HISTORY IN SECONDARY EDUCATION:
HISTORICAL TIME, CAUSALITY AND SOURCES
HISTÓRIA NO ENSINO MÉDIO: TEMPO HISTÓRICO, CAUSALIDADE E FONTES

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Abstract: History is a field of knowledge that lacks conceptual hierarchy and where the accumulation of knowledge plays a key role in understanding the evolution of human events over time. These characteristics limit the possibilities of its teaching-learning in the school environment. In this research we have analysed the teaching of history in secondary education based on three elements: historical time, causality and historical sources. The hypothesis we have developed is that these elements constitute the fundamental basis for the teaching of history. However, they can only be developed if the historical contents studied in the classroom are previously specified, defined and limited. In order to elaborate this article we have used as fundamental sources the abundant bibliography that exists on didactics of history as well as our own teaching experience.

Keywords: Historical causality, historical sources, historical time, periodization of history, secondary education.

Resumo: A história é um campo do conhecimento que carece de hierarquia conceitual e onde a acumulação de conhecimento desempenha um papel fundamental na compreensão da evolução dos acontecimentos humanos ao longo do tempo. Estas características limitam as possibilidades do seu ensino-aprendizagem no ambiente escolar. Nesta investigação, analisamos o ensino da história no ensino secundário com base em três elementos: tempo histórico, causalidade e fontes históricas. A hipótese que desenvolvemos é que estes elementos constituem a base fundamental para o ensino da história. No entanto, eles só podem ser desenvolvidos se os conteúdos históricos estudados na sala de aula forem previamente especificados, definidos e limitados. A fim de elaborar este artigo, utilizamos como fontes fundamentais a abundante bibliografia que existe sobre didática da história, bem como a nossa própria experiência de ensino.

Palavras-chave: Causalidade histórica, fontes históricas, tempo histórico, periodização da história, ensino secundário.

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Introduction

Etymologically, the word “history”, which took hold at the end of the 15th century –medieval Spanish form: estoria– derives from the Greek historie, in Ionian dialect. This form is related to the Indo-European root wid –Greek oída, Gothic witan, Sanskrit Veda-, that is, Knowledge. Histor means “the one who knows”, from which historéo means “to try to know, to inform oneself”. Historie has the sense of “investigation” in Herodotus, who begins his work with these words (Herodotus, 2000):

The publication which Herodotus of Halicarnassus is going to present of his history is mainly directed to prevent the memory of the public deeds of men from fading with time, and even less to obscure the great and marvellous deeds of the Greeks as well as of the barbarians. For this purpose he refers an infinite number of various and interesting events, and sets forth with care the causes and motives of the wars which they waged against each other.

For Herodotus, therefore, history aims at objectively pointing out public facts and making them intelligible. This is the beginning of history as knowledge in the West. But is this definition sufficient? As a rule, it is difficult to provide a conceptual definition of a certain field of knowledge. In the context of the social sciences, the complexity is considerably accentuated. It is therefore not easy to answer the obligatory question: what is history? For Aron, “strictly speaking, history is the science of the human past; in a broad sense, it studies the evolution of the earth, the sky and the species, as well as that of civilization. On the other hand, in a concrete sense, the term history designates a certain reality; in a formal sense, the knowledge of that reality” (Aron, 2017). For his part, Berr asserted that history can be defined as “the study of human facts of the past” (Berr, 1932). For his, Febvre did not hesitate to write: “I define history as a need of humanity, the need experienced by every human group to search for and give value in the past to the facts that influence the present time, that allow us to understand it and help us to live it” (Febvre, 1975). Marrou developed his definition further, writing that “history is a scientific discipline, enriched by long centuries of experience and in possession of an original method elaborated little by little and progressively improved in contact with its object” (Marrou, 1999). Lastly, Marc Bloch, in one of the most precise definitions, affirms that “history is the science that studies men
in time” (Bloch, 1988). In fact, the examples of more or less valid definitions in relation to History would be endless, therefore, generalizing, we can say that the object of History is the narration of past events and that, strictly speaking, it covers the events carried out by Humanity in the course of the centuries.

Although each school, period and even historian has its own definition of History, what all authors agree on is its consideration as a Science, as Collingwood stated: “It seems to me that every historian will agree that History is as science, that is, a way of thinking that consists of asking questions that we try to answer. Science is about looking at something we don't know and trying to find it out. Science finds things out, and in this sense history is a science” (Collingwood, 1968). The British historian's assertion rested on the three pillars on which historical knowledge is based: the investigation of facts, the reconstruction of the past and the exposition of those same facts. Traditionally, there have also been three objections that could contribute to “lowering” the scientific character of History. The first, the inexistence of internal laws in the social evolution of mankind. The second, the impossibility of repeating historical facts in order to study them in situ. The third is the subjective nature of the methodological approaches and interpretative conclusions attributable to history professionals. In spite of these limitations, the scientific nature of history cannot be doubted at present, since it has a limited field of study and an adequate methodology (Salmon, 1978). The conclusion is, therefore, that history is a science whose knowledge is acquired through research. But contrary to what happens with other knowledge, in the historical field the process does not end with a mere collection of data, but rather the opposite is true. The real task of the historian begins at that moment with the interpretation, explanation and synthesis of that same data.

