

**Pupils' historical thinking
within a museum environment**

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Abstract

Pupils' historical thinking within a museum environment

Focusing on the exploration of pupils' historical thinking within a museum environment, this study was based on a longitudinal field study, which was conducted in the natural environment of several museums over a period of three years.

Four groups of thirty-five pupils each (from 12 to 15 years of age) responded in writing to tasks which were related to different museum objects and collections. Two of these groups, which served as main groups, responded to the tasks while the pupils were in the first, second and third secondary school grades. The two additional groups responded to the relevant tasks when pupils were in the first and the third secondary school grades respectively.

The collected data were analysed in terms of historical thinking on the basis of the theoretical investigation and definition of historical thinking, in the context of changing approaches to history and history education. The results of the qualitative analysis of both the longitudinal and cross-sectional aspects were discussed in relation to the following variables: pupils' background characteristics and age, historical information or knowledge acquired previously (mainly at school) or in the museum, the educational atmosphere of museums, museum objects and collections (according to their type and level of difficulty they posed for pupils' work), and the tasks devised for the research.

Although pupils' historical thinking was, in general, related to age, there were important differences with respect to types of museum objects (e.g. everyday objects or objects of art), and presentation of the objects as individual items or as part of a collection. Pupils' thinking was considerably influenced by the degree of difficulty posed by different objects qua sources (in terms of their appearance, recognizability, and relation to their context), and by differences in the tasks and questions to which they were asked to respond.

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Dedicated to
Nicolas and Christina

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‘This, then, I believe to be the museums’ greatest value to the child, irrespectively of what a museum’s content may be: to stimulate his imagination, to arouse his curiosity so that he wishes to penetrate ever more deeply the meaning of what he is exposed to in the museum, to give him a chance to admire in his own good time things which are beyond his ken, and, most important of all, to give him a feeling of awe for the wonders of the world. Because a world that is not full of wonders is one hardly worth the effort of growing up in.’

Bruno Bettelheim (1980)

Chapter One

Introduction

- 1.1. Brief description of research**
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1.1. Brief description of research

This research is on the theme 'Historical Thinking and the Museum Environment'. Its aim was to explore pupils' historical thinking as it occurred within a museum environment over a period of three years; pupils from 12 to 15 years of age responded to a series of specially devised tasks in the form of open questions about museum objects and their historical significance as sources of information or evidence about the past. This longitudinal field study answers questions about what pupils make of museum objects, and it gives a longitudinal picture of change in pupils' historical thinking on the basis of pupils' handling of relics.

1.2. General research problem and rationale

This longitudinal field study aimed to explore pupils' historical thinking in the first three years of secondary school, which correspond to the last years of compulsory education in many countries. It was conducted among pupils who were educated by a traditional approach to history education, in order to observe historical thinking as it evolved by pupils who did not have any education and/or experience in matters regarding scientific historical thinking and method. Indeed, the Greek traditional system by which these pupils were educated is based on the reproduction of historical knowledge provided by compulsory history text-books, and, thus, does not offer pupils any opportunity to work with any sort of sources, or to activate their historical thinking.

Our understanding of pupils' underlying historical thinking was considered of great significance to history education, because their 'own ideas and thoughts could provide an invaluable basis for further work and discussion to develop' their historical thinking, as D. Thompson (1984, p. 180) suggests. This consideration was mainly based on Vygotsky's (1934, pp. 184-189) argument that education and assistance can lead children to do more than they could do by themselves 'though only within the limits set by their state of development' and according to the 'zone of proximal development'. So the study was expected to be significant to history education and to museum educational programmes, which aim to advance pupils' historical thinking and knowledge.

It was therefore predictable that a field study, in which pupils' knowledge of working with sources was minimal, as a consequence of the nature of the

traditional educational system, would show some of the underlying thinking within this system: pupils' potential and undeveloped abilities in historical thinking that went beyond this educational system's limits. It was also expected to enable us to discuss the benefits of museum practice for history learning, in relation to history teaching and learning at school: a) whether a museum environment in general, and museum objects as relics in particular, stimulate pupils' imagination, curiosity, and incentive to discern relics' historical polysemy, b) whether museum objects do activate relevant background historical knowledge, and c) whether they do provoke questioning useful for historical enquiry.

In addition, observations on some basic factors which might influence pupils' historical thinking within a museum environment were expected to lead us to a discussion of educational programmes and practices by which the educational role of museums could be enriched and better related to school history education.

Moreover, this research explored pupils' historical thinking by studying how pupils treated museum objects in a museum environment, the thoughts they expressed, the questions they asked, and the way they reacted to these objects. But in order to explore pupils' historical thinking, many critical decisions had to be made, because historical thinking is a complex intellectual activity about which there is neither much research nor any large body of theoretical work.

1.3. Analysis of the major problem in terms of subordinate problems

The study of historical thinking as a complex intellectual activity presupposed a substantial amount of theoretical work, on which decisions about the method of data collection and data analysis could be based. In the first place, there was the problem of defining historical thinking and its elements, in order to form the category systems by which pupils' historical thinking could be analysed. There was also the problem of defining the specific variables which were expected to influence pupils' historical thinking within a museum environment, in order to decide upon the method of the research.

1.3.1. The problem of defining historical thinking and its elements

Generally, historical thinking was conceived by this study as a complex intellectual activity, whose structure and form involve many abilities and skills. In particular,

historical thinking related to working with museum objects as sources of historical information or evidence was conceived as involving, among other things, careful observation, directed imagination, background historical knowledge, rational and at the same time imaginative and empathetic thinking, and historical skills. Moreover, the analysis of pupils' historical thinking was based on a theoretical investigation and definition of historical thinking in the context of changing approaches to history and history education.

Indeed, this investigation took into consideration a substantial amount of relevant theoretical work by many historians and theorists of different origin and orientation: from the Ancient Greeks Herodotus and Thucydides, to Postmodern theorists, like K. Jenkins (1991, 1995). But it was mainly based on changing approaches to history and history education in Britain, as analytically discussed in Chapter 2. Among other theoretical arguments, it was related to the controversial issue stated by Collingwood (1939, p. 110), that 'there is nothing else except thought that can be the content of historical knowledge'. It was also related to what Dickinson, Gard and Lee (1978, p. 13) have indicated about historical knowledge: 'historical knowledge and the process of historical inquiry cannot be divorced', and 'the dichotomy between "content" and "method" cannot be sustained' (referred to by Thompson D., 1984, p. 172). This theoretical investigation in relation to much parallel analytical work finally led to the definition of historical thinking and its elements: its 'methodology', 'content' and 'specific characteristics'.

Moreover, after much consideration, pupils' historical thinking was studied in terms of the interrelation of its 'methodology' and certain issues related to its 'content' and 'specific characteristics'. This critical decision was based on extensive theoretical and practical analytical work. The outcome of this time-consuming procedure was very illuminating, because the specific issues selected for testing in this longitudinal field study were of basic theoretical significance, and they also constituted distinctive and differentiating elements of pupils' historical thinking shown in the collected data.

1.3.1.1. The methodology of historical thinking

In order to study pupils' historical thinking in terms of its methodology two main questions were asked:

What are the levels of pupils' historical thinking in terms of the historical 'methodology' pupils have used in their responses?

Can we relate the different levels of historical thinking 'methodology' to distinctive levels of reasoning?

The analysis of pupils' historical thinking in terms of its methodology was of great significance to the study, because substantial differences characterised pupils' historical thinking in relation to 'methodology', as shown by the following responses, given by three pupils aged 13, to the same task, concerning the same museum object:

* 'It is a big statue.'

* 'It is an Archaic statue.'

* 'It must be an Archaic statue, because it is characterised by a smile, which is known to be typical of Archaic statues.'

The first thought was based on description, the second offered an unsupported historical inference about the object, while in the third thought a historical inference was demonstrated and supported in explanatory historical terms.

The 'methodology' category system consisted of distinctive levels of historical methodology, and was largely dependent on D. Shemilt's (1987) work on 'Adolescent ideas about evidence and methodology in history'. It was also related to distinctive levels of reasoning on the basis of Peel's (1965, 1967, 1971) and Piaget's (Inhelder, B. and Piaget, J. 1958) theories on intellectual development and reasoning. As will be suggested in the discussion of the theoretical background of the research in Chapter 2., Piaget's and Peel's distinctive stages of intellectual development did not serve as limiting stages for the purposes of this study. Peel's stages of 'describer thinking' and 'explainer thinking' and Piaget's stages of 'concrete operations' and 'formal operations', and especially their ideas and the criteria on which the discrimination of these stages was based, offered the broad basis on which the methodology of pupils' historical thinking was related to different types of reasoning. Each of these types or levels of reasoning was related to a number of distinctive levels of pupils' historical thinking, while a number of historical thinking levels were scaled between the two distinctive levels, at a level which might be defined as intermediate.

Besides the questions posed by many thinkers, as by Booth (1978, 1987) and Dickinson and Lee (1978), about the contribution of the work of either Piaget or Peel to the study of children's historical thinking, the study was related to

D. Shemilt's (1980) and D. Thompson's (1984) 'optimistic' ideas.¹ Moreover, there was no use of stages corresponding to precise points of growth, because this study was theoretically related to M. Booth's (1987) 'Critique of the Piagetian approach to history teaching' and to Bruner's (1960, 1973) and Vygotsky's (1934) ideas about the effect of education and instruction on the process of children's intellectual development. Thus, the relation of the seven 'methodology' levels to distinctive levels of reasoning was as follows:

'Concrete Operations' / 'Describer Thinking'

1. Description of the object as an object of the present
2. Description of the object as an object of an imprecise past

Intermediate level

3. Reproducing historical information or knowledge
4. Unsupported inferences made directly from the object

'Formal Operations' / 'Explainer Thinking'

5. Inferences by rational processes
6. 'Scientific' historical inferences by historical processes
7. 'Academic' historical inferences by historical processes

The 'methodology' category system, like all other category systems, is analytically discussed in Chapter 5, while its theoretical basis is presented in Chapter 2.

1.3.1.2. The content of historical thinking

The content of historical thinking was conceived as a very broad theme. Therefore, it was defined in relation to some basic theoretical issues and the analytical aim of the research only. Moreover, it was defined on the basis of relevant theoretical work, such as Collingwood's (1939, 1946) and Carr's (1961) theories about the content of historical thinking, and in relation to issues which emerged as indigenous to the data. In both cases, familiarity with the data, gained

¹ Despite all the problems, 'it is possible to feel optimistic about the applicability of Piagetian genetic epistemology to children's learning of history' (Shemilt, D., 1980, p. 50). We may study the peculiarity of historical thinking 'without rejecting the value of the respective frameworks of thinking that Piaget and Peel suggest... (the essential features of Piaget's concrete and formal stages of operational thinking and Peel's "describer" and "explainer" categories are broadly comparable) and the general criteria by which these levels are identified can offer insights into how children will approach and deal with historical problems and situations. The indication that at one level children will tend to be restricted in their thinking about a variety of problems by a concentration on the immediate information and evidence in a reasoned but fairly straightforward way whereas at a higher level they will appreciate the limitations of the information, will tend to think through and beyond the immediate evidence in a disciplined manner, hypothesize and consider possibilities not immediately stated or apparent, is a general but useful distinction.' (Thomson, D. 1984, pp.173-174.)

by careful study of the content of pupils' responses, led to the final construction of the 'content' category systems.

The 'content' category systems were based mainly on the following ideas: On Collingwood's (1946, pp. 213-214) concepts of 'looking at' or 'looking through' the 'outside' or the 'inside' of relics, and that 'all history is the history of thought' and that 'you are thinking historically when you say about anything, "I see what the person who made this (wrote this, used this, designed this, etc.) was thinking". Until you can say that, you may be trying to think historically but you are not succeeding. And there is nothing else except thought that can be the content of historical knowledge.'² (Collingwood, 1939, ed. 1989, p. 110.) It was also based on Carr's idea that this dialogue with the past is 'not between abstract and isolated individuals, but between the society of today and the society of yesterday' (1961, p. 55), and on Walsh's idea that 'history is not just an account of past events, but explains these events, seen as human actions, by tracing their intrinsic relations with other events and locating them in their historic context.' (1958)

After much practical analytical work and consideration (see Chapters 2 and 5), based on broad relevant theoretical investigation, it was decided to study the content of pupils' historical thinking in relation to the following issues only.

1) The content of pupils' historical thinking was first studied in terms of its 'focus', to see whether pupils' thinking focused on the museum objects studied [1], or whether it focused on the 'past' [2].

e.g. 'It is a Roman statue.' [1]

'Romans must have had developed sculpture.' [2]

2) It was then studied in terms of its 'context', to see whether pupils 'looked at' museum objects, i.e. whether they treated museum objects as objects qua objects [A]³ or as objects related to their illustrated human/social context [AHS], or whether they 'looked through' them, i.e. whether they treated museum objects in a real (historical) human and/or social context [CBA].

e.g. 'It is a vase.' [A]

'The girl illustrated is offering a gift to an older woman.' [AHS]

'This vase was used in Ancient Greek religious ceremonies.' [CBA]

² This controversial issue is discussed further in Chapter 2.

³ Abbreviations in brackets may be ignored here, because they refer to codes used in the analysis. (See Chapter 5.)

3) Finally, it was studied in terms of 'historicity', to see whether pupils' thinking related to the historical past, present or future [H], or whether it related to an ahistorical present, or to an unhistorical past or future [P].

e.g. 'It is a Mycenaean vase.' [H]

'It is a beautiful vase.' [P]

At first, the content of pupils' historical thinking was studied also on the basis of a series of indigenous typologies, which mainly emerged from the data. Thus, the content of pupils' responses was also studied in terms of whether it related to the object or to its 'representum', i.e. to its representation, in terms of its '*particular content*', i.e. in terms of its relation to the museum object's perceived identity, and in terms of pupils' conceptions of time and space. (See Chapter 2.) Finally, it was decided to limit the study of these issues to some general observations because a detailed analysis of all relevant issues could not be covered in depth by a single research. (See Chapter 5.)

1.3.1.3. The 'specific characteristics' of historical thinking

Pupils' historical thinking as a whole was also studied in terms of some other issues, which were called 'specific characteristics' of historical thinking, e.g. historical questioning and the notion of historical relativity, because they were conceived as characterising it in relation to some specific and significant historical elements and skills.

The significance for historical thinking of some of these elements and skills is illustrated in terms of broad theoretical argument, while some of the relevant concepts such as empathy, are analytically discussed both in relation to new approaches to history education (R. Ashby and P. J. Lee, 1987; M. Booth et al., 1986; P. J. Lee, 1984b; D. Shemilt, 1984) and in relation to other fields of social sciences like psychology, (K. B. Clark, 1980) and the psychology of art (R. Arnheim, 1986).

However, because of the great number of issues involved, pupils' historical thinking was mainly analysed in terms of 'general evaluation', according to which the outcome of pupils' historical thinking was evaluated as 'valid' [+], 'acceptable' [+*], 'problematic' [*], or 'invalid' [-]. This issue gave a general picture of the quality of subjects' historical thinking, in terms of 'specific characteristics'.

e.g. General evaluation of pupils' responses about an Archaic relief:

'It must be an Archaic relief.' [+]

'It is an Archaic statue.' [+*]

'It is an Archaic vase.' [*]

'It is Palaeolithic.' [-]

All other 'specific characteristics', which are analytically discussed in Chapter 2, could not be fully examined within the limits of a single study because they relate to complex concepts of great historical significance. Therefore, this longitudinal field study was confined to a first level analysis of them. (See Chapters 5 and 6.)

1.3.2. The problem of determining the method

The method for data collection (i.e. the division of tasks, the selection of pupils, and the selection of the museum objects and collections with which pupils were presented), was designed with respect to the variables which were expected to influence pupils' historical thinking within a museum environment. Namely, pupils' historical thinking was expected to be influenced by: (1) individual differences and age; (2) the different tasks set; (3) the different museum objects with which pupils were presented, and the difficulty they posed for pupils' work; (4) historical information that was 'dependently' acquired in the museum in relation to the historical context of the objects studied; and (5) general background historical information or knowledge that was 'independently' acquired (mainly at school).⁴

These variables were discussed in the context of some general assumptions which are broadly accepted by educationists and teachers, because they rest on a substantial amount of theoretical work, and they comply with the everyday school experience. (See also Part 1.7, and Chapter 2.) Pupils' thinking within the age range from twelve to fifteen years relates to different levels of reasoning, because this age range is a transitional period of growth between childhood and maturity, during which great intellectual changes occur. It is also influenced by a series of individual, social and cultural differences, by the aim, the method and the practices employed in school education, and the general educational atmosphere of the social environment within which it is realised.

⁴Historical knowledge previously acquired at school was standard, because, according to the traditional nature of the Greek educational system, pupils were required to reproduce specific historical knowledge in each school grade, using the one and only compulsory history text-book. (See Chapter 3.)

Therefore, a series of relevant questions guided the method employed:

1. How far was pupils' historical thinking related to age?
2. How far was it related to the different tasks pupils had to respond to?
3. How far was it related to the different types of museum objects they were presented with, and the level of 'difficulty' they posed for pupils' work?

On this basis, it was decided to proceed to a longitudinal field study which was conducted in the natural environment of several museums, over a period of three years. Four groups of pupils (of thirty-five pupils each), of mixed abilities and varied school performance, were selected. Two of these groups, called 'main groups', served the longitudinal aspect of the study; pupils responded to tasks when they were in the first, second and third secondary school grades. The other two 'additional' groups belonged to the first and third secondary school grades respectively. Several tasks were devised in relation to different pre-selected museum objects and collections which posed different levels of difficulty for pupils work. In addition, some selected museum objects were related to 'dependent' historical information provided by the museum and/or to 'independent' historical knowledge previously acquired at school.

The theoretical background of the research concerning (1) historical thinking, history and history education, and (2) the museum environment and the historical significance of museum objects is analytically discussed in Chapter 2 and Chapter 3 respectively, while the methods employed are presented in Chapter 4.

1.4. The general schema of this longitudinal field study

<u>The educational environment</u>	<u>Data collection</u>	<u>Data analysis</u>
<ul style="list-style-type: none">- Pupils from a Greek urban environment, of a high social background, of different ages (12-15 years old), belonging to different school groups in one private school, educated by the traditional approach to history education- Different tasks in the form of open questions on different museum objects in several museum environments- Historical knowledge 'dependently' acquired (in the museum) and 'independently' acquired (previously at school by a traditional system)	<p>Pupils' written responses to several tasks, collected as qualitative data over three years</p>	<ol style="list-style-type: none">1. Analysis of pupils' historical thinking, in terms of its methodology, content ('focus', 'context', 'historicity') and its specific characteristics ('general evaluation')2. First level analysis of other issues concerning the content and the specific characteristics of historical thinking <p><u>Conclusions</u></p> <p>Conclusions about the evolution and development of pupils' historical thinking in a museum environment within the age range from 12 to 15</p>

1.5. Orientation of the problem

The exploration of pupils' historical thinking, as expressed and developed within a museum environment, is generally of great theoretical interest. It is at the heart of the current debate on history, historical thinking and history education, especially on history teaching and learning in relation to working with sources. It is also related to the current discussion on the changing character of museums and their broad educational and social role.

The broad ground from which the major problem of this research emerged was the controversial nature of history. There is an ongoing dialogue on history as a discipline, and on history education in the late 20th century, which is maintained not only by academic history societies and the relevant academic theories (as in 'traditional', 'modern' and 'postmodern' approaches to history). It is also maintained by social movements and theories (as exemplified by women's liberation movements, and black power movements), by ethnic movements (for example the ethnic movements in the Balkans and in the area of the previous Soviet Union), by movements based on broad issues, which have been related to religion (for example, Arabs and Muslims in Asia and Africa), and as a consequence of the fact that millions of people on our planet starve. In addition, the general crisis in the 19th and the early 20th centuries' philosophical, social and economic theories (such as the theory of Marx), and the great changes which characterise our postmodern societies as far as aesthetic, ideological, social, economical, and cultural aspects are concerned, have opened up a new area for investigations in relation to several historical questions, including 'What is history?' and 'Why teach history, and how?'.

The problem of pupils' historical thinking, as an issue related to the aims and the method of history education, has particular links with the following historical topics, which are further discussed in the theoretical background of this research presented in Chapters 2 and 3.

(1) Changing approaches to history education in Great Britain are mainly concerned with the development of pupils' historical knowledge and thinking in close relation to the development of pupils' historical concepts and skills, and so they are based to a considerable extent on working with different types of sources. But relatively little research has been so far carried out on the use of museum objects as historical evidence, although there has been plenty of practical work, and although its importance has been generally discussed by educationists, historians, psychologists and teachers. (See Chapter 2.)

(2) 'Traditional' approaches to history education, especially the traditional approach to history education in Greece, are mainly based on the reproduction of 'historical knowledge' given by authority (by teachers, and basically by history text books), so they do not make any use of sources as historical evidence. On the other hand, there is a broad dialogue on 'new history' approaches and on the need for reforming the aims and the method of history education. In addition, the great number of archaeological and historical monuments and museums throughout

Greece, and the current movement to reform their appeal and social role, demand, among other things, the exploration of new methods of history education in general, and of history education within a museum environment in particular.

(3) There is an interest in many countries in changing the character, atmosphere and social role of museums, to make them more alive and appealing for people to visit. There is also a great interest in organising educational programmes, especially those which interrelate museums and schools. This close interrelation of museums and schools for the better teaching and learning of several subjects, including history, has raised many interesting relevant topics, which demand to be explored.

(4) The use of electronic media, such as computers, videos, CD ROMs, interactive multimedia, and the Internet, in the field of humanities in general, and in history education and museum educational programmes in particular, requires careful consideration. Far from reducing the educational value of electronic media, the study of the advantages of pupils' intellectual activation within a physical 'authentic' environment and within the electronic environment of media is of great educational significance. The advantages of pupils' intellectual, historical and aesthetic development by their exposure to authentic objects as well, even if they are sometimes as humble as a broken clay tool, have to be carefully studied as a counterbalance to their exposure to the bright, but electronic world of media, which offers pre-packaged ways of looking at 'electronic copies' of things. In addition, the fact that a museum environment offers the challenge of a personal dialogue with the displayed relics at a moment of time, in which the past and the present meet, in contradiction to the speed electronic media have introduced to life, and its implications for thinking, are matters which deserve careful study.

1.6. Description of the general nature of the research problem

The central problem of the research was both educational and historical, because it concerned issues of history education. Since it was theoretically based on changing approaches to history education in Great Britain, and was practically explored in a Greek educational environment, it was connected with both the British and the Greek educational systems, and their respective theories on history education, which are quite different both in their aims and methodology.

On the other hand, the development of social sciences in the 20th century, especially the development of psychology and sociology and the reformation of geography, demand an exploration of historical and educational topics in the light of the interconnection of many social sciences. In other words, a historical topic like historical thinking cannot be isolated within the limits of history and history education, but has to be treated in relation to the broader area of social sciences.

Indeed, the problem of historical thinking was conceived to be related to psychology, as far as intellectual development and cognitive growth were concerned, and to semiotics with respect to the interpretation of texts or artefacts as historical sources. It also had sociological aspects, mainly related to the sociology of education, and was in some ways related to the sociology and the psychology of art, since pupils' historical thinking was studied in a museum environment, where pupils were presented with museum objects, most of which were works of art. This fact was closely related to the 'museological' nature of the problem, i.e. to theories on museums, especially museums' social and educational role.

The study of pupils' historical thinking was mainly confined to its educational, historical and museological aspects, but its broader nature was seriously taken into consideration, as discussed further in the analytical presentation of the theoretical background in Chapters 2 and 3.

1.7. Assumptions and implications

The assumptions and implications which underlie this study, and which are discussed in detail in relation to the theoretical background of the research, are mainly educational.

(1) The age range from 12 to 15 years is of great importance for intellectual development, because at this age human beings proceed to higher levels of reasoning and thinking. This fact is generally suggested by many thinkers of different orientation, among others by Piaget (B. Inhelder and J. Piaget, 1958), and Peel (1971). Vygotsky too, in his 'An Experimental Study of the Development of Concepts' (1934, p. 106), suggests: 'The development of the processes that eventually result in concept formation begins in earliest childhood, but the intellectual functions that in a specific combination form the psychological basis of the process of concept formation ripen, take shape, and develop only at puberty.'

Before that age, we find certain intellectual formations that perform functions similar to those of genuine concepts to come. With regard to their composition, structure, and operation, these functional equivalents of concepts stand in the same relation to true concepts as the embryo to the fully formed organism. To equate the two is to ignore the lengthy developmental process between the earliest and the final stages. It would not be an exaggeration to say that to equate the intellectual operations of three-year-olds with those of adolescents - as some psychologists do - means to use a sort of logic that would deny the existence of sexual maturation in puberty only because certain elements of sexuality are already present in infants.'

Far from accepting that intellectual development depends only on age, and that different stages of intellectual development appear at specific points of growth, it was assumed that the exploration of adolescents' thinking in general, and historical thinking in particular, is especially interesting. 'Adolescence' is an intermediate, transitional stage between childhood and maturity, therefore relevant studies enable us to explore the process of thinking from a 'simple' level of reasoning, dependent on the immediate environment, to a 'mature' level of hypothesising and conceptualising.

The exploration of adolescents' thinking, especially during the ages from 12 to 15, was assumed to be very significant for educational purposes, because at about the age of 15, pupils' compulsory education ends in many countries. Our understanding of adolescents' capabilities and how they think at the age many of them leave school, has important implications for educational decisions concerning teaching in the final grades of secondary school, because adults' general knowledge and attitudes towards many fields of human knowledge are dependent on this crucial stage of education.

(2) The breadth of human knowledge and the practical difficulties that young people face in order to find their way in life after leaving school, in relation to the great problems and the ideological crisis that most societies face in our times, have raised the question why teach history in school, instead of teaching more practical fields, directly related to adolescents' present and immediate future. It was a basic assumption that history, although a discipline which studies the past, serves both the present and future, mainly because, as Collingwood (1946, p. 18) says, history 'is humanistic' and it is 'self-revelatory'; because, as P. J. Lee (1984a, p. 4) points out, 'to be historically ignorant is just to be ignorant'; and because, as P. J. Rogers (1984a, p. 30) argues, 'life in modern societies is so complex that vast amounts of knowledge and understanding are required for effective living and

that these cannot simply be acquired in the process of ordinary life. That history is, pre-eminently, a prime ingredient of such “enabling knowledge” should be clear.’

History education is very important for individuals and societies, and as such it is a useful and a necessary school subject, provided that it is taught in an active and productive way. Otherwise it is a dull and difficult school subject, which serves the reproduction of a particular ideology, and by which time is spent only to let pupils develop verbalism, misunderstanding, and memorising, instead of enabling them to ask questions not only about the past, but, most important, about the present and the future. It must be mentioned here that questioning is assumed to be a basic element of human intellectual development and knowledge, and perhaps even the supreme element of human civilisation. History education is, therefore, a very important school subject, conceived not only as a record of the past, but at the same time as a means of human enquiry.

(3) Museums are very important institutions for many reasons, including the broad educational role they can play in contemporary societies. Educational programmes which relate museum practice to teaching and learning at school are vital for education in general, because they not only develop pupils’ intellectual abilities and thinking in many fields of human knowledge, but also advance pupils’ aesthetic and social development, since they give pupils the opportunity to work and interact beyond their school’s walls, in places of specific aesthetic standards.

Participation in carefully devised museum practice may encourage young people to enjoy visiting museums later in their life, a habit which may guarantee an intellectual and aesthetic attitude. In addition, visiting museums can give people ‘a feeling of awe for the wonders of the world’ as Bruno Bettelheim (1980) mentions. This ‘awe for the wonders’ of a world, which is created by different societies and cultures at different times, may allow people to sympathise with and consequently to understand people of other cultures. This fact is of great social and political importance, since ignorance and the inability to accept and appreciate the ‘different’ seem to be two of the main causes of the development of fanaticism and racism, especially in young people, in many parts of the world. Therefore, museum practice in relation to teaching and learning several school subjects is not only important for its own sake, but also has indirect aesthetic, intellectual, social and political implications.

1.8. The scope and the limits of the study

The main scope of the study was to explore pupils' historical thinking as expressed and developed within a museum environment, and to discuss the benefits that museum practice could offer for history education in general, and for the development of pupils' historical thinking in particular. Its scope was also to discuss ways in which museum practice could be interrelated with history teaching and learning in school to achieve effective learning in history.

The limits of the study were set by the fact that the sample of this longitudinal field study was confined to a specific age range, from a specific cultural and social milieu, and within a specific, traditional educational environment.

Only pupils from 12 to 15 years of age were observed, so the conclusions of the research refer to this age range in particular. In addition, the research was carried out in Greece, with Greek pupils from a particular Greek school, in Greek museums. The Greek environment in which this field study was conducted was chosen for both theoretical and practical reasons. The decision was mainly based on the theoretical interest in studying pupils' historical thinking as expressed within a traditional educational system, for reasons which have already been mentioned and which are discussed further in Chapter 2. This particular environment was also selected because of the researcher's own experience and knowledge of the Greek educational system (in particular its aims and methodology in relation to teaching and learning procedures, and its educational standards), since she lives in Greece and has been working in a Greek secondary school for more than ten years. This fact made data collection for this longitudinal field study realisable, and proper data analysis possible.

The study was expected to lead to precise conclusions about adolescents' historical thinking in relation to the use and interpretation of museum objects as sources. So it may have implications for 'new history' education, and it may contribute to the educational debate on the advantages of 'new history' approaches over traditional approaches to history education. Moreover, the results and conclusions of the research may be useful for history education in general, and for history education in museum environments in particular, both in Great Britain and in Greece, on the basis of our better understanding of children's historical thinking, and of its development within a museum environment.

One basic assumption of the research was that thinking in general, and historical thinking in particular, are influenced by social, economical and cultural factors. This field study was limited to the exploration of historical thinking expressed and developed by Greek pupils from an urban environment, and (according to Greek standards) of a generally high social and economic background. Despite the fact that intellectual differences remain, the advantage in thinking and learning abilities of pupils belonging to high social class compared to pupils from a lower social class (as a consequence of many factors) has been suggested by many thinkers. Thus, the results and conclusions of the research may have limited direct implications for education. But they may have more general implications for history education, if we accept that the study of what privileged pupils are capable of, may give us the horizon or the scope within which historical thinking of less privileged pupils is developed. In addition, the analytical method of the research, its results and conclusions may offer a basis for further research on historical thinking, especially of pupils in broader educational, cultural and social milieus.

It will be clear that, although the content of the data offered a basis for a number of potential analyses, it was analysed in terms of pupils' historical thinking only. Other aspects, such as pupils' aesthetic attitudes, were only indirectly analysed, in cases in which these aspects were interrelated with historical thinking. This fact suggested material for further research, which is discussed in the concluding chapter.

1.9. Importance, value and significance of the study to education

The theme of the research was mainly chosen because of its significance to education. The exploration of pupils' historical thinking within a museum environment, where pupils could treat museum objects as historical evidence, was assumed to be of importance for history education, as a means for improving our understanding of pupils' historical thinking, and of how working with relics as sources within a museum environment may forward history education.

The development of pupils' historical thinking is one of the basic aims of history education. The type of historical knowledge and thinking educational systems aim to produce, determines their decisions about particular teaching methodology, and their overall, general approach. Therefore the theme of the research is of great

importance for the dialogue on history education both within each specific educational approach, and among the different approaches.

The use of evidence in history education and its importance for the development of historical knowledge and historical thinking are underlined by changing approaches in Great Britain. On the other hand, studies which support the use of sources as a means of history teaching and learning produce pressure for the reform of traditional educational approaches. Therefore, this study was expected to be significant to changing approaches to history education in Britain, and to the possible reform of the traditional approach to history education in Greece.

Although there is much discussion and literature on the ‘difficulties’ of history as a school subject and on pupils’ work with sources, relatively little research has been done so far on the development of pupils’ historical thinking in the context of physical objects. Therefore, the findings of the research (about pupils’ historical thinking in relation to the use of museum objects as sources), could contribute to a deeper understanding of pupils’ thinking in this ‘problematic’ area, and could raise a number of questions for further investigation.

The findings of the research were expected to be of significance to other educational areas as well, providing further knowledge about how pupils relate aspects of the ‘concrete’, physical world to the ‘abstract’ world, in which abstract concepts are involved, and about how they handle works of art. However, the primary significance of the research to education was expected to be its contribution to the further development of history education in the light of our better understanding of pupils’ historical thinking.

Chapter Two

Theoretical Background - Historical thinking

- 2.1. The analytical problem of defining historical thinking**
 - 2.1.1. Defining historical thinking**
 - 2.1.2. The elements of historical thinking**
- 2.2. Historical thinking and intellectual development**
 - 2.2.1. The ‘methodology’ category system and reasoning**
 - 2.2.2. Historical reasoning and Piaget’s and Peel’s theories of intellectual development**
 - 2.2.3. The relation of historical thinking to distinctive levels of intellectual development**
- 2.3. Historical thinking, History and History Education**
 - 2.3.1. Historical thinking and ‘traditional’ history and history education**
 - 2.3.2. Historical thinking and ‘modern’ history and history education**
 - 2.3.3. Historical thinking and ‘postmodern’ history and history education**
 - 2.3.4. Historical thinking four years before the third millennium AD.**

2.1. The analytical problem of defining historical thinking

The aim of exploring pupils' historical thinking demanded an initial definition of historical thinking and its elements, which was considered fundamental especially for refining the category systems for data analysis.

The relevant definition was based on broad theoretical knowledge and experience and especially on the relevant theoretical investigation which was conducted in the first year of the research (1990-1991). It must be emphasised here, though, that this theoretical investigation is still open, mainly because historical thinking is a complex intellectual activity. In addition there are several different conceptualisations of historical thinking, because each historical theory perceives it in relation to its particular theoretical approach, which is largely dependent on the specific social, economic, political, ideological context in which it is realised. Therefore, any attempt to define historical thinking has to take into consideration different perceptions of history and historical thinking, that are tested, interpreted, understood and appreciated in the light of our ideological context.

On this basis it was decided to proceed to a definition of historical thinking which would be limited enough to be realisable, but at the same time efficient for the analysis of pupils' historical thinking in the context of changing approaches to history and history education. Therefore, it was directly based on a considerably small number of theorists, whose work was closely related to the analytical purpose of the study, while the work of a great number of historians of different orientation formed the general context within which history and historical thinking were conceived. (See Part 2.3.)

It will be clear that theories of other social sciences had to be considered as well, such as theories of the psychology and sociology of thinking and of art, and of semiotics, because historical thinking, besides anything else, is interrelated with the interpretation of various sources, as is discussed in detail in this chapter.

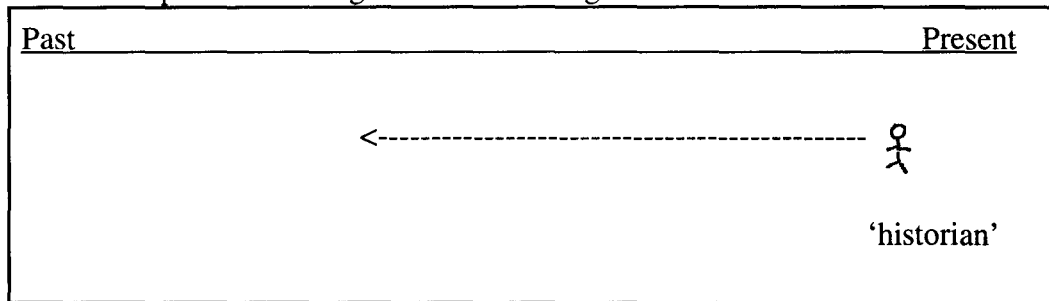
Moreover, the attempted definition of historical thinking was carried out with the intention of creating a limited but substantial theoretical basis on which pupils' historical thinking could be studied in relation to changing modern approaches. On the other hand, this theoretical model could serve future researchers in their studies of historical thinking, according to their own theoretical conceptions of historical thinking, history and history education. On the whole, the research was based on

the assumption that it is through this dialogue which is realised in terms of the relativity of human thinking and knowledge that theoretical investigations are developed, and each theory is justified.

2.1.1. Defining historical thinking

(1) Historical thinking, seen on a first and quite simple level, is an intellectual activity by which a person, the 'historian', looks back to the past wishing to study it.

Schematic plan 1. Defining historical thinking - Point 1



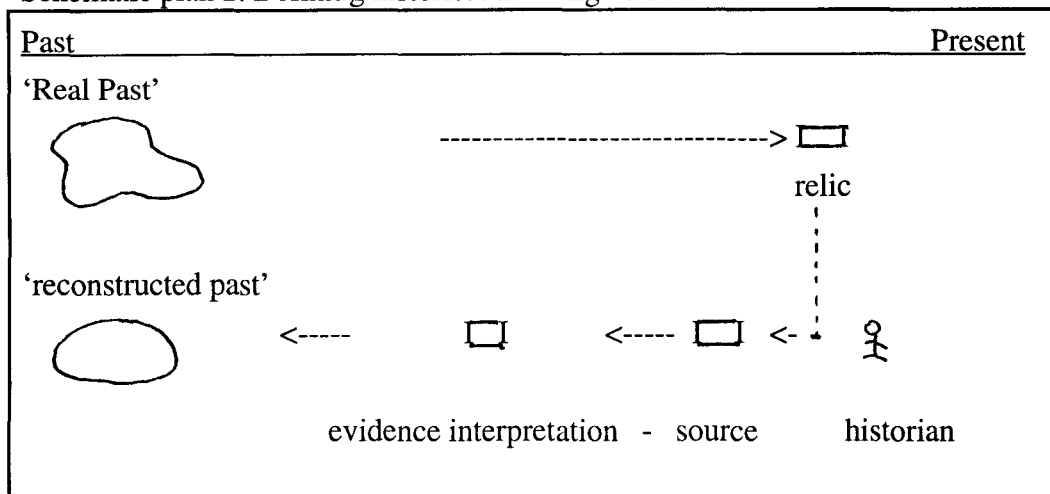
(2) In order to study the past the historian has to use sources and interpret them as evidence, because as Collingwood (1946, p.10), among others, mentions, 'historical procedure, or method, consists essentially of interpreting evidence'.

The selection and use of a (primary) source is based in the first place on its identity as a relic, as an 'object' of the past. Consequently the relic itself, as an 'object' from the past, persuades the historian also about the reality of the past. But the relic itself cannot speak on its own about the past. The historian questions it, and only in terms of this relation to the historian does the relic become a source. The weight that the source bears depends on what questions the historian asks of it. The source also, being 'potential evidence',¹ becomes evidence for the past, in terms of its interpretation by the historian.

But the real past is lost in time, it cannot 'really' directly be known. The only thing that the historian can do is to try to reconstruct it on the basis of the evidence available.

¹For the notion of sources as 'potential evidence' see R. G. Collingwood (1946, p. 280) and A. K. Dickinson, A. Gard and P. J. Lee (1978, p. 8).

Schematic plan 2. Defining historical thinking - Point 2



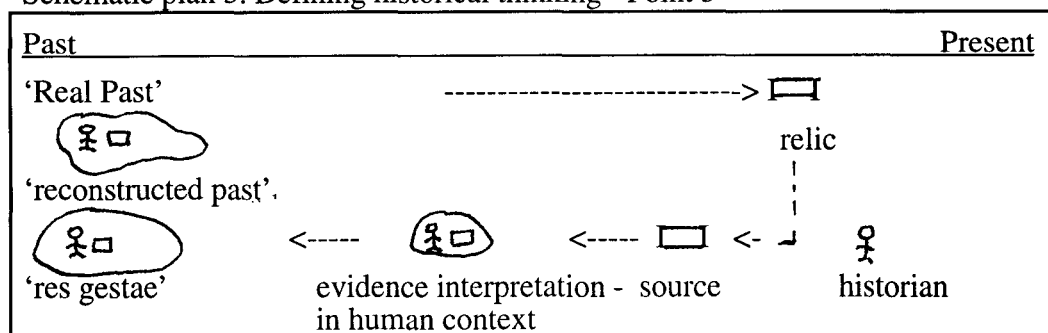
(3) But since 'history is the science of *res gestae*, the attempt to answer questions about human actions done in the past' (Collingwood, *Ibid.*, p. 9), sources 'became evidence precisely to the extent to which the historian conceived them in terms of purpose, that is understood what they were for.' (Collingwood, 1939, p. 109.) The past to be reconstructed is not an empty 'area' of time, but is full with human purposeful actions and thoughts, and so sources serve as evidence when interpreted in relation to their human context, when the historian can understand the underlying thoughts of the past in the present.

So according to Collingwood (*Ibid.*, p.110), ' "all history is the history of thought". You are thinking historically, when you say about anything, "I see what the person who made this (wrote this, used this, designed this, etc.) was thinking". Until you can say that, you may be trying to think historically but you are not succeeding. And there is nothing else except thought that can be the object of historical knowledge.'²

The importance of historical thinking for the whole process of history is underlined by most historians, since historical thinking is interrelated with both historical knowledge and historical method. In order to think historically the historian handles sources as 'relics they [human beings of the past] had left behind (books or potsherds, the principle was the same)', which become evidence when conceived in their human context, and not just as 'relics of various kinds, differing among themselves in such ways that they have to be interpreted as relics of different pasts which can be arranged on a time scale.' (*Ibid.*, p. 109.)

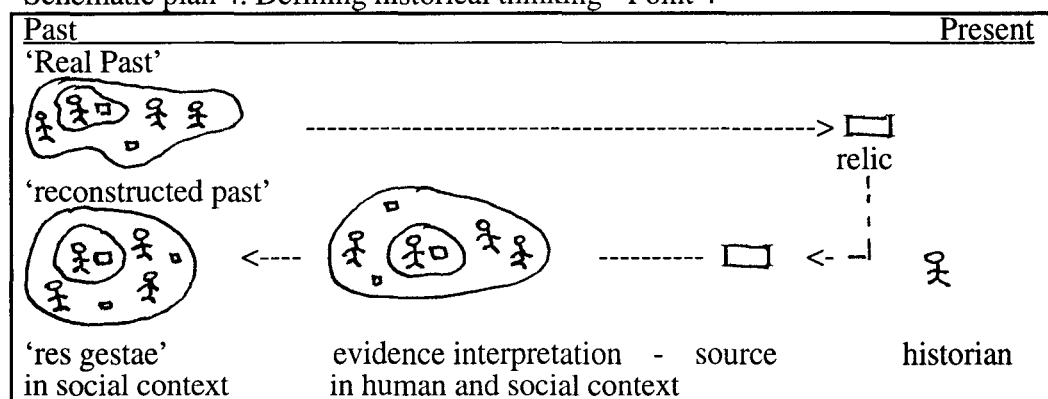
²The latter controversial issue, and others arising here, are analytically discussed further on in this chapter, since for the time being only a first level definition of historical thinking is attempted.

