographic analysis (identifying visual variables, determining qualitative and quantitative data, determining the type of symbols...) and cartographic expression (drawing simplified maps, laying out a simplified path for the road linking home to the school...).

Before proceeding to answer the exercise questions, we asked these students for some information regarding age and their pre-knowledge about mapping.

#### Review and interpretation of results

At the age level, it was noted that only 17.8% have the age at which a baccalaureate student is supposed to be (18 years old), while 82.2% are between 19 and 24 years old, which indicates that the phenomenon of repetition has become very present. This hypothesis is reinforced by the fact that 40% of the respondents repeated the level of the second year of the baccalaureate.

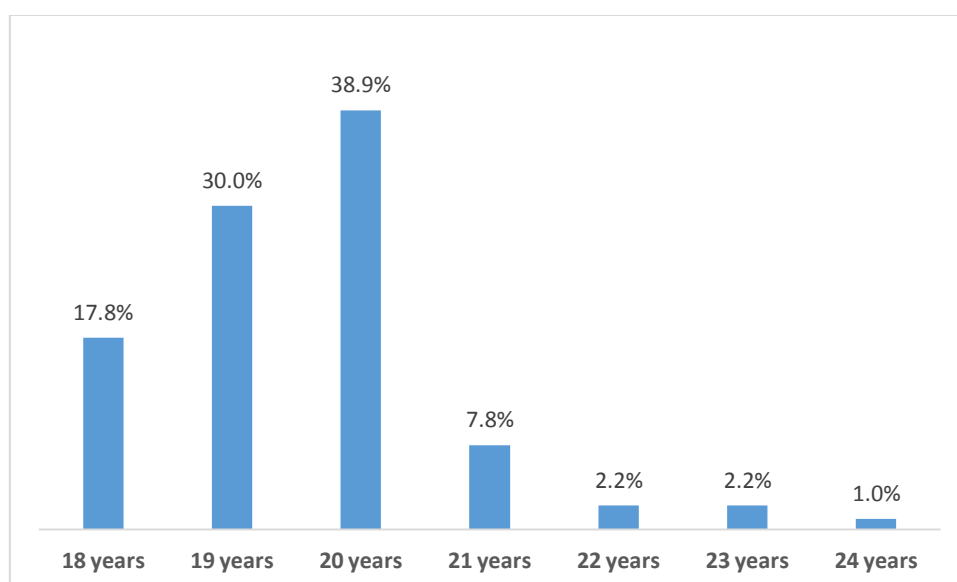


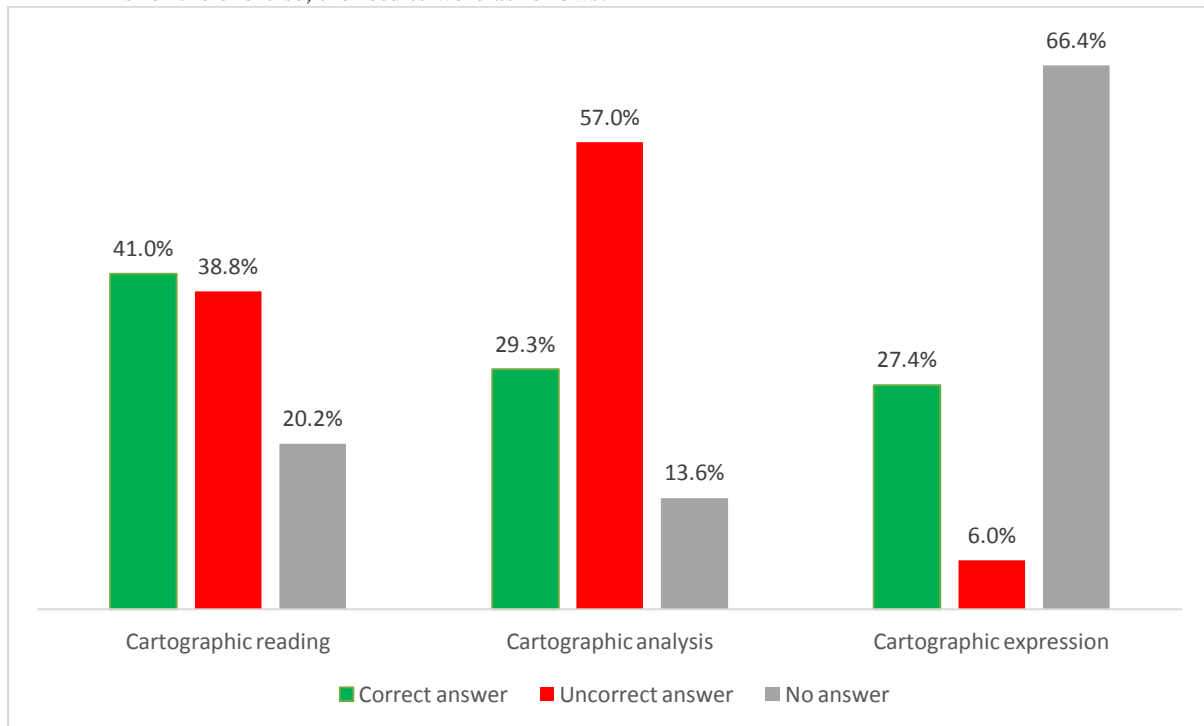
Figure 1: Distribution of respondents by age

Before presenting the results of the exercise, it is okay to list some numbers extracted from the information that we asked at the beginning :

- 67.8% have never had a map lesson.