But if the demonstration of the scientific character is fundamental to accredit the very existence of this knowledge, it is more decisive to justify its inclusion in the school curriculum. In this sense, Prats and Santacana (2011) stated:

The formative potential of history makes it possible to reflect on the whole of society in the past with the aim of teaching how to understand what are the keys that lie behind the facts, historical phenomena and processes. It has an important formative power for future citizens since, although it does not show the causes of current problems, it makes it possible to expose the keys to social functioning in the past. It is, therefore, an
unbeatable laboratory of social analysis. History, as an exercise of analysis of problems of societies of other times, helps to understand the complexity of any event, of any current social-political phenomenon and of any historical process through the analysis of causes and consequences.

However, history as a school subject should not be conceived as a body of finished knowledge, but as a dynamic under construction. This approach should be carried out through paths that incorporate theoretical knowledge, inquiry, an approach to the historical method and the conception of history as a social science and not simply as a rote knowledge, a curiosity or a succession of anecdotes.

However, although the formative value of history is unquestionable, teachers of this subject in Secondary education are currently facing a serious problem: the presentism of students, a product of the digital world in which they live, which makes them immune to curiosity about the past, which seems so distant, and turns them into people educated on the image, on the primacy of the visible over the intelligible, to develop the ability to see without understanding and significantly reduces the ability to develop abstract thinking (Sartori, 1988). This dynamic is forcing teachers to develop their imagination in order to awaken the interest of their students and persuade them of the usefulness and importance of history. One possibility is to use a reverse diachrony, starting from current events and going backwards to look for their causes, so that they understand that in order to understand the present, knowledge of the past is necessary (Vazquez, 2011).

The aim of the research we present is to approach the explanation of this field of knowledge in Secondary education (12-18 years) from the three key elements that define it: historical time—a key element in the development of historical knowledge—, causality and historical sources. The hypothesis we put forward is that its development in the classroom cannot be carried out in depth if there is not previously an adequate selection of the epistemological contents to be explained in the different courses. Precisely, not specifying them is what prevents the pupil from acquiring historical knowledge appropriate to his or her age and above all from constructing a vision of history based on a scientific foundation. The result is that they are incapable of understanding the present on the basis of knowledge of the past.
For the development of our work, we have relied on different investigations of specialists in didactics of history fundamentally, but also on our own as teachers.

Finally, the structure of this research is articulated under three headings. The first one focuses on time in history. The second deals with the concept of historical causality and its development in the classroom. And the third, on the use of historical sources by Secondary education students.

Time in history

Time and the sense of temporality is one of the essential parameters of individual and social human personality, and if “history is the science that studies men in time”, this implies that “without time there is no history” (Bloch, 1988).

Notion of historical time

In order to understand how historical time is constructed, it is necessary to start from the concept of time itself, and from an adequate definition of it, a very ancient and complicated task that is still the subject of debate today. St. Augustine, in the 5th century, questioned himself about time in his Confessions affirming: “If I were not asked what time is, I would know what it is; but if I were asked, I would not know what it is” (Agustin, 1983).

For his part, the French thinker Blaise Pascal, in the seventeenth century, defended the futility of the effort to define time, arguing that all people understand what is meant when talking about time. Nevertheless, the French philosopher and mathematician linked time with movement (Pascal, 1981).

For his part, Piaget affirmed that time is the coordination of movements and cannot be perceived and conceived independently of the beings or events that fill it. The time that social sciences and history study is the time that expresses changes in people, things, societies, the present, the past, and the future (Piaget, 1978).
However, beyond the different definitions of Time, historical time presents a series of characteristics that have a determining influence on the teaching and learning of history (Asensio, Carretero y Pozo, 1989. Pagés, 1998):

- It is the backbone of history teaching.
- Its conceptualisation and the skills it involves constitute one of the greatest difficulties in the teaching and learning of the social sciences: “It is common to read in history didactic texts and in research on its teaching and learning that one of the main problems of pupils in compulsory school is their difficulty in locating and understanding historical time” (Pagés, 1998).
- It is a complex and abstract meta-concept which includes a multitude of aspects (chronology, periodisation, simultaneity, rhythms, durations, causal succession, evocation). Each and every one of them must be taught and learnt if we want our pupils to acquire historical training.
- It is not acquired intuitively and requires a real psychological construction. Developmental development alone does not ensure an understanding of the different notions of time.
- There are difficulties in dealing with notions related to historical time:
  - Complexity of the object of study.
  - Little didactic tradition in the teaching of history.
- Chronology (an auxiliary science which studies the various systems used throughout the life of mankind to determine time) occupies a fundamental place within historical time. Its usefulness lies in the fact that it will make it possible:
  - For students to orientate themselves temporally in history.
  - To relate actions and phenomena to each other, depending on whether they happened before or after (succession or diachrony) or at the same time (simultaneity or synchrony).
  - That they can calculate the distance between events or phenomena (duration).
That they can have a sufficiently precise and broad historical time map to support them in their historical knowledge.