Schematic plan 3. Defining historical thinking - Point 3



(4) The route of historical thinking is more complex, though, than is shown in the above schematic plan 3., because human beings of the past, whose actions and thoughts the historian wishes to penetrate, belonged to a particular society, culture and period. In Walsh's (1958) words: 'History is not just an account of past events, but explains these events, seen as human actions, by tracing their intrinsic relations with other events and locating them in their historic context.' So the historian has to interpret the evidence available in its social context as well, in order to reconstruct the particular past in relation to its particular social, and cultural context.

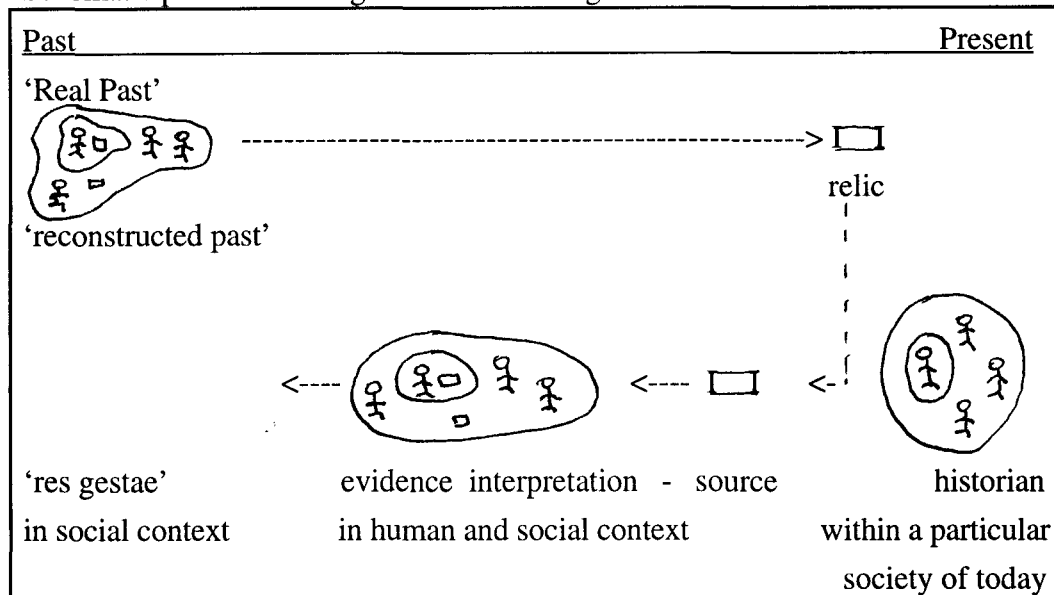
Schematic plan 4. Defining historical thinking - Point 4



(5) But the historian also belongs to a certain society, culture and period as well, and his/her historical thinking is influenced, if not determined, by this particular social and cultural environment of the present. This fact is interrelated with Carr's (1961, pp. 213-214) idea that this dialogue with the past is 'not between abstract and isolated individuals, but between the society of today and the society of yesterday'. Therefore, great differences which characterise the general philosophy and mode of thinking of historians, can be understood and appreciated if seen within the general ideological context of the period in which they produced their work. (See Part 2.3.)

So relics are used as sources and are interpreted as evidence within the social and cultural environment of the historian.

Schematic plan 5. Defining historical thinking - Point 5



(6) The distinction of these two societies is related to the idea of the historicity of the source, i.e. that the source itself belongs to the reality of the past and to the reality of the present at the same time. This fact underlines some problems related to the appreciation of the limitations of sources as evidence, and more generally to the limits of historical interpretation.

Historical interpretation of sources as evidence is a very complex intellectual activity, because even any non-historical interpretation of written texts or artistic works is characterised by complexity. Different theories on interpretation of written texts or artistic 'opera' also show that there are different conceptions of interpretation, in terms of which the limits of interpretation are differently conceived as well. As Umberto Eco (1990, p. 34) argues, there are three distinctive types of interpretation; the interpretation as the investigation of the 'intentio auctoris', the interpretation as the investigation of the 'intentio operis' and the interpretation as the imposition of the 'intentio lectoris'. Each text carries the meaning of its author, the meaning that the text itself imposes independently from the intention of the author, and the meaning that the reader or the interpreter imposes to the text by reading and interpreting it. But the author includes many underlying meanings in the text, while the text, or the artistic work as well, imposes many meanings independently from the intention of the author. Readers also find their own meanings in relation to their own systems of concepts, and to

their wishes, exhortations and intentions. This polysemy of a text, or generally of sources, is related to the uncertainty attached to any interpretation.³ It will be clear that historical interpretation is characterised by uncertainty even more than any other interpretation of a text or object, mainly because it is carried out in terms of historicity, and uncertainty is inherent in the nature of historical enterprise.

Consequently there can be many different types of interpretation; an 'interpretation dependent on the intention of the author', an interpretation which denies fidelity to the intention of the author and which depends more on the right of the intention of the work, an interpretation based on the intention of the reader related to the intention of the work, or a deconstructing interpretation, according to which the text becomes a stimulus for the wanderings of interpretation. (See Umberto Eco, 1990, pp. 37-38.)

But even if we accept that written texts or artistic works are potentially 'opera aperta', open and endless, 'this does not mean that every act of interpretation can have a happy end. Even the most absolute deconstructor accepts the idea that there are interpretations which are obviously unacceptable. This means that the interpreted text imposes limits to its interpreters. The limits of the interpretation fall in with the rights of the text.' (Ibid., p. 24.)

Historians have to interpret their sources mainly on the basis of the intention of its author and in relation to its general human and social context in the past. As Carr (1961, p. 22) says 'the facts of history never come to us "pure", since they do not and cannot exist in a pure form: they are always refracted through the mind of the recorder. It follows that when we take up a work of history, our first concern should be not with the facts which it contains but with the historian who wrote it.'

Historians may include in their interpretation the investigation of the 'intentio operis', the meaning of the source as an 'opus' independently of the intention of

³Eco (1990, p. 412) quoting Peirce (1980, p. 447) says that 'The non-determination of our knowledge inherits some uncertainty: "A subject is determinate in respect to any character which inheres in it or is (universally and affirmatively) predicated of it... In all other respects it is undetermined". In this way Peirce assures the rule of context: something can be stated as true within the borders of a certain universe of reasoning and under a certain description, but this statement does not exhaust all other, potentially endless, definitions of this object.' Eco also quotes Almeder (1983) and Nadin (1983): "Since no object in the universe can ever be fully determinable with respect to its having or not having every known property, it follows that any proposition about the universe is vague in the sense that it cannot hope to fully specify a determinate set of properties." (Almeder, 1983, p. 331.) "Vagueness hence represents a sort of relationship between absolute, final determination, which in fact is not attained (the condition of an ideal, therefore) and actual determination of meaning (again a sense, meaning, signification) in concrete semiosis." (Nadin, 1983, p. 163.)

the author, maker, i. e. as an 'object'. Also historians have to be conscious of the fact that their interpretations rest to a large extent on their intentions and concepts and mainly on their questions, as they are formed in relation to their social environment. In other words their interpretations are dependent on their intentions as well, on the 'intentio lectoris'. So a historical interpretation may include the three different types of investigation, the investigations of the intentio auctoris, operis and lectoris, but there could be no historical interpretation if the investigation of the intentio auctoris is absent. Moreover, any historical investigation of the intentio auctoris cannot be conceived independent from the investigation of the intentio lectoris.

The historian has also to accept the fact that these three intentions included in a historical interpretation (intentio auctoris, intentio operis and intentio lectoris) are interrelated with the historicity of the source. So historical interpretation of sources is a complex activity, more complex than any other interpretation, because the different historical categories of a source (as an object of the past, of then and now, and of the present at the same time) cannot be isolated from each other. All of them together form the basis on which the use of a written or artistic source as historical evidence is justified. The use of texts, and consequently the historical use of sources as evidence in particular, is not identical with their interpretation, although 'both interpretation and use always presuppose a reference to the text-source, at least as a pretext. Use and interpretation surely are abstract models. Every reading always results from the commixture of these two attitudes'. (Umberto Eco, 1990, p. 50.)

The above ideas are in accordance with what Carr (1961, p. 21) says about Collingwood's theory: 'The views of Collingwood can be summarised as follows. The philosophy of history is concerned neither with "the past by itself" nor with "the historian's thought about it by itself", but with "the two things in their mutual relations". (This dictum reflects the two current meanings of the word "history" - the inquiry conducted by the historian and the series of past events into which he inquires.)'

The diagram illustrates the relationship between the Past and the Present in historical study. It is divided into two main horizontal sections: 'Past' on the left and 'Present' on the right.

Past Section:

- Top:** Labeled 'Real Past'. It contains a diagram of a group of people (stick figures) in a social context, labeled 'intentio auctoris'.
- Bottom:** Labeled 'reconstructed past'. It contains a diagram of a group of people in a social context, labeled 'res gestae'.

Present Section:

- Top:** Labeled 'intentio operis'. It contains a diagram of a single stick figure, labeled 'relic'.
- Bottom:** Labeled 'intentio lectoris'. It contains a diagram of a group of people in a social context, labeled 'historian within a particular society of today'.

Flow of Information:

- A dashed arrow points from the 'Real Past' to the 'relic'.
- A dashed arrow points from the 'relic' to the 'historian'.
- A dashed arrow points from the 'historian' to the 'reconstructed past'.
- A dashed arrow points from the 'reconstructed past' to the 'Real Past'.

The diagram is titled 'The relationship between the Past and the Present'.

The first is related to difficulties in the interpretation of both written texts and objects, because sometimes the historian has ‘to take off the surface of many previous interpretations [and interventions], to discover some of its [the text’s] new looks; and in this process the text is much better and more productively interpreted, according to its own *intentio operis*, which was impoverished and obscured by so many previous *intentiones lectoris* disguised into discoveries of the *intentio auctoris*.’ (Umberto Eco, 1990, p. 50.) In other words the historian has to interpret the source as evidence for the particular past he/she wishes to reconstruct, being conscious of hindsight and of the fact that the source has been influenced by its different ‘uses’ in different intermediate periods of time. In addition the

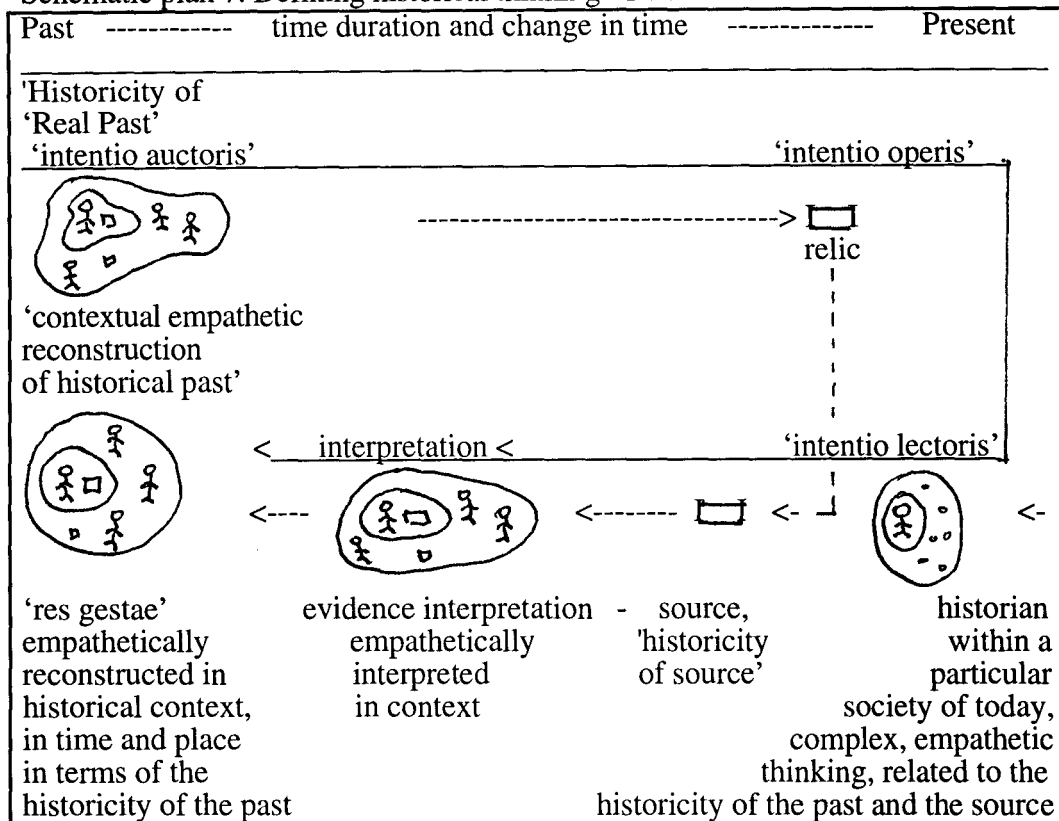
historian has to question other historians' interpretations of the same sources as evidence. 'For certain objects (documents, buildings - anything may qualify) have been as if ^{they} were built into the fabric of the public corpus of historical knowledge as the evidence on which that knowledge rests. Hence those objects are already, in that sense, evidence, even if the particular historian so regarding them has never used them as such.' (A. K. Dickinson, A. Gard and P. J. Lee, 1978, p. 8.)

The second implication is related to the historian's ability to reconstruct empathetically the past supplied by evidence. According to Carr and in relation to Collingwood's ideas ' "The past which a historian studies is not a dead past, but a past which in some sense is still living in the present." But a past act is dead, i.e. meaningless to the historian, unless he can understand the thought that lay behind it. Hence "all history is the history of thought", and "history is the re-enactment in the historian's mind of the thought whose history he is studying." The reconstitution of the past in the historian's mind is dependent on empirical evidence. But it is not in itself an empirical process, and cannot consist in a mere recital of facts. On the contrary, the process of reconstitution governs the selection and interpretation of the facts: this, indeed, is what makes them historical facts.' (E. H. Carr, 1961, p. 22.)

Carr speaks also about 'the historian's need of imaginative understanding for the minds of the people with whom he is dealing, for the thought behind their acts'. (Ibid., p. 24.) But the historian has to attempt to understand their different thinking in their different historical social and cultural context, because otherwise his/her reconstitution would not be historical. Therefore, intuitive, rational, imaginative and empathetic thinking are demanded. As P. J. Lee (1984b, p. 89) argues, 'empathy, understanding and imagination are related in complex ways in history. ... empathy is part (and a necessary condition) of historical understanding, and ... imagination as supposal is *critical* for that same understanding.'⁴

⁴Empathy, being a controversial issue, is discussed analytically in Part 2.1.2.

Schematic plan 7. Defining historical thinking - Point 7



(8) Historians ask questions of the evidence in order to interpret it. The type of questions (intentio lectoris) historians ask of the evidence available is not determined only by their personal interests and skills. It is influenced by their social and cultural identity and ideology, and by their historical knowledge, which is built on the basis of the work of other historians.

This fact has two basic consequences. First, historical thinking is a social activity as far as background historical knowledge, on which thinking rests, is concerned, and as far as historical questioning and enquiry are concerned. Questioning sources is based on acquired understanding of 'the framework of a public tradition, ... the exercise of critical judgement upon evidence in particular cases itself depends on detailed prior knowledge of the workings of a past society... Here again we encounter the paradox: knowledge in history is acquired only through evidence, but only where there is prior knowledge of the past can any particular piece of evidence be used as such. The resolution of this paradox lies in recognising once more that history is an ongoing public tradition. Historians do not labour in solitary confinement, but come to their evidence with a range of accepted knowledge, standards and procedures based on the work of their colleagues down the years. This shared knowledge is not fixed and unchallengeable, but equally it is not a matter of *faute de mieux* knowledge or profitable short cuts. The works of other

(9) Historical thinking is dependent on background historical knowledge, built by critical study of (other) historians' work, and on uncertainty, inherent in the historical enterprise. The fact that historical thinking does not rest on an absolute base reveals its conditionality. The outcome of historical work too, the reconstruction of the past that each historian attempts, is also relative, because it is stipulated, it is laid down in terms of relative agreement. The 'real' past is a highly questionable notion if it implies any simple description or account.

Each reconstruction of the past is not the only potential reconstruction that can be achieved, because each reconstruction is dependent on relative historical knowledge and questioning. On the contrary, historical work is fulfilled within the academic historical dialogue, in terms of which each proposed relative reconstruction is given meaning, and thus enriches historical knowledge. Therefore, if all human knowledge and thinking is relative, historical thinking, historical knowledge and historical interpretation are characterised even more by relativity.

The notion of relativity inherent in history is an epistemological problem. According to Popper (1959, p.111, quoted by D. Shemilt, 1987, p. 58), 'the empirical basis of objective science has nothing "absolute" about it. Science does not rest upon solid bedrock. The bold structure of its theories rises, as it were, above a swamp. It is like a building erected on piles. The piles are driven down from above into the swamp, but not down to any natural or "given" firm ground. We simply stop when we are satisfied that the piles are firm enough to carry the structure, at least for the time being.'

The relativity of historical thinking, of historical knowledge and of historical interpretation does not mean that sources are open to any interpretation and/or that any attempt to reconstruct the past is justified. According to Umberto Eco (1990, pp. 23-24), 'if the philosophical problem of interpretation consists of decisions related to the circumstances of mutual influence between us and something that is given, the composition of which obeys some limitations (this is the problem of Peirce, of Merleau-Ponty, of Piaget, of the cognitive sciences, but it finally also was as well the problem of Kant - and of epistemology from Popper to Kuhn), I do not see why we must not hold the same attitude to texts, which were created by human beings similar to us, and in a sense ... they already exist, even before being read - even with the form of unimportant grammatical traces for him who does not guess their origin ... During the [last] thirty years some bent a long way towards emphasis on the interpreter's initiative, away from fidelity to the work.

The problem now is not to bend in the opposite direction, but to underline again the non-obliteration of the oscillation. Finally when we say that a text is potentially without end, it does not mean that every act of interpretation can have a happy end. Even the most absolute deconstructor accepts the idea that there are obviously unacceptable interpretations. This means that the interpreted text imposes limitations on its interpreters. The limits of interpretation fall in with the rights of the text.'

The endless series of potential historical interpretations may be conceived in analogy to what Peirce says about the endless series of representations. It 'may be conceived to have an absolute object [the absolute truth] as its limit.' Each historical interpretation, then, may be conceived as another potential interpretation 'to which the torch of truth is handed on'. (1934-1948, vol. 1., p. 130, quoted by Eco, 1990, pp. 415-416.)

So the truth and the scientific value of historical work is tested within the historical society of a period, because as Peirce argues, 'the real, then, is what, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you... Thus, the very origin of the conception of reality shows that this conception essentially involves the notion of a community... In storming the stronghold of truth one mounts upon the shoulders of another who has to ordinary apprehension failed, but has in truth succeeded by virtue of the lesson of his failure.' (1980, p. 311, quoted by Eco, *ibid.*, pp. 416-417.)

For Lee, 'misinterpretation and misunderstanding is possible only where there is also the possibility of correct interpretations.' (1984b, p.88.) We could reverse this and say that 'correct interpretations' are possible only where there is also the possibility of misinterpretation and misunderstanding.

It is within the social process of history that its scientific character is revealed as well. A matter much discussed in relation to the question as to whether history is a science, is the notion of objectivity. But 'objectivity in history - if we are still to use the conventional term - cannot be an objectivity of fact, but only of relation, of the relation between fact and interpretation, between past, present, and future' (Carr, 1961, p.120), which is tested within the historical community. Carr also argues 'that the social sciences - and history among them - cannot accommodate themselves to a theory of knowledge which puts subject and object asunder, and enforces a rigid separation between the observer and the thing observed. We need a



new model which does justice to the complex process of interrelation and interaction between them.' (Ibid., p. 119.)

The term 'objectivity' has been questioned in our days even in relation to the natural sciences, while epistemological thought has posed revolutionary ideas about what is science (T. Kuhn, 1962). As far as history is concerned, 'paradoxically [or not] the feature of historical knowledge that at first sight makes one uncertain of its trustworthiness is in fact just what gives it objectivity. The fact that historians disagree is exactly what makes historical knowledge [and historical thinking] reputable by providing the most rigorous check upon its provenance and content.' (P. J. Rogers, 1984a, p. 23.)

Moreover, the scientific character of social sciences cannot be judged in analogy to natural sciences. This attitude was to a large extent related to the connotations of the word 'science', which were related to the principles and the method of natural sciences especially after their development in the seventeenth and the eighteenth centuries. The Greek word for 'science' is 'ἐπιστήμη' [epistémē], and its etymology is 'knowledge proper'. We may say, then, that each discipline is 'knowledge proper' as far as its method suits its nature and object.

According to P. McKellar (1957, p. 175), 'mental models are less likely to mislead those thinkers who recognise them as products of their own thought; who are aware that they are not something one can "see" in nature itself, but intellectual tools used for helping us to understand what is observed. Scientific understanding proceeds less by discovery and more by invention than is sometimes recognised. Scientific principles are not "discoveries", but rather ways of conceptualising some aspects of our universe. As the philosopher Wittgenstein [1922, p. 39] has remarked: "We make to ourselves pictures of facts. The picture is a model of reality... It is like a scale applied to reality." '

The method of historians is also tested within the historical dialogue, in which they take part in their historical work. Consequently historians have to communicate their thoughts, their interpretations, their knowledge and their method (mainly) with the tool of language. Historians have to support their method and to explain their inferences. They have to reveal the routes of their thinking concerning their interpretations in all their rational, imaginative, empathetic and intuitive qualities and in relation to background historical knowledge. The fact that the whole process of history is expressed (mainly) in the form of language is not a matter related to the last stage of the whole process, as an account of historical work. Historical

work is (mainly) writing. History exists in being expressed in the form of language (mainly). If all history is thought, then it is interrelated with and expressed in words. As Vygotsky argues 'the relation of thought to word is not a thing but a process, a continual movement back and forth from thought to word and from word to thought. In that process, the relation of thought to word undergoes changes that themselves may be regarded as development in the functional sense. Thought is not merely expressed in words; it comes into existence through them.'⁵ (1934, p. 218.)

Historical work is tested, and is justified as being scientific (mainly) on the basis of its written form. 'It is in this openness of historians' writing to inspection and criticism, and in these shared procedures and understandings of a common enterprise, that the possibility of historical objectivity exists.' (A. K. Dickinson, A. Gard and P. Lee, 1978, p.13.) It is historians' writing by both its 'positive' or 'negative' qualities that serves, refines and enriches the historical knowledge of the period, while at the same time reinforcing new questioning and further enquiry in a ongoing process. Therefore, historical thinking, being a complex intellectual activity, is at the same time a social and scientific activity, which is developed in accordance with and in close relation to all the interconnected constitutive elements of history; with the building up of background historical knowledge, with historical questioning and interpretation, with historical methods and means of enquiry, with historical 'writing', and with history's broad 'educational' significance.

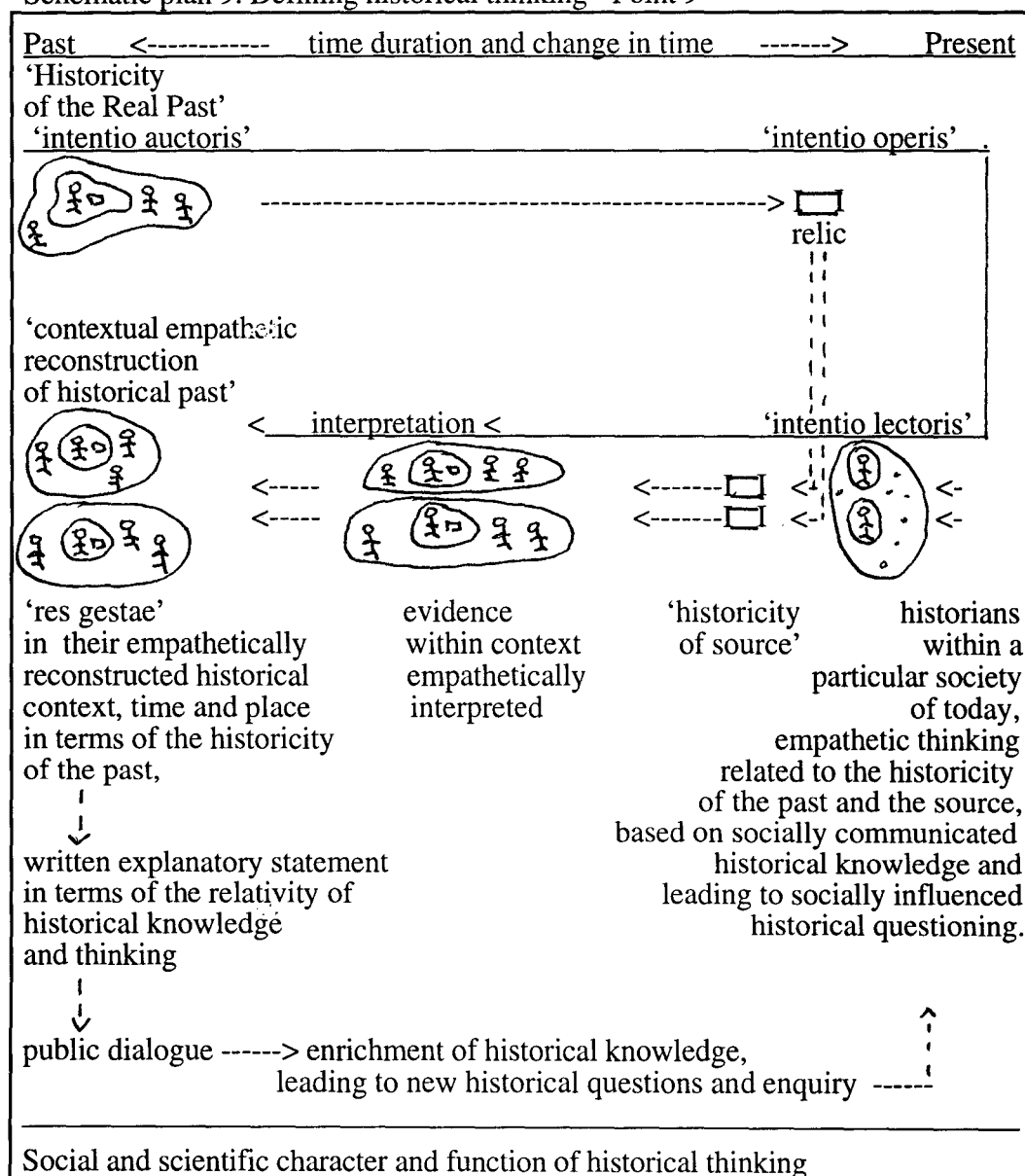
The significance of historians' 'writing' in history is underlined by postmodern theorists too, who argue that history mainly is 'a rhetorical conversation'.⁶

⁵Language is a controversial topic. The relation between language and thought as well is a major issue, about which there are several different theories, most of which see a relation, albeit seen in different ways. Thinkers, to whose work the research relates, also handle this relation differently; e.g. for Piaget language is a symptom of change in thought, for Bruner language is a source for change in thought and for Vygotsky the relation between language and thought undergoes many changes. (See L. Vygotsky, 1934.)

⁶K. Jenkins in his critique of Carr argues: 'Whilst Carr may well have learnt the late-modernist notion of perspectivism, he hardly seems to have been ready for the postmodernist lesson that perspectivism "goes all the way down"; that it includes everything and everybody - including himself... Carr was of course immensely interesting and influential in his own time; his critical scepticism helped enormously to break down some of the old certainist attitudes, and this can be acknowledged. But ... here there is no nostalgia for the loss of a "real" past, no wistful remembrance of more certainist times; no panic that there are no foundations for knowledge firmer than an ultimately rhetorical conversation.' (1995, pp. 62-63.)

For Carr 'the reciprocal process of interaction between the historian and his facts, what I have called the dialogue of present and past, is a dialogue not between abstract and isolated individuals, but between the society of today and the society of yesterday. History, in Burckhardt's [1959, p. 158] words, is "the record of what one age finds worthy of note in another". The past is intelligible to us only in the light of the present; and we can fully understand the present only in the light of the past. To enable man to understand the society of the past, and to increase his mastery over the society of the present, is the dual function of history.' (1961, p. 55.)

Schematic plan 9. Defining historical thinking - Point 9



According to this investigation, pupils' historical thinking was studied on the basis of the following complex character and function of historical thinking within the whole process of history.

(1) Historical thinking and background historical knowledge.

Historical thinking is involved in the formation background historical knowledge on the basis of the work of (other) historians. Background historical knowledge is not given, but is built by 'reading' historians' work critically. For this reason also the study of historical method is a prerequisite element of history education, because only on the basis of this knowledge can historians' work be critically 'read', and background historical knowledge be built.

(2) Historical thinking and historical questioning.

In the process of history, conceived as historical enquiry, background historical knowledge reinforces historical thinking, with which it is interconnected, in forming historical questions to be explored. So historical thinking is involved in both the formation of historical knowledge and historical questioning.

(3) Historical thinking and the use of sources.

For the selection and use of sources, besides background knowledge, historical thinking is required, mainly because only on the basis of the historian's thinking, by his or her purposeful use and questioning of them, do relics (written texts, documents, photographs, artefacts etc.) become sources.

(4) Historical thinking and the interpretation of sources as evidence.

The interpretation of sources as evidence requires rational, empathetic, imaginative, intuitive, and abstract thinking. Only by this complex intellectual activity of interpreting sources, can sources serve as evidence about the past, in the main as evidence for human actions and thoughts in their historical, social context. So both the method and the content of historical interpretation is related to thinking. The interpretation of sources requires also critical thinking for the appreciation of the limitations of the sources as evidence, and for their evaluation and use in terms of both the positive or negative information they 'offer'.

(5) Historical thinking and the reconstruction of the past.

The reconstruction of the past, that each historian proposes as the outcome of his or her enquiry based on the interpretation of sources as evidence, is a theoretical proposal in terms of the reality of the past and the relativity of historical knowledge and thinking. In order for human actions and thoughts of the past to be

reconstructed and explained in the form of language, historical thinking with all its complex elements is required.

(6) Historical thinking within the social character of historical process.

The process of reconstructing the past is completed in the context of the public historical dialogue among historians within each approach or 'school' of history and among the different approaches, in terms of the relativity of thinking and knowledge in general, and of historical thinking and knowledge in particular. Only on the basis of this dialogue is historical inquiry given meaning and evaluated as being scientific. In this way historical work as the outcome of historical thinking advances socially communicated historical knowledge by both its positive and negative elements. This knowledge is not only conceived as the enrichment of the background knowledge of the record of the past, but as reinforcement of historical thinking for further questioning and enquiry. So in this complex, and ongoing process of history, historical thinking, historical knowledge, historical method and content cannot be divorced, because 'history is not something undertaken privately, begun from scratch by each individual, but is an ongoing public form of knowledge with its own shared understandings, procedures, and standards; historical knowledge and the process of historical inquiry cannot be divorced.' (A. K. Dickinson, A. Gard and P. J. Lee, 1978, p. 13.)

2.1.2.. The elements of historical thinking

The aim of exploring pupils' historical thinking demanded, besides an initial definition of historical thinking, a definition of its basic elements, in terms of which pupils' historical thinking could be analysed.

Historical thinking was conceived as being constituted by a particular methodology, a particular content and some specific characteristics, in terms of which both its methodology and content are specifically characterised as historical. These three basic elements of historical thinking were conceived as closely interrelated, and it was only for theoretical and practical analytical purposes that their separate investigation and definition was attempted.

'Thought in its relation to its object is not mere thought but knowledge' Collingwood (1946, p. 2) declares in the first pages of his *The Idea of History*, and so he indirectly introduces us to the close connection of historical knowledge and historical thinking. He also claims (ibid. p. 3), speaking about Philosophy, that it 'cannot separate the study of knowing from the study of what is known.' So

not only 'historical knowledge and the process of historical inquiry cannot be divorced', but historical knowledge, historical thinking, historical method and historical content cannot be divorced either, since they all belong to the same 'paradox'⁷ of history, the object of which is thought.

On this basis, pupils' historical thinking was analysed in terms of the interrelation of its elements, while certain issues which were considered very important for the study, such as historical questioning, were separately studied as well. (See Chapter 5.)

The interrelation of the elements of historical thinking, which is discussed further in this chapter, has already been shown in schematic plan 9 (Part 2.1.1), in relation to the definition of historical thinking. The methodology of historical thinking corresponds to the system of arrows in schematic plan 9, i.e. to the interrelation of the different stages of the ongoing intellectual and social process of historical thinking. The content of historical thinking corresponds to the conception of past, both as 'real' or 'reconstructed', on the basis of the relic's use as source and its interpretation as evidence in context. The specific characteristics of historical thinking correspond to the conceptual elements in terms of which this intellectual and social activity can be specifically characterised as historical and scientific.

2.1.2.1. The methodology of historical thinking

The definition of the methodology of historical thinking was attempted with the intention of forming a basis on which this aspect of pupils' historical thinking could be studied.

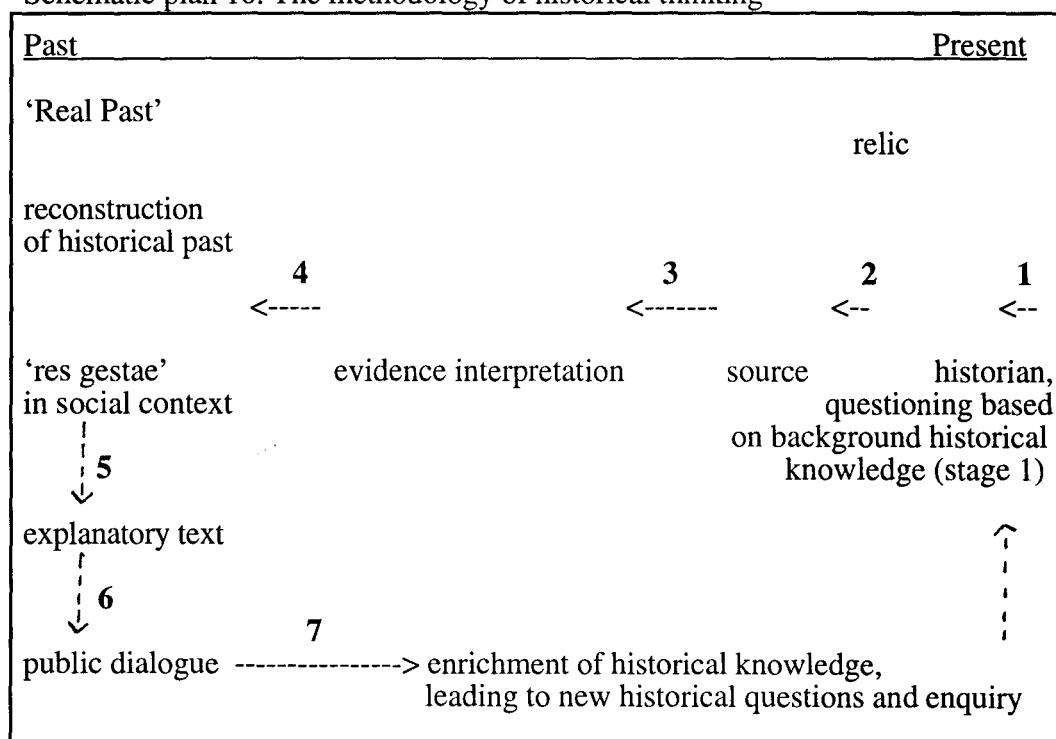
The methodology of historical thinking was conceived as the specific process of historians' thinking. It will be clear that it was conceived as covering all the stages of historical work, because historical thinking was defined as an intellectual activity with a clear social and scientific character, which penetrates and determines the whole process of history. Therefore, the methodology of historical thinking is not a mechanistic process; both practical and theoretical issues related to the nature of history are involved, on the basis of which thinking is realised as historical and is justified as such.

⁷ 'The paradox of history' is used in the sense that historians attempt to reconstruct the past, although they know in advance that it is lost and cannot 'really' directly be known. This issue is discussed further in Part 2.3.

According to this conception, the methodology of historical thinking covers and interrelates the following stages of historical thinking within the historical process:

- 1) historical questioning about the past based on background historical knowledge,
- 2) selection and use of sources
- 3) questioning and interpreting sources as evidence in context,
- 4) forming historical hypotheses as an attempt to reconstruct the past by imaginative, empathetic, intuitive and rational thinking in terms of the uncertainty entailed in historical thinking and knowledge
- 5) writing explanatory text, demonstrating the process involved and supporting the produced inferences about the reconstructed past,
- 6) participating in the public historical dialogue in terms of the relativity of historical knowledge,
- 7) enrichment of social background historical knowledge and thinking, which leads again to stage 1, by posing new questions.

Schematic plan 10. The methodology of historical thinking

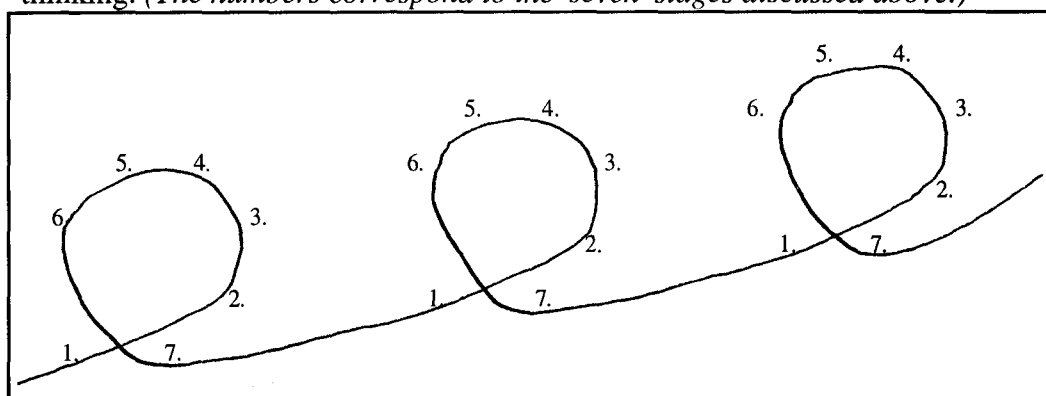


The included transitional stages can be cut down or analysed further, and so their number is not fixed. But the methodology of historical thinking covers all stages, without avoiding any, although historical thinking involved in the different stages may overlap. As already indicated, the process of historical thinking is not mechanistic, and so historical thinking may cover this route several times, moving from each stage in different directions.

The fact that stage 7 leads again to stage 1 does not mean that the methodology of historical thinking as a whole forms a closed cycle, because stage 1, to which stage 7 each time leads, is a new stage where new historical questions are asked. So, on

the contrary, the methodology of historical thinking schematically forms an ongoing spiral line. It is within this ongoing spiral line that historical thinking, as a complex intellectual activity with clear social and scientific character, is fulfilled, and that both historical thinking and its methodology are justified. But this ongoing spiral line of the methodology of historical thinking is not necessarily progressive. It evolves and adjusts each time to the course and the modes of historical reality.

Schematic plan 11. The ongoing spiral line of the methodology of historical thinking. (*The numbers correspond to the 'seven' stages discussed above.*)



We may say that the methodology of historical thinking is distinguished from the methodology of 'pseudo-historical' thinking, or of any other type of thinking, in terms of the interrelated basic stages discussed above. In consequence, pupils' historical thinking about museum objects, studied in terms of its methodology, was accordingly defined as ahistorical, unhistorical or 'pseudo-historical', rational, 'scientific' historical, and 'academic' historical. This study was based on the a priori analysis of historical thinking and the inductive category system that derived from pupils' responses.

Ahistorical or unhistorical thinking

* Description of the object as object qua object of the present or of an imprecise past

No methodology involved, pupils' thinking limited to the description of the object as object qua object.

'Pseudo-historical' thinking

* Reproduction of historical knowledge

* Unsupported inferences directly from the object

'Pseudo-historical' methodology involved, absence of historical interrelated stages, and of any need for demonstration in explanatory terms.

Rational thinking

* 'Detective' inquiry

Rational methodology involved, similar to a 'detective' inquiry, including some of the above mentioned stages, but with no clear historical orientation, and no use of background historical knowledge.

Historical thinking

* 'Scientific' historical enquiry

Historical methodology involved, based on historical processes, mainly on interpretation of evidence, and realised as a historian's enquiry, based on background historical knowledge, including stages from 1 to 5.

* 'Academic' historical enquiry

'Academic' historical methodology involved, based on historical processes, and on broad background historical knowledge, and realised within historians' academic dialogue in terms of relativity, including all stages from 1 to 7.

It will be clear that the methodology of pupils' historical thinking was studied only in relative analogy with professionals' methodology, because, besides anything else, professionals' methodology depends on mature intellectual development, on special education, on broad historical knowledge and experience, and on developed skills.

The 'methodology' category system, which was created on the basis of the above discussion, is presented and exemplified in Chapter 5. This primary system served both the analysis of pupils' historical thinking and the study of the relation of historical thinking to intellectual development. (See Chapter 5 and Part 2.2. respectively.)

2.1.2.2. The content of historical thinking

The content of historical thinking is a very broad theme. Its breadth becomes obvious even if it is only seen in terms of the 'aphorisms' that 'all history is the history of thought', and that 'there is nothing else except thought that can be the object of historical knowledge'. (Collingwood, 1939, p. 110.)

The attempted definition of the content of historical thinking was related to the analytical aim and character of the research, i.e. to the exploration of pupils' historical thinking in terms of how pupils treated museum objects as sources of historical information or evidence. So this is not an exhaustive discussion of the

content of historical thinking, since it is mainly based on some fundamental theoretical issues, related to the research, which were also involved in the definition of historical thinking.

The content of historical thinking was conceived as being interrelated with the method and the specific characteristics of historical thinking, a fact, that has already been mentioned, and shown in schematic plan 9. (See Part 2.1.) Therefore, the definition and the discussion of the content of historical thinking was carried out in accordance with this conception.

(1) First, the content of historical thinking was defined in terms of the focus of thinking in following a historical investigation through.

Historical thinking is mainly focused on the interpretation of evidence, and on the attempt to reconstruct the past on the basis of the evidence available. In the first place historical thinking is focused on understanding the evidence in context. 'This is not just a matter of assessing specific evidence for bias or reliability, but of *understanding* it at all... It involves understanding what that evidence meant in the world from which it survives.' (Dickinson, Gard and Lee, 1978, p. 9.) This is the first thing, among other things, that the historian has to do, in order to be able then to attempt a reconstruction of the past on the basis of the evidence.

Secondly, historical thinking is focused on the reconstruction of the past on the basis of the evidence available. Historical thinking in this phase is focused on the reconstruction of the past in its human and social context.