- 53,3% do not have knowledge related to mapping .
- 75.6% have never been taught maps direction.
- 62.2% have never had a lesson on scale
- 52.2% have never been taught maps key
- 66.7% have never taken lessons in cartographic coding
- 63,3% do not have the ability to classify maps according to their components
- 86.7% have no knowledge of computer-assisted mapping and geographic information systems.

As for the exercise, the results were as follows:



*Figure 2: Distribution of students' answers according to exercise levels*

Through the above chart, we note that the percentage of correct answers in the three levels did not exceed 50%, which reflects what the respondents expressed in the preliminary questions. Thus, the categories of answers were distributed almost equally, as the rate of correct answers was 32.5%, compared to 34% for the wrong answers, while the rate of non-response was 33.4%.

- At the level of cartographic reading

We find that more than two-thirds of the respondents were unable to determine the latitude and longitude, nor the simple geographical directions, which can be considered as a critical issue for a student at the end of his secondary school path heading to higher education or the labor market.

At the scale level, we noticed that about 70% of the respondents succeeded in converting the numerical scale to a linear scale and vice versa and extracting the real distance from the scale, but what is interesting is that only 1% were able to extract the scale from a real distance.

- At the level of cartographic analysis

At this level, the highest percentage of wrong answers (57%) was recorded, as, for example, only 4% of the respondents were able to identify the visual variables used on a map, and the students also found it difficult to determine the quality of the data represented on a map (absolute and relative quantitative, nominal and ordered qualitative), in addition to the fact that 87% of the respondents did not determine the number of components of a map.

On the other hand, about half of the respondents were able to determine the type of symbols used in a map (linear, point, spatial) and identify the different types of maps (inventory, description, structure).

- At the level of cartographic expression

The most important observation recorded at this level is that two-thirds of the students were unable to answer. Thus, about 70% of the respondents were unable to draw a simplified map of Morocco or lay down a simplified route for the road they take from their homes to their school.

Here, we wonder about the content of the geography lesson and its lack of lessons in cartographic expression to enable students to develop cartographic skills.

## **VII. SUMMARY**

The obtained data from this study allow us to access a set of conclusions are the following :

- The mastery of using, reading and analyzing cartographic documents depends on learning the rules of cartographic expression.
- Most of the students do not have the skills to read, draw and analyze maps because they do not benefit from special lessons for that.
- Controlling cartographic expression methods and rules improves student's ability to read maps.

Therefore, we consider it necessary to work on:

- Allocate separate classes to teach mapping.
- The inclusion of the cartography in the training programs for teachers in order to unify concepts .
- Adapting geography programs and courses to the latest advances in the field of cartography.

## **REFERENCES**

- [1]. Ahmed, S.J., Teaching Cartography Skills and Globe Models. First edition, House of Culture for Publishing and Distribution, Cairo 1992.
- [2]. André, A., L'expression graphique : cartes et diagrammes. Éd. Masson, Collection géographie, 1980.
- [3]. André, Y., et al., Modèles graphique et représentation spatial. Éd. Anthropos, Paris, 1990.
- [4]. Berriane, M., et al., Read and analyze topographic map. Publications of the Moroccan Association geographer of Rabat", 1982.
- [5]. Bertin, J., La Sémiologie graphique, diagrammes, réseaux, cartes. Ed. Gauthiers-Villars, Paris, 431p .1967.
- [6]. Bertin, J., La graphique et le traitement graphique de l'information, Éd. Flammarin, Paris, 1977.
- [7]. Boutabssil, A., et Bourza, A., Objectives of Teaching Sociology : A Critical Analytical Study of Teaching Sociology through Official Directives. The Journal of Psychological and Educational Studies", 1991.
- [8]. Zakour, M., Teaching Geography: Model Disdakteka. Journal of the study and the media for the Royal Armed Forces, No. 280, 1995.
- [9]. Gellad, M., The Cartographic Expression: Teaching Cartographic Reading in Basic Education - the Ninth Year as a Model. Research for a Postgraduate Diploma in Education Sciences, Faculty of Education Sciences, Mohammed V University of Souissi, Rabat, 1996.
- [10]. Haidaoui, L., Contribution à l'utilisation de la carte et du graphique : évaluation de quelques aptitudes intellectuelles chez les élèves du 2ème cycle de l'enseignement secondaire dans l'agglomération de Rabat-Salé. Université libre de Bruxelles; 1984.
- [11]. Educational guidelines and programs for teaching history and geography in the secondary qualifying education corps, the State Secretariat in charge of school education, the Ministry of National and Higher Education, Vocational Training and Scientific Research. 2007.