The dynamic that defines the construction of this meta-concept is integrated in the very process of construction of the notion of time, according to Piaget. A process that begins in the period between 4 and 6 years of age, when the child begins to become aware of the regularity of daily activities, of the learning of some rules of conventional systems and their relation, fragmentary and partially, with some of his own activities. Thus, the ability to order temporal elements on a small scale appears precociously. Therefore, personal time is acquired at this stage. Between 6 and 9 years of age, the main conventional systems of time measurement are progressively reached: hours, days, weeks, months, and parts of them. First, the main elements of the systems are apprehended and then arranged in a continuum. Then they are acquired punctually. Finally, they are related to the rest of the elements. This is how the notion of physical time is acquired. From the age of 9, many new abilities appear: the understanding of cyclical aspects, the coordination of the various systems and the use of conventional marks as a support for temporal reasoning. In other words, the notion of social time is acquired. The next step is the acquisition of Historical Time, which occurs, according to the aforementioned authors, between the ages of 11 and 16 (Piaget, 1978). This important time interval is a consequence of the inexistence of a definition of historical time that is truly accepted by the entire scientific community.

However, there is no single definition of Historical Time accepted by the academic community, and there are three (Jurd, 1987):

- The order of events within a temporal sequence (Diachrony or succession).
- The grouping of concurrent events in time (Synchrony or Simultaneity).
- The establishment of a sense of continuity between past and present, which implies the application of long-term causal relationships and an understanding of society as a process rather than a state (Causality).

Therefore, three different concepts that also imply different and more complex capacities. Hence, we cannot speak of a single historical time, but rather of different notions - subsystems - integrated into a
broad, complex and abstract concept such as Historical Time. This meta-concept is linked to capacities that develop in different chronological moments of the human being (García Ruiz, 2003):

- **Chronological serialisation of events (diachrony or succession):** at around 10-11 years of age, the child can place in time between 2 and 5 historical events from the most distant in time to the nearest. We are talking about being able to situate them in the Christian era, as this is the era they are used to seeing and using. In the case of placing historical events in other chronologies, such as Islamic, Jewish, etc., we must wait until the child is about 12-13 years old.

- **Concept of Duration:** children between 6 and 11 years old (approximately) have a qualitative notion of historical time. Depending on the things that happen in a period they think it is shorter or longer. For example, in the study of Prehistory in the Primary Education stage (6-11 years) most children think that it is a short period as they believe that “few things happen”. This impedes the mastery of the ability to group concurrent events in time and of the concept of simultaneity, which is not only superficially acquired at this stage. Only from the age of 12, when Secondary School begins, have they acquired the concept of temporal duration.

- **Causal seriation:** at the age of 13 they have the ability to relate events, a very important ability when studying historical events.

- **Complex notions of historical time:** these notions are acquired around the age of 16. They are Causality and Change. They gradually understand that between the “causes” and the “fact” there is a more or less long period of time. They understand that the effect is not immediate. On the other hand, it must also be taken into account that historical events have more than one cause (multi-causality) and more than one consequence. In other words, the relationships are not simple and linear, but complex and dynamic.

Therefore, this set of skills, which begin to appear in primary education, are fully developed in Secondary education. And their development is key to lay the foundations of an effective didactics of history that allows to successfully address the teaching of this field of knowledge.
Cosmovisions of time

Historical time is the basis on which the teaching of history is built. However, the worldview of Time in History has not been univocal (Prats y Santacana, 2011):

The conception of time generated by Western culture -as a linear and progressive process, with a beginning and an end- has facilitated the development of a conception of history that also has an origin, a development and an end. However, this conception of time is eminently cultural and not all civilizations perceive historical time in the same way; we could propose the existence of a cyclical time, without beginning or end, as many cultures have done, among them the Indian one, which admits reincarnation, understood as the myth of the eternal return.

However, the linear conception of time has not been the only one that has existed in the West. From the first Greek historical texts we find the succession of two conceptions: the cyclical, linked to the figure of the Boeotian poet Hesiod in his work *The Works and the Days* and to the great Greek historian Polybius in Caesar and Alexander. Parallel Lives, and the linear, which is linked to Herodotus. Hesiod's time, linked to the rhythm of agriculture linked to the seasons, is cyclical, first lunar and then solar. Herodotus' time, heir to the Ionian tradition of science, is linear. This linear conception is linked to a regressive and decadent vision of the past embodied in the theory of the Ages, systematized by Aristotle and Plato.