Frequently, though, historical thinking is focused on both the evidence and the reconstruction of the past at the same time, since the 'relic' that serves as source and evidence is a constitutive part of the 'real past', of the present, and of the reconstructed past. In historical statements of the type 'This relic was probably made by a society, which must have been artistically very developed', the attempt to interpret or understand the evidence is closely related with the attempt to reconstruct the relevant society of the past.

On a first level analysis this third category seems quite problematic. If we express the same statement in reverse, 'The society, by which this relic was made, probably must have been artistically very developed.', historical thinking is focused on the reconstruction of the past in context on the basis of the evidence. Thus it is only indirectly focused on the understanding of the evidence.

D. Shemilt (1987, p. 53) discussing the difference between statements about the evidence and about the past evidenced, argues that 'history uses evidence, depends upon evidence, but is not about evidence. We can make statements about evidence, and about the accuracy and comprehensiveness of historians' use of evidence that are different in kind from statements made about the past evidenced. If someone challenges what we say about the evidence, we settle the matter by showing him the original. If someone accepts the existence and the content of a given corpus of sources but chooses to question what we say about the past, we are reduced to arguing the logic, the plausibility or the economy, of our case. "Correct assertions" can be made about evidence; but about the past evidenced our statements are only ever more or less justifiable.'

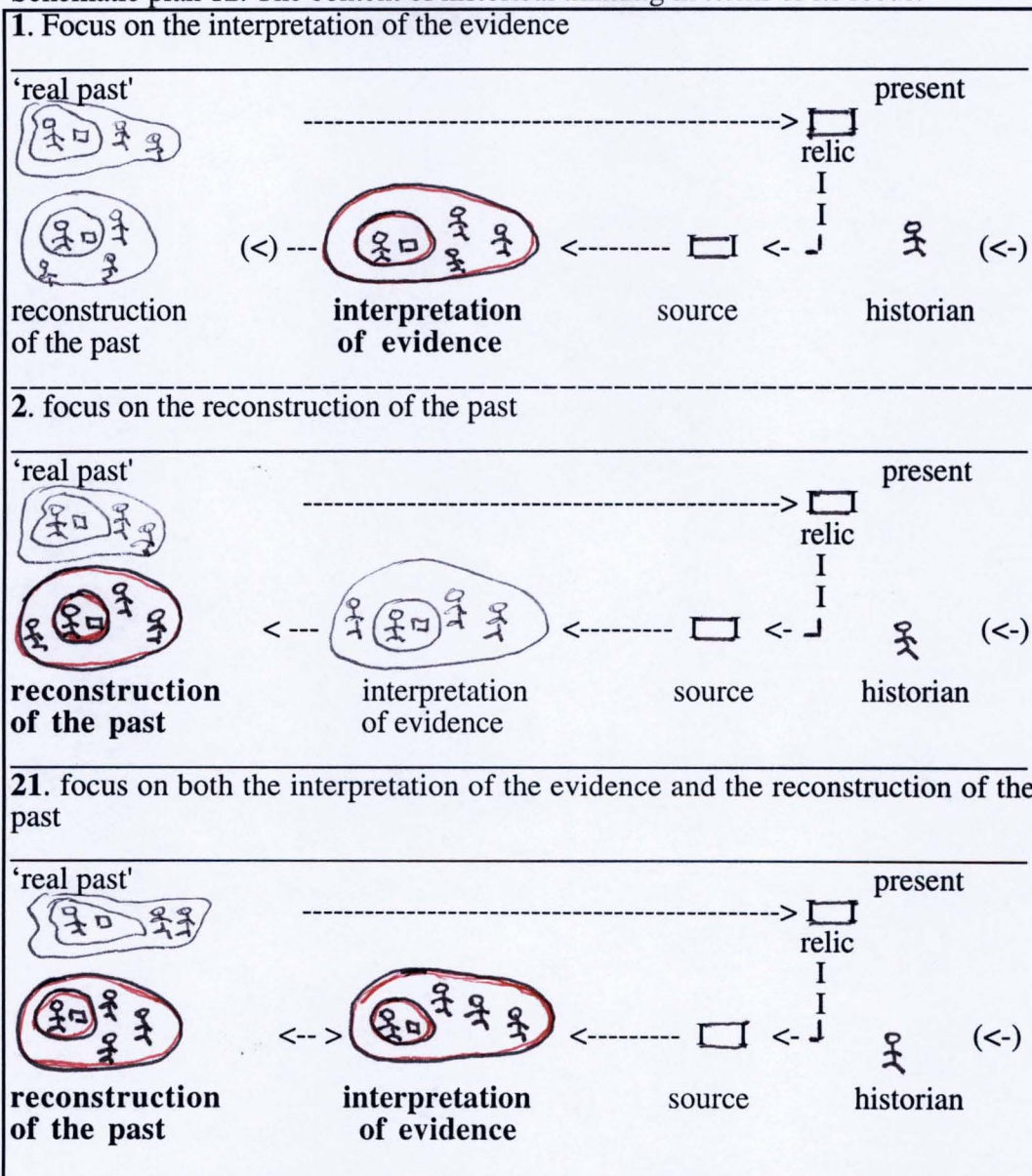
Although the research was to a large extent based on D. Shemilt's work, pupils' statements about evidence, and their relevant underlying thinking, were not analysed in absolute accordance with the above quoted argument. Understanding and interpreting evidence and the relevant statements about the evidence were conceived as clearly historical, although 'different in kind from statements made about the past evidenced'. This decision was based on the fact that the sample of the research consisted of pupils, who did not have any experience, education or instruction in historical work. In addition statements about the evidence were considered historical, because if someone challenges what we say about the evidence and how we interpret it, we cannot settle the matter only by showing him the original. We have to argue the logic, the plausibility or the economy of our case, at least as far as understanding the evidence 'involves understanding what that evidence meant in the world from which it survives'. In this way understanding the evidence is similar to reconstituting it in context. It will be clear that this decision was also based on the fact that pupils were not presented with written sources but with museum objects. (The difference between written texts and museum objects as historical sources or evidence is analytically discussed in Chapter 3.)

This decision was considered especially important for the study, because pupils' historical thinking was studied in relation to questions about if, how and how far pupils treated the presented museum objects as sources of information or evidence about the past. So their historical thinking was studied on the basis of both their thoughts about the evidence and about the past evidenced in terms of their methodology, their content and their specific characteristics. But since the difference between thinking about the evidence and about the past evidenced is

significant for historical thinking, this distinction was considered primary for the data analysis. Therefore, pupils' responses were categorised in terms of this distinction.

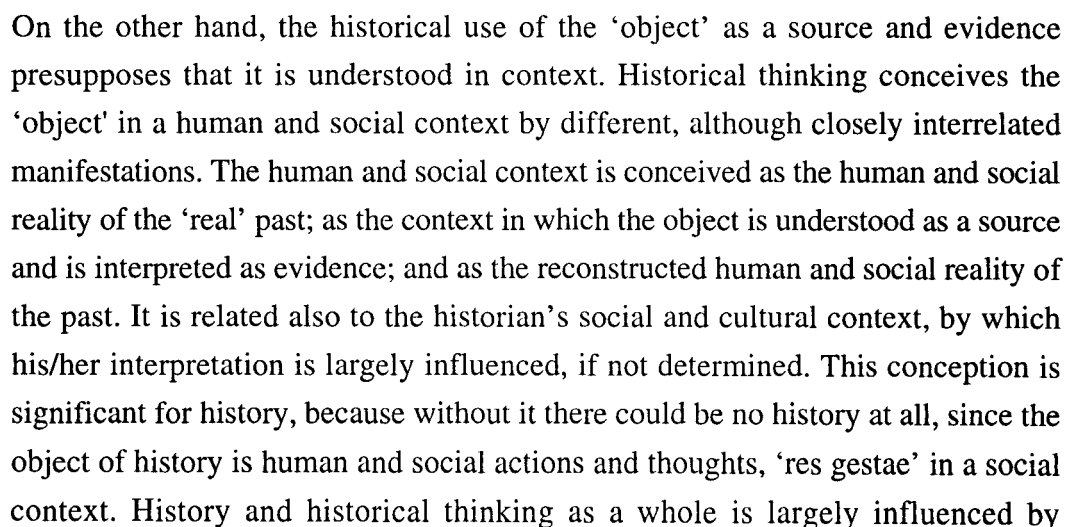
In the above discussion the content of historical thinking was defined (in close relation to methodology) in terms of its focus according to two main categories: the interpretation of the evidence [1], and the reconstruction of the past [2]. In addition the content of historical thinking was defined according to a third category; it was focused on both the interpretation of the evidence and the reconstruction of the past at the same time [21].

Schematic plan 12. The content of historical thinking in terms of its focus.



(2) The content of historical thinking was also defined in terms of the context in which relics were conceived, used and interpreted as sources of information or evidence about the past.

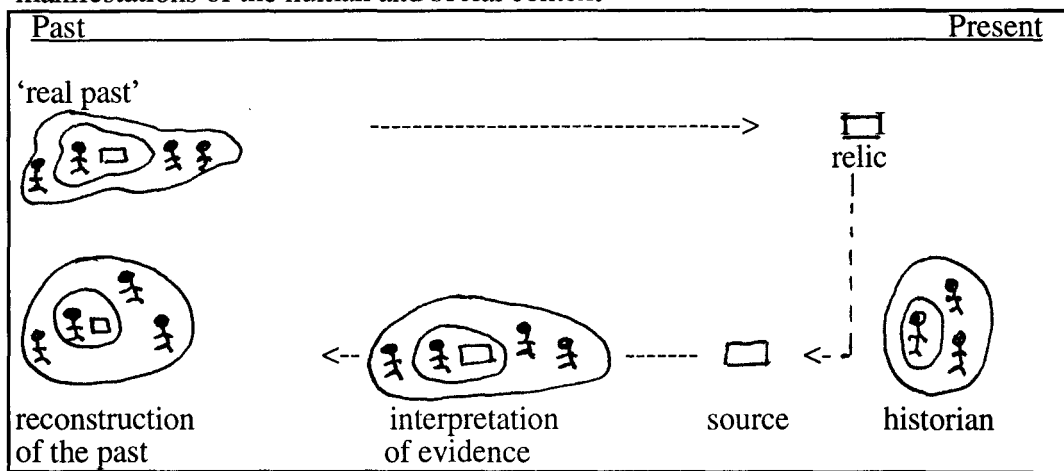
Schematic plan 13. The object's manifestations to which the content of historical thinking relates.



historians' attitude towards these different manifestations; especially by whether they accept that the past can be known or reconstructed. (See also Part 2.3.)

Consequently, the content of historical thinking can be defined in terms of the human and social context according to these distinguished but closely interrelated manifestations.

Schematic plan 14. The content of historical thinking in terms of the distinguished manifestations of the human and social context



The above discussion suggests how the content of historical thinking can be defined in terms of the way the 'object' and the past are conceived in relation to their human and social context.

On a first, unhistorical level, the 'object' is conceived as object qua object. Consequently it can neither be understood as source, nor used and interpreted as evidence. In this case the object is conceived as an object qua object either of the present or of an imprecise past. In consequence the notion of the past also is either absent, or conceived as an empty 'area' of time deprived of any human or social presence. Any interpretation of the 'object' as object qua object cannot be a historical interpretation, because it is an investigation in which the 'intentio auctoris' is conceptually absent. We may say that any interpretation of the object as object qua object of the present is a-historical, while any interpretation of the object as object qua object of an 'empty' past is unhistorical or pseudo-historical.⁸

Secondly, on a historical level, the 'object' can be conceived as an object in context related to human actions and thoughts. Consequently it can be understood and used as a source, or interpreted as evidence for human actions and thoughts. In

⁸The notion of pseudo-history and its distinction from history is discussed by Collingwood (1939, p. 109).

consequence the past also is conceived as an area of time determined by the presence of human actions and thoughts. Any interpretation of the 'object' in a human context can potentially be a historical investigation of the 'intentio auctoris' in relation to the 'intentio operis' and 'the intentio lectoris'.

Thirdly, again on a historical level, the 'object' can be conceived as an object in context related to social actions and thoughts. Consequently it can be understood and used as a source or interpreted as evidence for social actions and thoughts. In consequence the past also is conceived as an area of time characterised by social actions and thoughts. Any interpretation of the 'object' in a social context can potentially be a historical investigation of the 'intentio auctoris', conceived in a social context, in relation to the 'intentio operis' and 'the intentio lectoris'.

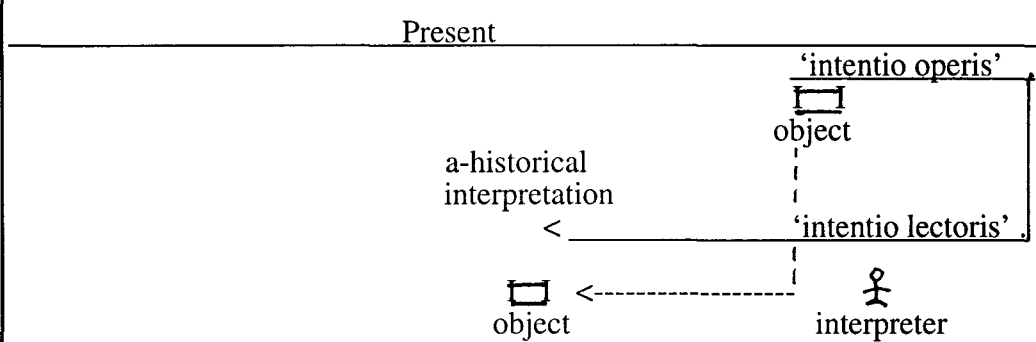
Therefore, the content of historical thinking can be defined in terms of how relics are conceived and treated by the historian, i.e. in terms of whether the historian 'looks at' or 'through' them. This criterion is linked to Collingwood's (1946, p. 214) wording: 'To the scientist, nature is always and merely a "phenomenon", ... being a spectacle presented to his intelligent observation; whereas the events of history are never mere phenomena, never mere spectacles for contemplation, but things which the historian looks, not at, but through, to discern the thought within them... For history, the object to be discovered is not the mere event, but the thought expressed in it. To discover that thought is already to understand it... When he knows what happened, he already knows why it happened.'

This criterion is also linked to another relevant idea of Collingwood, that of the 'outside' and the 'inside'. In his own words: 'The historian, investigating any event in the past, makes a distinction between what may be called the outside and the inside of an event. By the outside of the event I mean everything belonging to it which can be described in terms of bodies and their movements... By the inside of the event I mean that in it which can only be described in terms of thought... The historian is never concerned with either of these to the exclusion of the other... His work may begin by discovering the outside of an event, but it can never end there; he must always remember that the event was an action, and that his main task is to think himself into this action, to discern the thought of its agent.' (Ibid., p. 213.)

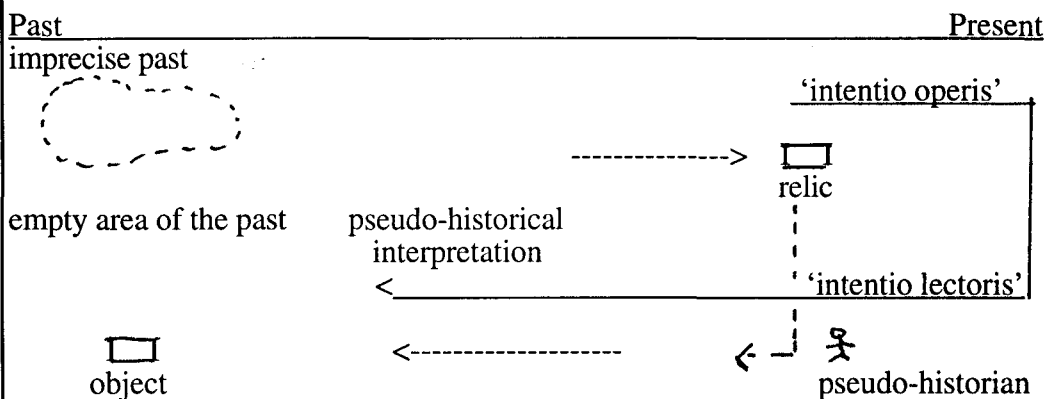
The three categories, according to which the content of historical thinking can be defined in terms of the context to which the object is conceived as related, are schematically shown in the following plan.

Schematic plan 15. The content of historical thinking in terms of 'context'

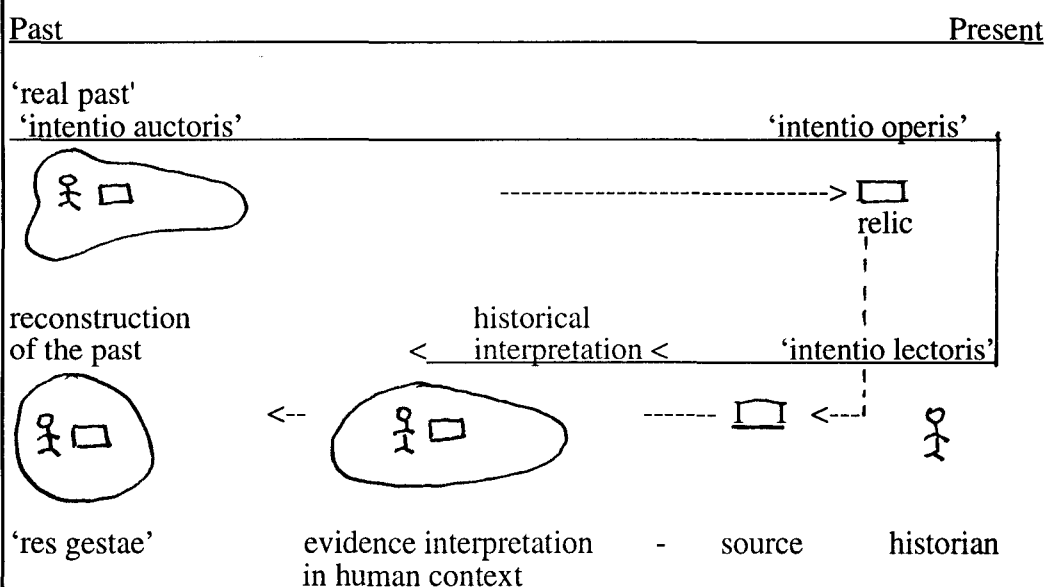
A'. The object is conceived as object qua object of the present.



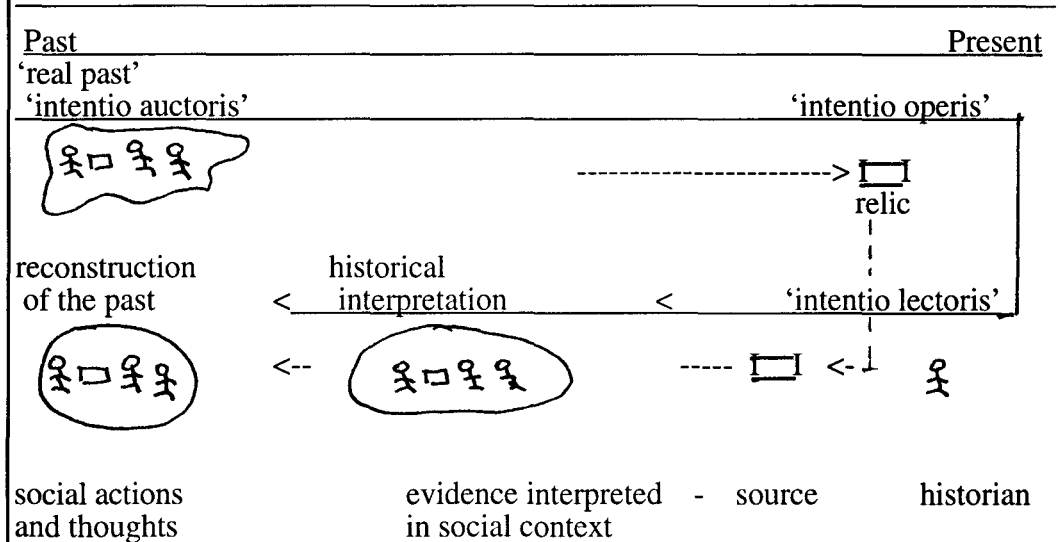
A''. The object is conceived as object qua object of an imprecise past



B. The object is conceived as object in human context and the past as being determined by human actions and thoughts, 'res gestae'.



C. The object is conceived as object in social context and the past as being characterised by social actions and thoughts.



It will be clear that the last two historical categories can be further refined in order to distinguish further differences in the 'context' of historical thinking. So we may further define it in terms of whether the human or social context in which the object is related is conceived as general or specific respectively, and in terms of whether the human and social context is conceived as interrelated.

So the content of historical thinking can be defined in terms of how the object is conceived in relation to its context according to the following categories:

A. The object is conceived as object qua object.

A' The object is conceived as object qua object of the present. Any notion of the past is absent.

A'' The object is conceived as object qua object of an imprecise past. The past also is conceived as an empty area of time.

B. The object is conceived as object in a human context. The past also is conceived as 'res gestae', as human actions and thoughts.

C. The object is conceived as object in a social context. The past also is conceived as social actions and thoughts.

Bs. The object is conceived as object related to a specific human context. The past also is conceived as specific and consisting of specific 'res gestae', human actions and thoughts.

Cs. The object is conceived as object related to a specific social context. The past also is conceived as specific and consisting of specific social actions and thoughts.

CB. The object is conceived as object in a human and social context. The past also is conceived as consisting of human actions and thoughts in a social context.

CBs The object is conceived as object in a specific human and social context. The past also is conceived as consisting of specific human actions and thoughts in social context.

The analysis of pupils' historical thinking in terms of its content, on the basis of the context in relation to which the evidence was interpreted and the past was conceived let us study in the first place whether pupils' historical thinking, in terms of its content, was historical, unhistorical or ahistorical. Because of its significance it served as a representative issue for the analysis of pupils' historical thinking, for reasons discussed in Part 2.3 and Chapter 5.

(3) The content of historical thinking could be further investigated in relation to how objects are treated. That is, it could be analysed in terms of whether museum objects were treated on the basis of their existence as objects [O], on the basis of the written or otherwise expressed meaning they carried, on their 'representum' [R], or on the basis of both of them together [OR].

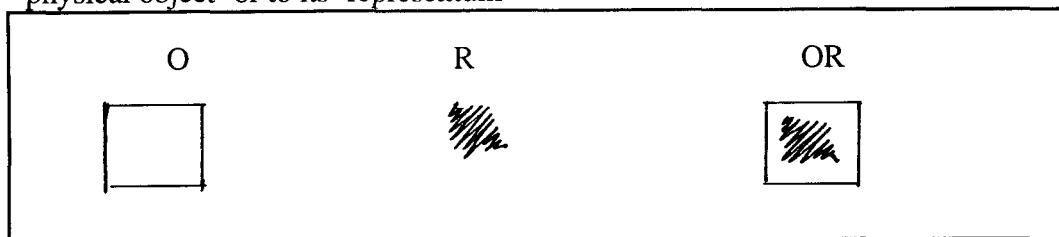
A written text can serve as evidence by its physical existence [O], and so the content of the relevant historical thinking is related to the material of, or to the technology by which it was made, to its shape or dimensions etc. A statue can serve as evidence by its physical existence [O] as well, and so the content of historical thinking is related to the material of, or the technology by which it was made, to its shape, to its dimensions etc.

A written text can serve as evidence, as it usually does, by its 'representum' [R]. The written meaning it carries is interpreted, and so it serves as evidence. So the content of historical thinking also is related to its written meaning. Statues as well can serve as evidence on the basis of their represented theme [R]. The representation is interpreted, and so it serves as evidence. In this case the content of historical thinking also is related to the representation as well.

Of course, all relics, irrespectively of their type, can serve as evidence on the basis of both their existence as physical objects of the past, and their represented theme or 'representum' [OR].

Schematically the three categories of the content of historical thinking in terms of how relics are treated are shown in the following plan:

Schematic plan 16. The content of historical thinking in terms of its relation to the 'physical object' or to its 'representum'



Relevant observations could let us compare museum objects and texts in terms of their treatment as historical sources. (This issue is discussed further in Chapter 3.)

(4) The content of historical thinking can also be defined in terms of the objects' perceived particular identity, called the '*particular content*' of historical thinking. The analysis of pupils' historical thinking in terms of its '*particular content*' was considered important, because it could let us study both pupils' understanding of relics as sources of information or evidence in terms of their perceived particular identity, and their relevant conception of the past, since the past was conceived in relation to how relics were perceived.

Indeed the content of historical thinking can be studied in terms of its '*particular content*' by two parallel systems: '*particular content 1*' and '*particular content 2*'. These systems emerged from the data. Indeed their distinctive values were defined by the grouping of several different relevant perceptions that appeared in pupils' responses. The '*particular content 1*' category system was constructed by categories corresponding to the object's perceived identity related to its historical environment, while the '*particular content 2*' category system was constructed by categories which corresponded to several other aspects of the object's identity.

Schematic plan 17. The '*particular content*' of historical thinking

The ' <i>particular content 1</i> '
P. object's perceived identity related to an imprecise past
O. related to its origin
M. related to its manufacture
U. related to its use
L. related to the fact that it was out of use or forgotten, 'lost'
F. related to its discovery, 'finding'
A. related to its treatment by archaeologists or historians
N. related to its existence in the museum now

The '*particular content 2*'

- d.** object's perceived identity related to its definition or description
- c.** related to its capacity to stimulate thoughts, feelings, etc.
- g.** related to past human and social thoughts, feelings, wishes, purposes, etc.
- s.** related to its significance or meaning as a source
- h.** related to its historical significance or meaning (clearly stated as such by pupils)
- r.** related to its presented theme's relation to reality
- t.** related to time
- p.** related to space
- str.** related to its strangeness
- f.** related to its familiarity

(5) A very important aspect of the content of historical thinking is its relation to the concepts of time and space. The concepts of time and space are basic elements of historical thinking, because they both relate to, among other things, the reality and the historicity of the past, to hindsight, to historical imagination and to collective or personal memory. 'The exploration of pupils' conceptualisation of time and space is of great significance for both the understanding of their thinking in general and their historical thinking in particular. As H. Werner and B. Kaplan (1963, p. 399) argue, 'space and time constitute the fundamental framework for the establishment of our human world of action and thought... without some sort of *representation* of space and time - however crudely articulated and fragmentary it might be - there would be no cognition of a world of objects, no consciousness of self or others; we would never be able to go beyond animal reaction and action to the human level of *knowledge about* reality.'

This major issue was not analytically explored in this research however, because it demanded an extensive and deep analytical and theoretical manipulation.⁹ It was beyond the scope of the research, because, among other reasons, there is not much research or extensive theoretical work directly related to children's conception of

⁹The fact that young children seem to form a 'spatialized' time concept (R. N. Smith, 1977, p. 164), and that the notion of temporal is often transposed into the spatial, because space and spatiality are more precise than time and temporality (P. Fraisse, 1957, p. 277), makes the study of these concepts even more difficult, because, among other issues, the concept of time is interrelated with the concept of space.

time¹⁰, while on the other hand there is broad theoretical work and literature indirectly referring to it, posing very interesting themes to be explored.¹¹

Pupils' conceptions of time and space were only indirectly discussed, in relation to other issues. They were discussed on the basis of pupils' references to the time and/or the place from which museum objects originated, or to which their manufacture, use, discovery, and archaeological treatment related. This indirect discussion put forward some ideas for further exploration of pupils' conception of time and place, namely their conception of time direction, time duration and change in time.¹²

The content of historical thinking could be defined, on a first level analysis, in terms the concepts of time and space respectively, by the interrelation of the '*particular content 1*' categories [P, O, M, U, L, F, A, N] with categories [t] and [p] of the '*particular content 2*' category system. Thus two new systems are formed by which the content of pupils' historical thinking can be analysed in terms of the concepts of time and space respectively.

Schematic plan 18. The content of historical thinking in terms of the concepts of 'time' and 'space'

Pt / Pp	concept of time/space related to an imprecise time/place of the past
Ot / Op	related to the time/place from which the object originates
Mt / Mp	related to the time/place in which it was made
Ut / Up	related to the time/place in which it was used
Lt / Lp	related to the time/place in which it remained out of use or lost
Ft / Fp	related to the time/place in which it was discovered, found
At / Ap	related to the time/place in which it was archaeologically treated
Nt / Np	related to its existence or treatment now/in the museum

¹⁰Among the few, but very interesting works on children's conception of time, we must mention E. M. Crowther (1978 and 1982), P. Fraisse (1957), G. Jahoda (1963), R. E. Ornstein (1969), J. Piaget (1929, 1969), K. W. Rogers (1967), R. N. Smith (1977).

¹¹One very important work about how the past, and among other things, time and space are conceived is D. Lowenthal's (1985), *The Past is a Foreign Country*. M. Proust's (1913-1927), *A La Recherche du Temps Perdue* [Remembrance of things Past], is one of the most interesting literary works on searching for a personal past and feeling of time. (The meaning of the original French title is: searching for time past and lost.) R. Arnheim (1986, p.78), also, mentions that 'the notion of time is not an element of common experience where generally accepted thinking would hold it should be.' Among other things related to his *Psychology of Art*, he refers to the different qualities by which time can be perceived. Quoting H. Nemerov (1975) Arnheim (Ibid., p. 79) mentions how time can be perceived in 'waiting rooms': 'A cube sequestered in space and filled with time, pure time, refined, distilled, denatured time. Without qualities, without even dust.'

¹²For children's and adolescents' understanding of historical duration and change see R. N. Smith (1977) and E. M. Crowther (1978, 1982) respectively.

(6) The content of historical thinking can also be defined in terms of ‘historicity’. Historicity is not related only to the past, because the concept of the historicity of the past leads to the concept of the historicity of the present and future. So the content of historical thinking was defined also in terms of whether it referred to the historical past or to the historical present or future.

It will be clear that usually thinking which refers to the present is not historical, but a-historical. Only thinking which refers to the present, and/or to the future, conceived within their historicity, in relation to the past, is historical. Accordingly thinking which refers to an ‘empty area’ of an imprecise past is not historical. It is unhistorical. It will also be clear that the definition of thinking as being or not being historical is not related only to its content, but to its methodology and specific characteristics as well.

Schematic plan 19. The content of historical thinking in terms of historicity

a-historical content

[Pr.] The content of historical thinking is related to the present.

unhistorical content

[Pa.] The content of historical thinking is related to an imprecise and thus unhistorical past.

[F.] The content of historical thinking is related to the future.

historical content

[HPa] The content of historical thinking is related to the historicity of the past.

[HPr] The content of historical thinking is related to the historicity of the present.

[HF] The content of historical thinking is related to the historicity of the future.

2.1.2.3. The specific characteristics of historical thinking

Besides the method and the content of historical thinking there are some specific issues, which, being interrelated with the nature and the process of historical thinking, are fundamental to it. It is in terms of these specific issues that both historical thinking as a whole and its method and content can really be defined as historical and scientific. (See Part 2.1.1 and Schematic plan 9.)

It must be emphasised here that the specific characteristics of pupils’ historical thinking, such as historical questioning, use of background historical knowledge, use of the notions of historical uncertainty, relativity and empathy, are only loosely

analogous to the specific characteristics of professionals' historical thinking, because most of them are related to especially developed skills and concepts.

(1) 'General evaluation' of historical thinking

Historical thinking is an intellectual activity with a clear social character. The social character and function of historical thinking is partly revealed by the fact that historical knowledge, with which historical thinking is interrelated, is socially communicated. In addition the method and the content of historical thinking are evaluated, tested and given meaning within history's public dialogue. So one basic characteristic of historical thinking is that it is socially tested and evaluated.

Accordingly pupils' historical thinking could be studied in terms of its 'general evaluation', and be evaluated on the basis of whether its outcome is historically 'valid' [+], 'acceptable' [+*], problematic [*], or 'invalid' [-].

The general evaluation of pupils' historical thinking was considered important, because historical thinking is not 'proper' historical thinking if its outcome, among other things, is not historically acceptable. As A. K. Dickinson, A. Gard and P. J. Lee (1978, p. 12) insist 'the origin of a historian's strategies for interpreting evidence is one thing; whether those strategies result in valid interpretations is quite another.'

(2) The 'logic' of historical thinking

Historical thinking, besides anything else, is rational. The rationality of historical thinking is present in the whole process of history, in relation to its scientific character and to the demand to be critical. The rationality of historical thinking is usually expressed in the form of written explanatory text, in which the historian demonstrates the method and the content of his/her thinking. It is in this 'written' form that the whole historical work is tested and given meaning within the public dialogue in terms of its rationality and scientific reasoning and logic.

The analysis of pupils' historical thinking in terms of its 'logic' was focused on the study of how far pupils' demonstrations, explanations and support of their inferences (i.e. of 'methodology' levels [5], [6] and [7]) were rational. This study was considered important for the exploration of pupils' historical thinking as such and in relation to pupils' reasoning. Therefore, pupils' thinking was studied in terms of whether its 'logic' or rationality was valid [+], acceptable [+*], problematic [*], or invalid [-]. Historical thinking of 'methodology' level [6] and of 'context' value [CB] is historical in terms of its 'methodology' and 'context'

values, but is not properly historical, if it rests on invalid 'logic' [-]. (The relation of pupils' historical thinking to distinctive levels of reasoning is analytically discussed in part 2.2.)

(3) The use of background historical knowledge

Historical thinking is interrelated with background historical knowledge, as already suggested in relation to the definition of historical thinking. The role of background historical knowledge, however, is seen from different points of view by theorists according to their own general theoretical approach to history and history education.

D. Thompson (1984, p.172) mentions characteristically: 'Dickinson, Gard and Lee [1978] have clearly indicated that the dichotomy between "content" and "method" cannot be sustained, and that historical use of sources as evidence requires contextual knowledge. It might be that advocates of the new history, recognising the force of this argument, would accept the infusion of some contextual knowledge as a necessary element in the appropriate historical use of sources. But this would be inadequate and very limited both in usage and above all in purpose, because its function would clearly be no more than to allow of the better use of evidence. Still less would the position of P. J. Rogers [1984a], that one could build up contextual knowledge from the sources be acceptable, because this would again mean concentrating on the use of sources as evidence in a way that would have a very limiting implication for the analysis and understanding of "content". The connection here is that the study of events and developments in history are central in their own right, but that within such a study, the teacher should build in the use of a variety of sources as evidence for reconstructing the past, and thereby develop an understanding of that essential element of historical knowledge. Indeed it might be argued that the best possible understanding of the place of evidence in the process of historical inquiry would come from using it in such a way, within a sound knowledge and understanding of the historical context to which it relates.' (See also P. J. Rogers, 1987b.)

G. Shawyer, M. Booth and R. Brown (1988, p. 210) also argue that detailed historical knowledge is demanded for historical understanding. 'Historians attempt both to establish and to explain what happened in the past. In establishing what happened they are concerned not only with particular events, but with series of events over periods of time. A grasp of chronology is fundamental to the understanding of history, and convincing historians display a detailed knowledge both of the sequence in which events occurred and of which events or people were

contemporaneous. Sequences of events in turn reveal developments, continuity, discontinuity and change... in emphasising the procedures which historians follow and the attention which they necessarily pay to detail and authenticity, is vital not to miss the excitement and drama of history. Any attempt to understand the people and events of the past engages the imagination. Seeing the reasonableness of the actions and aspirations of people of a different time and culture demands an imaginative leap, but one which is informed by detailed knowledge of the beliefs, habits and circumstances of the people concerned.' They also argue that teachers have to structure their work, 'beginning with detailed information gathering so that pupils have a wide and detailed contextual knowledge. They can look at events from the perspective of people of the time only if they have detailed knowledge of what informed that perspective... Historical events are not made simpler or more accessible by "slendering" them. Keeping information to a minimum is likely to make knowledge appear more abstract and, more difficult to grasp.' (Ibid., pp. 217- 218.)

The role of background historical knowledge in the development of pupils' historical thinking, and its implications for history education were also studied by P. Knight (1989a), whose conclusions do not seem to be in agreement with G. Shawyer's, M. Booth's and R. Brown's (1988) points. Knight (1989a, p. 217) argues in his conclusions that his study 'offers an empirically-based reply to commentators, such as Booth (1979), who have criticised the use of self-contained items in research into historical understanding. The criticism appears to have been based upon common sense. It implies that performance would be better where children could draw upon their knowledge of the historical context in their answers. In fact these children did not draw on their contextual knowledge.' Knight continues: 'Associated with that was the finding that children may reason better when dealing with "familiar" content but that does not necessarily happen, as was seen in the study of remarks on history topics which they had studied in school. This complication of the common-sense assumption that familiar material will necessarily prompt more sophisticated thinking complements the pilot study data which showed that some unfamiliar topics proved much harder than others, even when variables such as the length, structure and content of the tasks were controlled... Unsurprisingly the study showed that children's performances improved over time but not at an even pace. The less predictable finding that these "average" children showed a wide range of understanding has important implications for curriculum design and teaching.'

The above mentioned ideas about the use of background historical knowledge relate not only to different approaches to history education but to different conceptions of history as well, as is discussed further in Part 2.3. But on the whole these ideas underline the fact that the role of background historical knowledge in the structure of history teaching and learning has important implications for history education. It is not for nothing, also, that distinctive differences between changing and traditional approaches to history education rest on the estimation of this role. (See Part 2.3.) Therefore, this variable was seriously taken into consideration for both the formation of the research design, as is analytically discussed in Chapter 4, and the construction of the category systems, as is analytically presented in Chapter 5.

Moreover, the role of background historical knowledge was conceived on the basis of A. K. Dickinson's, A. Gard's and P. Lee's (1978, p. 10) argument, that 'the works of other historians are not just second-best sources of information, but part of a common framework in terms of which historical questions, interpretations and evidence are given meaning. It is not simply information which is at issue here, but a whole way of looking at the world.' (See also part 2.1.1, particularly the discussion in relation to schematic plan 8.)

Historical knowledge was called 'independent', if it was previously acquired (mainly at school), and it was called 'dependent', if it was acquired in the museum in relation to the historical context of the museum objects studied.

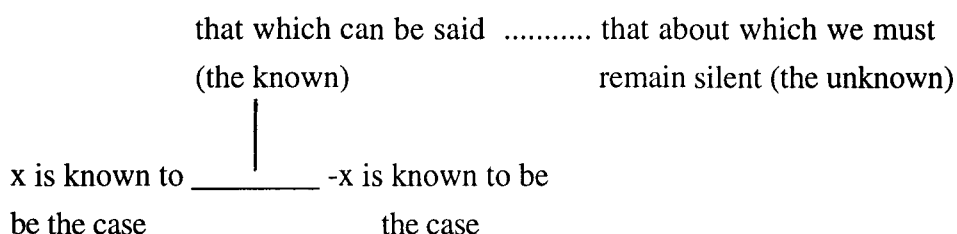
The way in which background historical knowledge was used, and thus was interrelated with pupils' historical thinking, was studied by the primary analysis of the 'methodology' of their historical thinking, because it was conceived a fundamental issue on which the methodology of historical thinking is largely dependent. In fact, 'methodology' levels [1] and [2] were not related with the use of background historical knowledge, because they were limited to the description of the objects as objects qua objects of the present or of an imprecise past. 'Methodology' level [3] was characterised by the reproduction of historical knowledge, while the use of historical knowledge at 'methodology' level [4] could only potentially underlie pupils' unsupported inferences. At 'methodology' level [5], which was conceived as a rational and not historical level, the use of historical knowledge, if present, was limited to the use of 'dependent' historical information (acquired in the museum) in non historical terms. The use of background historical knowledge was of great significance, though, to 'methodology' levels [6] and [7],

because the historical value of pupils' thinking was largely dependent on this 'specific characteristic'.

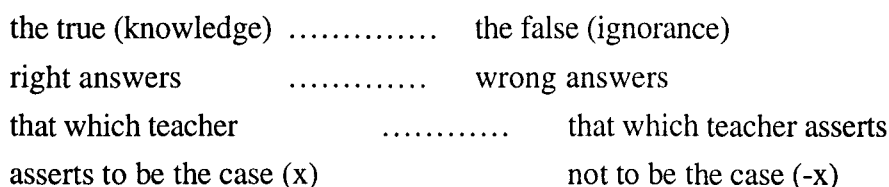
The study of pupils' historical thinking in terms of the use of background historical knowledge as a 'specific characteristic' of historical thinking, was made on the basis of whether there was accurate [+], acceptable (generally accurate) [+*], problematic [*], inaccurate [-], or no use [0] of 'dependent' and 'independent' historical information or knowledge.

The study of pupils' historical thinking in terms of the use of background historical knowledge, 'dependently' and 'independently' acquired, was considered very important, because, among other things, it could show whether pupils' thinking was influenced by background historical knowledge. In addition, it could show if pupils used it critically or just as it was offered. The latter was considered very important for the research, because pupils were educated by the Greek traditional system, according to which pupils were used to reproducing historical 'knowledge' offered by authority; by history textbooks and teachers.

As Denis Shemilt (1987, pp. 44-45) points out, 'The concept of *the known* is superordinate to those of the *known to be the case* and the *known not to be the case* as below:



In class, however, pupils are routinely asked to give true and positive statements about what is the case and are censured for telling the teacher what s/he knows not to be the case. This latter is called "false" or "wrong". The consequence is that the hidden curriculum of the classroom establishes and reinforces the following set and structures about knowledge:



The implications of the learned construct, the right and true v the wrong and false, extend beyond the ability to use negative as well as positive information/evidence, inasmuch as the crucial distinction between “that which can be assested or defined (the known)” and “that about which we must remain silent (the unknown)” is not admitted at all.’

The above mentioned ideas of D. Shemilt are of great significance to the study, because as he mentions (1987, p. 45), ‘when knowledge about the past is construed solely in terms of “known to be right” and “known to be wrong” no allowance can be made for uncertainty in history.’ These ideas relate also to a museological issue regarding the fact that labelling and contextual displays of museum objects do not only influence our visual and verbal images, but influence our perception of their historical significance, and thus our historical thinking.¹³ They ‘orchestrate and at times dominate the view.’ (D. Lowenthal, 1985, p. 273.)

The use of ‘dependent’ and ‘independent’ historical information and knowledge in relation to museum practice is discussed in Chapter 3. The particular ‘dependent’ or ‘independent’ historical information or knowledge that pupils had in relation to the different tasks and the different museum objects studied is analytically presented in Chapter 4., while the relevant category systems and the categorisation of pupils’ responses are presented in Chapter 5.

(4) ‘Reading’ or ‘observing skills’

As has already been discussed, historical thinking was mainly conceived as relating to the interpretation of sources as evidence. In consequence historical thinking is dependent, in the first place, on the historian's skill in reading a text or in carefully observing an object, in order to be able then to use it as historical source and to interpret it as evidence. But if this primary skill is self-evident for historians, it is not self-evident for pupils, especially if they have to observe museum objects as sources of information or evidence.