With the triumph of Christianity, the present is cornered in front of the eschatological weight of the past, establishing a cosmovision of linear time in its conception, articulated on the parameters of the Christian religion and sustained on three great vectors (Salmon, 1986):

1. That history is ordered around a central event, the coming of Jesus Christ. This event is not only a truth of faith, but a historical fact.
2. That history is constituted according to a plan pre-established by God. The historical happening is not a simple natural evolution, but the result of an intelligible plan created by God.
3. That history has a beginning (Genesis) and an end (Judgment Day).
During the Renaissance, thinkers were once again particularly interested in the present, with Gian Battista Vico (1668-1743) developing a cyclical vision of time. In the 18th and 19th centuries, the ideology of progress, as defined by Condorcet, triumphed. History was defined as the uninterrupted process of human reason, through which man freed himself from darkness and approached the truth. Man could thus become master of Nature by means of reason. Therefore, this conception changed the Christian approach to Time, but not its linear and irreversible character. This vision has been definitively imposed in the Contemporary Age, with variations evidently, in spite of the fact that authors like Arnold Toynbee or Oswald Spengler developed a cyclical concept of Time.

Nevertheless, during the twentieth century there was a rich debate on the conception of Time in the field of History and the relations between present, past and future in which members of Annales, such as Bloch, Febvre (1952) and Le Goff (1981) actively participated; Marxists such as Lefebvre, who argued that the historian should start from the present and, based on it, study the past (Lefebvre, 1974); and liberals such as Carr, who pointed out that "we can only grasp the past and understand it through the lens of the present" (Carr, 1981).

For his part, Fernand Braudel, a member of Annales, defined a new space-time that revolutionizes historical time, structuring the three dimensions of time in his most famous work *The Mediterranean and the Mediterranean World in the Age of Philip II* (1986):

- The “short time” is the history of events, of political facts, of individualities. It is the political history advocated by his first master, Gabriel Monod.
- The “slow time” (medium time) or "social history", studied the economy, states, societies, civilizations and forms of war, with a final recapitulation that tried to link all these components in terms of rhythms and conjunctures. This is the part where the influence of Boch, François Simiand and Emile Durckein is reflected.
- The “long time”, the “almost motionless” history studied the relationship between man and his environment, giving an overall view of the Mediterranean. This is the part where the influence of the geographer Paul Vidal de la Blache was most explicitly manifested.
These contributions, including Braudel's, can play a fundamental role in the teaching of history, as we have pointed out in the introduction. They allow students' interest in the past to be developed as a tool for understanding the present. Moreover, although in other civilisations, especially Eastern ones, the concept of time was cyclical, the linear vision of the West has ended up being imposed.

**Periodization in history**

*When I was a little boy going to school my English history books gave the impression that one fine day in the year 1485 the English woke up and, full of surprise, said to themselves, “The Middle Ages are over. Modern times have begun”. Now this opinion seems naive and foolish.*

This critique by Hill (1980), a Marxist historian, referred to the political criteria for dividing history because he knew perfectly well that establishing an adequate periodization, that is, dividing history into stages, is a key issue for the understanding of history. Not only in the academic sphere, but also in a Secondary education classroom, because it condenses the qualitative changes experienced in social formations. In fact, a historical stage includes a set of historical facts and processes that have some common features among them important enough to, qualitatively, make it different from another historical stage. However, articulating these stages is extraordinarily complicated: “There is no methodological problem of greater importance in the field of history than that of periodization” (Berr, 1953). In fact, it is the most important issue derived from historical time and, at the same time, the most problematic, because the different periodizations that have been made have been subjected to profound criticism due to “the fact that it makes little sense to establish breaks and ruptures in the evolution of societies, when in practice it is difficult to establish the exact moment in which a society begins a new historical period” (Pagès, 1983). Furthermore, when we try to consider periodization on a universal scale, the situation is complicated basically due to the diversity of rhythms in the evolution of societies (García Ruíz, 1993), both from an extrinsic and intrinsic point of view. Thus, Pagès points out that “the duration of historical phenomena is not the same in all social formations” (Pagès, 1983). Thus, for example, the end of feudalism in France took place in 1789, in Spain in 1837 and in Russia in 1861.

The result of these divergences has been the emergence of different periodizations. The oldest is the one based on political criteria (Fontana, 2001. Lefebvre, 1974. Suárez Fernández, 1985). It has its
origins in Classical Antiquity. In Classical Greece, Plato and Aristotle used as a basis the different forms of government, which they considered as stages of human evolution, with a linear perspective. On the other hand, in the Roman world, Polybius, in his cyclical theory of governments, includes the four classical ages - gold, silver, bronze and iron. However, it was completed during the nineteenth and twentieth centuries, from the hand of academic history, two more eras would be added: Prehistory, which would be the ungrammatical part of History -this definition, established by exclusion, is a sign of the importance that for academic historians had the written sources- and the Contemporary Age, which would begin with the French Revolution in 1789, leaving the history divided into six major periods:

- Prehistory: extends from the origin of man to the invention of writing (around 3000 AD).
- Antiquity: extends from the invention of writing (ca. 3000) to the fall of Rome (476 AD: deposition of the last Emperor, Romulus Augustulus).
- Middle Ages: from 476 to one of the following alternative dates, depending on the European state:
  - 1450: invention of the printing press.
  - 1453: fall of Constantinople.
  - 1492: discovery of America
  - 1517: beginning of the Lutheran quarrel.
- Modern Age: extends from one of the above events to the French Revolution (1789).
- Contemporary Age: extends from the French Revolution (1789) to 1945, the end of the Second World War.
- Present Time: from the end of the Second World War to the present day.

This scheme, based on strictly political criteria, is subject to profound criticism for two fundamental reasons (Hernández Cardona, 2010):

- It lacks a basic and uniform criterion of periodization: some milestones are cultural (e.g. writing, printing, etc.), others are political (e.g. fall of Rome, French Revolution, etc.), others geographical (e.g. discovery of America).
This is not a universal view of history, but a Eurocentric one: in practice, it is a periodisation for a single continent and not for the whole world. For example: did the fall of the Roman Empire affect America enough to define the beginning of a new historical stage in this continent?

Periodization by economic criteria was the second to appear and has been of great importance in the twentieth century, given the importance of this field of study. This approach has its origins in the work of the great economist Adam Smith (1723-1790), who formulated the theory of the four stages – hunting, agriculture, livestock and trade– through which man passes to obtain his food, and which represent a division of history on a materialistic basis (Smith, 2019). From Adam Smith he passed to Karl Marx and Friedrich Engels, who defined the doctrine of historical materialism. This theory hinged on class struggle as the engine of history and dialectical method as the instrument of change. The two authors focused the subject of periodization, at first, on the observation and analysis of the historical development culminating in the formation of capitalism and, therefore, their analyses were limited to the specific framework of Western Europe and only occasionally turned their attention to non-European societies. The result was the establishment of four modes of production: primitive, slave, feudal and capitalist. In later analyses they broadened the historical perspective, introducing the Asian mode of production when referring to Eastern societies. The result was the abandonment of the Eurocentrism of the previous stage. The mode of production was never a diachronic chronological concept for Marx and Engels, but could coincide synchronically in different geographical spaces. The result was a break with the theory of the ages of political history (Godelier, Marx and Engels, 1972).

The contribution of Historical Materialism has not been the only one in the economic field. Thus, the Italian historian Carlo M. Cipolla, in his work Economic History of the World Population (2000) put forward the idea of dividing universal history into three unique stages separated by the Neolithic Revolution and the Industrial Revolution. Similarly, the historians of Annales, whose vision, without having the class struggle as the driving force of history, considers the socio-economic structures the fundamental element to understand the historical evolution, also rejected the political periodization. Thus, for example, for Braudel, the Middle Ages would be a period of transition between the ancient economic structure and the liberal-capitalist one that began to take shape in the Modern Age.
In short, we can say that none of these economic theories has been influenced by political periodization. But, this does not mean that the issue of the division of history is closed. On the contrary, it is still quite complex, depending on the historical current to which the historian ascribes.

In Secondary education it is more correct to use the periodization based on political criteria because it is the most accepted and on which the teaching of history at university level is structured. Moreover, it has three associated advantages:

- It has been used in primary education and pupils are therefore already familiar with it.
- It is very simple, clear and concrete, being easy to understand in the first years of this stage when formal thinking is not fully developed.
- Because pupils have already acquired the ability to sequence events chronologically, which is the key to learning this historical aspect.

But learning at this age should take into account three fundamental aspects (García Ruíz, 1993. Hernández Cardona, 2010):

- Eurocentric character. The teacher should explain that, on the basis of the principle of simultaneity, certain key events in the history of our continent went completely unnoticed in other continents. For example, the fall of Rome in 476 was of no importance either in Oceania or in America.
- Indicative nature. The dates defining the beginning or end of these ages do not imply an immediate change in lifestyles or societies. On the contrary, they symbolise the beginning of slow transformations that give rise to different historical periods.
- Partial character. As Gelzer states, “all periodisations and delimitations in the course of world history are only conditional and therefore entirely voluntary. History itself, in which each event is in causal relation to the one preceding and following it, makes no breaks, it is a successive continuum” (Bauer, 1970).
Historical time and its teaching

The teacher in Secondary education must use different procedures for the teaching of temporality in history (Prats, 1997):

- Topics incorporating elements for the study of chronology and historical time.
- Study of significant events, characters and facts in history, set in the context of a more general explanation.
- Subjects which raise the ideas of change and continuity in the course of history.
- Studies that deal with the multi-causal explanation of past events.
- Works that show the complexity of any phenomenon or social event.
- Social event.
- Studies of parallel places.