Furthermore, as is discussed in Chapter 3 in relation to the museological aspects of the study, observing is not similar to seeing, and observing an object in relation to

¹³‘In a broader sense, every detail of information about the representational content of a picture not only adds to what we know but changes what we see. It is psychologically false to assume that nothing is seen but what stimulates the retinae of the eyes. One need only to compare the visual experience of a picture telling a familiar story with, say, a Persian miniature, equally present to the eyes, yet largely elusive if one is ignorant of what is going on. The foolish notion that true art appreciation ignores the subject matter - together with equally restrictive iconological studies, discussing subject matter only - has estranged generations of students from pertinent aesthetic understanding and experience.’ (R. Arnheim, 1986, p. 7.)

its historical use as historical source or evidence demands a developed skill, based on complex intellectual abilities.¹⁴ The way, also, the object is observed and perceived is dependent upon both the object and the observer,¹⁵ and, thus, defining observed objects is a complex intellectual activity. 'The more elementary visual product of intuitive cognition is the world of defined objects, the distinction between figure and background, the relations between components and other aspects of perceptual organisation. The world as given to us, the world we take for granted, is not simply a ready-made gift, delivered by courtesy of the physical environment. It is the product of complex operations that take place in the nervous system of the observer below the threshold of awareness.' (R. Arnheim, 1986, p. 17.)

The study of pupils' historical thinking in terms of their 'observing skill' was made on a first level analysis. It was considered important to see if pupils' 'observing skill' was 'accurate' [+], 'generally accurate' or acceptable [+*], 'problematic' [*], or 'inaccurate' [-]. Pupils' historical thinking was expected to be largely influenced by it, especially in cases in which pupils' 'observing skill' was 'problematic' or 'inaccurate'. This issue is also discussed in Chapter 4, in relation to the level of difficulty selected museum objects posed for pupils' work.

(5) Questioning

According to the definition of historical thinking suggested in Part 2.1.1, questioning is interrelated with historical thinking throughout historical work. It is a prerequisite element of historical thinking in both the building of background historical knowledge and in posing basic historical questions in the beginnings of an enquiry, and in following it through by questioning sources and making inferences in relation to the evidence available and to the work of other historians. Therefore, questioning was conceived as a fundamental 'specific characteristic' of historical thinking.

The significance of questioning to historical thinking, and its relation to imagination, have been directly and indirectly claimed by many thinkers and

¹⁴In order to observe an object 'the human mind is equipped with two cognitive procedures, intuitive perception and intellectual analysis. These two abilities are equally valuable and equally indispensable. Neither is unique to particular human activities; they are both common to all of them. Intuition is privileged to perceive the overall structure of configurations. Intellectual analysis serves to abstract the character of entities and events from individual contexts and defines them "as such". Intuition and intellect do not operate separately but in almost every case require each other's co-operation. In education, to neglect the one in favour of the other or to keep them apart cannot but cripple the minds we are trying to nurture.' (R. Arnheim, 1986, p. 29.)

¹⁵Peel (1956, p. 83) remarks that 'aiding clarity of form is the experience of the observer. He tends to give meaning to configurations set before him in terms of what he has learned and is interested in.'

educationists. According to Collingwood (1946, p. 281), 'every time the historian asks a question, he asks it because he thinks he can answer it; that is to say, he has already in his mind a preliminary and tentative idea of the evidence he will be able to use... To ask questions which you see no prospect of answering is the fundamental sin in science... Question and evidence, in history, are correlative. Anything is evidence which enables you to answer your question - the question you are asking now. A sensible question (the only kind of question that a scientifically competent man will ask) is a question which you think you have or are going to have evidence for answering. If you think you have it here and now, the question is an actual question... If you think you are going to have it the question is a deferred question.'

P. J. Lee (1984b, p. 87), discussing historical imagination, argues that 'evidence is created by questions, and what questions ought to be asked is a matter of judgement. There are no determinate rules for asking questions, and so no possibility of simply working mechanically through prescribed steps in using evidence. Because there is some freedom here, there is the possibility of using evidence with imagination.' Lee (Ibid., p. 96) also argues that there is not a mechanical way of treating evidence, 'because we have no mechanical procedures that can determine how evidence is to be seen, what questions are to be asked of it, or how it is to be understood... imagination involves seeing what we (in a sense) already know ... in a different light.' These ideas emphasise the importance of questioning, conceived in close relation to working with imagination, for historical thinking. The idea that we 'see what we (in a sense) already know in a different light' leads us to rephrase Pascal's famous saying 'Let no one say I have said anything new; the arrangement of the material is new' into 'no one can say anything new; his/her questions are new.' As Carr (1961, p. 131) said 'when we seek to know the facts, the questions which we ask, and therefore the answers which we obtain, are prompted by our system of values. Our picture of the facts or our environment is moulded by our values, i.e. by the categories through which we approach the facts; and this picture is one of the important facts which we have to take into account... Progress in history is achieved through the interdependence and interaction of facts and values. The objective historian is the historian who penetrates most deeply into this reciprocal process.'

If, as P. J. Rogers (1987a, p. 25) argues, 'to understand how and why something came about and developed is a large part of understanding the thing itself', then we may say that to question how and why something came about and developed is the first step of understanding the thing itself. The importance of questioning, of

‘historical’ questioning in particular, for the development of children’s historical thinking and knowledge is underlined also by G. Shawyer, M. Booth and R. Brown (1988, p. 212): ‘We want children, as they study history, to be asking “Is it true?” and “How do we know?” ’ ‘In using sources children must be asked, and taught to ask, appropriate questions... Understanding is likely to be promoted by the provision of additional information (especially if this is done in stages and in answer to specific questions).’ (Ibid., p. 218.)

The decision to proceed to an exploration of pupils’ questioning was reinforced by A. K. Dickinson’s and P. J. Lee’s (1984, pp. 146-147) suggestion (based on their work with small groups of children from 8 to 18 years of age), ‘that children’s own questions can be complex and taxing, and that some pupils at least have a very clear idea of what makes a question worth asking... Asking children to devise good questions based on whatever sources they have been given seems to be one way of encouraging them to read such material carefully and to interrogate it. All the children in our (necessarily very small) sample studied their material very attentively in order to produce what they considered worthwhile questions. They also decided, without any lead from us, that they should check their questions for accuracy of content, doing this by looking at the source again.’

On this basis, not only pupils’ questioning was studied as it was expressed in pupils’ responses to all tasks, but two special tasks [tasks 1d and 2d] were devised for this purpose as well, asking pupils to pose their questions about the museum objects studied. (See Chapter 4.)

The study of pupils’ questioning was largely based on D. Shemilt’s (1987) work on ‘Adolescent Ideas About Evidence and Methodology in History.’ The results from his study, and his model or map of adolescent thinking about history greatly influenced this research. In particular his analytical discussion on adolescent ‘*ideas about evidence and about what historians do*’, and his proposed stages of pupils’ historical reasoning or methodology were a great help for the analysis of pupils’ historical thinking in terms of questioning. According to D. Shemilt even able adolescents find it difficult ‘to grasp the fact that secure and unequivocal knowledge does not automatically follow from full and reliable information, i.e. that there is information that tells us such-and-such about x may be “known” beyond a peradventure, but knowledge about x is bounded by the questions we ask as much as by the information we use and its status and security are determined to a large extent by the processes of inference and generalisation employed to

interrogate evidence and by the conclusions we are disposed to find reasonable and coherent.' (Ibid., p. 44.)

In fact, several levels of interrelation between questioning and historical thinking were expected to be distinguished. At an academic historical level, among other things, questioning forms the basis of the relativity of historical thinking, on which historical work rests. In turn the outcome of historical work and of historical thinking is also new questioning. At this level questioning is a fundamental and 'dominant' element inherent in the nature of historical thinking.

At a lower, though still historical level (where historical work is not conceived as taking place within the academic public dialogue in terms of relativity) questioning is still fundamental. It forms the basis of any historical enquiry by posing basic historical questions, and by questioning the sources available and checking statements historically.

On the other hand, even below a clear historical level, in a rational 'detective' enquiry, questioning is basic in order to follow the clue. Of course, there is another type of questioning, which does not form the basis of any enquiry. Someone asks a question as undirected personal musing, or as a statement of ignorance or uncertainty to be answered by others; 'questions put by one man to another man, in the hope that the second man will enlighten the first man's ignorance by answering them.' (Collingwood, 1946, pp. 273-274.)¹⁶

Because of its significance as a 'specific characteristic' of historical thinking and its interrelation with distinctive levels of historical 'methodology', it was decided to study pupils' questioning by a category system, which was parallel to the 'methodology' category system.

¹⁶According to Collingwood (1946, pp. 273-274), the questioning activity 'is the dominant factor in history, as it is in all scientific work. (1) Every step in the argument depends on asking a question... He [the historian] asks a new question every time. And it is not enough to cover the ground by having a catalogue of all the questions that have to be asked, and asking every one of them sooner or later: they must be asked in the right order. Descartes, one of the three great masters of the Logic of Questioning (the other two being Socrates and Bacon), insisted upon this as a cardinal point in scientific method... (2) These questions are not put by one man to another man, in the hope that the second man will enlighten the first man's ignorance by answering them. They are put, like all scientific questions, to the scientist by himself. This is the Socratic idea which Plato was to express by defining thought as 'the dialogue of the soul with itself', where Plato's own literary practice makes it clear that by dialogue he meant a process of question and answer. When Socrates taught his young pupils by asking them questions, he was teaching them how to ask questions of themselves, and showing them by examples how amazingly the obscurest subjects can be illuminated by asking oneself intelligent questions about them instead of simply gaping at them.'

ahistorical level

[1] Questioning as statement of uncertainty or ignorance related to the object's definition or description as an object of the present

unhistorical level

[2] Questioning as statement of uncertainty or ignorance related to the object's definition or description as an object of an imprecise past

pseudo-historical level

[3] Questioning as undirected personal musing or as statement of uncertainty not limited to the object's definition or description.

[4] Questioning stating ignorance by posing questions to be answered by others, not limited to the object's definition or description.

Rational level

[5] Rational questioning as the basis of a rational 'detective' inquiry.

Historical level

[6] 'Scientific' historical questioning as the basis of a historical enquiry.

[7] Academic historical questioning as inherent in the nature of historical thinking, and as being a basic constitutive part of its public scientific character.

Questioning corresponding to ahistorical, unhistorical and pseudo-historical levels does not demonstrate how answers to these questions, if offered, would advance historical enquiry. So, strictly speaking, they are neither 'historical' nor scientific, because they are asked without really imagining or guessing their possible answers and without stating their use.

On the other, hand this type of questioning could hardly help pupils in any way to understand the presented museum objects as sources of information or evidence, at least not beyond a first level understanding. Most of the presented museum objects were works of art. And, in order to 'see' artistic works, well defined images are needed. 'This requires a thorough examination of all the relations constituting the whole, because the components of a work of art do not just label for identification ("This is a horse!"), but through all their visual properties convey the work's meaning.' (R. Arnheim, 1986, p. 17.) Questions of the type 'What is it?', or 'Is it a horse?' are not, in an absolute sense, historical, because, among other things, they do not really help anyone to understand a museum object's meaning (beyond a first-level description or definition), and thus its significance as potential evidence.

It must be emphasised here, though, that even low level questioning was assumed of great significance to pupils' thinking and reasoning in general. This assumption is based on substantial amount of research and theoretical work: Vygotsky (1934),

Bruner (1960, 1966, 1973), Piaget (1959), B. Inhelder and J. Piaget, (1958), Peel (1956, 1965, 1971), M. Donaldson (1978), M. Montessori (1967). It is also related to D. Shemilt's (1987, pp. 45-46) argument (quoted above in relation to pupils' use of historical knowledge), that 'the hidden curriculum of the classroom establishes and reinforces ... [a] set and structure of constructs about knowledge', that are not open to pupils' questioning. Therefore, approaches, such as J. Smith's (1985), 'A Questioning approach to Study skills in History', were considered very important, because, among other things, they emphasise the role that the development of pupils' questioning can play in history education.

The study of pupils historical thinking in terms of questioning was considered very significant to history education, because questions, as J. S. Bruner (1973, p. 448) put it, may open up 'the deep issues of what might be and why it is not.' We can deepen our understanding of pupils' thinking, by studying their questioning. And this understanding may lead us to develop our educational method in general, and the educational tasks we devise in particular. In addition the exploration of pupils' historical 'interests' (as expressed in their questions) could help us make history education more interesting for pupils to follow, and thus more fruitful. As P. J. Rogers (1987a, p. 38) points out, the content of history education may not be based on children's interest 'but making it interesting is mainly a question for methodology.'¹⁷ In J. S. Bruner's (1973, p. 417) words: 'Given particular subject matter or a particular concept, it is easy to ask trivial questions or to lead the child to ask trivial questions. It is also easy to ask impossibly difficult questions. The trick is to find the medium questions that can be answered and that take you somewhere. This is the big job of teachers and textbooks... One leads the child by the well-wrought medium questions to move more rapidly through the stages of intellectual development, to a deeper understanding of mathematical, physical, and historical principles. We must know far more about the ways in which this can be done.'

(6) Uncertainty

The notion of historical uncertainty was analytically discussed in the definition of historical thinking. According to this definition uncertainty was conceived, among other things, as being inherent in historical thinking, mainly because we can never

¹⁷P. J. Rogers (1987a, p. 37) suggests that children 'might be asked to jot down, say, six points which struck them as in any way interesting or important during their study of the sources. First, this can give the teacher priceless insight into the learning process. No adult can comprehensively predict what is "important" to children, and to find out not only makes our teaching more relevant to them, but may indicate genuinely important points which we had overlooked. When their suggestions [or questions] are discussed, their ideas of "importance" can be sharpened, and, specifically, building mature frames of references can begin.'

be certain about the past. We cannot directly know the 'real' past, because it is lost forever. The only thing we can do is to attempt its reconstruction on the basis of the evidence available, and to form possible hypotheses by analysing the historical context. So historical uncertainty, conceived in close relation to possibility, is a basic characteristic of historical thinking, dependent on the nature of history. It is not dependent only on the limitations of the evidence, on our historical method or on lack of relevant background historical knowledge. It is dependent on the fact that we cannot know the past; we can only attempt to investigate the past in terms of possibility.

Uncertainty included in pupils' historical thinking is not always clear historical uncertainty, in terms of the above discussion. Pupils may express uncertainty based on their incomplete picture of the source available, or on their ignorance or incomplete information. Although this type of uncertainty is an important element of pupils' thinking, and it can count as a characteristic element on the basis of which their historical thinking can be studied, it is not historical uncertainty conceived as inherent in history and related to possibility. So the study of pupils' historical thinking in terms of uncertainty, conceived as a specific characteristic of historical thinking, was based on a (to some extent) 'arbitrary' distinction between 'uncertainty' and 'possibility'.

Uncertainty expressed by pupils' thinking was analysed as historical uncertainty or *possibility*, if it was related to the notion that our inferences about the past cannot be certain. Uncertainty expressed by pupils' thinking was analysed as simple, not historical, *uncertainty*, if it just declared pupils' ignorance or incomplete picture of the source available.

The distinction between '*uncertainty*' (not historical uncertainty) and '*possibility*' (historical uncertainty) was based on the work of D. Shemilt (1987). Shemilt mentions that pupils' historical thinking corresponding to his proposed low historical stages I and II, is not in accordance with the fact that 'historical arguments are necessarily deductive in the unexceptional sense that conclusions must follow from premises, but the terms of these arguments are often uncertain or contentious because we lack precise data about the contents of people's minds and are unable to reconstruct the actual structures and concatenations of events. The historian, therefore, is concerned to *adduce* key terms and values for his arguments, to reconstruct intentions, interactions and salience in respect of which actions become intelligible and events causally explicable. One characteristic of the adductive method is that instead of drawing analytical, and hence tautological true,

inferences from evidentially supplied premises, the historian more usually utilises evidence to *reduce the uncertainty* attaching to particular questions.’ (p. 52.) Pupils in stages I and II do not grasp ‘that the impossibility of “right answers” in history does not compromise the possibility of “worthwhile explanations” and “justifiable assertion”. Strictly speaking “right answers” may be found in history but without our being privileged to claim their discovery. The concept of the “right answer”, of “accurate description”, is therefore redundant.’ (p. 53.) On the contrary, pupils, especially in stage I, see uncertainty as dependent on their ignorance, because in stage I pupils consider evidence as equal to knowledge and ‘the historian as memory man’. (Ibid., p. 42.) In stage two ‘the role of historian is thought to involve the identification of true and accurate pictures of the past’ (Ibid., p. 51), while only in higher stages, namely in stage IV, do pupils see that ‘the historian generates hypotheses (significantly called “realistic possibilities” not just “ideas” or “guesses”) from analysis of historical context.’ (Ibid., p. 57.)

(7) Recognition of the limitations of the evidence

The recognition of the limitations of the evidence is neighbouring upon the notion of historical uncertainty. The recognition of the limitations of the evidence was conceived as a specific characteristic of historical thinking, which is mainly related to historical methodology. That is it is related to the use of written texts or objects as historical sources and to their interpretation as evidence about the past. As G. Shawyer, M. Booth and R. Brown claim (1988, p. 209), ‘historians use both primary and secondary sources, recognising distinctions between them and acknowledging that both pose problems of interpretation. They also take into account the fact that sources vary at different times, that they may be incomplete, unreliable or biased.’

The limitations of the evidence may also be recognised, in the first place, as a need to use more evidence, or to cross-test evidence with other primary or secondary sources. At a more sophisticated level the limitations of the evidence may be recognised in terms of the limitations of interpretation, as discussed in Part 2.1.1. on the basis of Umberto Eco's (1990) homonymous work, *I Limiti dell' Interpretazione*.

The endless series of possible interpretations is, besides anything else, limited by our purpose and use. ‘Our cognitive purposes organise, frame and diminish this undetermined, infinite series of possibilities.’ (U. Eco, 1990, p. 404.) According to A. K. Dickinson, A. Gard and P. J. Lee (1978, pp. 15-16), written texts, and ‘objects’ can be used (i) as ‘pictures of the past’, (ii) as ‘illustration’, (iii) as

‘evidence for particular inferences’ and (iv) as ‘evidence for interpretation and histories.’ Only the last two categories ‘involve understandings and procedures’ used ‘in dealing with limited assertions’ and ‘in complex interpretations of evidence within the framework of history as a public form of knowledge.’

R. Ashby and P. J. Lee (1987) and D. Shemilt (1987), through their independently written but linked works offer a clear basis for the study of pupils’ thinking in terms of the recognition of the ‘limitations of the evidence’. It was decided, however, to analyse pupils’ historical thinking in terms of the recognition of the limitations of the evidence (conceived as a specific characteristic of historical thinking) on the basis of its presence or absence. In other words it was considered critical for the study to see if pupils recognised any limitations related to their work with the presented museum objects as evidence. The level of this recognition was conceived as indirectly related to the level of their historical thinking in terms of methodology, and was therefore related to the study of the methodology of pupils’ historical thinking.

The decision to see if pupils recognised any relevant limitations in their work with objects related also to some general problems underlined by G. Shawyer, M. Booth and R. Brown (1988, pp. 212-213). ‘The fact that using source material is now relatively commonplace might suggest that there are few pedagogical problems, but this is far from being the case. There are at least three kinds of difficulty. One is the confusion that so often exists over the purpose of using sources. The use of sources (particularly primary sources) is possibly regarded as the cornerstone of the “new history” and therefore accepted as a “good thing”. The fact that historians use sources provides a model for the teaching and learning of history in schools. But it is not enough that historians use sources, we need to pay attention to how they use them. A second problem ... is the lack of research into how successfully children can handle sources. A third is that however limited our knowledge of children’s understanding is, we know even less about how they can be encouraged to progress from one level of understanding to another.’

(8) Historical relativity

The notion of ‘historical relativity’ and its significance to historical thinking was analytically discussed in Part 2.1.1. As was expected, Greek pupils’ did not often use this notion in their responses; most possibly because of the nature of the Greek traditional system, by which pupils’ were educated to give positive answers to teachers’ questions according to the closed type of historical knowledge that they were offered and that they had to reproduce. Therefore this ‘specific characteristic’

of historical thinking was not further investigated, despite its importance. Pupils' historical thinking was studied in terms of historical relativity on the basis of the presence or absence of this notion in pupils' thinking. In other words the presence of the notion of historical relativity was conceived as a specific characteristic of pupils' historical thinking, corresponding to a high, academic level, and revealing pupils' active intellectual abilities that develop beyond the limits set by the Greek educational system.

The presence of conditionality in pupils' thinking, not directly relating to historical thinking, but relating to rational thinking, was considered as plain relativity [R] as opposed to historical relativity [HR].

(9) Empathy

Empathy is conceived as a significant 'specific characteristic' of historical thinking, but because of its controversial character is not deeply investigated by this research. Moreover, the notion of 'empathy' is not only related to history and history education. It is also related to psychology; it was related to the mechanism of 'projection', when it was first defined by Freud, in 1890. Empathy is also involved in aesthetic experience. And is important to emphasise here that the notion of empathy has been seen as a mysterious and controversial issue in the context of many disciplines besides history.¹⁸

Empathy is a complex concept, because, besides its several connotations relating to the context of different disciplines and fields of human experience, it can be conceived both as 'process' and as 'achievement', both as 'affective' and 'cognitive'. According to P. J. Lee (1984b, p.90), 'empathy as achievement is closely related to important aspects of historical understanding. Understanding actions in history presupposes empathy as achievement, because it involves seeing an action as appropriate in terms of the agent's goals and intentions, and his view of situation.' But Lee claims also, that 'the problems for children in understanding why someone acted or failed to act in history are immense. There are no rules of relevance for what is to count as part of the agent's concerns. The distinctions between the agent's and the historian's knowledge and point of view is a difficult

¹⁸Harry Stack Sullivan (1953, p. 41., quoted by R. Arnheim, 1986, p. 54), one of Freud's followers and a supporter of empathy, calls the rationale for this capacity 'thoroughly obscure': 'I have had a great deal of trouble at times with people of a certain type of educational history; since they cannot refer empathy to vision, hearing, or some other special sense receptor, and since they do not know whether it is transmitted by the ether waves or air waves or what not, they find it hard to accept the idea of empathy.' As Rudolf Arnheim mentions (1986, p. 54) empathy is very important for aesthetic experience as well. 'Mystery or not ... its presence is surely indispensable if one wishes to describe the aesthetic experience, for which the concept empathy was originally coined.' See also K. B. Clark (1980).

one, and it is harder still to oscillate between these points of view in the way often required if understanding is to be achieved.' (Ibid., p. 91.)

D. Shemilt (1984, p. 44) also argues that empathy offers 'a prophylactic against tempero-centrism... It is the historian's task to render what is alien about the past mentalities sufficiently recognisable to the contemporary reader for him to accept them as his "own", but to do so without reducing their distinctive and diacritical features... It is this conceptual distance, this dislocation in the world-views of past and present, that the empathising historian seeks to remedy. When successful, he does "bring the past back to life", but not by re-creating thought as it was - although his work creates this illusion - nor even by building a bridge of words across time. He achieves his aim by using the conceptual apparatus of the present to construct a model of mind different from that of the present into which known facts can be slotted and made good sense of. These "models of mind", whether relating to periods, societies, groups or individuals, amount to factually exemplified "transformation rules" by means of which the unfamiliar is transmuted into the recognisable. Put another way the historian writes footnotes to present-day ideas, values and norms, which enable us to apply knowledge and understanding of contemporaries to predecessors. Everyday experience thus substitutes for a science of human nature, and common sense stands in for a deontic calculus.'

P. J. Lee's and D. Shemilt's ideas quoted above, although they do not exhaust the complexity of the concept and its significance to the development of pupils' historical thinking, directly and indirectly offer us, and teachers in Britain, a clue to follow in working out an acceptable concept. They indirectly answer also arguments of theorists, like P. Knight. (1989a, 1989b),¹⁹ or theorists of the school of Annales,²⁰ who roughly reject the notion of empathy at any case.

Because of its complexity and controversy this 'specific characteristic' of historical thinking was not investigated by the research; it demanded special concentration, and deep analysis. According to R. Ashby's and P. Lee's (1987, pp. 85-86) arguments, also, the development of concepts like empathy may depend more on pupils' interaction and arguing than on instruction. The pupils of this longitudinal field study had neither verbal instruction, nor the opportunity to argue the problem of empathy among themselves, since they were educated by the Greek traditional

¹⁹'Empathy is a seductive concept which is alien to the discipline.' (P. Knight, 1989a, p. 208.)

²⁰'The accomplished fact does not exist any more; it is naive to want to judge it in the way it existed or to pretend that "we put ourselves into the place" of the dead heroes.' (François Chatelêt, 1962, p. 17.)

educational system. And 'traditional history teaching has always ... been cautious of new approaches which appear to allow children to get things wrong.' (Ibid., p. 86.)

On the other hand, according to M. Booth et al. (1986, p. 9), empathetic construction is very difficult for pupils and 'it is difficult to measure since it is not really a separate skill, but a key part of the historian's mode of thinking used always in combination with other skills.'

Therefore, it was decided to proceed to a first level analysis of pupils' 'empathy', mainly to see if pupils showed any sign of empathetic understanding. In other words, if they were conscious of the fact, that, in order to try to reconstruct the past, we have to try to understand people of the past within their different historical context. Because, even if empathy is difficult for pupils, since, among other things, they have to go beyond both self-centrism and tempero-centrism, at least not being ignorant is very important for the development of their historical thinking. As Vygotsky (1934, p. 194) argues: 'though scientific and spontaneous concepts develop in reverse directions, the two processes are closely connected. The development of a spontaneous concept must have reached a certain level for the child to be able to absorb a related scientific concept. For example, historical concepts can begin to develop only when the child's everyday concept of the past is sufficiently differentiated - when his own life and the life of those around him can be fitted into the elementary generalisation "in the past and now"; his geographic and sociological concepts must grow out of the simple schema "here and elsewhere". In working its slow way upward, an everyday concept clears a path for the scientific concept and its downward development. It creates a series of structures necessary for the evolution of a concept's more primitive, elementary aspects, which give it body and vitality. Scientific concepts, in turn, supply structures for the upward development of the child's spontaneous concepts toward consciousness and deliberate use. Scientific concepts grow downward through spontaneous concepts; spontaneous concepts grow upward through scientific concepts. The strength of scientific concepts lies in their conscious and deliberate character. Spontaneous concepts, on the contrary, are strong in what concerns the situational, empirical, and practical. These two conceptual systems, developing "from above" and "from below", reveal their real nature in the interrelation between actual development and the zone of proximal development.'

Therefore, it was decided to analyse pupils' empathy, as a specific characteristic of historical thinking, according to the 'set of levels for the analysis of children's

ideas of what is involved in empathy' proposed and discussed by R. Ashby and P. J. Lee (1987). Indeed, these levels were adjusted to the levels of the 'methodology' category system, on the basis of relevant observations made on pupils' responses. The 'empathy' category system was finally given the following form:

Absence of empathy

[1] absence of any sign of empathy - no empathetic thinking, relating to 'methodology' levels [1] and [2]

Pseudo-historical empathy

[2] 'the "divi" past' - the past is strange, no attempt to understand it

[3] 'generalised stereotypes' - conventional, stereotyped empathy, relating to 'methodology' level [3]

[4] unsupported empathy - presence of empathy, but not supported, relating to 'methodology' level [4]

Rational empathy

[5] 'everyday empathy' - presence of empathy, supported in contemporary, rational terms, corresponding to 'methodology' level [5]

Historical empathy

[6] 'restricted historical empathy' - historical empathy relatively isolated from the wider historical context, supported in historical terms, corresponding to 'methodology' level [6]

[7] 'contextual historical empathy' - highly developed historical empathy, supported in historical terms on the basis of the wider historical context, corresponding to 'methodology' level [7]

It is important to emphasise here, that this system could let us form some significant claims about empathy both as a 'specific characteristic' of historical thinking, and in relation to pupils' historical 'methodology'. The analysis of pupils' empathy, however, was a difficult task, since pupils' empathy was studied on the basis of pupils' written responses to specific devised tasks only, in relation to museum objects and not to textual historical sources.

The interrelation of the elements of historical thinking is schematically shown in the 'Historical Thinking Plan', attached at the back-cover. The analysis of pupils' historical thinking in terms of its elements is analytically discussed in Chapter 5.

2.2. Historical thinking and intellectual development

The relation of pupils' historical thinking to intellectual development was a primary question, but it was investigated after the definition of historical thinking and its elements. This decision was based on the idea that we had firstly to explore pupils' historical thinking as such, and only afterwards to study its relation to intellectual development. Because, among other things, intellectual development is a very broad and deep theme, and as such it could have led us, if investigated before or together with historical thinking, to the depreciation of the independent historical character of historical thinking. In addition, children's reasoning and intellectual development in general are related to other issues, among which with instruction.²¹

As was discussed in Part 2.1, historical thinking was conceived as being constituted by the interrelation of three basic elements; by its methodology, content and specific characteristics. All three were conceived as demanding the intellectual involvement of the thinking 'historian', and in consequence all three were conceived as related to mature reasoning. But if the content of historical thinking is related to reasoning, its methodology, and at least some of its specific characteristics are related to reasoning even more deeply. The methodology of historical thinking is closely related to 'mature reasoning', because it requires, among other things, hypothesising and consideration of possibilities, demonstration of inferences in explanatory terms, and differentiation of concepts like *evidence* and *information*. On the other hand most 'specific characteristics' are related to especially developed scientific skills and concepts, that presuppose, besides anything else, 'mature' intellectual development and reasoning.

²¹There are several theories concerning the relation of intellectual development to instruction. According to Vygotsky (1934, pp. 174-190), the traditional theory 'considered instruction and mental development to be mutually independent' with instruction 'hobbling' behind development. 'Development must complete certain cycles before instruction can begin... This view, characteristic of old-fashioned educational theory, particularly that of Meumann, also colors the writings of Piaget, who believes that the child's thinking goes through certain phases and stages regardless of any instruction received.' (pp. 174-176.) The second theory identifies development and instruction. James 'bases both processes on association and habit formation, thus rendering instruction synonymous with development'. Thorndike (and generally reflexology) 'sees the intellectual development of the child as a gradual accumulation of conditional reflexes; and learning is viewed in exactly the same way.' (p. 176.) Gestalt psychology, on the other hand, 'tries to reconcile the two foregoing theories... Kofka admits some interdependence between the two aspects of development... he demonstrates that the maturation of an organ is contingent on its functioning, which improves through learning and practice.' (pp.176-177.) Vygotsky argues, that, among other things, 'the development of the psychological foundations of instruction in basic subjects does not precede instruction, but unfolds in a continuous interaction with the contributions of instruction.' (p. 184.)

Based on Collingwood's aphorism that 'the object of history is thought', the content of historical thinking was defined as potentially relating to all areas covered by human thought. So schematically, and to some extent arbitrarily, we may say that the content of historical thinking is not deeply related to intellectual development, because even a very simple thought ('Children played with toys') can be the content of historical thinking. This arbitrary statement is made only in order to show the deeper level of relation between the methodology and some specific characteristics of historical thinking to intellectual development. It will be clear that in fact the content of historical thinking, as was discussed in Part 2.1, was conceived as relating to intellectual development, because, among other things, it was conceived as being interrelated with the methodology and the specific characteristics of historical thinking.

The discussion of the relation of pupils' historical thinking to intellectual development, is not exhaustive, because it is limited to the analytical demands and the aims of the research. Therefore, it was decided to investigate this theme in terms of the relation of historical 'methodology' to reasoning mainly.

2.2.1 The 'methodology' category system and reasoning

The system of levels for the study of the 'methodology' of pupils' historical thinking shows that each level requires, among other abilities of a clear historical character, a certain type of reasoning.

Ahistorical thinking

1. Description of the object as object qua object of the present.

No methodology involved, pupils' thinking limited to the description of the object as object qua object of the present.

Unhistorical thinking

2. Description of the object as object qua object of an imprecise past.

No methodology involved, pupils' thinking limited to the description of the object as object qua object of an imprecise past.

The first two, ahistorical and unhistorical levels of thinking, pre-supposed pupils' ability to observe the museum object, and to describe it or to define it on the basis of its (external) appearance. e.g. 'It is a big.', 'Some of its parts are missing.' Pupils' thinking is restricted to the immediate 'external' situation, or rather to the 'external' appearance of the phenomenon.

The fact that pupils' thinking is limited to a rather low and immature level of reasoning, could not lead us, though, to the conclusion that pupils' general intellectual development is necessarily bound to this level. The only thing we could say is that their particular historical thinking, as it is expressed in the particular response, corresponds to a rather low level of reasoning. Such pupils use concepts referring only to the external appearance of things, and they do not take advantage of (potential) mature and developed intellectual abilities like hypothesising. In most cases they do not even take into consideration the wording and the meaning of the relevant question, to which they respond. (See Chapter 4.)

Pseudo-historical thinking

3. Reproduction of historical knowledge.
4. Unsupported inferences directly from the object.

At level 3 pupils reproduce historical information or knowledge they have acquired 'independently' (mainly at school) or 'dependently' (in the museum). Pupils do not use the presented museum objects as sources of information or evidence. The presented museum objects (and the devised questions or tasks) serve as a stimuli for the reproduction of historical knowledge. But on the other hand pupils do not remain attached to the immediate situation. They do not just describe the presented objects. They see the objects as being of a particular kind, namely the kind that 'independent' or 'dependent' knowledge picks out. This methodology could be called 'linear', because it is based on an direct object-'knowledge' relation.

At level 4 pupils proceed to state inferences, but inferences, which are not formed on the basis of the museum objects studied, but directly from them. Museum objects are conceived as speaking about the past and/or themselves, and, among other things, they are not questioned. In addition, this 'linear', object-statement methodology and its conception does not demand any demonstration or explanation, because things speak by themselves. We may say that pupils use the museum objects as sources of information, but not as evidence about the past. On the other hand pupils do not remain attached to the immediate 'external' phenomenon or situation, because even in statements which focus on the object only, the object is not just described in terms of concepts relating to the external aspects of things, but is interpreted in terms of 'abstract' concepts and values. e.g. 'It is a beautiful vase.', 'It is old.' Therefore, pupils' historical thinking is conceived as corresponding to an intermediate level between 'undeveloped' and 'mature' reasoning.

Rational thinking

5. 'Detective' inquiry.

Rational methodology involved, similar to a 'detective' inquiry, but with no clear historical orientation, and no use of 'independent' background historical knowledge.

Historical thinking

6. 'Scientific' historical enquiry

Historical methodology involved, based on 'scientific' historical processes, mainly on interpretation of evidence, and on 'independent' background historical knowledge, and realised as a historian's enquiry.

7. 'Academic' historical enquiry

'Academic' historical methodology involved, based on highly developed historical processes and 'independent' background historical knowledge, and realised within historians' scientific dialogue in terms of historical relativity.

The last three levels of rational and historical methodology, correspond to 'mature' reasoning, because, besides their differences related to historical issues, pupils inferences are based on the evidence available, and are demonstrated in explanatory terms. The mature level of pupils reasoning is underlined also by pupils' ability to think historically (at level 6), and, at least at level 7, to think according to 'academic' historical standards, including (all) the interrelated stages of the process of scientific historical methodology.

The above observations support our supposition that historical thinking might relate to reasoning mainly in terms of its methodology, because if its 'methodology' level does not relate to mature reasoning, historical thinking as a whole also is related to low reasoning, despite its potential high-level content and/or specific characteristics. In such a case the intermediate level of reasoning is the highest level that can be reached, which relates to 'methodology' level 4. On the other hand if the 'methodology' level relates to mature reasoning, then historical thinking as a whole relates to high-level reasoning, although it might be restricted by its potential low-level content and/or specific characteristics. These observations implied also the close interrelation of the three elements of historical thinking, and they gave us a clue to follow in our attempt to investigate the relation of historical thinking to distinctive levels of reasoning.

2.2.2. Historical reasoning and Piaget's and Peel's theories of intellectual development

In fact the observations discussed above relate to some basic issues which identify distinctive levels of intellectual development that are proposed by Piaget (B. Inhelder, and J. Piaget, 1958) and Peel (1965, 1967, 1968, 1971). In consequence they led to the idea that pupils' historical thinking (in terms of its methodology) could be related to distinctive levels of reasoning on the theoretical basis of the interconnections that exist between of Piaget's and Peel's theories of intellectual development.

Therefore, besides the questions posed by many thinkers, such as Dickinson and Lee (1978) and Booth (1978, 1987), about the contribution of the work of either Piaget and Peel to the study of children's historical thinking, this decision was related to D. Shemilt's (1980) and D. Thompson's (1984) claims: Despite all the problems, 'it is possible to feel optimistic about the applicability of Piagetian genetic epistemology to children's learning of history' (Shemilt, D., 1980, p. 50). We may study the peculiarity of historical thinking 'without rejecting the value of the respective frameworks of thinking that Piaget and Peel suggest' and '(the essential features of Piaget's concrete and formal stages of operational thinking and Peel's "describer" and "explainer" categories are broadly comparable) and the general criteria by which these levels are identified, can offer insights into how children will approach and deal with historical problems and situations. The indication that at one level children will tend to be restricted in their thinking about a variety of problems by a concentration on the immediate information and evidence in a reasoned but fairly straightforward way whereas at a higher level they will appreciate the limitations of the information, will tend to think through and beyond the immediate evidence in a disciplined manner, hypothesise and consider possibilities not immediately stated or apparent, is a general but useful distinction.' (D. Thompson, 1984, pp. 173-174.)

Piaget's and Peel's 'respective frameworks and general criteria by which their distinctive levels were identified' were used as a general theoretical basis for the study of the relation of pupils' historical thinking to reasoning only. They were not used as the basis on which pupils' historical thinking as such was studied, because, among other things, this study relates to M. Booth's (1987, pp. 26-27) argument, 'that not only is the research based on Piagetian theories flawed but that the very view the theory gives us of children's capacity to think historically is limited and restricting and that it focuses our attention on a small part only of what

it means to think historically. Piagetian psychology directs us to the logical and requires us, to quote P. Lee [1984b], to see history “as a kind of abstract pattern or calculus in which terms are manipulated for mysterious academic purposes or for examinations”. Of course there is place for such rigorous, logical thinking but to concern ourselves with this alone is to rule out a range of imaginative and empathetic elements which bring the dry bones of the past to life and turn historical knowledge into historical understanding.’²²

M. Booth’s argument quoted above not only does not contradict the decision to use Piaget’s and Peel’s theories for the study of the relation of historical thinking to reasoning, but it supports, also, the general design of the research. It is also in agreement with the discussion of historical thinking, history and history education that follows in Part 2.3.

Piaget’s and Peel’s levels of intellectual development and the respective frameworks of thinking that they suggest, were recognised as ‘mental models’ which could be used as ‘intellectual tools’ - to use P. McKellar’s (1957, p. 175) wording quoted in Part 2.1.1, in relation to schematic plan 9 - for helping us to understand pupils’ historical thinking. They were recognised as products of their own thought; and not as something we can “see” in nature, or rather in pupils’ thinking itself. There were used as ‘a scale applied to the reality’ of pupils’ thinking. Therefore, not only the work of Piaget, but the work of a great number of thinkers of different orientation and theoretical context formed the theoretical background of the research mainly because of their great differences, their interesting similarities, and their appealing interconnections.²³

²²‘Perhaps therefore the first requirement of anyone concerned with the development of pupils’ historical thinking is to determine the particular nature of the discipline and the learning and teaching it requires (to establish, that is, what Jerome Bruner would call the “structure” of the subject); only then can one begin to establish how far and by what methods pupils can actually engage in such activity. At start, I would assert that historical thinking is not primarily about hypothesis, induction and deduction or the testing or creation of new laws. We are indeed in a different ball game from that of the natural scientist. We deal with the activities of people in a vanished past. Our sources of evidence are the traces they have left - usually incomplete - traces which can include anything from oral evidence to air photography, artefacts to account books, landscape to letters. To interpret this, to extract the meaning or significance which it may contain, the historian has to ask questions; ... his [the historian’s] task is to put forward the most convincing account of the past; and the sort of thinking that can produce this ... demands a combination of imagination, feeling and historical knowledge which may well be shaped by the operation of some guiding idea or concept. Thus the historian has much of the creative artist in him. ... Clearly then Piaget’s framework of cognition is far too limited and restricting an instrument to use for analysing the complex strands which go to make up pupils’ thinking and understanding in history.’ (M. Booth, 1987, pp. 26-27.)

²³For similarities and differences in Piaget’s and Bruner’s approaches and theories in particular see: J. M. Anglin, ‘Introduction’. In: J. S. Bruner (1973, pp. XVii-XXiii.), and P. J. Rogers (1984a, pp. 28-30).

It was a supposition of this research that, since neither Piaget, nor Peel, nor Bruner, nor Vygotsky was directly concerned with history - Peel's (1967) theory being the more directly concerned with it - it could be useful and interesting to take into consideration all these four theories, and to try to use some of their ideas, that could be related to the study of pupils' historical thinking. That being the case, we could explore the development of pupils' historical thinking within the broader area of the development of pupils' thinking, by relating the category system of historical thinking 'methodology' to some basic and 'common' aspects of these theories. It was very interesting that, working in this mode, even Collingwood, and his ideas about history and historical thinking, could be interrelated with some basic issues of these theories.

Central to the relationships between Peel's stages of 'Describer Thinking' and 'Explainer Thinking' and Piaget's stages of 'Concrete Operations' and 'Formal Operations' are some basic ideas and assumptions common to both thinkers. According to Piaget's theory the basic differences between 'Formal Operations' and 'Concrete Operations' is that the adolescents are able to reason by *hypotheses* instead of simply stating relations, their reasoning is *not limited to deductions from the actual immediate situation*, and they generalise to an *overall explanation* of the results and *to other potential situations*.²⁴ Basic characteristics of 'Formal

For Piaget's and Peel's theories and their relation to historical thinking see: A. K. Dickinson, P. J. Lee (1978, pp. 94-99).

For Piaget's theory in relation to historical thinking see: R. N. Hallam (1970, 1975), and D. Shemilt (1984, pp. 58-61).

For the similarities and differences in the works of Vygotsky and Piaget see: L. Vygotsky (1934, pp. 12-67, 153-156, 170-176).

For Peel's, Piaget's, Bruner's and Vygotsky's common interest in concept formation and learning see: E. A. Peel (1968, pp. 304-327).

For Piaget's, Bruner's and Vygotsky's theories on the interrelation of language and thought see: L. Vygotsky (1934).