For his part, Torres Bravo argues that the learning of historical time should be based on the three types of content (Torres Bravo, 2001):

- Conceptual: these contents can be acquired through observation and others need to be explained, such as the concept of feudalism. Most of the historical temporal concepts belong to this group. Mastery of these terms is achieved when the learner is able to handle them and apply them in context. García Ruiz points out the following concepts (García Ruiz, 2003):
  - Order and succession: before-after; anterior-posterior, referring to personal, natural, cosmic, historical world, Examples: succession in family order, of the seasons of the year, of life in childhood, adolescence. from dawn to dusk; and succession of dates, years, bienniums... up to millennia and their multiples.
  - Continuity-discontinuity (repeated, unique, equal).
  - Diachrony-synchrony (simultaneity) = during = duration.
  - Duration: constant (day, week, year) and variable (day, epoch, generation, life, period).
  - Measurement: fixed and variable.
Location: Exact (a date); relative (within a period).

Cycle: correlative to other notions such as phases (of life or nature), juncture, progression-regression.

Rhythms: speed (evolution, revolution), change, immobility...

Process: broad sense (political, economic, social evolution) or restrictive sense (a movement, a revolution).

Period: structures.

Causality: see relationship between different times.

Measurement of time:
- Chronometry, which represents time by calendar, clock and other measuring instruments.
- Chronography, which keeps track of time in notes, chronicles and accounts;
- Chronology, which measures time in the series of dates and names inscribed as relevant periods from the beginning to the present day;
- Chronosophy, which measures the traces of time in bones, shells and animals, animal behaviour (ethology), movement of the stars, and collects complementary information from related scientific disciplines.

Procedural. The contents of this type most closely linked to historical time are organised into two categories:
- Those referring to temporal categories and historical time.
- Those which require graphic or iconic representation.

Attitudinal: they must serve to value time from a historical point of view, but also linked to everyday life, as García Ruiz indicates: “Isn't there talk of wasting time? Hasn't it been said that time is money? Isn't haste related to stress, to postmodern life and to depression? What relation does the concept of time have with the idea of progress?” (García Ruiz, 2003).

The conclusion to be drawn is that it is necessary to teach the student to value time on the basis of knowledge, conscious practice and the possession of time selection criteria.
This set of contents should be associated with the epistemological contents of history. And in its development, the age of the students and their previous knowledge should be taken into account because the great problem of history, unlike mathematics for example, is that there is no conceptual hierarchy. Precisely this lack is key in the development of historical causality.

Causality in history

History must rise above the observation and description of facts to try to relate them to other facts. It is necessary to explain them by means of their causes and consequences. Indeed, as Marrou stated, “in order to fully understand an element of the past, it is no less important to find out what it may have brought about than to know from what cause it is the result” (Marrou, 1999). In practice, the causal relationship is difficult to use for historical knowledge because it is linked to the acquisition of historical time. The notion of cause really makes sense when historical research resembles judicial research; but it is precisely this parallelism that Bloch rejected: the historian must act as a scholar and never as a judge (Bloch, 1988).

When looking for "causes" the historian must first of all keep in mind the difference between cause and pretext. The typical example is the First World War. The causes of it are very deep: economic, political, military, and so on. The pretext, however, was the assassination of Archduke Franz Ferdinand. It is also useful to distinguish between remote causes (conditions of a general type that create the probability of a certain climate) and proximate causes (decisive effects determined at a given moment by events of a particular type) (Salmon, 1978). However, as Bloch pointed out, we should not attach absolute value to a hierarchical classification of causes, since it is nothing more than a mere mental convenience. Likewise, we must reject the single, decisive cause. Monism must be banished from historical explanation since it would lead to a mere value judgment. In history, causes are multiple and complex, remote or proximate. We must therefore avoid making a subjective choice and strive objectively to take into account all the causes that define a historical event or process (Bloch, 1988).
Causal explanation and the role of the teacher

How can historical causality be explained to pupils? The answer to this question is very complex, since disciplinary, developmental and pedagogical variables are involved, and all of them often overlap. Moreover, we have little rigorous research covering the three domains of historical explanation among Secondary education students. Initially, the contributions made in the field of developmental psychology seemed to detect a quasi-unsolvable problem in this area. Starting from Piaget, Asensio, Pozo and Carretero focused on the problems of adolescents in understanding history due to the high degree of abstraction of the contents. In this sense, they insisted on the intrinsic difficulty of moving from a conception of history based on events, dates and characters to one articulated on concepts, structures and mentalities of groups because it implied a psycho-pedagogical readaptation, but also an epistemological one, of very difficult solution (Asensio, Pozo y Carretero, 1989).

On the contrary, Aisenberg collected different research showing that causal thinking in history was closely linked to specific content knowledge, calling into question Piaget's conception of the transcendence of abstract formal thinking as the basis for learning historical causality (Aisemberg, 2008).

But beyond the conclusions that can be drawn from this interesting debate, we should consider how teachers should act in the classroom in the face of these dynamics. Each teacher, from his or her particular ideological, academic and empirical position, decides what to teach and with what material resources –textbook, notes, primary sources– and methodological resources –oral exposition, map of contents, debate-colloquium, research–. However, it is very significant that at present, when dealing with historical causality, most teachers opt for such a classic technique as oral exposition, articulated in the form of narrative discourse. What's more. Despite living in a digital world, new technologies are hardly used in these explanations. But why? In a study carried out in Spain by professors Montanero, Lucero and Méndez on the basis of a sample of 54 Secondary education teachers, they found that (Montanero, Lucero y Méndez, 2008):
• 85% of the interviewees opted for descriptive expositions of the historical concepts, relying on the textbook and key-script diagrams or concept maps, which allow emphasizing the relationships of semantic belonging between concepts and characteristics. Although it may be limited, this approach is adjusted to the students' wishes and above all to their ability to understand historical processes (Merchan, 1988).

• 15% were inclined towards a causal explanation, relying on expositions that often did not correspond to the textbooks and that they combined with practical activities. As strategies to support comprehension, they opted for asking students why the historical events being studied occurred, for explaining with other words or using examples and anecdotes to illustrate concepts that were difficult to understand. However, in general, these teachers did not get them to anticipate some consequences of the historical processes they were explaining or to verbalize why certain events occurred or for students to verbalize why certain situations were interpreted as causes or others.

From this study we draw an important conclusion that Merchán pointed out more than 30 years ago: the distinction between history as elaborated knowledge and history as an object of teaching. The intrinsic limitations of this field of knowledge –linked to the lack of a conceptual hierarchy and to the importance of the accumulation of knowledge for the understanding of the historical future– force us to define its scope in the classroom because it is based on an accumulative dynamic that students in Secondary education have not acquired (Merchán, 1988). Consequently, we must opt for a very precise selection of the contents to be handled, always starting from the level of previous knowledge. And its development should be articulated on the descriptive exposition and the simple and limited causal explanation that allows them to learn some history.

Sources in history: didactic considerations

Historical sources are, as Cooper (2002) stated, the raw material of the historian, since they provide him with the necessary information to be able to work and to be able to reconstruct the historical facts.
Historical sources

In contrast to the concept of history, there is a remarkable consensus in the academic world on the concept of historical source. Marrou affirmed that “source is everything that, in heritage of the past can be interpreted as a revealing indication by some concept of the presence, activity, feelings and way of thinking of the man who proceeded us” (Marrou, 1986). For his part, Collinwood wrote that “everything in the world is potential evidence for any subject” (Collingwood, 1968). And Febvre, reaffirming the methodological approaches of Annales, affirmed that in addition to the written document, “history can be made with everything that the historian's ingenuity can allow him to use” (Febvre, 1975). In short, we could define a historical source as any document, testimony or simple object that, without having undergone any manipulation, serves to transmit total or partial knowledge of the past.

Therefore, the concept of historical source does not offer special difficulty, however, the extraordinary variety of its manifestations, does not facilitate a clear typological classification of the same. Although in this sense there is no lack of systematizing attempts that start from the Middle Ages and the beginning of the Modern Age, highlighting the figure of the monk Mabillon, who in the 17th century provided an order of some importance, based almost solely on the veracity or falsity of the sources. The result was the emergence of a new discipline, Paleography, which not only allows the reading of medieval documents but also their analysis (Salmon, 1986).

Among the most detailed systematizations we can cite two. Bauer considered historical sources “everything that provides us with the material for the reconstruction of historical life” (Bauer, 1970), dividing them into three large blocks:

- Written sources (handwritten or printed).
- Orally transmitted sources (legends, sagas, proverbs, songs, tales, narratives, speeches...).
- Sources transmitted by means of visual representation.
For his part, Topolsky divided them into “direct” and “indirect” sources – according to whether they supply information directly and intentionally – and “written” and “unwritten” (Topolsky, 1982).

**The didactic function of sources in the teaching of History.**

The use of historical sources in the classroom began to develop in Europe at the end of the 1950s with the aim of applying methodologies from the field of academic history in the classroom. The result of this dynamic was the implementation of new didactic experiences. Among the most outstanding were the investigations in the field of local and regional history, with primary written sources. These first experiments took place in the Federal Republic of Germany and France. And also the didactic itineraries developed in museums, monuments, old quarters or ruins (Tribó, 2005. Prats, 1996. Guerrero Elecalde, 2020).

However, the development of these two experiences has not been balanced. The latter, such as fieldwork, have an increasingly greater weight in the didactic programmes and their structure is becoming more and more elaborate, as are the activities carried out during their development. On the contrary, the use of primary sources has been more limited, apart from the traditional application of techniques such as the analysis of historical texts (Hernández Cardona and Serrat Antolí, 2002). There are four causes which explain this scarce protagonism of historical documents in the classroom (Serrat Antolí, 2002):

- The conviction on the part of many teachers that research with primary historical sources can create more problems for students, whose understanding of historical processes and events is very limited for the reasons already mentioned.
- The prior work needed by teachers to teach pupils how to access them.
- Difficulties in understanding archival documents, as they often use a language they are not used to and a writing style which is alien to them.
- The impossibility for minors to handle the originals. The result is that pupils, when handling copies, lose the interest that an original, a rare and unknown object, would have.
Of these four problems, the second and fourth are the easiest to overcome. For, although they do not depend on teachers, the gradual process of digitization that is taking place in the main archives allows students to come into contact with the originals, albeit through a computer screen (Vázquez Varela, 2012).