²⁴Piaget's stage of 'Concrete Operations', of concrete structures, depends on the 'logic of classes' (class inclusion operations) and on the 'logic of relations' (serial ordering operations), i.e. on the ability 'to generalize along a linear dimension, or to arrange objects (or their properties) in series'. 'Formal Operations' are based on 'propositions' (sets of mental operations rather than directly on reality). According to A. Parsons and S. Milgram (Introduction in Inhelder, B. and Piaget, J., 1958) 'It is possible for the subject to isolate variables and to deduce potential relationships, which can later be verified by experiment'. 'Formal Operations' 'enable him to combine propositions mentally and to isolate those which confirm his hypothesis on the determinants of flexibility. The combinational system is the structural mechanism which enables him to make these combinations of facts; to assimilate the facts in the form of propositions and to arrange them according to all possible combinations, so a number of potential explanations in fact explain what he saw. The adolescent both discriminates between parts (variables or specific events which occur), and generalizes to an overall explanation of the results and to other potential situations. So the development of thought is seen as moving toward the construction of wholes, but, as it is emphasized to a greater extent, it also moves toward a finer discrimination of elements within the whole. The structural whole and the relationships between its parts are separable as well and integrated'. (Inhelder, B. and Piaget, J., 1958, Introduction by A. Parsons and S. Milgram.) As Piaget himself argues: 'Actually the context of stage III [Formal Operations] reactions is quite different from that of preceding stages: reasoning by hypothesis and a need for

Operations' are also basic characteristics of Peel's 'Explainer Thinking', which distinguish it from his 'Describer Thinking'. In his own words: 'In the growth from a largely descriptive type of thinking to explanation we see a change from particularistic, perceptual, circumstantial and largely inductive ways of thinking to modes of thought revealing the invocation of imagined possibilities which gradually become more articulate in form to warrant the use of the terms hypotheses and propositions. This articulateness is shown in the increased use of deduction and in the power to eliminate unsupported alternatives'. (E. A. Peel, 1965, p. 174.) *Explanation, hypotheses, independently acquired ideas* are common in both 'Formal Operations' and 'Explainer Thinking', while *statement of linear relations, description of immediate experience*, are common in both 'Concrete Operations' and 'Describer Thinking'.

2.2.3. The relation of historical thinking to distinctive levels of intellectual development

On this basis the category system of historical methodology was further adjusted to Peel's (1965, 1967, 1971) and Piaget's (B. Inhelder and J. Piaget, 1958) theories of intellectual development.

Schematic plan 20. Historical thinking and intellectual development

Piaget's 'Concrete Operations' / Peel's 'Describer Thinking'

Ahistorical thinking

1. Description of the object as an object of the present

Unhistorical thinking

2. Description of the object as an object of an imprecise past

Intermediate level

Pseudo-historical thinking

3. Reproducing historical knowledge
4. Unsupported inferences directly from the object

Piaget's 'Formal Operations' / Peel's 'Explainer Thinking'

Rational thinking

5. Inferences by rational processes

Historical thinking

6. Historical inferences by historical processes
7. Academic historical inferences by historical processes

demonstration have replaced the simple stating of relations... thought proceeds from a combination of possibility, hypothesis, and deductive reasoning, instead of being limited to deductions from the actual immediate situation.' (Inhelder, B. and Piaget, J., 1958, pp. 15-16.)

In this way we could study the relation of distinctive levels of pupils' historical thinking (in terms of its methodology) to distinctive levels of intellectual development.

This research was partly based on Piaget's theory of 'Concrete' and 'Formal Operations', as distinctive different levels of intellectual development, but it did not make any use of Piaget's generalizations about the ages at which these stages appear. Because, besides the general objections to the idea of the structure of intelligence at specific stages,²⁵ the main interest of the research was the study of the development of pupils' historical thinking in relation to the 'process of cognitive growth'. It was, in a general sense, related to Bruner's (1960, 1966, 1973) ideas of 'intuitive thinking', 'fertile hypotheses' and to his famous statement that [in a sense] 'any subject [including history will all its 'difficulties' and 'problems'] can be taught effectively in some intellectually honest form to any child at any stage of development'. (Bruner, J., 1960, p. 33.) Basically it was related to Vygotsky's (1934) theory of the 'zone of proximal development', and to his theory of the development of scientific concepts. (Ibid., pp. 96-209.)²⁶

On this basis, the study of the relation of pupils' historical thinking to distinctive levels of reasoning may be significant to history education. Not for restricting our ideas about pupils' potential in historical thinking. On the contrary, since 'the child

²⁵Vygotsky also criticises Piaget's generalizations about the ages at which the different stages appear, in an expanded analysis in his, 'Piaget's theory of the child's speech and thought'. (Vygotsky, 1934.) Vygotsky argues: 'Once he separated pleasure and need from adaptation to reality, Piaget was forced by the power of logic to divorce realistic thinking from all needs, interests, and desires, and to confine it to a sphere of pure thought.' (p. 38.) Vygotsky also points out that children's thought depends also on 'the method of education' (p. 54), and on their social environment. 'Piaget observed children at play together in a particular kindergarten, and his coefficients are valid only for this special milieu.' (p. 55.)

²⁶According to Vygotsky, 'when the child learns some operation of arithmetic or some scientific concept, the development of that operation or concept has only begun; the curve of development does not coincide with the curve of school instruction; by and large, instruction precedes development... all school subjects act as formal discipline, each facilitating the learning of others; the psychological functions stimulated by them develop in one complex process... for each subject of instruction, there is a period when its influence is most fruitful because the child is most receptive to it. It has been called the *sensitive period* by Montessori and other educators'. (Ibid., pp. 184-189.) Vygotsky supports the latter on the basis of his argument that 'with assistance, every child can do more than he can by himself - though only within the limits set by the state of his development. If imitative ability had no limits, any child would be able to solve any problem with an adult's assistance. But this is not the case. The child is most successful in solving problems that are closer to those solved independently; then the difficulties grow until, at a certain level of complexity, the child fails, whatever assistance is provided'. (Ibid., p. 187.) These arguments are further related with Vygotsky's 'zone of proximal development'. 'The discrepancy between a child's actual mental age and the level he reaches in solving problems with assistance indicates the zone of proximal development... Experience has shown that the child with the larger zone of proximal development will do much better in school. This measure gives a more helpful clue than mental age does to the dynamics of intellectual progress'. (Ibid., p. 187.)

is most successful in solving problems that are closer to those solved independently' (Vygotsky, *Ibid.*, p. 187), and since 'at a certain level of complexity, the child fails, whatever assistance is provided' (*Ibid.*, p. 187), the deeper understanding of these 'sensitive periods' may help develop history education further. (See also M. Carretero and J. F. Voss, 1994.)

2.3. Historical thinking, History and History education

The investigation of historical thinking was related to changing approaches to history education in Britain, and was directly based on the relevant work of a relatively small number of historians and other theorists. However, this investigation took into consideration the theoretical work of many other historians such as M. Bloch (1954), G. Kitson Clark (1967), J. H. Hexter (1972), G. R. Elton (1967), J. Tosh (1984). On the other hand, theorists of different orientation and origin, especially Greeks such as N. Svoronos (1988), and French theorists such as F. Braudel (1958), enriched the general theoretical background of the research, which was, thus, built on historians' great differences, similarities and interconnections, and especially on their common intellectual devotion to the subject.

The investigation of historical thinking was based on the assumption that each historical theory conceives historical thinking according to its particular approach to history, and that each historical theory is, to a large extent, formed on the basis of its particular conception of historical thinking. Accordingly, each approach to history education is equally formed on a particular conception of history and historical thinking. This assumption, which is analytically discussed in this part, relates, in a sense, to H. White's (1973, p. 428) argument, that 'every philosophy of history contains within it the elements of a proper history, just as every proper history contains within it the elements of a full-blown philosophy of history.'

On the basis of our investigation of historical thinking in Part 2.1, and in accordance with the relevant schematic plan 9, historical thinking was conceived as an intellectual activity which is integral to the whole process of history, and which is in the main related to the selection and interpretation of evidence, on the basis of which historical inferences and questions about the past are generated. Historical thinking (in terms of the interrelation of its methodology, content and specific

characteristics) and historical knowledge are interrelated, while the outcome of historical thinking is socially evaluated according to scientific criteria set.

Thus, historical thinking is directly related to historians' conceptions of the evidence, its interpretation, and its use; i.e. it is related to historians' treatment of the evidence according to their theoretical view of the historical process and their effort to make sense of it. This overall conceptual system shapes the outcome of historical thinking, the historical narrative, which is usually given in a written form.

In fact, all different types and modes of history, from the origins of history in Ancient Greece by Herodotus and Thucydides, to Postmodern metahistory, and from academic history to oral history and social memory, are realised with and are based on this system of conceptions, albeit seen from different perspectives. Thus, great differences, interesting similarities and appealing interconnections distinguish and simultaneously relate different theories of history and the associated theories of historical thinking and history education.

Therefore, the attempted definition of historical thinking, although mainly referring to changing approaches to history education in Britain, was made as a theoretical tool with which historical thinking could be explored in relation to different approaches to history and history education. In order to substantiate this claim, and for the purpose of this discussion only, distinctive types of current history and history education are generally and schematically labelled and discussed as 'traditional', 'modern' and 'postmodern'.

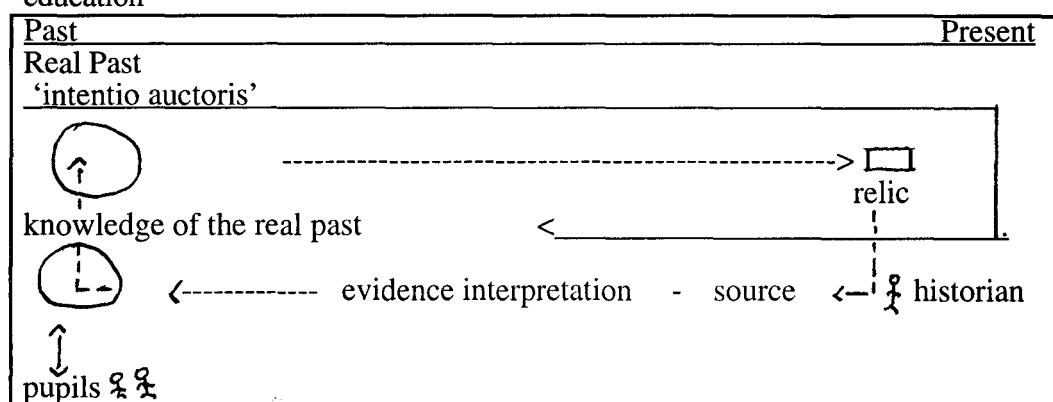
2.3.1. Historical thinking and 'traditional' history and history education

'Traditional' history conceives the evidence as leading directly to the reality of the past, which can thus be known. Historians' work and historical thinking are tested in terms of objectivity, according to the one and only potential interpretation as an investigation of the *intentio auctoris*, excluding the *intentiones operis* and *lectoris*, which are ignored. According to this conception, historical thinking is not influenced by the social, cultural and ideological environment of the historian, although in fact such approaches are founded on clear ideological bases and serve ideological purposes. (See M. Ferro, 1981.) Historical thinking is conceived as being dependent on the historian's ability to discover the real past. Therefore, the outcome of historical thinking is evaluated as either right or wrong, since it either does or does not lead to knowledge of the past; there is no room for alternative

historical views and/or interpretations, especially if they are based on the same sources. Historical knowledge is formed by the compilation of 'proper' historical works, which lead to the knowledge of the real past. Consequently, historical thinking and historical work are mainly evaluated in terms of their content. The methodology of historical thinking is limited within a closed cycle which leads back to the real past. The specific characteristics of historical thinking are limited as well, since historical work is mainly tested and evaluated in terms of its correspondence to the past per se, mainly on the basis of 'objectivity'. Most - if not all - other specific characteristics, such as historical relativity, contradict the 'traditional' conception of history.

Accordingly, 'traditional' history education is not really concerned with the development of pupils' historical thinking in terms of its methodology and specific characteristics, but in terms of its content only. However, since historical thinking cannot be conceived, according to our definition, as consisting of content only, traditional history education is not really concerned with the development of historical thinking, even if it claims to be so. Rather, it is concerned with the acquisition of historical knowledge (relating to historical facts) on the basis of simplified or summarised versions of academic work. (See R. E. Aldrich, 1984, and A. Demaras, 1973.) Therefore, the 'traditional' educational method is usually limited to repetitious and non-critical readings of history textbooks and to the reproduction of one and only 'right', 'orthodox' knowledge. Pupils' work with sources is senseless; sources can only be used to illustrate 'some historical assertion or interpretation: the "fact" or interpretation is presented as "given", and the potential evidence merely accompanies it; the former is not *derived from* the latter.' (A. K. Dickinson, A. Gard and P. J. Lee, 1978, p. 15.) History education does not follow the route of historical thinking. Pupils' 'historical thinking' is realised only within the limits of historical knowledge provided by historians.

Schematic plan 21. Historical thinking within 'traditional' history and history education



2.3.2. Historical thinking and 'modern' history and history education

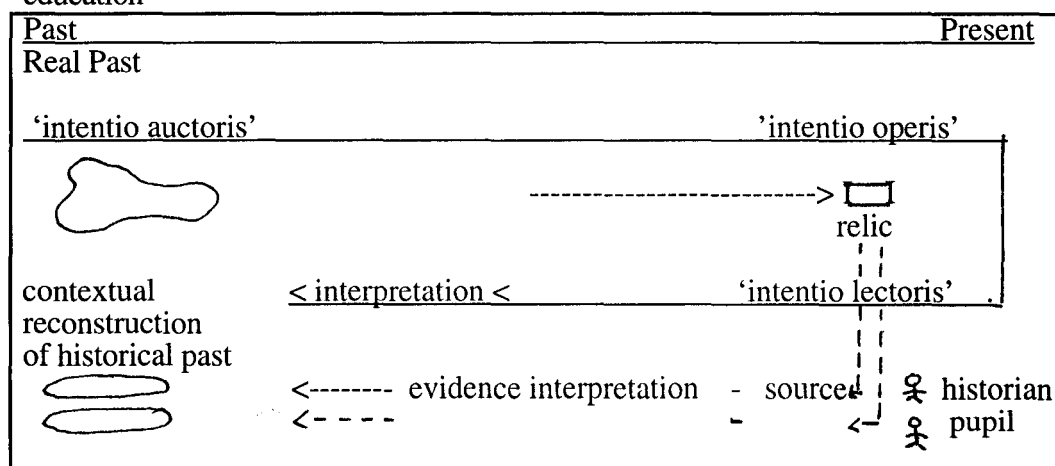
'Modern' history does not conceive the evidence as directly leading to knowledge of the real past. The interpretation of evidence leads to the reconstruction of the past, because the past cannot 'really' directly be known. The only thing that the historian can do is to attempt its reconstruction on the basis of the evidence available. Historians' work and historical thinking are not tested in terms of 'objectivity', in the traditional sense of the term. They are mainly tested on whether, besides the authenticity of the source, the historian interpreted the evidence on the basis of the investigation of the *intentio auctoris* in relation to the *intentiones operis* and *lectoris*, in terms of the justification 'of the complex process of interrelation and interaction' between 'subject' and 'object'. (Carr, 1961, p. 119.) Historical questioning and historical knowledge, on which historical thinking is based and to which it leads, are relative, because, among other things, historical interpretation consists of the investigation of the *intentiones auctoris*, *operis* and *lectoris*. However, historical thinking, although relative, has 'an absolute object [the real past] as its limit.' (Peirce, 1934-1948, vol. 1., p. 130.) The real past, although not directly or absolutely known, exists. 'The real, then, is what, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you.' (Peirce, 1980, p. 311.)

According to this conception, historians, historical work and historical thinking are influenced by their social and cultural environment. Consequently, alternative historical interpretations are accepted as valid, even if based on the same sources. The outcomes of historical thinking, expressed in historians' narratives, do not only reconstruct different aspects of the past, but, most important, they offer different views of the same aspects. Therefore, historical knowledge is not built by compiling 'correct', 'real' facts: it is built by being interrelated with historical thinking along the spiral line of the ongoing process of history. Historical knowledge and historical thinking cannot be divorced because, among other things, they reinforce each other. Therefore, historical thinking is mainly evaluated in terms of its methodology, content and specific characteristics, and in terms of its outcome, i.e. the historical knowledge it results in, which is closely related to new historical questioning, mainly addressing the aspect of the past studied and reconstructed. All distinctive stages of methodology are included (see the following schematic plan). The positive presence of the specific characteristics of historical thinking is a necessary condition for a valid historical outcome. Issues such as historical uncertainty and relativity are considered necessary. Empathy is closely

interrelated with the 'modern' conception of history, because it is not only a necessary issue for the reconstruction of the past, but the concept of empathy per se also presupposes that the past can be reconstructed. Accordingly, only pure 'modern' historians can see its value, while historians with no clear 'modern' orientation question its value or reject it, because it contradicts their general conception of history.

'Modern' history education is concerned with the development of pupils' historical thinking in terms of its methodology, content and specific characteristics, in close relation to the development of historical knowledge. Because historical thinking and historical knowledge are not conceived as isolated, but as closely interrelated, the 'modern' educational method focuses on both the study of historians' narrative and pupils' work with sources. History education follows the route of historical thinking. (See P. Lee, R. Ashby and A. Dickinson, 1996.) Pupils' 'historical thinking' is realised in analogy to historians' thinking. It is clear that historical thinking within 'modern' history and history education corresponds to schematic plan 9, and to the following simplified version.

Schematic plan 22. Historical thinking within 'modern' history and history education



2.3.3. Historical thinking and 'postmodern' history and history education

'Postmodern' history neither conceives the evidence as leading to knowledge of the real past, nor to its reconstruction, because the past is lost forever; we cannot realise it as it was. The past in the present is not the same as the past once lived. Paraphrasing K. Jenkins (1995, pp. 178-179), the evidence, the only 'accessible and remaining trace' of the past, leads to a construction of a history, a 'verbal artefact', the content of which is 'as much invented as found'. The past evidenced is not the past itself, but a past transformed into historiography as a construction of

the present, as a textual referent not as it was, but as it is. The past per se never enters into it - except rhetorically. In this way, histories are fabricated without any 'real' foundations beyond the textual.²⁷

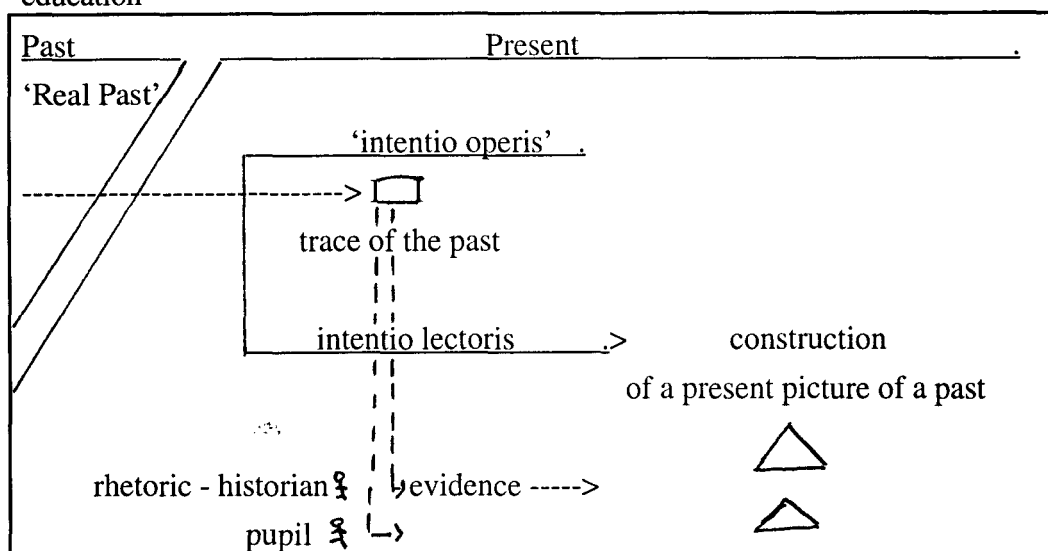
Historical work and historical thinking are mainly tested in terms of the interpretation of evidence as an investigation of the *intentio lectoris* in relation to the *intentio operis*. The investigation of the *intentio auctoris* is absent, since the only aspects of the past involved in historical work and thinking are 'its only accessible and remaining traces'. Therefore, according to a deconstructing interpretation, the traces of the past become stimuli for the wanderings of interpretation. (See U. Eco, 1990, pp. 37-38 and p. 24.) Thus, 'postmodern' historical interpretations are historical wanderings which are restricted only by the limits set by the trace. (See also T. Bennett, 1990.)

Historical thinking is a 'rhetorical' and 'metaphorical' process by which the past is historically constructed in the present, 'not as it was, but as it is'. It is clear that 'postmodern' historical thinking no longer looks towards the past (except rhetorically) and is realised on a literary basis by focusing on the present. Accordingly, most major issues regarding the methodology, content and specific characteristics of historical thinking are conceived and realised quite differently, in relation to the primary rhetorical nature of the 'postmodern' approach. Therefore, 'postmodern' history education could be conceived as aiming at the development of pupils' historical thinking in terms of 'rhetoric', conceived as a major specific characteristic related to history's 'literary basis.' (K. Jenkins, 1995, p. 178.)

²⁷In K. Jenkins' (1995, pp. 178-179) words: 'History is arguably a verbal artifact, a narrative prose discourse of which, après White, the content is as much invented as found, and which is constructed by present-minded, ideologically positioned workers (historians and those acting as if they were historians) operating at various levels of reflexivity, such a discourse, to appear relatively plausible, looking simultaneously towards the once real events and situations of the past and towards the narrative "mythoi" common - albeit it on a dominant-marginal spectrum - in any given social formation. That past, appropriated by historians, is never the past itself, but a past evidenced by its remaining and accessible traces and transformed into historiography through a series of theoretically and methodologically disparate procedures (ideological positionings, tropes, emplotments, argumentative modes), such historiography ... then being subject to a series of uses which are logically infinite but which, in practice, correspond to the range of power bases that exist at any given juncture and which distribute/circulate the meanings drawn from such histories along a dominant-marginal spectrum. Understood in this way, as a rhetorical, metaphorical, textual practice governed by distinctive but never homogeneous procedures through which the maintenance/transformation of the past is regulated (après Bennett) by the public historical sphere, historical construction can be seen as taking place entirely in the present, historians et al. organising and figuring this textual referent not as it was but as it is, such that the cogency of historical work can be admitted without the past per se ever entering into it - except rhetorically. In this way histories are fabricated without "real" foundations beyond the textual, and in this way one learns to always ask of such discursive and ideological regimes that hold in their orderings suasive intentions - cui bono - in whose interests?' See also K. Jenkins (1991).

Nevertheless, it is important to emphasise that, despite the different conception of historical thinking it implies, 'postmodern' history is related to the same system of conceptions common to all types of history: i.e. it is characterised and distinguished by its own particular conception of the evidence and of the interpretation and use of that evidence. Therefore, it can be distinguished from the other types discussed, on the basis of the definition of historical thinking in Part 2.1.

Schematic plan 23. Historical thinking within 'postmodern' history and history education



2.3.4. Historical thinking four years before the third millennium AD

It has been argued that the conception and realisation of historical thinking within distinguished types of history is, among other things, closely related to the respective conceptions of the evidence, its interpretation and use. It is clear that this system of conceptions is dependent upon the general conception of the relation of the past to the present. According to 'traditional' conceptions, the past exists parallel to the present. Indeed, the past governs the present; present ideology, consciousness and identity are legalised on their genealogical relation to the past. According to 'modern' conceptions, the past exists through its relation to the present, but it is different from the present. Accordingly, not only the past, but the present as well is conceived in terms of 'heterocity', heteromorphism and change. (See A. Liakos, 1995.) 'Postmodern' conceptions deconstruct or deny any relation of the past to the present. Only some traces of the past remain, that remind people of the present that the past is lost. Therefore, both present consciousness, ideologies and identities, and the past are constructed as present 'rhetorical' and 'metaphorical' realities.

It is clear that these distinct historical conceptions correspond to different ‘weltanshaungen’ which coexist in the late twentieth century, as shown in the following schematic plan.

Schematic plan 24 The three distinctive types of current historical thinking

‘traditional’	‘modern’	‘postmodern’
‘historical objects’ relate to the real past	‘historical objects’ relate to both the past and the present	‘historical objects’ are the traces of the lost past in the present
Past ----- Present The real past exists and governs the present.	Past <-----> Present The past exists in its relation to the present.	Past / / Present The past is lost, and its relation to the present is deconstructed.
Historical thinking leads to the knowledge of the past.	Historical thinking leads to reconstruction of the past, which enlighten our historical knowledge.	Historical thinking, as a rhetorical activity, regulates the transformation of the past in the present.

It is important to emphasise here that, although the study was conducted on the basis of changing approaches to history education relating to ‘modern’ conceptions of history, we can appreciate K. Jenkins’ (1995, p. 6) point, that ‘today we live within the general condition of *postmodernity*. We do not have a choice about this. For postmodernity is not an “ideology” or a position we can choose to subscribe to or not; postmodernity is precisely our condition: it is our fate. And this condition has arguably been caused by the general failure - general failure which can now be picked out very clearly as the dust settles over the twentieth century - of that experiment in social living which we call *modernity*. It is a general failure, as measured in its own terms, of the attempt, from around the eighteenth century in Europe, to bring about through the application of reason, science and technology, a level of personal and social well-being within social formations which, legislating for an increasingly generous emancipation of their citizens/subjects, we might characterise by saying that they were trying, at best, to become “human rights communities”.’

However, the fact that not only modernity, but postmodernity also does not seem to make human societies and individuals happy, provokes hesitation to accept postmodern deconstructive conceptions. (See also Part 1.5.) Such resisting attitudes towards postmodern historical conceptions are often formed as a matter of

‘ἠθος’, moral ethos, related to the appreciation of the revolutionary element of history, that has characterised history since its origins.²⁸ In addition, ‘postmodern’ theories are in general strictly tested by non ‘postmodern’ theorists because, among other issues, they arose as a reaction to ‘modernity’.

On this basis, this longitudinal field study was related to the assumption that history, like many other fields of human thinking and experience, remain open to future ‘revolutionary’ ideas, which are unpredictable at the moment. Therefore, history education at the end of the twentieth century would be further developed if it were open to a wide range of historical theories²⁹, without being, on the other hand, ignorant. (See P. Lee, 1984a, p. 4.)

The research hoped to serve history education by contributing to the development of changing ‘modern’ approaches and by applying pressure for the reform of ‘traditional’ approaches. In addition, it was expected that the theoretical basis of the research, its method and conclusions would serve future researchers as tools in their own studies of pupils’ historical thinking, according to their own theoretical conceptions of historical thinking, history education and history. Because, as Achilles chased Hector around the walls of Troy, historians chase the past. ‘Ὡς οὐδ’ ἐν ὄνειρῳ οὐ δύναται φεύγοντα διώκειν / οὐτ’ ἄρ’ οὐδ’ ἐν ὄνειρῳ δύναται ἀποφύγειν οὐθ’ οὐδ’ ἐν ὄνειρῳ διώκειν’ (Homer, *The Iliad*, X. 199-200.) ‘Just as in our dreams we cannot reach he who runs away; indeed, neither can he slip away, nor can we catch him.’

²⁸Ancient Greeks’ ‘conception of history was the very opposite of deterministic, ... the Greeks regarded the course of history as flexible and open to salutary modification by the well-instructed human will. Nothing that happens is inevitable.’ (Collingwood, 1946, pp. 23-24.) Far from being limited within or adjusted to the general background of the period, Ancient Greek historical thinking proved to be revolutionary, since in many ways was ‘set against a background consisting of the general tendencies of Greek thought.’ (Ibid., p. 28.)

²⁹According to T. Bennett (1987, pp. 63-64), ‘it is only by being ongoingly revised that a body of theory retains any validity or purchase as a historical force... Rather than testing the value of theoretical innovations via ... backward-looking glances, the acid test should be: What do they enable one to do? What possibilities do they open up that were not there beforehand? What new fields and types of action do they generate?’

Chapter Three
Theoretical Background - Historical thinking
and the museum environment

- 3.1. The general museological aspect of the research**
- 3.2. The educational character of museums**
 - 3.2.1. The general educational character of museums**
 - 3.2.2. The changing character of museums**
 - 3.2.3. Historical thinking and the educational character of museums**
- 3.3. The historical significance of museum objects**
 - 3.3.1. The general significance of museum objects as ‘opera aperta’**
 - 3.3.2. The historical significance of museum objects as sources**
 - 3.3.3. Historical thinking and the use of museum objects as sources**
- 3.4. Historical thinking within a museum environment**

3.1. The general museological aspect of the research

This longitudinal field study was based on the assumption that educational programmes which relate museum and school are very important for education, with far-reaching implications for individuals and societies,¹ because they do not only develop specific thinking, knowledge and skills, but they also advance pupils' general, aesthetic and social development.

The interest of many countries in interrelating museum practice with several areas of school education, and the significant relevant practical educational work which is realised by museums' educational staff and teachers, are wide educational phenomena, which have raised many themes to be explored.

Moreover, most current approaches to history education, including both the traditional approach in Greece and changing approaches to history education in Britain, consider museum practice very important for the development of pupils' historical thinking and/or knowledge. But, although there is plenty of relevant practical museum work², little relevant research has been so far carried out, especially focusing on pupils' work with museum objects as sources.³

On the other hand, museums, museum objects and their educational character and significance have been discussed by many theorists and museum experts, like T. Ambrose (1987), E. Hooper-Greenhill (1988a, 1991, 1992, 1994a, 1994b), P. Vergo (1989), N. Merriman (1991), S. M. Pearce (1994), T. Bennett (1995).

Since this longitudinal field study of pupils' historical thinking was conducted in several museums, in which pupils responded to a series of devised tasks in relation

¹Among others, see Eilean Hooper-Greenhill (1987, p. 47): 'Where the museum serves a community that may have conflicting elements within it, some experience indicates that the museum may be seen as neutral territory, and it may therefore be in a position to enable cultural cross-fertilisation.'

²For several relevant articles see the journals: *Teaching History*, *Journal of Education in Museums* (JEM), *Journal of Education* (Nova Scotia Museum), *Museum Association Journal*, *Museums Journal*. For a relevant bibliography see: Bosdet, M. and Durbin, G. (eds.) (1989), *Museum Education Bibliography*. Among others, see: *Museum Education Roundtable*, *Patterns in Practice: Selections of the Journal of Museum Education* (1992); C. Adams and S. Miller (1982), 'Museums and the use of evidence in history teaching'; M. Herbert (1982), 'Concept-building through objects'; J. H. Shuh (1982), 'Teaching yourself to teach with objects'. See also: Durbin, G., Morris, S., and Wilkinson, S. (1990), *Learning from Objects*; E. Hooper-Greenhill (1988b), *Learning and Teaching with Objects: a practical skills based approach*; E. Hooper-Greenhill (1989), *Initiatives in Museum Education*; C. Renfrew (1982), *Towards an Archaeology of the Mind*.

³See, among others, A. R. Lodwick (1958), M. Booth (1978), D. Wright (1984), J. Davis (1986), K. Hodgkinson (1986), H. J. Cooper (1991).

to different museum objects and collections, both the educational character of museums and the historical significance of museum objects were investigated. But, although this investigation, presented in Parts 3.2 and 3.3 respectively, was based on extensive theoretical work, it was limited to some fundamental issues directly relating to the nature and the aim of the research. In fact, the research aimed to answer questions about pupils' historical thinking, in the light of pupils' work with museum objects as historical sources in a museum environment, and not to measure the impact of museum work on pupils' historical thinking. Therefore, the museum environment was mainly investigated as housing pupils' historical thinking, while museum objects were investigated in terms of their significance as historical sources only, especially in relation to pupils' work.

Accordingly, this research was expected to serve both school history education and museum education by improving our understanding of pupils' historical thinking on the basis of how pupils treated museum objects in a museum, the thoughts they expressed, the questions they asked, and the way they generally reacted to these objects.

3.2. The educational character of museums

The educational character and atmosphere of museums was assumed to be significant to practices and field studies like this, because in thinking and learning the specific parts and the total configuration of an educational experience are equally significant to the educational outcome. (See Peel, 1956, pp. 73-78.) Therefore, the educational character of museums was studied (1) in terms of some general educational aspects, (2) in terms of the changing character of museums, and (3) in terms of its particular relation to historical thinking.

3.2.1. The general educational character of museums

This research was based on the assumption that museums create a rich educational environment which stimulates thinking in general, and historical thinking in particular. But, besides museums, other places like libraries, schools, supermarkets or 'fairylands', were assumed to stimulate or facilitate different types of thinking, on the basis of their general atmosphere, underlying purpose, and use. Consequently, discussion of the general educational character of museums is

related to the question: Which specific characteristics of a museum distinguish its educational character and value?

Traditionally, museums, as spaces in which experts seem to have accommodated life to human understanding, imply a feeling and a notion of order. In this sense, museums are generally assumed to have various direct and indirect aesthetic, intellectual, social and political implications, and psychoactive effects. As B. Lord [1989, p. 76] argues, museums combine education and entertainment by widening peoples' intellectual, ideological, aesthetic, social and sentimental world.⁴

Museums' commitment to the service and development of society, and their vital educational role have been underlined by many museologists and educationists.⁵ The world-wide definition of museums, which was adopted by the International Council of Museums (ICOM) in 1974 states: 'A museum is a non-profit making, permanent institution, in the service of society and of its development, and open to the public, which acquires, conserves, researches, communicates and exhibits, for the purpose of study, education and enjoyment, material evidence of man and his environment.'

According to B. Bettelheim (1980, pp. 16, 23.), the museum world is not a neutral educational world; it stimulates curiosity, thinking, imagination, admiration and feelings of awe; it can initiate us to the wonders of the world.⁶

On this basis, museums were expected to provide a stimulating educational atmosphere for this longitudinal field study, since they (1) offer 'material evidence of man and his environment' that encourages thinking, understanding and questioning, imagination and intuition, sensitivity and feelings, (2) interrelate

⁴B. Lord (1989, p. 76.) argues that, 'the nineteenth-century term "edification", which ... is a somewhat discredited term now but one which we ought to dust off and look at again, as I think that's precisely the business we're in - edification means the broadening of one's perspective, the sharpening of one's interests, the loosening of one's prejudices and beginning to see the relationship between things that one didn't see before. I think that is really precisely the exciting thing, the satisfaction that one gets from a museum experience.'

⁵Among others, see: B. Bettelheim (1980), N. Binch (1989), P. J. Boylan (1989), N. Cossons (1989), S. Feber (1987), E. Hooper-Greenhill (1987), D. Horne (1984, 1989), K. Hudson (1975), J. Reeve (1987).

⁶'Maybe this is what permits thinking about museums in general: that, despite their immense variety, what they all have in common are contents that can make us marvel and wonder. They can arouse a curiosity that is not easily satisfied but which can induce a lifelong veneration for the wonders of the world.' (B. Bettelheim, 1980, p. 16.)

'This, then, I believe to be the museums' greatest value to the child, irrespective of what a museum's content may be: to stimulate his imagination, to arouse his curiosity so that he wishes to penetrate ever more deeply the meaning of what he is exposed to in the museum, to give him a chance to admire in his own good time things which are beyond his ken, and, most important of all, to give him a feeling of awe for the wonders of the world. Because a world that is not full of wonders is one hardly worth the effort of growing up in.' (Ibid, p. 23.)

education with enjoyment, a situation which generally guarantees a valuable educational, social and psychoactive outcome.

Therefore, it was expected that the general atmosphere of museums would enable pupils to see museum objects in their various historical manifestations: as objects of the present, as objects of a 'real' past, as relics or traces of the past in the present, and as potential sources of historical information or evidence about the past.

In addition, it was expected that museum objects would be seen in their human and social context, because, compared with classrooms or libraries, a museum is a richer environment⁷ with respect to women, children and ordinary people of the past. A 'real' human and social world full of wonders - colours, smells, music and voices, fabrics, artefacts, children's toys, tombs, demons and gods, life and death - is exhibited in museums as evidence for pupils' historical use and enjoyment. Especially in archaeological and historical museums this 'wonderful' world, created by human societies of the past in different times, places and cultures, is displayed with a parallel historical respect, which was supposed to be felt even by young children. Both museum objects and visitors are surrounded by a rich historical aura, which was expected to enrich the historical significance of museum objects and to enlighten their use as sources of historical information or evidence about the past.

Besides their general educational character, different types of museums were supposed to create different educational environments. In fact, museums today are changing in relation to evolving museological theories.

3.2.2. The changing character of museums

Museums are not static institutions; they change according to the general shifts in historical, social, economic, political, ideological and cultural surroundings. Great differences distinguish the first Hellenistic 'Μουσείον', *mouseion*, in Alexandria from current museums. Equally, the Medici Palace (the model for subsequent royal and aristocratic collections), established in the fifteenth century in Florence,⁸

⁷By the terms 'museum' and 'museum environment' we refer both to museums in general, and to archaeological and historical museums in particular, because it was assumed that all museums could serve history education, if related to especially devised tasks. It will be made clear, though, that archaeological and historical museums, with their clear historical content, can serve history education even more.

⁸According to P. Vergo (1989), 'the origin of the museum is often traced back to the Ptolemaic *mouseion* at Alexandria, which was (whatever else it may have been) first and

differs from national museums and galleries in the nineteenth century, which were adjusted to the contemporary ideology of nationalism. In the late twentieth century too, museums are being re-organised as environments open to the public for different sorts of activities, according to a variety of developing museological approaches.

The claim that different museums create a different educational atmosphere, which shapes a different type of knowledge has been argued by many theorists, like E. Hooper-Greenhill (1992) and T. Bennett (1995). Characteristically, E. Hooper-Greenhill (Ibid., p. 191) argues: 'There is no essential museum. The museum is not a pre-constituted entity that is produced in the same way at all times. No "direct ancestors" (Taylor, 1987, p. 202), or "fundamental role" (Cannon-Brookes, 1984, p. 116) can be identified. Identities, targets, functions, and subject positions are variable and discontinuous. Not only is there no essential identity for museums, as the case-studies demonstrate, but such identities as *are* constituted are subject to constant change as the play of dominations shifts and new relations of advantage and disadvantage emerge. "Truth is of the world: it is produced by virtue of multiple constraints" (Foucault, 1977, p. 13).

Consequently, the exploration of pupils' historical thinking within a museum environment had to take into consideration fundamental changes occurring in museums today.⁹

Despite the great variety of current museums, the schematic labelling ('traditional', 'modern' and 'postmodern') used in Part 2.3 is used to investigate the educational character of different types of museums in relation to the different types of historical thinking that they are supposed to encourage.

foremost a study collection with library attached, a repository of knowledge, a place of scholars and philosophers and historians.' According to E. Hooper-Greenhill (1992), 'the Medici Palace, in fifteenth-century Florence is cited and celebrated as the indentity of origin for European "museums" and for European collecting practices.'

⁹The current broad museological debate is advanced by museological studies offered in many universities and museological institutions, and by the relevant substantial theoretical work; by the editing of many museological journals, like the Museum Association Journal, published by the Museums Association, and the Journal of Education in Museums (JEM), published by the Group for Education in Museums (GEM); by several events, activities and practices, and educational programmes organised in many museums of the world; by The International Organisation of Museums (ICOM); by the world's first national and, in a sense, international organisation for museums, The Museums Association. Often, also, there are several international conferences, special discussions, events and activities organised, such as the ICOM General Conference in The Hague and the 'Museums 2000' Conference in London, which were organised during The Museums Year, in 1989.

3.2.2.1. 'Traditional', old-fashioned museums

Since the nineteenth century 'traditional' archaeological and historical museums have been related to nationalism by presenting a nation's (or even other nations') past. They were, and still are, among the basic guardians, if not producers of national unity, strength, heritage, knowledge and even formation.¹⁰ They display national relics as documents of the only correct configuration of national history according to the positivistic notions of objectivity of objects, and of authentic knowledge. So both museums and museum objects are conceived as sacred and holy.¹¹

As institutions of a definite ideological¹² character, divided in terms of rigid subject areas according to holistic approaches, nineteenth-century museums were designed

¹⁰The establishment of The Central Museum, later called The National Archaeological Museum, was one of the top priorities of Greeks right after the Independence War of 1821 and the formation of the Greek, or rather Hellenic State. (The terms 'Greece' and 'Greek', instead of the proper 'Hellas' and 'Hellenic', do not correspond to the national meaning of the original Hellenic terms. Nevertheless, these terms were used, to avoid misunderstanding.)

¹¹According to D. Horne (1989, p. 65), 'museums were both among the producers, and were subsequently the guardians, of the body of national knowledge and wisdom, in the presentation of national character and the national past. [By their connection with the modes of science and industrialism] museums became part of the attempt to secure a rational control over existence by cognitive methods, in two ways. One of these was taxonomic: a systematic representation that museums were configurations of knowledge. It was only one configuration but they could tend to suggest that this was the only possible configuration. They systematized existence in the nineteenth-century pattern by dividing it up into subjects. Then they subdivided each of these subjects into its own classifications. The result could be that to move through a museum, genus to genus, from school to school, from age to age, was a declaration made with one's own body with tired feet, exhausted brain and aching back, but the existence was taxonomic. A second was that as declarations of faith in positivism and objectivity, museums could summon an aura of authenticity, in particular what you might describe as the objectivity of objects... They became part of a highly material and positivistic culture ... They also reflected that idea that history would be based on documents and that in some sense if it was based on documents it was therefore correct. There was also a kind of magic in them - one of the many ways in which they were placed in sacred and secular form. By being catalogued, bits and pieces of many kinds could be transformed into objects or, as the public calls them, exhibits, and that was an entirely new form of being. This became in fact, I think, a significant act of secular transubstantiation, which is the kind of reason why I suggested in *The Great Museum* [1984] that some of the objects in museums have become holy relics and that tourism is the modern form of pilgrimage.'

¹²Among others, E. Hooper-Greenhill (1987, pp. 39-40) underlines the ideological character of traditional museums: 'Traditional collecting practices are now increasingly seen as the institutionalisation of the habits of those that have had power in society and it is recognised that these dominant definitions of what counts as important and worthwhile do in fact privilege the privileged, in museums as in other areas of social practice. Debates are in progress about what a more democratic method of collecting might consist of and how this might demand new categories of material and new divisions of knowledge in the museum. A second traditional function of the museum is conservation. In the past this has been carried out in order to preserve the objects for themselves. This has been seen as an end in itself. Now we are asking the question why, for what end do we preserve these objects, what are they for and how does conservation for the future relate to use in present? The logistics of large collections and of 'museum imperialism' are being analysed at all levels from many different points of view, and the conclusions that are emerging are that if we cannot keep collecting ad infinitum, we must use what we have to better advantage. A move is in progress from accumulating collections to providing services in museums.'

to offer a sterile, pure knowledge, deprived of any social context. Any recognition of the complexity of present or past societies is absent, and so 'traditional' museums are absolutely 'object oriented', devoid of any consideration for visitors' social or personal needs, questions, 'ways of seeing' (J. Berger, 1972), ideas or modes of thinking. Objects of the past displayed in a 'traditional' museum are supposed not only to reveal the real past, which thus is/can be known, but to 'create' it as well.

It is understandable that usually people do not feel at home in such museums. They feel lost in an unknown world - understood only by experts. They do not find any pleasure in museums, and sometimes do not even dare to enter. Instead of feeling awe for the wonders of the world in the museum, people feel awe for the museum itself, and so they stay away from it.¹³

3.2.2.2. 'Modern' museums

According to 'modern' museological ideas, 'modern' museums display their content to invite human interpretation. In E. Hooper-Greenhill's (1992, p. 198) words, it is not enough 'for material things to present themselves on a table of knowledge: the way in which things would be understood was in their relationship to man; "it is no longer their identity that beings manifest in representum, but the external relation they establish with the human being" (Foucault, 1970, p. 313).'

'Modern' museums are both 'people and object' oriented. Their educational character is related to the numerous opportunities they offer to their public to understand and interpret the displayed objects. Objects are displayed in context, in order to facilitate visitors to treat them as sources of historical information and as evidence about the past; on this basis aspects of the past can be reconstructed.

3.2.2.3. 'Postmodern' museums

'Postmodern' museums are 'people oriented' museums that serve multilateral individual, social and cultural purposes. Characteristically, since the 1970s several visitors' surveys have been carried out, which revealed a demand for 'customer care' training of museum staff. Visitors are treated as 'consumers' of museum provisions, and are, in a sense, conceived as determining museums' reality. According to 'postmodern' theories, (archaeological, historical) objects are displayed in museums as traces of the past encouraging present uses. Visitors are

¹³See M. G. Hood (1983), 'Staying away - why people choose not to visit museums.'

conceived not as a uniform public, but as several different publics from various cultures, positions etc. Visitors are invited to treat museum objects according to their own needs, and interpret them to construct a picture of a past in the present. According to 'postmodern' museological ideas, museum objects are sometimes displayed in 'open storage' with the least possible interpretation, to allow for many and alternative present uses.

According to this limited discussion of the distinctive types of museums today, in relation to their distinctive educational character, the following schematic plan was made:

Schematic plan 25. The three current distinctive types of museums and their relevant educational character

'traditional'	'modern'	'postmodern'
'object' oriented	'object - people' oriented	'people' oriented
Past ----- Present knowledge of the real past	Past <-----> Present reconstruction of the past	(Past) / / Present construction of a past in the present
Sovereignty of the past and the object	Relation of the past and the present, of object and subject	The relation of past / present, and subject / object is deconstructed
Museums, as guardians of the authentic past, and producers of authentic knowledge, national unity, strength, etc., display objects according to experts' taxonomic systems.	Museums display objects of the past in context and thus facilitate alternative interpretations, by which the past can be reconstructed.	Museums display objects as traces of the past in 'open storage' for different present uses. Different publics can construct their own pictures of a past in the present.

3.2.2.4. The late twentieth-century museum

Because of the plethora of alternative and often controversial museological conceptions and reactions, the late twentieth-century museum, and its present and future social and educational character, are open to lively debate. This is exemplified by the different controversial museological ideas that are presented at many conferences, such as the discussion held in 'Museums 2000' Conference. This took place in London, in May 1989, as part of the programme of Museums Year 1989. (See P. Boylan, 1989.) The current debate on the educational character

of museums was also a major theme of the ICOM General Conference in Hague, in 1989: 'Will museums succeed in becoming a generator of new cultures rather than projectors of old heritage?'

Indeed, most theorists agree that the nineteenth-century conception of clear 'traditional', 'object oriented' museums can no longer be justified. However, some museologists pose fundamental questions, such as whether the 'magical' atmosphere of old-fashioned museums complements their educational function better than the appealing atmosphere of new museums with their interactive technology, complex displays and multi-media recreations.¹⁴

On the other hand, 'postmodern' conceptions of 'people oriented' museums are equally debatable, since they treat museums as educational centres¹⁵, in which 'education should be our primary goal and the object is only a medium, nothing more than that' (S. Ghose, 1989, p. 82).

In contrast, other specialists, like P. Cannon-Brookes (1989, pp. 80-81), feel that 'museums have seriously lost their way. Museums are concerned with objects and the intellectual structure of the museum is the collecting of objects, the assembly of knowledge about objects, the conservation of objects; assembling that knowledge into a rational structure and the provision of access for the rest of the community to it. We are concerned with the relationship between people and objects. That is what museums are about.'

Indeed, according to some new museological approaches and practices, 'people oriented' museums are sometimes seen as 'market-places', with a clear marketing policy.¹⁶ 'Postmodern' approaches which even deconstruct relations between

¹⁴F. Schouten (1989, p. 77) comments: 'There recently has been an investigation in the United States on why people love video games and they find three important issues, which are: (1) there has to be challenge, (2) they have to raise curiosity and (3) there must be something of discovery in it. If you take these three elements: challenge, discovery and curiosity I sometimes find nineteenth-century museums offering more of these than modern museums.'

¹⁵S. Feber (1987, p. 93), claims: 'Embracing new methods of communication and fulfilling their roles as popular learning centres, as well as centres of learning, need not threaten the traditional activities of museums, but if the desire to communicate is to be translated into effective exhibitions it needs to seize the staff at every level; the cultural changes within museums could be profound.'

¹⁶L. Roger in his 'Museums in Education: Seizing the market opportunities' (1987, pp. 28-29) argues: 'Because the environment is constantly changing, seemingly, at an ever faster rate, we, in our respective business or professions, have to change. For the museum world, coping with change, it is sometimes said, may come less easily than for some. After all, the museum's preoccupation is with preserving the past and recording change rather than adapting to it. In other words, the museum world has to reconcile two apparently conflicting aims - being both past-oriented and future-oriented. What does the future hold for museums and how will they cope with the need for change? Well, being more market-centred rather than museum-centred - in other words, being more marketing-oriented - is one way.'

museum staff and their work in the museum have stimulated several reactions, a fact highlighted in The Museums Association's new definition of a museum. (See P. J. Boylan, 1989, pp. 11-12.) In contrast with the ICOM definition of 1974, the Association's definition of 1984 reads: 'A museum is an institution which collects, documents, preserves, exhibits and interprets material evidence and associated information for the public benefit.'

It is clear that the changing character of museums today is influenced by the coexistence, relation and contradiction of several 'traditional', 'modern' and 'postmodern' museological ideas and approaches.

3.2.3. Historical thinking and the educational character of museums

Both historical thinking and the educational character of museums are very broad themes, which are at the heart of current dialogue relating to history, history education and museology. The rich relevant literature that has been published in the last years indicates the theoretical wealth of current conceptions of and approaches to historical thinking and the social and educational role of museums.

The investigation of the educational character of museums in relation to historical thinking was based on the parallel but separate discussions, presented in Part 3.2.3. and Part 2.3. respectively. On this basis, distinctive types of museums are related to distinctive types of historical thinking, as illustrated in the following schematic plan:

Schematic plan 26. The relation of the three distinctive types of museums to relevant distinctive types of historical thinking

‘traditional’	‘modern’	‘postmodern’
<i>Historical thinking</i>		
‘objects’ relate to the real past	‘objects’ relate to both the past and the present	‘objects’ are the traces of the lost past in the present
Past ----- Present The real past exists.	Past <-----> Present The past exists only in relation to the present.	(Past) / / Present The past is lost, and its relation to the present is deconstructed.
Historical thinking leads to knowledge of the real past.	Historical thinking leads to reconstructions of the past, which enlighten our historical knowledge.	Historical thinking leads to present constructions of pictures of a past, which do not relate to how the past was lived.
<i>The museum</i>		
‘object’ oriented	‘object - people’ oriented	‘people’ oriented
Past ----- Present Museum objects lead to the knowledge of the real past.	Past <-----> Present On the basis of museum objects the past can be reconstructed.	(Past) / / Present Museum objects allow constructions of a past in the present.
Sovereignty of the past and the object.	Relation of the past and the present, of object and subject.	The relation of past / present, and subject / object is deconstructed.
Museums, as guardians of the authentic past, and producers of authentic knowledge, national unity, etc., display objects according to experts’ taxonomic systems.	Museums display objects of the past in context, and thus facilitate alternative interpretations by which the past can be reconstructed.	Museums display traces of the past in ‘open storage’ for present use. Different publics can construct their own pictures of a past in the present.

Each type of museum and its underlying philosophy forms a distinct educational environment which encourages a relevant type of historical thinking. Yet, historical thinking as a vital intellectual activity is not conceived as dependent only upon the

educational character of the museum visited. Especially because of the particular method and underlying 'philosophy' of the research pupils' historical thinking was expected to be mainly influenced by other variables, such as pupils' age, the tasks set and the particular museum objects studied. (See Chapter 4.)

Moreover, it was assumed that all types of museum could serve as a stimulating educational environment, as long as museum practice led pupils to enter into a personal dialogue with the museum world through personal and alternative readings of the objects displayed.¹⁷ Whether big or small, 'traditional', 'modern' or 'postmodern', museums offer us the opportunity to withdraw from our reality, and to enter into another world, which, besides and because of its realistic and at the same time 'unrealistic' sense of time, lets us see our human world in a new light.

D. Lowenthal (1985, p. 410) characteristically asserts: 'With the relics we preserve, as with the memories we cherish, we live simultaneously in present and past. And while preservation formally espouses a fixed and segregated past, it cannot help revealing a past all along being altered to conform with present expectations. What is preserved, like what is remembered, is neither true nor a stable likeness of past reality.' 'Some preservers believe they save the real past by preventing it from being made over. But we cannot avoid remaking our heritage, for every act of recognition alters what survives. We can use the past fruitfully only when we realise that to inherit is also to transform. What our predecessors have left us deserves respect, but a patrimony simply preserved becomes an intolerable burden; the past is best used by being domesticated - and by our accepting and rejoicing that we do so. The past remains integral to us all, individually and collectively. We must concede the ancients their place, as I have argued. But their place is not simply back there, in a separate and foreign country; it is assimilated in ourselves, and resurrected into an ever-changing present.' (Ibid., p. 412.)

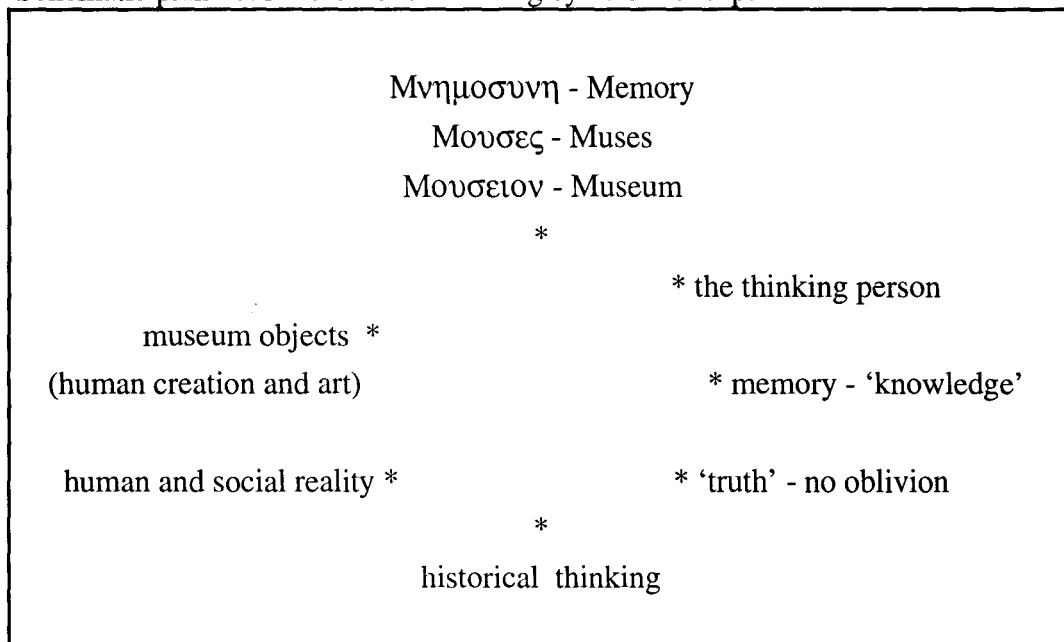
Seen from this point of view, the appealing educational atmosphere of museums is rooted in the etymology of the term 'museum'. A museum [Μουσείον] is the seat

¹⁷D. Horne (1989, p. 73.) argues: 'Apart from the ordinary authoritative mystique of museums, one can nevertheless to some extent be positive, assuming that we are not one public but many. There should be the possibility for multiple readings, and if there are going to be readings we can assume that many different kinds of people come into museums and they all have a right to a certain kind of service about the stuff they are looking at. There can also be perhaps a more positive programme of encouraging alternative readings. Museums might give themselves the responsibility of reminding the people who visit them that the contents of a museum can be read in a number of different ways.'

or temple of the Muses (one of them being Clio [Κλειώ]), who were the daughters of Zeus and Mnemosyne [Μνημοσύνη], memory. The Muses inspired human beings in their creative works and thoughts [Ποίηση], especially in art [Τέχνη]. Museum objects are human creations inspired by the Muses; especially those which are works of art. Art, in its turn, represents the world of human experience and human reality 'with the help of organised form'. (R. Arnheim, 1986, p.61.) Thus, although art is a lie, it makes us realise truth in our lives, as Picasso said. The etymology of truth, according to the Greek word 'Αληθεια',¹⁸ meaning 'no loss of memory', refers back to the notion of memory. 'Μνημων' [Mnemon] is he who does not let memory slip his mind, the thinking man who 'muses' upon the human world.

We may conclude, then, that a museum offers an extremely stimulating environment for the expression of historical thinking, above all because it encapsulates an enchanting cycle of concepts, which belong to the heart of the matter, to the heart of history.

Schematic plan 27. Museums' enchanting cycle of concepts



¹⁸The etymology of the Greek word 'αληθεια' ['truth'], is 'α-ληθη', no-oblivion, no loss of memory. According to Heraclitus, 'αληθες το μη ληθον', i.e. 'true is the not hidden, the not lost by oblivion, the remembered or thought of as it actually happened, the not false or deceptive or misleading, the confirming itself as proving true.'

3.3. The historical significance of museum objects

Pupils' historical thinking was explored within the 'enchanted' environment of museums on the basis of subjects' interpretation and use of museum objects¹⁹ in terms of their several historical manifestations: as objects of the present, as relics or traces of the past in the present, as objects of the 'real' past, as sources of historical information or evidence about the past, and as parts of the past potentially reconstructed. (See Part 2.1.)

Therefore, besides the educational environment of museums, which was perceived as housing pupils' historical thinking, the significance of museum objects was theoretically investigated as well, in terms of the following interrelated themes: 1) the general significance of museum objects as 'opera aperta', i.e. as objects encouraging several alternative interpretations, 2) the historical significance of museum objects as sources and 3) historical thinking and the use of museum objects as sources.

3.3.1 The general significance of museum objects as 'opera aperta'

Museum objects attract admiration, even if they are neither understood nor specially appreciated; the fact that they are collected and exhibited by experts in a socially acceptable scientific environment saturates them with unquestionable value.²⁰ Irrespective of their particular type, museum objects are treated with respect, because, among other things, they usually symbolise national, cultural, social and/or personal identity and values.²¹

The artistic character of many museum objects, heightens their 'unquestionable' value even more, especially if they have been recognised as masterpieces. This seems, in the first place, to prevent non-specialised visitors from developing a personal dialogue with them, since they do not dare to question an object, which

¹⁹It will be made clear that the theoretical investigation of the significance of museum objects is related to the previous theoretical discussion on museums. Therefore any reference to museum objects presupposes that they are conceived in their museological environment, and not outside of it.

²⁰Eileen Hooper-Greenhill (1987, p. 42) argues, that 'most people have a very positive image of the museum as a "good thing", even if they don't often go.'

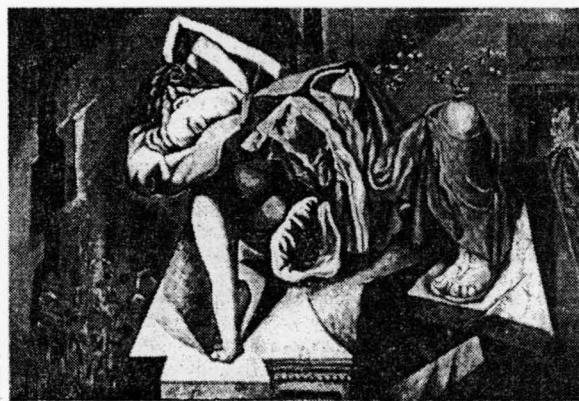
²¹It is not for nothing that militant, fanatic, extremist or terrorist groups deliberately ruin artistic, archaeological and historical relics and monuments. (Rubens' and Giotto's paintings at the Palazzo Ufizi in Florence were destroyed by a bomb in 1993.) The symbolism of these actions is clear: by destroying the object, we destroy the reality it represents. On the contrary, by conserving the object, we 'conserve', or keep alive the reality it represents, with all its personal, social, national, cultural connotations and aesthetic, emotional and mnemonic values.

has been previously estimated as a masterpiece of art by experts. For this reason famous masterpieces were not selected for this study. (See Chapter 4.)

However, it is generally accepted that all objects, even natural ones, are 'opera aperta' for several alternative types of 'reading', interpretation and use. [See among others: D. Horne (1989); E. Hooper-Greenhill (1992); S. M. Pearce (1994); R. Barthes (1977); Eco (1990); E. A. Peel (1956); R. Arnheim (1969, 1974, 1986); P. Bourdieu (1977, 1979); Janet Wolf (1981); W. Iser (1974).] It was, therefore, assumed that it is of great educational significance to let pupils attempt personal and alternative 'readings' of museum objects. The intellectual, psychological and aesthetic significance of relevant practices have been discussed by theorists in several fields of social sciences besides history and history education, which underline the historical significance of such practices: in museology, semiotics, educational psychology and cognitive psychology, the psychology of art, the sociology of art, and even in psychoanalysis. Objects' polysemy has been analytically studied by 'material culture' theory, which has especially developed since the 1960s.

It is important to mention here the famous series of alternative 'readings' of a neutral museum object, namely of a Roman copy of an Ancient Greek relief, known as the 'Gradiva', which represents a young woman walking. (No. 1284 of the Chiaramonti Museum of Vatican.) These 'readings' served as a collective myth of the 20th century on the basis of the object's successive metamorphoses: its metamorphosis into a novel by W. Jensen, then into a psychoanalytical myth and symbol, based on the therapeutic value of delusion and dreams, by S. Freud, and then into a surrealist myth and symbol, personifying the surrealist ideation of the female sexual nature, and dissipating the distance between dream and everyday action, mainly by Breton, Elyard, Dali, Magritte, Delvaux, De Chirico, and Masson.²²

²²Wilhelm Jensen (1903) became famous for his romantic novel: *Gradiva*, ein pompejanisches Phantasiestück [Gradiva, a Pompeian Fantasy], in which a young German, travelling between Germany and Pompei tries to understand himself, his dreams and life, after seeing a relief of a young woman in a museum in Rome. Jensen, his novel and this relief became famous because of Sigmund Freud's psychoanalytical 'reading', which was published in 1907 under the title: *Der Wahn und die Träume in W. Jensens "Gradiva"*. So this archaeological object, being 'read' by Jensen, inspired him to write his novel. It also stimulated Freud, who proposed a prototype psychoanalytical reading of a literary work in relation to a museum object, in which he stated some of the fundamental concepts of his psychoanalytical theory. In fact, this particular neutral museum object became a symbol for psychoanalysts, while Freud himself (and some other psychoanalysts after him) always had a copy of it in his consulting room. But this museum object also became the muse and the symbol of surrealism. Among others, Breton and Eluard often referred to 'Gradiva', while Dali, who initiated the theme of Gradiva in surrealist painting, symbolically called his wife by the pseudonym 'Gala Gradiva'. Many artists were influenced by 'Gradiva', like Magritte, Delvaux, De Chirico, and Masson, who gave the most accurate surrealist interpretation of Gradiva. (See: W. Chadwick (1970) 'Masson's Gradiva: The



1. The Roman copy of an Ancient Greek relief, known as the 'Gradiwa' (No. 1284 of the Chiaramonti Museum); 2. A. Masson's 'Gradiwa', 1939.

metamorphosis of a surrealist myth.'; N. Loisidi (1988) 'Gradiwa - The surrealist metamorphoses of a freudian myth.'; D. Lowenthal (1985) 'Artifacts as metaphors in history and memory.'

Psychologists often let their 'patients' interpret works of art, as a means of better understanding and curing their psychological problems.²³ Works of art are open to alternative perceptions and interpretations according to our psychic, emotional and intellectual world, although not all interpretations are socially justified; but this is another matter. (See Part 2.1.) Characteristic of the openness of artistic museum objects to personal interpretations on clear psychological grounds was the fact that a few pupils, known to have psychological problems, responded to tasks by offering interpretations which related to their personal problems rather than to the presented objects; indeed, as discussed in Chapter 6, these children 'misinterpreted' the objects to serve their needs. On the other hand, pupils' work with museum objects seemed to enable many of them to go beyond their egocentrism and tempero-centrism and to give historical empathetic interpretations. (See Chapter 6.)

Another characteristic of the aesthetic implications of personal 'readings' of archaeological objects is the fact that many great artists have been inspired by such 'readings'. Many artists of the Romantic movement of the 19th century, like the poet Byron, and the painters Delacroix and Turner,²⁴ were much influenced by the romantic vibration of archaeological and historical sites. Great modern artists, also, like Giacometti and Picasso, saw and represented reality through distinctive personal 'readings' of Ancient or Primitive art.

According to Peel (1956, pp. 47-48), art advances learning by balancing the processes of assimilation and accommodation. Therefore, pupils' 'reading' of artistic museum objects may be of great significance to their general, as well as aesthetic development. According to R. Arnheim (1986, p. 99), museum objects are especially suited to such practices, since they function in a different way, and invite different interpretations to monuments in situ: 'Between the colossal heads of

²³See, among others: R. Arnheim (1986), 'Art as therapy.'; E. H. Gombrich et al. (1972), *Art, Perception and Reality*.

²⁴Turner's 'historically resonant and morally didactic art of landscape', influenced by archaeological and historical sites, was underlined by the exhibition *Turner and Byron* in the Clore Gallery (3.6.-20.9.1992). 'What Byron called "the truth of history ... and of landscape" was also Turner's truth.' (N. Serota, 1992, p. 7.) 'The series of paintings he [Turner] made on Byronic themes or exhibited with quotations from the poet do not, it must be admitted, match Delacroix's in number or always in intensity of feeling, but they amount to a roll-call of some of his most impressive pictures, from the "Field of Waterloo" ... of 1818 to "Approach to Venice" ... of 1844.' (D. B. Brown, 1992, p. 12.) 'From his youth Turner was deeply interested in the history and antiquities of Greece. These concerns were inspired first by his interest in architecture, and by his need to assemble suitable material for paintings of historic landscape, and it was in a large part through his exploration of Greek subjects that Turner developed the insights into the historic and moral resonance of landscape that so greatly distinguished his own art, and made him profoundly receptive to Byron's. In 1799 Turner was invited by Lord Elgin to accompany him on his archaeological tour of the East, and had he accepted, he would have preceded Byron to Athens.' (Ibid., p. 85.)

Easter Island and Bernini's marble figures of Daphne pursued by Apollo, there is a difference, not only of historical style but of function.' The fact that museum objects are displayed in a museum lets them 'deliver a message. They are tied to no place or civic function, but come to us as a statement on the nature of man. As such, they must do the talking, they must tell the complete story. They are deliverers of thought, whereas ... [monuments] are occasions of thought.'

But, to listen to the stories that museum objects tell us, and to understand the thoughts they deliver we must 'approach' them with all our perceptual and intellectual powers. We must not only see them, but also observe them, question them, and try to 'read' them using both our intuitive and intellectual thinking.²⁵

In Arnheim's (Ibid., pp. 135-151) 'A plea for visual thinking', the educational significance of such practices and their importance for the general development of the intellect is discussed in depth.²⁶ In order to have 'real' educational results, pupils should not be perceptually stimulated by 'expensive fantasies', by 'shapeless, mysterious, unrelatable sensations',²⁷ as they often are for example by electronic multimedia. 'The materials to be used must possess inherent order and permit the creation of such order at a level of comprehension accessible to the child. Children cannot get a grip on what they cannot comprehend, and when they cannot comprehend they can only shut themselves off. But it is precisely this shutting off that we are trying to undo. What is needed is the experience that among visible things, there are some that can be understood after all. Second, sights of sufficient orderliness must refer visibly to something that matters, directly

²⁵In R. Arnheim's wording (1986, foreword, pp. X-XI): 'Cognition through perceptual field processes - that is my way of defining intuition, which functions with the secondary but indispensable help of the intellect. The intellect complements intuitive synopsis with networks of linear chains of concepts. Consequently, its principal tool is verbal language, consisting of chains of signs that stand for abstractions... Together, intuition and intellect produce thinking, which is inseparable from perception in the sciences as well as in the arts.' See also R. Arnheim (1954; 1969.)

²⁶Arnheim suggests: 'It is of great educational value to study in concrete detail how Michelangelo visualised problems of morals and religion in his *Last Judgement*, or how Picasso symbolized the resistance to fascist crimes during the Spanish Civil War in the figures and animals of his *Guernica*. In terms of visual thinking there is no break between the arts and the sciences; nor is there a break between the uses of pictures and the uses of words. The affinity between language and images is demonstrated first of all by the fact that many so-called abstract terms still contain the perceivable practical qualities and activities from which they were originally derived. Such words are mementos of the close kinship between perceptual experience and theoretical reasoning. Beyond the purely etymological virtues of words, however, good writing, in literature as well as in the sciences, is distinguished by the constant evocation of the live images to which the words refer.' (Arnheim, 1986, p. 147.)

²⁷'There are projects for centers of perceptual stimulation, pleasure domes of capriciously moving shapes and lights, dancing colors, symphonies of noises, textures to touch, and things to sniff. These expensive fantasies have, for me, the quaint aroma of nineteenth-century decadence, those refined *fin-de-siècle* orgies, which as far as I know were not held for educational purposes. They do not point to an existing need, but one whose nature may be misunderstood.' (Arnheim, 1986, p. 238.)

or indirectly, for the way the children conduct their lives. A perverted environment may have failed to teach them that the things they see can reveal facts relevant to their existence, i.e., that there is a functional relationship between what the eyes grasp and what the person must know in order to survive and to enjoy that survival. If we are not careful, we will entertain the senses with pretty displays and exercises confirming the children's suspicion that there is no connection between what there is to see and what there is to know.' (Ibid., pp. 238-239.)

It will be clear that museum objects seem to be 'ideal' for such practices, because 1) they 'possess inherent order' and are displayed in order; 2) directly or indirectly, they 'refer visibly to something that matters'; and 3) 'reveal facts relevant to their [pupils'] existence' since 'there is a functional relationship between what the eyes grasp and what the person must [or rather can] know'.

So museum objects were conceived as 'opera aperta', influenced by their museological display, by any relevant information offered in the museum, and by pupils' perception, interests, experience, background knowledge, interpretation and use. In this sense, pupils' historical thinking in relation to museum objects was generally assumed to offer us a very interesting theme to explore.

Therefore, besides the careful selection of museum objects, the research tasks themselves were carefully devised (see Chapter 4) to offer pupils a significant aesthetic and intellectual challenge.²⁸ It was expected that this experience would let pupils realise that objects may be seen from different points of view, and may acquire several different values in relation to our questions, our interpretations, our treatment and use. Besides its aesthetic value, a work of art may have several other values, among them historical. In consequence, its historical significance may lead to the re-estimation of its aesthetic value, since it is dependent on both the historicity of the object and aesthetic ideas. By analogy 'humble' objects, or even fragments of objects made for everyday use, may be of great historical significance, a fact which upgrades their general significance and value as objects.

²⁸Peel (1956, p. 159) argues in relation to Piaget's work [The Psychology of Intelligence] that 'behaviour becomes more intelligent as the pathways between the subject and the objects on which it acts cease to be simple and become progressively more complex.' There is a significant difference between 'enumerating the details of a picture and recognizing what is pleasing or has significance in the picture.'

3.3.2. The historical significance of museum objects as sources

Archaeological and historical museum objects, if not most museum objects, are distinguished by their historical significance, which is underlined by the fact that they are exhibited in a museum. Even contemporary or natural²⁹ objects displayed in a museum may be seen as historical, mainly because museums usually display their content in terms of a clear or underlying historical interpretation and/or order.

Furthermore, the historical significance of archaeological objects has been directly or indirectly highlighted by anthropology, ethnology, 'material culture' theory, the psychology and sociology of art and many other social sciences, including psychoanalytical theories.³⁰ However, it is investigated in depth by history, museology and archaeology, which do not treat it as a static historical concept, but as changing according to developing historical, museological and archaeological theories.

Current archaeological approaches to museum objects vary according to different archaeological theories, which may be labelled 'traditional', 'modern' and 'postmodern'. (See I. Hodder, 1991; M. Shanks and C. Tilley, 1987.) Generally, 'traditional' archaeology focuses on the external description of archaeological objects and their chronological dating, since objects are conceived as belonging to a fixed, known and classified past. Consequently, objects are evaluated on the basis of their uniqueness and artistic form, in relation to a chronological and ideological conception of their archaeological context. The archaeological significance of the Parthenon reliefs is dependent upon their artistic form and origin in Classical Athens. In these terms, their traditional archaeological value is classified as superior to Classical tools or Archaic sculpture. The significance of the object depends on its form and origin.

²⁹According to D. Lowenthal (1985, p. 242), 'plant and animal species of hoary antiquity or at an evolutionary dead end seem similarly outdated. Remnant exemplars of the coelacanth, the tuatara, the Joshua tree are anachronisms more at home in previous than present environments. Fossil traces conjure up the histories of now extinct species, also antiquating the strata that embody them.' See also S. M. Pearce (1994, p. 1).

³⁰Freud, and many other psychoanalysts after him, often referred to the historical significance of archaeological objects as sources, and compared psychoanalysts with archaeologists, 'who made the dumb stones speak and reveal their forgotten past'. (E. Jones, 1953, vol. 3., p. 318.) Psychoanalysts used to compare their patients' repressed memories to artifacts; 'Like archaeologists and humanists, analysts sought to reconstruct the past from submerged artifacts - their patients' repressed memories which had somehow preserved their form and even their life despite seemingly final disappearance.' (E. Jones, *Ibid.*, p. 318.) 'Were artifacts like memories, everything ever built might be brought to light again', Freud suggests (1930, p. 17, quoted by D. Lowenthal, 1985, p. 252); for example, Rome would be a city 'in which nothing once constructed had perished, and all the earlier stages of development had survived alongside the latest.'

'Modern' archaeology treats archaeological objects in complex archaeological contexts. It perceives and studies them, irrespective of their potentially unique artistic form, as dynamic forms capable of revealing a deep historical relation to a series of ideological, institutional, technological and economical social contexts. It is the mutual relation between the archaeologist and the object that 'makes the dumb stones speak'. The archaeological significance of objects is not related only to their uniqueness and very survival as artistic objects of the past, but mainly to their interrelation with all other aspects of the human and social context of the past from which they originate, and which they enlighten by being interpreted. Therefore, humble clay fragments, seen in their broad archaeological context, are of great archaeological significance. The object is conceived as an intrinsic part of a complex archaeological context, aspects of which are revealed through the dynamics of interpretation, in relation not only to archaeological and historical questions, but to ethnological, anthropological, sociological questions as well. (See I. Hodder, 1987.)

'Postmodern' archaeology interprets objects according to archaeological assumptions by which objects are not related to the reality of the past from which they originate. The relation of objects to their original archaeological context is deconstructed. Objects are not associated with their context on the basis of their intrinsic relationship with other archaeological/historical elements, but on the basis of present archaeological activity and interpretation. The archaeological association is metaphorical. In C. Tilley's (1991, pp. 73-74) words: 'The interpretation of the meaning and significance of material culture is a contemporary activity. The meaning of the past does not reside in the past, but belongs in the present. Similarly, the primary event of archaeology is the event of excavation or writing, not the event of the past. Consequently, the archaeologist is not so much reading the signs of the past as writing these signs into the present: constructing discourses which should be both meaningful to the present and playing an active role in shaping the present's future... Writing the past is not an innocent and disinterested reading of an autonomous past produced as image. Writing the past is drawing it into the present, re-inscribing it into the face of the present.'

Schematic plan 28. The archaeological significance of the object according to distinctive types of current archaeology

'traditional'	'modern'	'postmodern'
The archaeological significance of the object is dependent upon the uniqueness of its artistic form and its origin, in relation to the known and taxonomised past.	The archaeological significance of the object is related to its present interpretation in relation to the past.	The archaeological significance of the object is related to the present in terms of contemporary archaeological activity (excavation, writing).

It is clear that the archaeological significance of museum objects according to different archaeological theories corresponds to objects' historical and museological significance according to respective historical and museological theories. (See Part 2.3, Part 3.2 and schematic plan 26.)

It is important to emphasise here, that whereas traditional history used (mainly) written texts as sources, current history uses objects and other 'unwritten texts' as well. Collingwood (1939, p. 111), being an archaeologist himself, argued that human thought of the past is expressed 'either in what we call language, or in one of the many other forms of expressive activity.' (See also Part 2.1.) As discussed above, changing approaches to history education also consider pupils' work with various sources very important for the development of pupils' historical thinking and knowledge.

The historical significance of museum objects as sources, in relation to major issues that this research aimed to touch upon, was theoretically investigated in terms of basic differences that distinguish (1) museum objects and written texts and (2) museum objects themselves as sources. This theoretical investigation was largely based on D. Lowenthal's (1985) work, *The Past is a Foreign Country*, and especially on his significant analysis of the 'Defects and virtues of reliquary knowledge'. (Ibid., pp. 243-249.)

3.3.2.1. Museum objects and written texts as sources

The historical significance of museum objects as sources of historical information or evidence is distinguished in many ways from the significance of written texts. First of all, museum objects, and relics in general, do not pose problems of

reliability, at least not the type of problems that many written texts pose.³¹ Thus much of the historical significance of museum objects lies on the fact that they are not related to intentional bias, since they originated to serve the reality of the past, and not to transmit historical information as many written historical sources do.

Museum objects as sources make it easier for us to develop awareness of the reality of the past than written texts, because they offer us visual and tangible aspects of historical situations. The object 'bears an "eternal" relationship to the receding past, and it is this that we experience as the power of "the actual object".' (S. M. Pearce, 1990, p. 25.) In this way, they also enrich our imagination, which is assumed as a prerequisite of understanding history. (See P. J. Lee, 1978, 1984b.)

Relics relate to everyday life in the past and 'hence make historical knowledge [and thinking] more populist, pluralistic, and public' (D. Lowenthal, *Ibid.*, p. 244). They may reveal children's and slaves' past, or 'her-story', which is usually hidden by history. In this sense, museum objects were expected to enable pupils to treat them in their human and social context; pupils could try to understand their makers and users, the reasons for which they were made, and their social or cultural environment.

The accessibility of tangible relics impresses even indifferent people or very young children, since their presence is 'directly available to our senses' (D. Lowenthal, *Ibid.*, p. 245). Also the fact that we can see and 'touch' the objects that people of the past touched, used, made and thought of, has important implications for our emotional, intellectual and historical approach to the past; they do not only persuade us about the reality of the past but they may also inspire our historical thinking.³²

³¹A similar argument is posed by D. Shemilt (1987, p. 49): 'If a relic is authentic it is reliable - simply because it is a piece of the past and not testimony about the past. Of course, even authentic relics can mislead the historian, but the problem here is one of inference and inductive generalisation not of reliability.' Shemilt (*Ibid.*, p. 49) proceeds to an analysis of the reliability of relics by arguing: 'A relic is a piece of the action which may help the historian reconstruct what happened - actually or typically. It no more describes the action than the exchange of a banknote describes the transfer of goods or the movement of gold in bank vaults. Of course, *relics* that are also *records* may contain inaccurate information - designed to mislead contemporaries, for instance! An assertion about the accuracy or honesty of the evidence necessarily involves collateral assertions about the facts of the case evidenced, if only because the evidence is one of the facts in the situation evidenced. In the case of all relics, therefore, whether they are also records or not, the concept of reliability is redundant.' Also Shemilt (*Ibid.*, p. 49) poses the following argument about the reliability of authentic relics: 'What has to be established, in lieu of source reliability, is the nature of its relation to the situation evidenced, is exactly what it is, and this may not be what it appears or pretends to be.' Accordingly, the use of relics was expected to enable us to test pupils' historical thinking on the basis of pupils' appreciation of the limitations of the evidence. (See also Chapters 4 and 5.)

³²As D. Lowenthal (*Ibid.*, p. 245) mentions, 'Gibbon's visit to Rome, seeing "each memorable spot where Romulus stood, or Tully spoke, or Caesar fell", provided his crucial

Besides feelings of immediacy, archaeological objects and sites 'offer historical enquiry the perceptible body of historical action' and thus 'the fleshless narrative of historical texts gains its flesh', M. Andronicos argues. (1982, pp. 19-23.) Archaeological objects and sites offer us a real environment on the basis of which we can understand human action and thought as comprehensive and conceivable.

Objects, buildings or even ruins, remain alive and persuade future generations about human life in the past. 'To be certain there was a past, we must see at least some of its traces', argues D. Lowenthal (Ibid., p. 247). This fact is related to past objects' presence in the present. Accordingly, pupils were expected to read museum objects in terms of their several historical manifestations, as discussed in Part 2.1.

Often, museum objects stimulate curiosity at first sight. This fact could potentially lead to the stimulation of pupils' historical thinking and especially of historical questioning. Since questions do not arise out of the blue, museum objects could provide a very good stimulus for questioning. The same museum objects, when interpreted as evidence, could provoke different questions and answers, which could open up the possibilities of regarding other museum objects or written texts as evidence.³³ Through practical experience of working with museum objects themselves, pupils could realise historians' ongoing work, or what a historical source, historical information and evidence are.³⁴ So pupils' work with museum objects, demanding active involvement,³⁵ was expected to be an active learning situation, which could encourage pupils to express historical thinking.

Museum objects as sources are not related to the problems of historical language that written sources and historical narrative usually pose, especially for children. This major issue is extensively analysed by A. D. Edwards (1978). On the basis of his analysis, it could be argued that pupils' work with museum objects could not

inspiration: "On the 15th of October, 1764, as I sat musing amidst the ruins of the Capitol, while the barefooted friars were singing vespers in the Temple of Jupiter, ... the idea of writing the decline and fall of the city first started to my mind." [Gibbon, 1796, pp. 84-85.]

³³See A. K. Dickinson's, A. Gard's and P. J. Lee's (1978) discussion of the use of 'evidence in history and the classroom', in which they underline the importance of questioning. On the other hand, their argument (p. 3) that 'the assertion that the concrete nature of historical materials will help children to find out about the past ... merits careful examination' is a major issue that the research intended to explore.

³⁴D. Shemilt (1987, p.44) argues that, since the distinction of information and evidence is not easily grasped by children, it should be taught with reference to 'relics rather than records in the first instance.'

³⁵The educational significance of active involvement is argued, among others, by B. Barker (1978, p. 122): 'Active involvement is the essential prerequisite for effective learning in history' especially in order to let 'abstract connections' be made 'concrete and specific'.

only enable pupils to express historical thinking, but that it could have great educational results.³⁶ It will be made clear that in this sense, museum practice might help pupils to discriminate between 'now and then', 'here and there', and 'familiar and exotic' characters and situations, a fact assumed to have significant implications for pupils' historical thinking, especially in terms of its 'content' and 'specific characteristics'.³⁷

Another advantage of concrete museum objects is that they can be handled by pupils of different ages, whereas most written texts are very difficult for young pupils, mainly because of their language and the abstractions they include. (See A. D. Edwards, *Ibid.*) Therefore, pupils' responses in relation to museum objects could enable study of pupils' historical thinking at different ages.

Besides its difficulties, the language of written texts implies the differences in meaning between museum objects and written texts in respect with their reference to time. The past tense of narratives 'supporting an amphisemy between the sense of time and of causality, implies an unfolding, i.e. an understanding of the Narration. For this reason it is the ideal tool of all structured systems; it is the falsified time of cosmogonies, of myths, of Histories and of Novels. It presupposes a structured, elaborated, separated world, elevated to semantic lines, and not a thrown, spread and open world. Behind the past tense there is always a creator, god or narrator... The past tense finally is the expression of an order, and, in consequence, of an euphoria. Because of it, reality is neither mysterious nor illogical; it is clear, almost familiar... Even if tied with the most gloomy realism, [the past tense] reassures, because, due to it, the verb expresses a closed, determined nominalised action.' (Roland Barthes, 1972, pp. 34-35.) According to R. Arnheim (1986, p. 5), 'told in words the story is full of whens. One thing happens after another in a temporal sequence. In the painting, the members of the cast display the counterpoint between action and stasis... The painting, being neither literature nor theatre nor film, is outside time. What it represents is something better than a momentary segment of the story. The painter offers not a snapshot, but an equivalent. He synthesises all the salient aspects ... and he translates action and stillness into their pictorial counterparts.' In this sense, concrete objects are more open, at least initially, to personal and alternative

³⁶Museum practice could enable pupils to understand the relevant historical vocabulary in its 'real' historical context, avoiding anachronistic associations and everyday meanings. It could enable them to form tools for discriminating historical phenomena by building relevant historical concepts on the basis of immediate experience.

³⁷See Vygotsky's (1934, p. 194) argument about the interrelation of spontaneous and scientific concepts, quoted in Part 21.2., in relation to empathy as a specific characteristic of historical thinking. See also Arnheim (1986, p. 147).

interpretations and to the notions of historical uncertainty and relativity than written texts.

Nevertheless, any attempt to interpret relics requires developed abilities for careful observation and 'reading'. (See 'reading and observing' skills as a specific characteristic of historical thinking, in Part 2.1.2.) According to Peel (1956, p. 84), when a learner is confronted with a situation 'he tends to give it form and clarity. The form he gives it, is such as to satisfy him - the gestalt must be "good" to him. However, such a gestalt may not be "good" in the sense of leading to correct knowledge... This is where the teacher comes in.'

This research was largely based on Peel's idea quoted above. The study of pupils' 'primitive', 'incorrect' or 'unstructured' insights was expected to lead to deeper understanding of their thinking, and thus how education, and especially teachers, by 'positive action with respect to false insights' can lead pupils to reconstruct their 'primitive' insights. (See Peel, *Ibid.*, p. 89.) As P. J. Lee (1978, p. 82) argues, 'in teaching, what is needed is a chance for children to give vent to their misapprehensions, so that each one can be cleared up as it arises.'