On the contrary, the resolution of the first and third questions obliges us to strengthen the training of History teachers in the handling of historical sources. In a study carried out by Montaneres-Vargas and Llacanvil-Llacanvil with 35 students of Didactics of History, who were in the fourth semester of the degree of Pedagogy in History, Geography and Social Sciences, at the Catholic University of Temuco, they proved precisely the lack of skills for the use of this type of resources. The conclusion they obtained was that (Montaner-Vargas and Llacanvil-Llacanvil, 2015):

The use of sources improved students' understanding of how the past is constructed by recognizing valuable aspects such as historical subjectivity and, therefore, recognizing the importance of working with these sources in the practice centers they attend.

It is necessary to strengthen students' theoretical and conceptual frameworks and to seek opportunities for them to reflect on the activity carried out in a pedagogical manner. Working with sources should be a strategy to be used with students in training from the first years of entry to the career.

This approach would break with the approaches defended in Spain by Prats and Santacana, who oppose the teaching of history as enunciative, not very active and as a closed and concluded knowledge (Prats and Santacana, 2011).

Therefore, historical sources can be used in research, especially in local history, as Guerrero Elecalde argues: “learning local history directly links the concrete, known and immediate with more complicated and abstract notions”. It is, therefore, “an appropriate technique for working on issues related to research such as, for example, the establishment of hypotheses, the verification and specification of knowledge” (Guerrero Elecalde, 2020).

However, we cannot limit ourselves to the unidirectional use of these resources, prioritizing only and exclusively the technique of research or the more traditional technique of text commentary. Likewise, we cannot focus solely on the importance of primary sources without taking into account the limits of historical knowledge in Secondary education, which is key to understanding the limits of
causal explanations and of the students' own understanding of history. In this sense, our position is more inclined towards the approach of García Ruiz, who, starting from Tribo and Prats, establishes four functions for historical sources in the classroom (García Ruiz, 2003):

As a pretext: illustrative use, aimed at making present what is not directly perceptible. It supports a history class in which the teacher's presentation is preceded by an activity on the part of the pupil aimed at observing and checking the relationship between the explanation and the documentary contents. It responds to a clearly stated objective of "provoking the communication of the past with the present and thus awakening a lively interest in the student to enter into the subject. It is obvious that this type of provocation must be prepared in a timely manner, selecting varied sources that reflect the complexity of factors to be taken into account.

As a support for reasoning: the source is the material for learning to reason historically; as a support for handling concepts and the specific vocabulary of the discipline; the source for getting used to making references, identifying concepts; as a support for becoming familiar with the syntax of the study of History: identification of key concepts or ideas, relationship, comparison, analysis, synthesis or conclusions that arouse the critical spirit and, finally, help to modify or affirm criteria.

As a way or technique to introduce certain abstract notions. It is an intentional search for induction exercises and ends in generalization, either by means of comparison or analogy. For example, presenting the class with an account of the coronation of a king can be a good way of introducing the notion of the legitimation of power; reproducing certain shots from a film set in medieval times can help pupils to integrate the feudal structure.

As a privileged instrument of evaluation and expression of the students' representations, beliefs and knowledge. It is necessary to realise that the source makes the student speak, it is an excuse for the student to organise, order, structure and expose his thinking, in a more direct and rational way than the exercise of memorising and giving an account to the teacher by answering briefly to what is asked; naturally, for this purpose, the document has to be adequate and coherent with the contents and procedures to be evaluated.

These four options are perfectly compatible and feed each other to make history classes more active, dynamic and attractive.

Conclusion

In this research we have addressed the three pillars on which history is based as scientific knowledge in Secondary education: historical time, causality and historical sources. In this explanation,
we have given special importance to the cumulative nature of historical knowledge and to the absence of a conceptual hierarchy that prevents us from approaching the teaching of history in depth. To these intrinsic limitations that define this field of knowledge we had to add the extrinsic ones, born of a liquid and technological society that only takes into account the present. Faced with this extraordinarily negative situation, which affects history more than other disciplines and which can only be compared to philosophy, the teacher must try to develop teaching approaches that are sufficiently flexible but at the same time complete to allow the acquisition of a basic notion of history. This approach must be based on a very clear, defined and limited definition of the contents to be taught in the classroom. Only when it is possible to delimit the historical content to be taught in the classroom will the possibilities increase for students to acquire historical time, to understand some causal relationships and to handle historical sources with some skill. More than 30 years ago, Merchán already insisted on this same approach (Merchán, 1988):

History is based on the account of what has happened and on the conceptualization (abstract reflection) about it, a conceptualization that includes a descriptive level and an explanatory level. At the same time, historical knowledge is based on a methodology for knowing and reflecting on the past. Story, concepts and method are the three elements on which History pivots and which must be brought into play in its teaching. To resolve which History to teach is to consider which concepts, which and which stories, which aspects of the method and with which sequence throughout academic life.

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