The importance of such work for history education in particular is great, because as Peel (*Ibid.*, pp. 89-90) also argues, 'not all learning proceeds from "bad" insights. In English and history it develops more often from correct but relatively unstructured insights... The [historical] insights are developed and restructured by the teacher who makes use of all that textbooks, archives, architecture, ancient buildings and ceremonies can offer.'

The fact that museum objects represent and symbolise human, social and cultural realities and thoughts, underlines the indirect meaning of objects in contrast with the direct (at least at a first level) meaning of many written texts, such as records 'claiming to *report* events or document situations' (D. Shemilt, 1987, p. 48). On the other hand, concrete objects like written sources which do not make any 'conscious commentary or catalogue' but stand 'as a constituent element within the events or situations evidenced' (*Ibid.*, p. 48), are directly and reliably interrelated with reality, they are part of reality. Many written texts are related to reality only as representing it, while most of them pose a variety of linguistic difficulties that obstruct pupils' understanding. (See A. D. Edwards, 1978.) Generally, texts are written to record a meaning, while objects, especially objects of art, are made for

their meaning; they are the meaning.³⁸ This fact underlines museum objects' unique value, and the necessity to interpret them not only on the basis of their represented theme, but on the basis of their physical presence as well. (See also Part 2.1.2.) However, some museum objects carry inscriptions, thus enriching their historical significance further. Such objects could be very important for educational practices, even if these inscriptions are written in Ancient Greek or Latin. (See B. Bell, 1996.)

Objects, as the tangible past, are unique; copies do not have the same historical significance as authentic relics. By contrast written texts, beyond an emotional level and at least in our times, can be copied without losing the historical meaning they carry. It is important to mention here, though, that besides their usual treatment as sources, even written texts can be interpreted on the basis of their physical existence, i.e. as objects. The historical significance of a written text can vary in terms of the form in which it is presented: as a manuscript, as a palimpsest, as published material in an old book, in a second-hand book, or in a new book, as a photo-copy, or as an electronic computerised version.

This theme introduces the differences that exist among museum objects themselves as sources.

3.3.2.2. Different types of museum objects as sources

The different types, relevant characteristics, and the way museum objects are displayed in a museum, were assumed to influence their historical significance as sources. Therefore, these specific elements were theoretically investigated and tested, because they were expected to influence pupils' historical thinking.

Collections / 'isolated' museum objects

It was assumed that a collection of objects discloses a broader view of the past than 'isolated' museum objects. Accordingly, it was expected that the historical significance of a collection would be more obvious, than the historical significance of 'isolated' museum objects.³⁹ On the other hand, an 'isolated' museum object

³⁸The relation of written language, memory and meaning is discussed by Plato. In his *Phaedrus*, writing is conceived as threatening memory.

³⁹As D. Lowenthal (1985, p. 287) argues 'the dispersal of an artist's *oeuvre* may dismember the past no less than the division of a single work... Smaller antiquities long gathered together also accrue value as an ensemble. The recent breakup of the great collection of Greek vases assembled at Castle Ashby in the 1820s was held to blot out "part of the collective memory of a nation" [S. Melikian, 1980, p. 8]: the nation referred to was not Greece but Britain, the memory not of the vases themselves but of the early nineteenth-century passion for collecting them.' See also S. M. Pearce (1994).

might facilitate pupils' personal dialogue with it, because the fact that their attention was focused on one object could lead them to a deeper penetration of its historical significance. In addition, this fact was expected to lead pupils to realise the limitations of the evidence available. Therefore, both isolated museum objects and collections were selected for the different devised tasks. (See Chapter 4.)

Besides this basic distinction, pupils' historical thinking was expected to be further influenced by the following characteristics of museum objects:

(1) Type

Pupils' historical thinking was expected to be influenced by the presented museum objects' type in terms of their appearance, mainly because it was assumed that pupils' ability to realise and interpret their historical significance was much dependent on it.

Furthermore, it was assumed that both the physical presence and represented themes of museum objects enrich their historical significance, because even minor details, such as traces of colour, may offer historical insight. (Ancient Greek statues were painted, but in most statues the colours have faded away with time.)

Moreover, it was assumed that, in a sense, artistic museum objects reveal their historical significance mainly in terms of their symbolic representation of human, social and cultural life,⁴⁰ while everyday objects do so in terms of their relation to everyday human and social life. On the other hand, the historical significance of 'humble' objects, like broken clay fragments, was not expected to be easily appreciated by pupils, although it is considered great by archaeologists and historians.

The artistic form of a museum object, and/or of its representation, was assumed to facilitate pupils' work, because 'art represents human experience in the light of organised form', and 'although art is a lie, it helps us see the truth in life'. However, the artistic form of an object was expected to pose some difficulty for pupils' work, if we accept that in order to use it as a historical source, we have to conceive it first as a work of art. Arnheim (1986, pp. 3-4) argues that an object of

⁴⁰Arnheim's (1986) work offers an extensive analysis of the significance of artistic museum objects and of the ways we can 'read' them. Among other things, Arnheim stresses the complex relation of art to human reality. Art 'achieves complete interrelation of content and form and it presents the plenitude of visual world in the light of organising thought.' (Ibid., p. 7.)

art can really be interpreted or used in terms of its polysemic significance only if it is first seen in relation to its artistic identity.⁴¹

By synthesising salient aspects of human experience, thought and feeling, and by translating action and stillness into their pictorial counterparts, painting and sculpture demand the activation of all perceptive and intellectual activities. They demand the relevant openness of the observer, which should be cultivated by education in general, and by museum practices in particular. 'The old-style art teacher who limits himself to pointing out the subject matter; his new-style successor who asks the children how many round shapes or red spots they can find in the picture - neither does much more than encourage the child to look. To make the work come alive is another matter.' (R. Arnheim, *Ibid.*, p. 4.) Therefore, this longitudinal field study was based on the assumption that the educational value of pupils' work with museum objects within a museum environment is largely dependent on the general educational approach and the type of the task set.

It was assumed that it is very significant for history education, and for education in general, to lead pupils to attempt personal interpretations of 'artistic opera' as the investigations of the 'intentio auctoris', the 'intentio operis' and the 'intentio lectoris' (see Umberto Eco, 1990), as discussed in Part 2.1. Peel (1956, p. 93) argues that 'verbalising insights which are in the main motor, perceptual or symbolic can lead to enhanced structuring', an argument which is discussed further in relation to historical thinking and the use of museum objects as sources. (See Part 3.3.3.)

According to these assumptions and expectations, both artistic and everyday objects were selected for the study (see Chapter 4), while pupils' historical thinking, among other things, was studied on the basis of whether pupils' focused only on the physical existence of the presented museum objects, on their representation, or on both at the same time. Sculpture was preferred to painting, because a great part of Ancient Greek painting has not survived through the ages.

41 'Historians and critics can say many useful things about a painting without any reference to it as a work of art. They can analyse its symbolism, derive its topic from philosophical or theological sources and its form models of the past; they can also use it as a social document or as the manifestation of a mental attitude. All this, however, can be limited to the picture as a conveyor of factual information and need not relate to its power of transmitting the artist's statement through the expression of form and subject matter. Therefore, many sensitive historians or critics would agree with Hans Sedlmayr [1958] when he asserts that such approaches fail to account for factors that can be explained only as artistic qualities. This amounts to saying that unless the analysis has intuitively grasped the aesthetic message of a painting, he cannot hope to deal with it intellectually as a work of art.' (Arnheim, 1986, pp. 3-4.)

In addition, sculpture offers a variety of characteristic objects, which were selected on the basis of the variables tested and the difficulty they posed for pupils' work.

(2) Familiarity

According to R. Arnheim (1986, p. 73), besides 'physical distance' and 'perceptual distance', 'personal distance, which refers to the degree of interplay or intimacy between person and art objects' also influences our perception.⁴² Accordingly, pupils' familiarity with the presented objects and their represented themes was expected to facilitate their work, while both familiar and strange objects were expected to stimulate pupils' historical curiosity, questioning and thinking. 'Familiar' objects were expected to pose a considerably lower level of difficulty for pupils' work, and were therefore presented to younger pupils. (See Chapter 4.)

(3) Missing parts

Pupils' historical thinking was also expected to be influenced by whether objects had any missing parts, because even a relatively small and indifferent missing part, mended or not, was assumed to underline the object's historical significance, at least by implying that it is old. Accordingly, any traces of relevant conservation work were expected to have a similar effect.

In addition, the extent of missing parts and their semantic significance were expected to influence pupils' historical thinking, because it was assumed that pupils' ability to realise the historical significance of a museum object was influenced by whether the object constituted a closed or an open form. As Peel (1956, p. 82) argues 'closed figures are more readily perceived than open figures. In fact, the predisposition to form a gestalt often leads the observer to close figures which are partially open.'

On this basis, all selected (isolated) museum objects were 'partially open', while in one case the missing parts of a selected object and its 'bad' form made it unclear. (See Chapter 4.) This decision was based on Peel's idea that 'aiding clarity of form is the experience of the observer' who 'tends to give meaning to configurations set before him in terms of what he has learned and is interested in.' (Ibid., p. 83.) In consequence, the 'openness' of museum objects was considered an influential element.

⁴²Physical distance influences perceptual distance, i.e., how far away a work of art is experienced to be. There is, however, no simple correspondence between physical and perceptual distance: an object may look closer or farther away than it is.' (Arnheim, 1986, p. 73.)

(4) Authentic objects / copies

The historical significance of museum objects as the tangible past is dependent on their authenticity, since they are, as D. Lowenthal (1985, p. 239) puts it, 'finite and non-renewable resources'.⁴³ On the other hand, copies are not part of the 'real' past. But visitors 'often fail to realise' that not all museum objects are authentic. D. Lowenthal (Ibid., p. 190) argues: 'Viewers often fail to realise, even after repeatedly being told, that vanished or threatened relics have been replaced by modern contrivances.'

The decision to let one group of pupils work with copies instead of authentic objects was mainly based on D. Lowenthal's (Ibid., p. 293) argument that, 'the copy may afford an historical experience as 'true' as the original, but it is a *different* experience.'⁴⁴ (See also Chapter 4.)

(5) Origin - 'independent' historical knowledge

Pupils' historical thinking was expected to be further influenced by the specific origin of the presented museum objects. The historical significance of museum objects made and used thousand years ago was expected to be differently perceived to museum objects which were made and used just a couple of years ago. According to D. Lowenthal (Ibid., p. 240), 'like memories, relics once abandoned or forgotten may become more treasured than those in continued use; their discontinuity in their history focuses attention on them, particularly if scarcity or fragility threatens their imminent extinction.'

The decision to select only Prehistoric and Ancient Greek museum objects was mainly based on the intention to present pupils with a variety of objects originating from distinct historical periods that pupils had studied at school. (See Chapter 4.) This offered the opportunity to discuss whether, how and how far pupils used 'independent' historical knowledge, previously acquired (mainly) at school. This decision also intended to take advantage of the archaeological wealth of Greece, where this longitudinal field study was conducted. In addition, the historical significance of Prehistoric objects, in particular, is crucial, since Prehistoric objects and ruins are the only sources we have for the study of the relevant periods.

⁴³'Ubiquitous as they are, relics suffer greater attrition than do memories or histories. Whereas history in print and memories recorded on tape can be disseminated without limit and are thus potentially immortal, physical relics are continually worn away. However many vestiges remain to be found, resurrected, and deciphered, the tangible past is ultimately a finite and non-renewable resource, except as time engenders new relics.' (Lowenthal, 1985, p. 239.)

⁴⁴For an analytical discussion of the historical significance of copies see D. Lowenthal (1985), especially Part III: 'Changing the past' (pp. 263-362). See also U. Eco (1990), 'Forgeries and falsifications'.

(6) Labels and displays - 'dependent' historical information or knowledge

It was generally assumed that the way in which museum objects are displayed and labelled influences our perception of their historical significance, and thus our historical thinking. (See Part 3.2.2, Part 3.2.3 and schematic plan 26.) Contextual displays of objects do not only influence our visual historical images, and written labels do not only influence our verbal images; they influence the way we see and realise things. They 'orchestrate and at times dominate the view.' (D. Lowenthal, 1985, p. 273.) For an extensive analysis of the shaping of knowledge in museums see E. Hooper-Greenhill (1992).

Indeed, 'written signs obtrude both as objects and as linguistic symbols whose meaning and perhaps veracity must be pondered... They sort antiquities into history-book order, endowing the reliquary past with the flavour of the written record. And just as "treasure-hunt" questionnaires at museums lead children to concentrate not on the exhibits but on the labels and notices, so some visitors to history-laden places attend more to the markers than to what they celebrate.' (Lowenthal, *Ibid.*, pp. 268-269.) It was therefore expected that pupils' historical thinking would be influenced not only by the devised tasks, in relation to selected museum objects, but by written signs, labels and the way objects were displayed. In this sense, as discussed in Chapter 4, Greek museums offered a fairly neutral historical atmosphere, because limited written information, in the form of bronze labels, is provided only for some museum objects. Furthermore, since the devised tasks were in the form of open questions, pupils were assumed to be almost 'lost', or rather not 'over informed'.⁴⁵ Even so, it was decided to test if, how, and how far pupils' historical thinking was influenced by any information offered in the museum, which was therefore called 'dependent historical information'.

3.3.3. Historical thinking and the use of museum objects as sources

The sense of the past that a museum object or a collection of objects offers per se is not sufficient to let us 'know', 'reconstruct' or 'construct' the past. (See schematic plan 26.) Human thought of the past, 'attitudes and beliefs can only be conjectured from relics; to demonstrate past reactions and motives, artefacts must be amplified by accounts or reminiscences... Relics are mute; they require interpretation to voice their reliquary role.' Thus Lowenthal (*Ibid.*, p. 243) underlines the 'defects of

⁴⁵As D. Lowenthal (*Ibid.*, p. 268) argues, 'to be temporarily 'lost' is often better than to be over-informed.' Because 'mere recognition ... transforms the visible past. Identifying and classifying may tell us much about relics but often occludes our view of them, sacrificing communion with the past to facts about it.'

reliquary knowledge'. But as discussed throughout Chapter 3, all sources, not only relics, cannot reveal the past as such, but require interpretation. Accordingly, pupils' historical thinking was explored on the basis of how pupils interpreted the museum objects studied.

Besides Lowenthal, other historians and educationists have questioned the use of objects or 'visual' materials as sources, especially in history education. As already mentioned, A. K. Dickinson, A. Gard and P. J. Lee (1978, p. 3) argue that 'the assertion that the concrete nature of historical materials will help children to find out about the past ... merits careful examination.' But their argument is in accordance with basic assumptions of this study, because it is based on the idea that it is not enough to stimulate pupils' interest by presenting them with concrete material. Pupils' historical thinking could be evolved, if pupils are led to interpret relics 'as saying something about the past'.⁴⁶

Bruner also questions the value of 'ikonic representations' because they seem to lead to interpretations which are rather based on the surface of things than on invisible relationships and concepts. (See J. S. Bruner et al., 1966.) P. J. Rogers answers Bruner's (1960, 1966) arguments in his (1984b) 'The power of visual presentation', where he presents his experiment on the power of ikonic representation. In the conclusions of his experiment Rogers (Ibid., p. 166) argues that according to the test results 'it was the heavy use of visual presentation that was responsible for the popularity of the programme ... that visual representation was effective for learning ... ikonic representation is not always tied to surface appearances.'⁴⁷

⁴⁶ In A. K. Dickinson's, A. Gard's and P. J. Lee's (1978, p. 3) wording: 'What makes them [the concrete materials] *historical* materials is our historical understanding of them, and that is *not* concrete. This means that if we are to succeed in using primary sources for anything more than arousing interest then our children must understand them as saying something about the past. It is tempting, but misleading, to ignore this fact and to assume that children are automatically getting closer to "real" history if they are given primary sources.'

⁴⁷ 'Ikons, can, it seems, sometimes reach silent and invisible factors: when visual and verbal representation were placed to some extent in competition ... the visually biased treatment proved more effective for reconstructing the relevant (strategic) reality. What is conceptually important can sometimes be made perceptually vivid - or at least perceptual vividness is not necessarily an obstacle to conceptualising, but may be a valuable prop to its development: when solely (or almost solely) visual means were used in an attempt at an explanatory reconstruction ... the attempt was both successful and highly popular. And finally, since the test was entirely verbal in form the results meant that the children could "translate" their visually based learning into symbolic notation, so that the stress laid on "translation" in the programme - the "representational continuum" - was productive and justified.' (Rogers, 1984b, p. 166.) Rogers' experiment was made to test, among other things, whether illustrations could be turned into ikons by drawing out their latent significance in historical context (Ibid., p. 160). The test results were presented in Rogers' (1978) 'An experimental test of a "forms of knowledge" approach to teaching'.

M. Booth's (1978) work with children aged 14 plus who were shown photographs and pictures concerning the late 19th and 20th world history led to optimistic conclusions about the use of 'pictorial material'. Among other things, Booth argues that 'inductive thought is more characteristic of historical enquiry and that this mode of thinking can be attained at an abstract level by a high proportion of 14 to 16 year olds, particularly if pictorial materials are used.' (Ibid., p. 118.)

Booth's and Rogers' points were considered very important for history education. As Peel argues (1956, p. 93), 'verbalising insights which are in the main motor, perceptual or symbolic can lead to enhanced structuring.' This point is also in agreement with D. Lowenthal's (1985, p. 249) argument that historical thinking is advanced if it is based on background historical knowledge, historians' narratives, memory and relics.

3.4. Historical thinking within a museum environment

The preceding theoretical investigation of the educational environment of museums and the historical significance of museum objects accounted for the decision to conduct this longitudinal field study within a museum environment with the expectation that museum practice could stimulate pupils' historical thinking in terms of all its elements: its methodology, content and specific characteristics.

(1) The methodology of historical thinking within a museum environment

The methodology of historical thinking (conceived as the interrelation of several different stages of the ongoing intellectual and social process of historical thinking) was expected to be especially stimulated in archaeological and historical museums, because they offer an environment with a clear social, scientific and historical character, which, as such, could invoke relevant thinking. Museum objects were expected to provoke historical insight, since the fact that they are displayed in a museum implies their 'anachronism'. According to D. Lowenthal (1985, p. 241) the surrounding environment plays a great part in the identification of things as antiquated.

Moreover, it was expected that the museological display of objects (in relation to the tasks set) could stimulate pupils' interest in and curiosity about the past, whose reality they could accept, but which would, even so, remain unknown. Thus, indirectly the museum environment (in relation to the tasks set) would lead them to

follow more or less all the different interrelated stages related to the methodology of historical thinking: 1) historical questioning about the past based on background historical knowledge; 2) selection and use of sources; 3) questioning and interpreting sources as evidence in context; 4) forming historical hypotheses as an attempt to reconstruct the past by imaginative, empathetic, intuitive and rational thinking in terms of the uncertainty entailed in historical thinking and knowledge; 5) writing explanatory text, demonstrating the process involved and supporting the produced inferences about the reconstructed past; 6) participating in the public historical dialogue in terms of the relativity of historical knowledge; 7) enrichment of social background historical knowledge and thinking, which leads to new questioning.

(2) The content of historical thinking within a museum environment

In addition, it was expected that a museum environment could influence or enrich the content of historical thinking; historical thinking could relatively easily focus on the interpretation of museum objects as sources of information or evidence, and indirectly on the attempt to reconstruct the past on the basis of the evidence available. Pupils could see museum objects, and indirectly the past, in terms of the objects' several historical manifestations, which are emphasised by the historical atmosphere of museums. Within a museum environment, pupils could see objects as objects of the 'real' past, as relics or traces of the past in the present, as sources of historical information or evidence about the past, and as part of the past reconstructed. A museum's historical atmosphere could also lead pupils to see objects, and consequently the past, in terms of their human and social context.

It was also expected that the museum environment would imply the notions of historicity and of historical time and space, because pupils would realise that the exhibited objects are out of both their cultural space and time.⁴⁸ Directly (by displaying objects in their human and social context, and by offering relevant information), or indirectly (by the absence of relevant context and information) the museum environment could encourage thoughts or questions about the relevant time and space of the past, even about the present time in which the objects are exhibited in the museum.

(3) The specific characteristics of historical thinking within a museum environment

⁴⁸This detachment may have both positive and negative implications for historical thinking. In D. Lowenthal's (1985, p. 356) wording: 'The most artful placement, the most breathtaking proximity, cannot compensate for that detachment. The sculptures Lord Elgin removed from the Parthenon may be seen in absorbing close-up detail in the British Museum, but remain divorced there from diachronic context; at the Acropolis they were an integral part of an enduring local landscape and could be experienced as a past connected with the present.'

The social and scientific character of archaeological and historical museums, interrelated with the social function of archaeology and history as sciences, was expected to encourage the evolution of the specific characteristics of historical thinking. Besides developing basic historical notions (such as that historical thinking is socially and scientifically tested and evaluated, that it is rational, that it is built on background historical knowledge) and besides developing basic historical skills (such as observing and 'reading', and most important questioning), museum objects were expected to facilitate pupils in building or in relatively advancing scientific concepts such as historical uncertainty, relativity and empathy.

As discussed throughout Chapters 2 and 3, pupils' historical thinking within a museum environment was expected to be influenced by several variables. The methods by which these variables (1) were taken into consideration for the collection of the data, and (2) were tested by the analysis of the data are presented in detail in Chapters 4 and 5 respectively.

Chapter Four

Method

- 4.1. Statement of the technique employed**
 - 4.1.1. The first detailed plan and the pilot study**
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 - 4.2.5. The balance of data collection**
 - 4.2.6. How data collection was made**
- 4.3. Data translation**
- 4.4. Data coding**

4.1. Statement of the technique employed

Focusing on the study of pupils' historical thinking within a museum environment, this research was based on observations made on a series of specially devised tasks during a longitudinal field study.

The technique employed was constructed on the basis of the first broad theoretical and practical ideas, initially presented in a 'Detailed plan of proposed research in History in Education' (1991), and it was refined in the light of further reflection during the pilot study, which was carried out with a small sample in 1991. The method of data analysis was progressively revised after data collection and during analysis, mainly because the collected data were quite rich. (See Chapter 5.)

4.1.1. The detailed plan of proposed research and the pilot study

During the first year of the research a specific theoretical basis was constructed in relation to which the first broad ideas could be justified. But the initial ideas, derived from both theoretical and practical experience, had to be refined in order to specify the scope, limits and method of the research.

The outcome of this work was the 'Detailed plan of proposed research in history in education'. The theoretical background of the research was presented, and there were two chapters on the research technique and the category systems. Although its character was still quite general, the plan (together with the pilot study) formed the basis of the research, because, notwithstanding refinements of scope and method, the general character, nature and method of this research still rest on the first broad ideas.

The pilot study was carried out at the end of the first year of the research with ten pupils of the third secondary school grade, who responded to various tasks while presented with different museum objects and collections. The data were very rich; more than was expected. This was very encouraging, but at the same time posed some problems, especially in relation to data analysis. Specifically, it showed the need for refining the scope of the research and consequently the category systems and the method. The data also made it possible to refine the tasks, because they offered the first real taste of the quality of data and the problems of data collection.

On the other hand they allowed a re-examination of decisions about data translation and data coding.

4.1.2. Basic decisions

The basic methodological problem was to define and limit the scope of the research and to refine its design, so that it would be narrow enough to be realisable, but at the same time efficient in achieving its aim, i.e. in offering an insight in pupils' historical thinking.

4.1.2.1. Basic decisions on data collection

One basic decision was to proceed to a longitudinal field study. It was decided to explore the development of pupils' historical thinking, within the age range from 12 to 15 years, in depth, because this age range was assumed to be of great significance to intellectual development and education. (See Parts 1.7 and 2.2.) The research sample should consequently consist of a relatively small number of pupils. This decision was based on the expectation that the longitudinal study of a particular small sample in depth could lead to some conclusions about children's historical thinking within this age range and suggest basic questions for further research. So it was decided to work with four school groups of 35 pupils each for three years, instead of working with a broader sample. Two of these groups, which were called main groups, served the longitudinal character of the research, since data were collected during three years. The other two groups were called additional groups, since data were collected only once, for reasons to be discussed further on.

Another basic decision was the specification of the variables to be studied and the choice of the environment in which the field study was to be conducted. After much consideration, based on relevant theoretical ideas and on observations made during the pilot study, it was decided to test the following variables, which were expected to influence pupils' historical thinking within a museum environment:

* Age.

Groups of pupils of different age (from twelve to fifteen years) served as the sample of this research.

* Tasks.

This research was based on observations made on three different tasks, all of which included a number of questions or sub-tasks.

* 'Dependent' historical information or knowledge (acquired in the museum)

Historical information/or knowledge about the historical context of the museum objects was offered in the museums only for some of the presented objects, while for other museum objects there was no historical information offered.

* 'Independent' historical knowledge (previously acquired, mainly at school)

The historical context of some of the museum objects, with which pupils were presented, was related to independently and previously acquired historical knowledge, especially to historical knowledge previously acquired at school. Because of the nature of the Greek traditional educational system independent historical knowledge offered at school was, at least in formal terms, standard.

* Museum objects.

Different museum objects and collections in different museum environments were selected in relation to the above mentioned variables and on the basis of the different levels of difficulty they posed for pupils' work in terms of their general appearance and in relation to 'dependent' and independent' knowledge.

These specific variables, which are discussed in detail later in this chapter, were also studied in relation to pupils' background characteristics; to their age and gender, to their parents' occupation and education, to their school performance (general, in history, in mathematics, in Greek), and to teachers' evaluation of each individual's mental ability. Each pupil's mental ability was evaluated by their mathematician and their language teacher by a simple set of levels: high mental ability, common mental ability, low mental ability. This evaluation was made independently of their actual school performance.

The method of data collection is discussed in detail in Part 4.2. below.

4.1.2.2. Basic decisions on data analysis

The main problem which was to be solved in the light of observations made during the pilot study was that of data analysis. The collected data showed that basic decisions had to be made about the method of analysis and especially about the refinement of the category systems. Since the collected data were quite rich for a number of analyses, it was decided to strictly define and refine the specific basic elements of historical thinking on the basis of which pupils' historical thinking could be sufficiently analysed. In other words the method of analysis and the category systems presented in the first detailed plan of this research were very broad and they covered many interconnected themes related to historical thinking. The wide breadth and thematic variety of these first category systems had been decided in the first place, because data were not expected to be as rich as the real

environment of the pilot study showed. Therefore the category systems were finally limited and refined. In this way the scope of the research was focused on the analysis of historical thinking as such, while the first broad ideas served as its general theoretical environment. (See Chapter 5.)

4.1.3. The methodological design

Before discussing in detail the method of data collection, the general methodological design of this longitudinal field study is presented, with the intention of giving the methodological structure within which both data collection and data analysis were carried out.

The longitudinal field study was conducted in the natural environment of different museums, where pupils had to concentrate on pre-selected museum objects and collections, and to respond on their own and in their own words to different tasks in writing.

Data collection lasted three years, during which data of four groups of pupils were collected, mainly by museum practice in four different museum environments. Two of the groups, namely groups 1 and 2, served as main groups in this longitudinal field study, and data were collected several times, when the pupils of these groups were in secondary school grades A, B and C respectively (ages 12/13, 13/14, 14/15). So group 1 served as main group A1, B1 and C1 respectively, while main group 2 served as main group A2, B2 and C2 respectively. Data from the two other groups were collected during this same period, but only once, when the pupils of group 3 were in secondary school grade A (additional group A3), and when the pupils of group 4 were in secondary school grade C (additional group C4). So these two groups served as additional groups A3 and C4 respectively.

Schematic plan 29. The groups

groups	secondary school grades		
	A	B	C
main groups			
1	A1 ->	B1 ->	C1
2	A2 ->	B2 ->	C2
additional groups			
3	A3		
4			C4

It is important to emphasise that main groups could not work with the same museum objects during three years, because, besides anything else, pupils were likely to become jaded and bored, and so might have responded without any interest in this work. So for each task these two main groups were presented with different museum objects, some of which were related to dependently and/or independently acquired historical information or knowledge. In addition, the museum objects with which pupils were presented in the first school grade, did not pose great difficulty for pupils' work, while museum objects selected for the second and the third school grades posed increasing difficulty for pupils' work. (See Part 4.2.4 below.)

On the other hand it was expected that pupils' historical thinking might be influenced by the different museum objects with which pupils were presented. Therefore, in order to study pupils' historical thinking at different ages, but maintaining the same museum object, it was decided to have two more groups. Additional groups A3 (secondary school grade A) and C4 (grade C) were presented with the same museum object with which main groups B1 and B2 (grade B) were presented.

Additional groups A3 and C4 were also selected to broaden the sample for the study of pupils' historical thinking as it was expressed at the extreme edges of this age range, i.e. in the first and the third secondary school grades. Additional group C4 served as a 'control group' as well, in order to see if the previous museum practice, that main groups C1 and C2 had when they were in the first and second secondary school grades, had influenced their historical thinking.

In addition main group B2 responded to task 2, as well as task 1, which was common for all groups, while main group B1 responded to task 3, as well as task 1. This was decided in order to study how pupils' historical thinking was influenced by the different tasks. Pupils of both main groups were selected to respond to tasks 2 and 3 respectively when they were in the second grade, because their age (13/14) was representative of the covered age range (from 12 to 15 years), since they belonged to its centre.

Schematic plan 30. The methodological design

Task 1		
Grade A (age 12/13)	Grade B (age 13/14)	Grade C (age 14/15)
Main group A1 <i>museum object a</i>	Main group B1 <i>museum object b</i>	Main group C1 <i>museum object c</i>
Main group A2 <i>museum object a</i>	Main group B2 <i>museum object b</i>	Main group C2 <i>museum object d</i>
Additional group A3 <i>museum object b</i>		Additional group C4 <i>museum object b</i>
Task 2		
	Main group B2 <i>collection a</i>	
Task 3		
	Main group B1 <i>museum object(s) e of collection a</i>	

The balance of this design rests on the fact that the sample at the two extreme edges of the covered age range consists of three school groups each, which responded to task 1 only. On the other hand the sample at the centre consists of two main groups only, but the tasks to which pupils responded were three. (See also Part 4.2.5.)

This methodological design allowed the study of pupils' historical thinking on the basis of the different specific variables tested. (See Chapter 6.)

(1) It enabled a study of the development of pupils' historical thinking on a longitudinal basis; from the first secondary school grade to the third. This longitudinal study was based on the analysis of the data collected from main groups 1 and 2 when pupils were in the first, second and third secondary school grades (A1 -> B1 -> C1 and A2 -> B2 -> C2).

The study of the development of pupils' historical thinking during three years was based on the fact that pupils of both main groups in the three different school grades responded to the same task. But on the other hand they were presented with different museum objects in different museum environments. The historical context of the presented museum objects was either related to 'dependent' and

‘independent’ historical information or knowledge, or it was not. Therefore, observations on how dependent and independent historical information influenced pupils’ historical thinking were made as well. But no observations could be made within this longitudinal design on how pupils of different ages responded to the same task, when presented with the same museum object.

Schematic plan 31. Methodological point 1

Task 1		
Main group A1 -> <i>museum object a</i>	Main group B1 -> <i>museum object b</i>	Main group C1 -> <i>museum object c</i>
Main group A2 -> <i>museum object a</i>	Main group B2 -> <i>museum object b</i>	Main group C2 -> <i>museum object d</i>

(2) This method also made possible exploration of the development of pupils’ historical thinking as it was expressed in responses given to task 1 by the seventy pupils of both main groups in the three different secondary school grades.

(3) On the other hand potential characteristic differences in the development of pupils’ historical thinking between the two groups could be studied.

(4) The fact that the two additional groups A3 and C4 were presented with the same object as main groups B1 and B2, allowed study of pupils’ historical thinking in three different school grades, by different groups (groups A3, B1, B2 and C4), responding to the same task (task 1) in relation to the same museum object (museum object b). This introduced a cross-sectional element into the overall design.

Schematic plan 32. Methodological point 4

Task 1		
Grade A	Grade B	Grade C
	Main group B1 Main group B2 <i>museum object b</i>	
Additional group A3 <i>museum object b</i>		Additional group C4 <i>museum object b</i>

(5) This design also allowed study of how pupils' historical thinking was influenced by the different tasks. This influence was studied in the first place by the analysis of pupils' responses in relation to the different questions included in the common task 1. The different questions of task 1 offered the opportunity to see how the different questions influenced pupils' historical thinking.

Schematic plan 33. Methodological point 5

Task 1. questions: a - b - c - d		
Grade A	Grade B	Grade C
Main group A1	Main group B1	Main group C1
Main group A2	Main group B2	Main group C2
Additional group A3		Additional group C4

(6) In addition, main group B2 responded to a second task as well (task 2), which asked pupils to concentrate on a collection of objects. Task 2 offered the opportunity to see how the fact that the same pupils were presented with a collection of objects, instead of being presented with one object, influenced their historical thinking.

Schematic plan 34. Methodological point 6

Task 1	<----->	Task 2
Main group B2		Main group B2
<i>museum object b</i>		<i>collection a</i>

(7) Also main group B1 had to respond to task 3 as well, besides the common task 1. In task 3 pupils had the opportunity to study a museum object in the museum, to keep their personal notes, and to look for relevant historical information in books presented in class, before writing a presentation of the object. Task 3 offered the opportunity to see how the interrelation of museum practice with work in class, where pupils were presented with relevant books, influenced their historical thinking.

Schematic plan 35. Methodological point 7

Task 1	<----->	Task 3
Main group B1		Main group B1
<i>museum object b</i>		<i>object(s) e of collection a</i>

(8) This method also allowed exploration of pupils' historical thinking on the basis of a relatively broad sample in secondary school grades A and C.

Schematic plan 36. Methodological point 8

	secondary school grades	
A	(B)	C
main group A1 and main group A2 and additional group A3		main group C1 and main group C2 and additional group C4

(9) It was also possible to study potential differences in pupils' historical thinking among the three groups of school grades A and C respectively. In particular it allowed the study of potential differences in historical thinking between the main groups of secondary school grade C (main groups C1 and C2) and the additional group C4, which might depend on the previous museum practice that both main groups C1 and C2 had, when they were in secondary school grades A and B.

Schematic plan 37. Methodological point 9

	secondary school grades	
A	(B)	C
main group A1		main group C1
main group A2		main group C2
additional group A3		----- additional group C4

The methodological design of the research is further discussed and exemplified in the analytical presentation of data collection in Part 4.2 and data analysis in Chapter 5.

4.2. Data Collection

Data collection was planned to last three academic years; 1991-1992, 1992-1993, 1993-1994. Many factors had to be taken into consideration because school groups had to visit museums during the school programme. So many arrangements had to be made with teachers and the head-master in advance, in order to avoid disturbances in the school work, to secure transportation by school buses, and enough time for museum work. Also arrangements had to be made with the museums to secure their availability.

On the other hand data collection had to be made in 'neutral' periods of the academic year; not in the beginning or at the end of the year, or very close to holidays, exams etc. In addition data had to be collected at about the same period each year in order to secure equal difference of one year in pupils' age among the three school grades. Also the two different tasks, to which main groups B1 and B2 had to respond in the same year should not be very close to each other to secure pupils' interest in their work. So after much consideration data collection was planned to be made each year in the Spring term. The time schedule for data collection is shown in the following plan.

Schematic plan 38. The time schedule for data collection

Academic year 1991-1992

Months	Main groups	tasks	Additional groups	tasks
March	group A1	task 1		
	group A2	task 1		

Academic year 1992-1993

February	group B1	task 1		
	group B2	task 1		
March			group A3	task 1
			group C4	task 1
April	group B1	task 3		
	group B2	task 2		

Academic year 1993-1994

March	group C1	task 1		
	group C2	task 1		

4.2.1. The sample - individuals and groups

All groups belonged to the same school environment, namely to the Moraitis School, a private school in Athens, where the researcher had worked for more than ten years. Both main and additional groups were selected at random out of the five school groups of each secondary school grade.

Fees are very high in this school and consequently pupils belonged to middle and high class. Pupils had been educated by the Greek educational system, which is a typical traditional system.¹ In consequence pupils were educated by a traditional approach to history education, which, like most traditional approaches, is based on the reproduction of historical knowledge related to a chronological narrative of unquestionable historical facts. (See the discussion of ‘traditional’ history education in Part 2.3.)

Since there was no streaming of classes, pupils of all groups were of different mental abilities and of different school performance. In addition, the educational atmosphere of the school, which is not competitive, does not encourage all pupils to take maximum advantage of their abilities. Only pupils of low abilities find it quite difficult sometimes to respond to the system’s demands. On the other hand pupils of high abilities do not often have the chance to develop their abilities, because the system does not (always) demand their critical thinking. Most of the time and in most cases it demands the reproduction of the offered knowledge. But, despite the limitations that the traditional system imposes on every day school work, some teachers and some pupils go beyond these limits, and produce educational work of high standards.

Subjects’ performance is influenced by the educational atmosphere of each group, which depends on the group’s dynamics, which is formed by the way the different abilities and characters of the individuals are interconnected. It also depends on the educational relation, created by each teacher and the group.

¹The Greek educational system as a whole remains clearly traditional, despite the fact that both politicians and thinkers see the necessity for its reform, and teachers and pupils have ‘fought’ for this purpose for years. A very interesting analysis of this phenomenon, which is very old, since the Greek educational system originates from the first educational system which was constructed in the 19th century after the Independence War (1821), is given in A. Demaras (1973), *The Reform that did not Occur*.



Main groups 1 and 2.



Additional groups 3 and 4.

4.2.2. The tasks

Qualitative data were collected through three tasks, to which pupils responded in writing. All pupils responded to one common task, to task 1, which consisted of four different questions. Task 1 led pupils to concentrate on one museum object, while task 2, to which only main group B2 responded, led pupils to concentrate on a collection of museum objects. Task 3, to which only main group B1 responded, related museum practice and work in class.

Schematic plan 39. Data collection by groups, secondary school grades, and tasks

Groups	Grade A	Tasks	Grade B	Tasks	Grade C	Tasks
main group 1	A1	1	B1	1 and 3	C1	1
main group 2	A2	1	B2	1 and 2	C2	1
addit. group 3	A3	1				
addit. group 4					C4	1

The three tasks are presented here in the written form they were given to pupils. Discussion and analytical presentation of the tasks follow.

Task 1

Question a.

Please choose one object that you are interested in. Why have you chosen it?

Question b.

What information does this object give you about itself and about its period?

Question c.

How can you present it? (What can you say about this object?) [The aim of this question was to lead pupils to give a presentation of the object on the basis of their overall perception of it; not just to describe it.]

Question d.

What are your questions about this object? (Suppose you were a historian, who wished to find about the past by studying this object.)

Task 2 (Questions were numbered [a, c, d] instead of [a, b, c] to correspond to relevant questions of task 1.)

Question a.

What type of interest does this collection stimulate in you?

Question c.

How can you present this collection? (What can you say about these objects?)

Question d.

What are your questions about this collection of objects? (Suppose you were a historian, who wished to find about the past by studying these objects.)

Task 3

Stage 1.

Please observe carefully the museum object [selected at random out of a collection of objects] and keep your notes about it. Please include all facts or relevant information you want to get, in order to present it in class.

Stage 2.

Please look, if you wish, for relevant historical information in the books available. You may also use information offered in the pamphlet given to you, which is a copy of the museum guide.

Stage 3.

Please write a presentation of the museum object you have studied. You may use your personal notes and any information you got from relevant books. (Stage 3 corresponded to question c of tasks 1 and 2. Therefore, it served the analysis of pupils' responses as question c of task 3.)

4.2.2.1. General character of tasks

Tasks 1 and 2 were in the form of standardised open-ended questions, asking for written responses, while pupils were presented with museum objects and museum collections respectively within a museum environment.

Task 3 interrelated work in the museum and work in class. Each pupil had to write in class a presentation of a museum object, which he/she had selected at random. (See Part 4.2.2.5 below.) Each pupil had a picture of the museum object he or she had already studied in the museum, and for which each pupil had kept his or her personal notes. There were also relevant books available in class, from which they could get historical information, if they wished.

Moreover each task was a set of questions carefully ordered and arranged with the intention of taking each pupil through the same sequence, and asking each pupil the same questions, with the same words. For this reason instructions were also printed to minimise teacher effects by giving instructions.

The typical printed instructions:

‘We hope that this visit to the x museum will be interesting and pleasant for you. Please read carefully the questions and write down your ideas and your questions about the matter in hand freely. This work will not be graded. Thank you for your collaboration.’

Pupils were asked to respond ‘freely’ in order to avoid typical answers, to which pupils were used because of the traditional system, with which they were educated. They were also informed that this work would not be graded, and that it would not count for the evaluation of their school performance. On the other hand pupils were asked to write their name, class and group, both for the administrative purposes of the research and in order to let them feel responsible for their answers.

The form of standardised open questions was chosen, because it minimises the problem of legitimacy and credibility for qualitative data, since the instrument used in the study is available for inspection. The same type of information was collected from every pupil, but data collected were open ended, since pupils answered these questions on their own and in their own words, employing their own thoughts and insight. (See the content and the wording of questions in the following parts.)

This method also made data analysis easier, because each pupil’s response was automatically related to the same question, making the comparability of responses easier. This was the basic reason for accepting the limitation and lack of flexibility of this technique.

Much attention was given to the content, the sequence and the wording of questions. These decisions were made in the light of the relevant reflection and experience gained from the pilot study.

4.2.2.2. The content of questions

The content of questions did not refer directly to the theme of this research, i.e. to historical thinking, because it was decided to analyse pupils’ historical thinking as it was expressed in their responses without pupils being aware of it. (See Part 4.2.2.5.) So the content of some questions did not refer to history or historical thinking at all (task 1, question 1 and 3), while the content of some other questions only indirectly referred to history, to the past, to the work of historians or to museum objects as sources (task 1, questions 2 and 4).

This decision was based on the aim of studying pupils' historical thinking within a museum environment without imposing on them a certain historical attitude, or a particular way of seeing things. The aim of this research was to see if, how far, and how museum objects were treated as historical sources, or, in other words, what sort of historical thinking pupils expressed in a museum environment without having been taught or directly instructed to do so.

Generally this situation seemed to be appealing for research, because it let us study historical thinking as it evolved within a museum environment in a group of pupils who had not been introduced to the historical significance of museum objects by others. It let us see if pupils treated museum objects as objects of the present or as relics from the past, and the particular historical themes pupils touched on.

The 'neutral' content of questions, and the rather limited relevant historical information pupils acquired in museums (see Parts 4.2.3 and 4.2.4 below) were also decided, because as David Lowenthal (1985, p. 273) points out: 'It is clear that the more interpretation becomes available, the more people rely on it; they prefer to imbibe history in comfort in heritage centres and are seldom conscious of, or worried about, the alterations of the past that interpretation implies'. This major issue, on which basic research decisions were based, is analytically discussed in Part 2.1.2.3 and Part 3.3.2.2.

In task 1, which is the basic task of the research, 'history free' questions and 'indirectly historical' questions were included, in order to see if, how far and how pupils' historical thinking was influenced by the different content of the different questions.

By means of 'history free' questions we studied pupils' historical thinking as it evolved within a museum environment without having instructed them in any way to think historically. Only the fact that they were in a museum and that they were presented with museum objects influenced their thinking. By means of 'indirectly historical' questions we studied the sort of historical thinking pupils expressed when they were asked to think historically, but without having any indications about what type or method of historical thinking was expected. This situation was achieved by two means: All questions were open-ended and their wording was as neutral as possible with the intention of avoiding predetermined responses. (See Part 4.2.2.5 below.)

4.2.2.3. The sequence of questions

With the intention of letting pupils become actively involved in providing descriptive information as soon as possible and not having them conditioned to provide short answers, routine responses, it was decided to avoid general, unimportant questions, in order to appeal to their interest in this work and to save time. This fact helped pupils concentrate on their work from the beginning.

The first question in each task was quite personal, asking pupils to choose the most interesting museum object, to describe their interest in the presented collection, or to keep their personal notes. These questions, especially in task 1, let pupils have a look around and observe the museum objects displayed, in order to form a general impression of the exhibition, which was expected to stimulate their interest in the museum world.

These questions were fairly easy to answer and so pupils were encouraged, because they realised that their work in the museum was not like typical school work, by which teachers usually tested their acquired knowledge. It was expected that pupils would begin to enjoy their work, because it was clear from the beginning that they were free to express their own opinions and thoughts, something rarely asked in Greek schools.

‘History free’ questions alternate with ‘indirectly historical’ questions, at least in task 1, which is the basic task of the research, and to which all groups responded. The first question served as an introduction to the following questions, by which pupils were asked to work with pre-selected museum objects. Finally at the end of task 1 and 2, after pupils had ‘studied’ the presented museum objects, they were asked to raise their questions.

It is important to mention here that the order of presentation of tasks and its influence were not considered very significant to the research, because pupils’ historical thinking was mainly studied through the longitudinal field study on the basis of pupils’ responses to common task 1. In addition, both main groups responded to task 1 only once each academic year, while a period of about twelve months intervened between the relevant experiences. On the other hand, both task 2 and task 3 were only set to see if there were significant changes in pupils’ historical thinking. Therefore, the order effect was not seriously taken into consideration in designing the method of data collection (no group dealt with tasks

in reverse order), but was taken into consideration in the discussion of results. (See Chapter 6.)

4.2.2.4. The wording of the questions

Much attention was paid to the wording of questions, in order to form clear, comprehensive questions, including all the information needed for each task. At the same time questions had to be as open-ended, neutral and monothematic as possible. Dichotomous (yes-no) questions were avoided.

With the intention of collecting pupils' responses as descriptive qualitative data, we had to let pupils understand the questions clearly, and respond in their own terms, without imposing predetermined responses. It was considered critical for the research to have pupils' own ideas, opinions, interests, images, questions and thoughts in their own words.

Data analysis has shown, however, that the first question of task 1 did not operate as a clear monothematic question, because pupils were asked to choose one object and to explain why they had chosen it. This fact predetermined, in most cases, a type of response which showed a need for demonstration. This situation, although sufficiently allowed for in data analysis, showed the importance of the wording of questions for data collection and data analysis. Indeed, pupils' responses showing a type of demonstration absolutely relating to the wording of question was not evaluated as a clear need for demonstration. e.g.

task 1, question a.: Please choose one object that you are interested in. Why have you chosen it?

'I chose a vase, because it is beautiful.' This response was conceived as not showing a clear need for demonstration [I chose a vase. It is beautiful.], because its explanatory character was absolutely dependent upon the wording of the relevant question.

'I chose a vase, because it is beautiful, since it is well made.' This response was conceived as showing a clear need for demonstration, not depending upon the wording of the relevant question. [I chose a vase. It is beautiful, since it is well made.]

4.2.2.5. Analytical presentation of tasks and questions

Analytical presentation of **Task 1**.

Question a.

Please choose one object that you are interested in. Why have you chosen it?

Besides the fact that this question did not have a single target and that it imposed explanatory answers in many responses, it successfully served as an introduction. The indirect aim of this question was to let pupils look around and observe the exhibited museum objects, with the intention of letting them in the first place feel free to move around and enjoy the exhibition. In addition, there was the aim to let pupils form a good picture of the museum hall they had visited, and so to enter into its atmosphere. Both situations were considered critical for pupils' work. First, because pupils realised that their work in the museum was not like the work they were used to in school, where they were not allowed to move freely in class and to speak with each other. So they felt quite free and they started to enjoy their visit and their work. On the other hand, it was a basic assumption of this research that any educational programme must be accompanied by joy and pleasure, because otherwise the educational outcome, if there is any real educational outcome, is sterile. In addition, pupils had to work for about an hour afterwards seated in front of a pre-selected museum object and to concentrate on their work without speaking. Their personal commitment in the work was desired in order to be disciplined and to give proper responses.

The direct aim of this question was to see if, and how far, the historical character of museum objects was perceived by pupils, when they first visited a museum and while responding to a 'history free' question. That is it was aimed to study pupils' historical thinking as it evolved under these circumstances. More analytically, it was aimed to see how far the chosen objects were defined or described as relics of clear historical character, how far the chosen museum objects were chosen because of their historical significance, and what sort of historical thinking pupils expressed in this task.

Question b.

What information does it give you about itself and about its period?

Question b. was an 'indirectly historical' question, because it indirectly imposed on pupils the requirement to treat museum objects as historical sources. In the beginning it was feared that this question was not really indirectly historical, but

was a clear historical question, which would impose responses of a typical clear historical type, instead of just appealing to pupils' historical thinking. Analysis itself proved, though, that pupils responded in various ways. So their ability to treat museum objects as historical sources, and the type of historical thinking they expressed could be studied because, among other reasons, some pupils did not treat museum objects as historical sources even in this task, and some neither showed clear historical thinking, nor even any historical ideation. On the other hand, it must be mentioned here that responses to this task were as a whole of a higher level of historical thinking than responses to other tasks. (See Chapter 6.) So this question really served its purpose both in exploring pupils' historical thinking, and in studying how the different tasks or questions influenced pupils' historical thinking.

Question c.

How can you present it? (What can you say about this object?)

Question c. was a 'history free' question. The aim of this question was to study pupils' historical thinking in terms of how they perceived the museum objects studied, and to see if and how far this 'history free' question influenced their historical thinking.

Question d.

What are your questions about this object? (Suppose you were a historian, who wished to find about the past by studying this object.)

Question d. was an 'indirectly historical' question, mainly because it asked pupils to refer to the questions they had about the presented museum objects, and only in the second place asked them to think as if they were historians. Analysis itself also showed the indirect historical character of this question, since many pupils responded without taking into consideration the work of historians.

Question d. was considered very important for the research, because the expectation was that questioning was critical for thinking in general, and for historical thinking in particular. (See Part 2.1.2.3.) So the study of pupils' questions enabled us to deepen our exploration of pupils' historical thinking.

Analytical presentation of **Task 2**.

Question a.

What type of interest does this collection stimulate in you?

Question c.

How can you present this collection? (What can you say about these objects?)

Question d.

What are your questions about this collection of objects? (Suppose you were a historian, who wished to find about the past by studying these objects.)

Questions a., c. and d. of task 2 correspond to questions a., c and d. of task 1 respectively. The only basic difference is that pupils in task 2 were presented with a collection of objects instead of being presented with one museum object. This scheme was decided on the basis of the supposition, analytically discussed in Part 3.3.2.2, that pupils might not conceive the historical and social identity of isolated museum objects and collection in the same way, a fact which was expected to influence pupils' historical thinking. This influence was tested by the comparison of the responses that pupils of main group B2 provided to task 1 and task 2 respectively. (See Chapter 6.)

Analytical presentation of **Task 3**.

Task 3 was devised with the intention of studying pupils' historical thinking as it evolved when pupils' work in the museum was interrelated with relevant work in class. This task was devised to see if, how far and how this situation influenced pupils' historical thinking. In particular the aim of this task was to see if historical information acquired from relevant books available in class, enriched pupils' historical thinking, or if their responses were limited to the reproduction of the acquired information. This study seemed very interesting for the research, because pupils were used to the reproduction of 'historical knowledge' (mainly offered by their compulsory history books) according to the nature of the traditional system by which they were educated. (See Part 4.2.1.)

Stage 1.

Please observe carefully the museum object [selected at random out of a collection of objects] and keep your notes about it. Please include all facts or relevant information you want to get, in order to present it in class.

In stage 1 of task 3 each pupil had the chance to observe one museum object, a picture-card of which was given to him or her at random. Twenty museum objects, the most typical and characteristic objects of a collection, were pre-selected. For each object there were two cards presenting it in colour. Each pupil took a card without choosing it, at random, and looked through the collection to find it, in

order to observe it and to keep his/her notes. So there were one or two pupils of group B1 who had to observe each pre-selected object.

Pupils were informed in writing that they would write a presentation of the object, and they were asked to observe it and to write down (on a piece of paper provided) their personal observations and notes. They were also asked to write down whatever they thought they should know about the object in order to be able to present it. Pupils were asked to keep notes so that they would have them next week in class for stages 2 and 3.

Stage 2.

Please look, if you wish, for relevant historical information in the books available. You may also use information offered in the pamphlet given to you, which is a copy of the museum guide.

Relevant historical and archaeological books were available in class for pupils to use them, if they wished. There were also plenty of copies of the museum guide, in which the particular twenty selected museum objects were presented. These copies offered pupils the chance to have one guide each, in order to be easily informed about the museum objects. This decision was made in the light of the pilot study and of general school experience; when there are not enough books, pupils spent a lot of time either trying to look for information in the available books, or they spend their time without doing proper work.

Stage 3.

Please write a presentation of the museum object you have studied, a picture-card of which you hold. You may use your personal notes and any information you got from relevant books.

Pupils had almost a whole school period (40 minutes) to write their presentations, in order to be able to express their ideas and comments. There were no limits in the extent of their presentations; they could cover as many pages as they wished. On the other hand the extent of the material that pupils of the first three secondary school grades usually produce was known through their general school work. It must be mentioned here that main group B1, which responded to task 3, had the chance to revisit the museum. During this second and subsequent visit the whole group was guided by itself through the same collection. Each pre-selected museum object was presented by a pupil who had already studied it, while another pupil, who had studied the same museum object as well, added his/her comments and

objections to the first presentation. This discussion stimulated all pupils, who started asking questions or making comments about the presented museum object. The role of the teacher was to interfere when she was asked to do so, or to let pupils move to the next object. Since the twenty museum objects were pre-selected, because they were the most typical and characteristic objects of the collection, pupils had the chance to get familiar with the whole collection through them. This stage, which was devised mainly for educational purposes, and during which data were not collected, proved to be very fruitful. (See Chapter 6.)

4.2.3. The museums

4.2.3.1. Criteria for the selection of museums

The choice of the museum environments, in which pupils worked and data were collected, was made after much consideration, because the selected museums were expected to play major role in this field study. They were of great significance for data collection and data analysis, both for practical and theoretical reasons.

In the first place it was decided to choose some of the most interesting museums in Athens for educational purposes. This decision was based on the fact that pupils relatively rarely visit museums with their schools, or with their families. On the whole it was decided from the beginning of the research that pupils' work in the selected museums should not only serve the purposes of this longitudinal field study, but should also have a broader educational effect.

On the other hand it was decided to choose museums, among which there are distinctive differences in matters of significance for the analytical purposes of this research. One of the specific factors, which was expected to influence pupils' historical thinking within a museum environment, and which was tested by this field study, was 'dependently acquired' historical information or knowledge. So the selected museums needed to differ in terms of the information they offered about the museum objects' historical context.

In addition all specific factors which were expected to influence pupils' historical thinking within a museum environment, and which were tested in this study, were discussed together with some broad and general assumptions. One of these assumptions was that pupils' historical thinking must be influenced by museums' general atmosphere and type, and by the light in which collections are presented.

(See Part 3.2.) It must be mentioned here, though, that most museums in Greece do not differ very much in terms of the light in which collections are presented. Usually collections are presented in the traditional way, which is based on the 19th century's museological ideas. Museums are conceived more as places where relics are placed in an archaeological order, if not just stored, than as places which underline relics' historical, aesthetic and educational significance, and as such stimulate visitors' interests and interpretations. (See Part 3.2.2.)

The relevant choices were also made under the pressure of practical factors. Museums visits were planned within time limits, which obeyed the school time schedule. Consequently they had to be in an area not too far to visit. They also had to have a near-by parking place, so that pupils would not have to walk for a long time in the busy streets of Athens for security reasons. Also, since pupils did not often have the chance to leave school in order to visit other places as school groups, it was decided to let them have some free time after their work in the museum to rest and enjoy themselves. So selected museums should had an open area for pupils to relax.

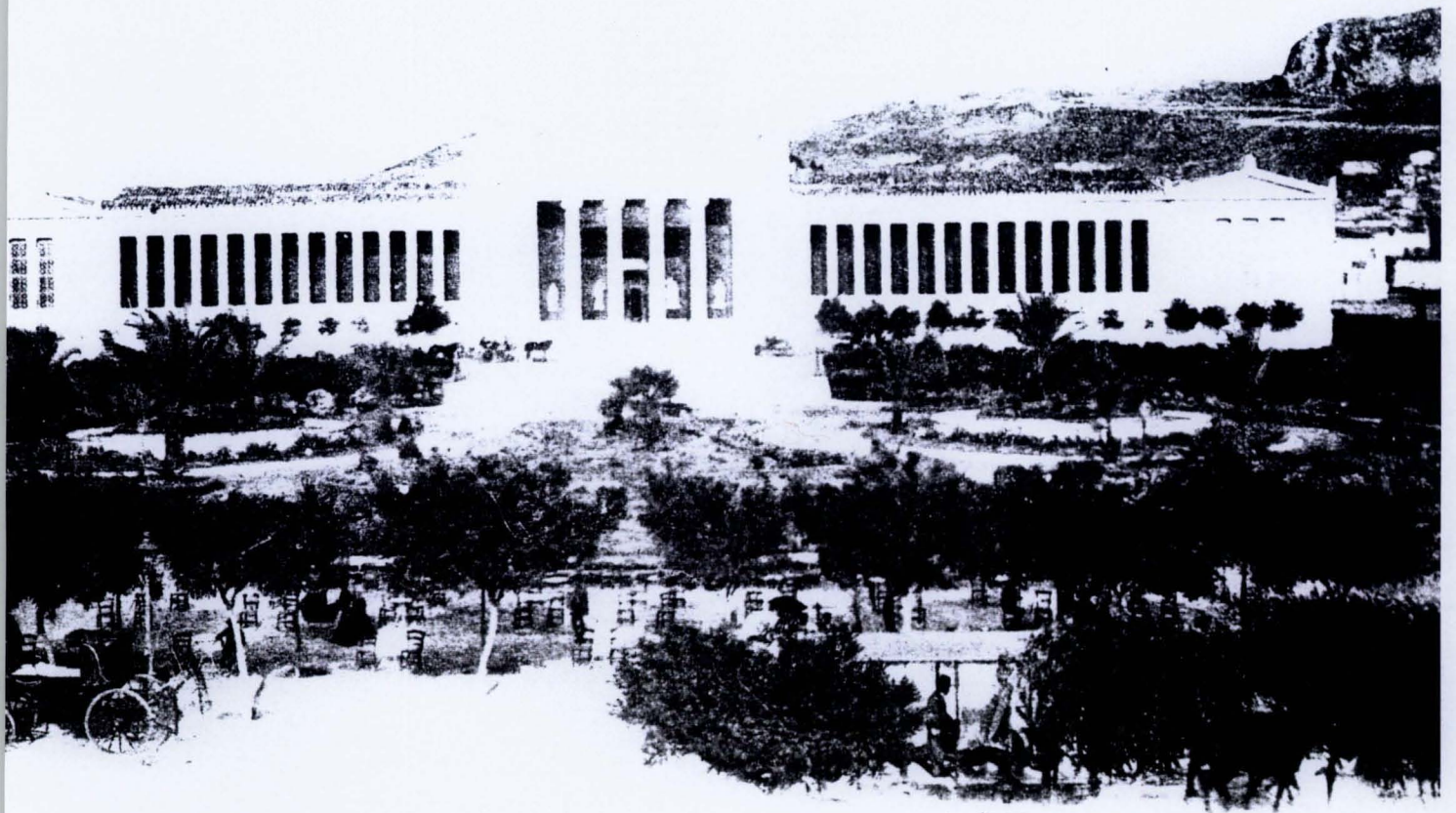
There was also a hidden pleasure and ambition in conducting this longitudinal field study in museum environments which exhibit some of the most famous archaeological findings of the world, such as the 'kores' of The Acropolis Museum, or the grave steles of The National Archaeological Museum. Nevertheless, it will be clear that the selected museum objects were not chosen on this basis. They were chosen on the basis of the theoretical scope of this research, as is discussed further on. (See Part 4.2.4.)

Finally The National Archaeological Museum, The Acropolis Museum, The Agora Museum, and The Acropolis Studies Centre were selected.

4.2.3.2. Analytical presentation of the selected museums

The National Archaeological Museum

The National Archaeological Museum is a huge museum, including many collections from the Prehistoric to the Roman period. It is a Neo-classical building, which was built as The Central Museum after the Independence War of 1821. The needs and the theories of the 19th century imposed the idea of gathering all the archaeological objects so far found from many areas in Greece in this museum. So



The National Archaeological Museum in the late 19th century and now.

it has a series of very important archaeological collections, especially of sculpture and pottery. Most of the museum objects of each collection are exposed in a more or less chronological order, which is not obvious to the visitor, because in most of the halls no relevant information is given. The museum objects, most of which are masterpieces of art and evidence for Prehistoric and Ancient Greek culture, are indifferently presented, accompanied only by their archaeological catalogue number. Only in some show-cases there are labels informing the visitor about the chronological and geographical origin of the exhibited relics. The only halls which exhibit museum objects in a more interesting style are the two halls which present the most typical and characteristic relics of the Prehistoric collection, and the famous wall-paintings of Thera. Their new, well-designed show-cases and the general display underline the significance of the exposed relics, though still indirectly, and attract visitors' interests.

Many groups of tourists visit the museum every day, but, since the museum is huge and its halls are very big, there are some places where school groups may work in a relatively calm atmosphere.

The Acropolis Museum

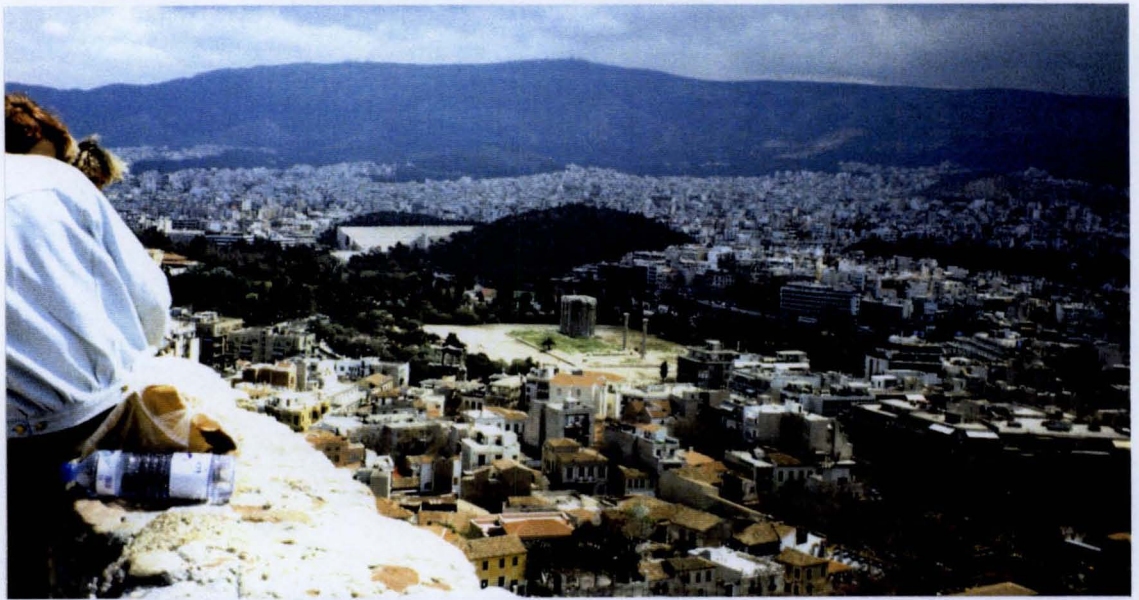
The Acropolis Museum is a rather small museum built on the top of the hill of the Acropolis of Athens. It exhibits the Archaic and Classic sculpture of the temples and the area of the Acropolis.

Museum objects are displayed in chronological order; in the first halls the Archaic sculpture is exhibited, while the Classic sculpture is presented in the following halls. But even this chronological order is not obvious to visitors, because no information is given. Museum objects are not displayed completely indifferently, since they form distinctive groups. But the one is almost next to the other, and most of them are accompanied only by their archaeological catalogue number. In cases in which there are some small labels, visitors are mainly informed about the objects' origin. The neglected atmosphere of the museum may depend on the fact that its famous collections will be moved to the new museum which is to be built underneath the hill in the near future.

This quite small museum is almost always crowded, because many people from through out the world are interested in visiting the Acropolis, although they have to climb up the hill, around which the Ancient City of Athens was built. Many archaeological sites, like the Ancient Agora and the Ancient Theatre of Dionysus,



The Acropolis Museum on the top of the hill behind the Parthenon



The view from the Acropolis of Athens: many famous archaeological sites, the mountains, the sea and some islands.



The temples of the Acropolis of Athens during the conservation and protection works.

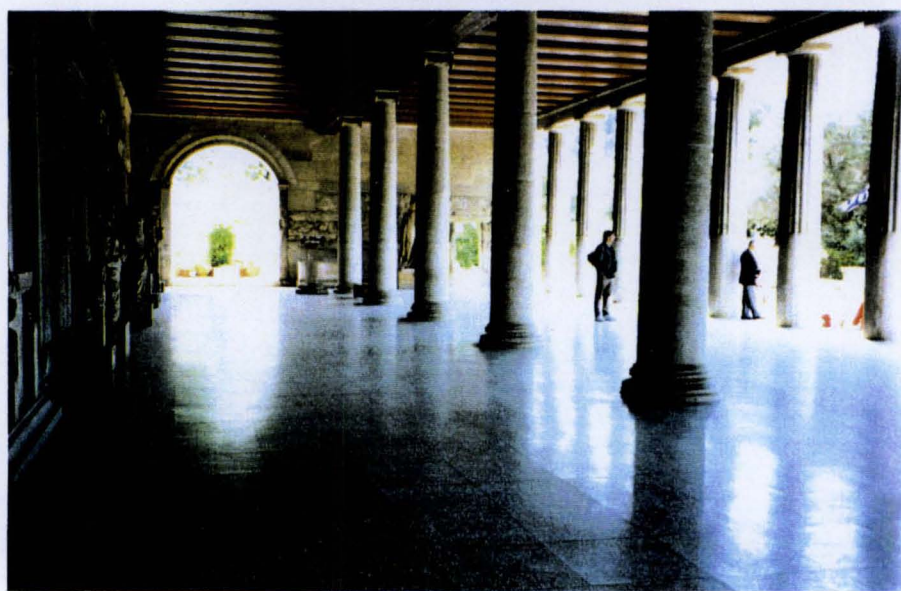
are distinguished from above among the modern buildings. Even the mountains, the blue sea and the islands at the horizon stimulate a relevant historical feeling, at least to educated visitors, because they are the natural environment of Ancient Athens. On the other hand, there are works being carried out for the protection and the conservation of the temples, and so the whole area of the Acropolis is characterised by an interesting contradiction between the Ancient temples and the cranes of modern technology. A strong historical vibration is in the air, both in the museum and around it, among the temples of the Acropolis.

The Agora Museum

The Agora Museum is located at the North side of the archaeological area of the Ancient Agora of Athens, just underneath the Acropolis. It is called The Stoa of Attalos, because it is a re-erected Hellenistic building, which was built in Athens in the 2nd century BC. by Attalos B, the Hellenistic king of Pergamum. It includes various museum objects from the Prehistoric to the Roman period, all found in the area of the Agora. Most findings are very interesting and important, because they are evidence for the financial, political, religious and cultural life of Athenians. But the various objects are quite crowded in the one long hall of the ground floor, and information, often only about their origin, is offered only for some of them in writing, by bronze labels at the base of the objects or on the show-cases. Even so, the atmosphere of this museum is appealing, because it is a very nice building, which imposes its old history, a fact which is also emphasised by the archaeological area of the Agora of Ancient Athens, just below the Acropolis.

The Acropolis Studies Centre

The Acropolis Studies Centre is located near the Acropolis of Athens, in a very interesting nineteenth-century building. Excavations were, and are still, taking place in the area around the building, which attract visitors' interest before entering. It was mainly selected because of the fact that it exhibits replicas instead of authentic objects. There are two exhibition halls on the ground floor, in which replicas of the bas-reliefs of the pediments and the metopes of the Parthenon are presented. Information is given in two written forms: 1) There is limited information about the collection on a small piece of paper, just next to the entrance of the hall, that is not easily noticed by visitors. 2) There is much information about the objects in writing and in the form of copies of photographs, placed in a window-case in the middle of the hall.



The Agora Museum, the re-erected Hellenistic Stoa of Attalos, in the archaeological area of the Ancient Agora of Athens, just underneath the Acropolis.



The Acropolis Studies Centre near the Acropolis of Athens

Replicas are of plaster, but they still impress visitors, who may even think that they are originals, if they are not so curious as to read the small label beside the entrance. The halls are not crowded, since tourists do not usually visit them. In addition, school groups have to fix their visits in advance, especially if they wish to attend some of the very interesting educational programmes organised both for pupils and teachers in the upper halls.

The general calm atmosphere of the centre imposes upon visitors the feeling that it is a studies centre.

4.2.4. Museum objects

4.2.4.1. Criteria for the selection of museum objects

Besides the choice of the museum environments the selection of the particular museum objects and collections, with which pupils were presented, demanded much attention. Many factors had to be taken into consideration, because the general aim of the research was the exploration of pupils' historical thinking as it is expressed within a museum environment in relation to pupils' ability to treat museum objects as sources of historical information or evidence. (See Part 3.3.)

All the specially devised tasks with their questions, and generally all the specific factors, which were expected to influence pupils' historical thinking within a museum environment, had to be seriously considered for the selection of museum objects, because all tasks, questions and specific factors had to be related to different types of museum objects.

According to the theoretical investigation in Chapters 2 and 3, pupils' historical thinking was expected to be influenced by the different tasks and their questions, by the type of the presented museum objects and the difficulty they posed for pupils' work, and by the presence or absence of 'dependently' or 'independently' acquired historical information or knowledge. In addition pupils' historical thinking was expected to be influenced by pupils' age. So the selection of museum objects had to take into consideration all these factors.

A general discussion on the importance of these factors as basic criteria for the selection of museum objects follows. The particular choices of museum objects in

relation to these factors are discussed in detail in the analytical presentation of the selected museum objects in Part 4.2.4.2.

(1) Museum objects and tasks

The different tasks devised for this longitudinal field study demanded different museum objects. In the main some tasks, or some of their questions, demanded collections of objects, while other tasks demanded 'isolated' museum objects.

Pupils had to choose one museum object out of a collection of objects according to question a of task 1. So a collection of objects was selected on the basis of the variety of objects it included, in order to study pupils' historical thinking in relation to the different type of chosen museum objects, and to the sort of historical thinking they provoked.

A collection of objects was also needed for task 2, according to which pupils had to respond to its questions in relation to a group of objects. So a collection was chosen on the basis of the different small groups of objects it included, which could be handled by pupils in the quite short period of time of about one hour they had to spend for this work.

A third collection of objects was also needed for task 3, according to which pupils had to look around and find the object each one had chosen at random by collecting a card. Each pupil had to keep his or her personal notes, in order to write a presentation on another day in class. The choice of this collection was made on the basis of the availability of cards, which were sold in the museum and which presented famous museum objects in colour. The hall also, where the selected collection was located, was taken into consideration, because plenty of room was needed for pupils to walk around finding their objects.

Task 1, questions b, c and d demanded the selection of 'isolated' museum objects. The choice of 'isolated' museum objects was more complicated, because many variables had to be considered. Task 1 was the basic task of the research, to which all groups, both main and additional, responded. Accordingly, if the selected objects did not work as was wished, much time and work for the collection of the data of this longitudinal field study would have been inefficiently spent.

(2) Museum objects and pupils' age

It was a basic general decision that those museum objects which posed greater difficulty than others for pupils' work, should be presented to older pupils. The estimation of the difficulty that different museum objects posed for pupils' work was based on their general appearance, on their represented theme, and on the familiarity pupils had with their type.

Pupils of the first secondary school grade were presented with objects which did not pose great difficulty for pupils' work, and which were related to both 'dependent' and 'independent' historical information or knowledge. Pupils of the second secondary school grade were presented with museum objects which posed some difficulty for pupils work, and which were not related to historical information offered in the museum. In addition, the museum objects with which they were presented were only indirectly related to previously acquired historical information or knowledge. On the other hand, pupils of the third secondary school grade were presented with museum objects which posed considerable difficulty for their work. Also the historical information offered in the museum was problematic, while the presented museum objects were only indirectly related to historical information or knowledge previously acquired at school.

This basic decision was based on the fact that all groups responded to common task 1, so this variable was kept constant. It will also be clear that generally pupils of main groups 1 and 2 would logically perform on a standard or even on a higher level as they grew older from the first secondary school grade through the second to the third.

In addition, the design of the research let us study if and how far pupils' historical thinking was influenced by their age, when they were presented with the same museum object. Additional group A3 (of the first secondary school grade) and additional group C4 (of the third secondary school grade) were presented with the same museum objects that main groups B1 and B2 were presented. Also the museum objects with which groups A3, B1, B2 and C4 were presented, posed a 'medium' level of difficulty for pupils' work. (See the analytical presentation of museum objects in Part 4.2.4.2.)

(3) Museum objects and the specific variables tested

The different specific variables which were expected to influence pupils' historical thinking were seriously taken into consideration for the selection of the museum objects. 'Isolated' museum objects were selected on the basis of the following specific variables: a) the difficulty museum objects posed for pupils' work, b) the presence or absence of 'dependent' historical information offered in the museum, and c) the museum objects' relation to previously and 'independently' acquired historical information or knowledge.

a) Much attention was given to the museum objects' appearance, and to the difficulty they posed for pupils' work, since the selected museum objects had to pose different levels of difficulty. The objects' difficulty was estimated on the basis of their appearance; it was based on their missing parts and the role these missing parts played for understanding what the objects were or what they represented. It was based on their type and represented theme, and on the relevant familiarity pupils had with them. Finally it was based on the objects' relation to pupils' background general knowledge or general experiences, and thus on pupils' expected ability to understand the museum objects' type and representation in context. It will be clear that museum objects' relation to 'dependently' or 'independently acquired' historical information or knowledge was taken in consideration as well.

b) In order to test if, how far and how dependently acquired historical information influenced pupils' historical thinking much attention was given to the presence or absence of historical information offered in the museum. The limited type of information that Greek museums offer does not vary much. Usually it refers to the origin of objects and is given by small labels placed near the museum objects. So attention was paid not so much to the *type* of information pupils acquired in the museum, but to the *presence or absence* of relevant information. Data analysis, however, showed that not just the presence or absence but the *type* of information was important after all. (See Part 4.2.4.2, and Chapter 6.)

c) Museum objects were selected on the basis of whether their type and their historical context were directly, indirectly or not at all related to historical knowledge previously and 'independently' acquired at school. Decisions about these three different degrees of relation were made on the basis of whether the type and the historical context of museum objects were included in the subjects taught in school. If they were taught in that same academic year in school, there was

considered to be a direct relationship. If the type and the historical context of objects were related to history taught in previous academic years, the relationship was considered to be indirect. If neither had been taught in school, it was considered that there was no relationship at all to previously and independently acquired historical knowledge. This distinction was based on the educational experience that much of the 'knowledge' acquired by pupils through the Greek traditional educational system is offered 'knowledge', and as such it is lost within a few months.

It must be mentioned here that the broader historical context of the selected museum objects was either directly or indirectly related to historical knowledge previously acquired at school by all pupils.² But the relation of previously and independently acquired historical information or knowledge to the specific historical context of the presented museum objects and to their type, function, use etc., varied considerably.

(4) Museum objects and practical factors

Some practical factors had also to be seriously taken into consideration in the selection of museum objects, because the quality of the collected data was expected to be influenced by them.

Museum objects were selected on the basis of the following practical factors. Big objects had to be selected, so that all pupils could observe them while seated around them during their work. So statues or reliefs were preferred to vases or other small museum objects. They had to be located in a hall which was not very crowded and noisy, and where there was plenty of room for pupils to move around and to sit for about an hour and concentrate on their work. Although these ideal circumstances could not be found for all selected objects, this did not seem to disturb pupils' work.

In addition, besides the practical arrangements that had to be made in relation to the school programme, there were many arrangements to be made in relation to the availability of the selected museums and in relation to the selected museum objects. The importance of the practical factors was especially underlined during the pilot study. So some extra visits were planned in advance, and some additional museum objects were selected, in case the original choice became unavailable.

²All selected museum objects were Prehistoric or Ancient, and Prehistoric and Ancient Greek periods are included in the chronological history that is taught in the first grade of Greek secondary schools.

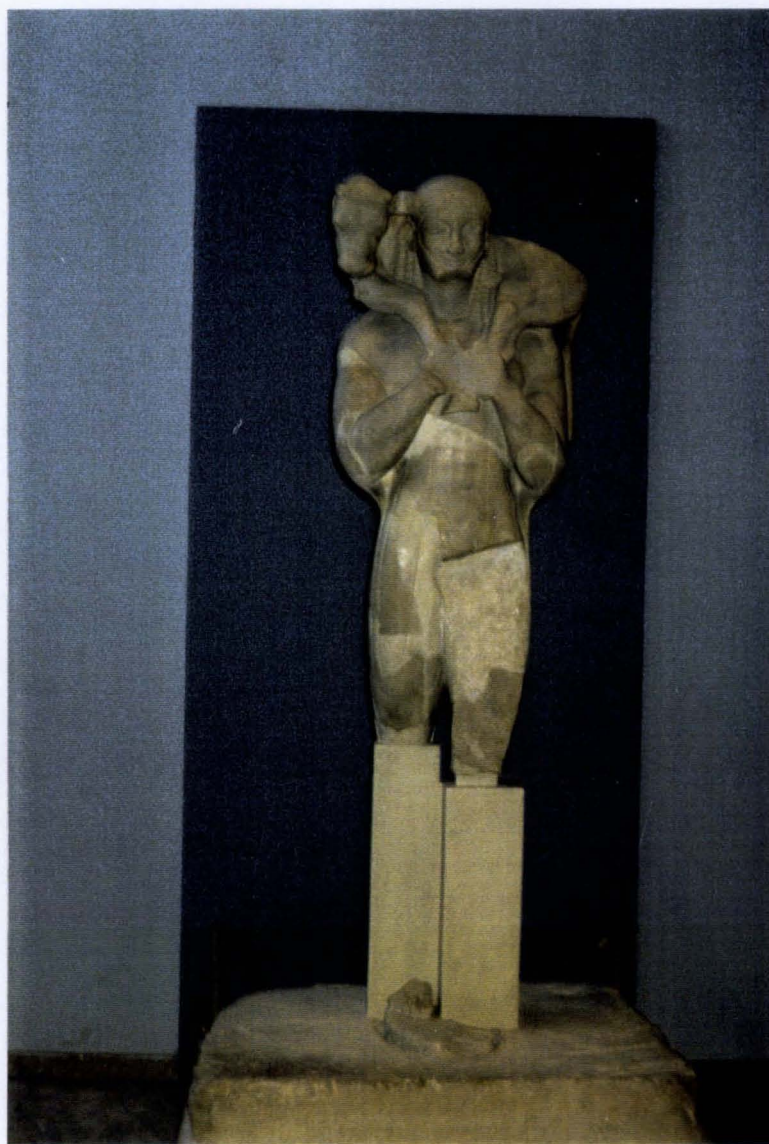
4.2.4.2. Analytical presentation of the selected museum objects

Museum object a: 'The Moschophoros' [The Calf-carrier]

Museum object a belongs to the Archaic collection of the Acropolis Museum. It is a marble statue, of the Archaic period (580 BC.). The statue has been given the name 'The moschoforos' [The calf-carrier], because it represents a man carrying a calf on his shoulders. It was found on the Acropolis of Athens, buried in the soil, in the area where the museum was built. It was a donation by an Athenian to the holy area of the Acropolis, most possibly representing a man carrying a calf in order to sacrifice it to the gods. There is an Archaic epigraph at its base, reading from the right to the left (according to the writing style of the period): 'Romvos, the son of Palos, donated [it]'.

The statue is characterised by the typical 'Archaic smile', and although it reminds us of typical Archaic statues, and especially 'kouroi', it is very innovative in terms of the synthesis of its represented theme, and of its artistic construction. It is a representative example of the development of Archaic sculpture towards Classical fineness.

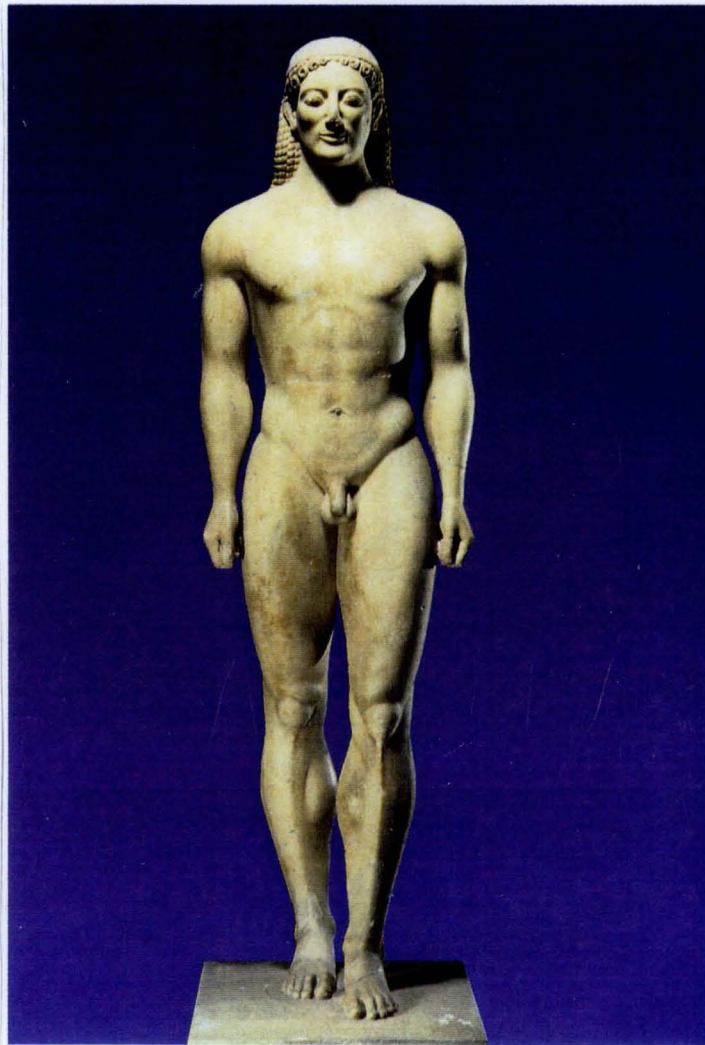
This statue was presented to pupils of the first secondary school grade, to main groups A1 and A2, who responded to questions b, c and d of task 1. This statue was selected in the first place, because it is an important statue of Ancient Greek sculpture, both for its origin and artistic form, and for its significance as historical evidence for Ancient Greek religion, culture and art. These elements were in the main related to the educational purpose of the relevant museum practice.



Museum object a. 'The Moschoforos'.



Museum object a. 'The Moschoforos' in about 1880 among other statues, which were found in 1864 in the area where The Acropolis Museum was built.



A typical kouros



The base of 'The Moschoforos' with the Archaic epigraph reading from right to left: 'Romvos, the son of Palos, donated [it]'.

From the point of view of the research, the 'moschophoros' was mainly selected for the following reasons related to the specific variables tested:

(1) Pupils of main groups A1 and A2 were familiar with its type and with its represented theme, since it is a statue with a simple theme. In addition only some parts are missing, mainly the represented man's legs, while some of the missing parts have been replaced. This fact served the purpose of the research in two ways. Firstly, it imposed a slight idea that it is an old statue, which has been conserved, and so it indirectly introduced pupils to its archaeological and historical identity. Secondly, the missing parts did not prevent even young children from understanding its represented theme. For these reasons this statue was selected as a statue which did not pose great difficulty for pupils' work.

(2) The Archaic epigraph at its base, reading from the right to the left: 'Romvos, the son of Palos, donated [it]', could not be really understood by pupils of the first secondary grade, because they did not know Ancient Greek. It was expected though, that it would appeal to pupils' interest, although analysis showed that pupils were not interested in this engraved epigraph, maybe because it is not easily noticed. On the other hand there was the following historical information about this statue offered by a small label at its base. 'The moschoforos' ['The calf-carrier], 580 BC.' So this was the only information that counted as dependently acquired.

(3) This dependent historical information was easily understood by pupils, because it was closely related to historical knowledge independently acquired at school that same year. The statue was also further related to independent historical knowledge, both in terms of its type and its represented theme, and of its historical context.

Both main groups A1 and A2 had studied in their school history of the same year Ancient Greek history, including the Archaic and the Classical periods. They had studied Ancient Greek art, including Archaic and Classical sculpture with specific references to their main characteristics and to 'kouroi', the most typical statues of Ancient Greek sculpture. In addition they had studied Ancient Greek culture in general including religion, customs, sacrifices etc., and the general role that the Acropolis of Athens had played in Ancient times as well.

So 'The moschophoros' was selected to be presented to pupils of the first secondary school grade, because it was considered to be a museum object which did not pose great difficulty for pupils' work and which was related to dependent and independent historical information or knowledge. It was an object that pupils

could handle. In addition the fact that all museum visitors have to climb up the Acropolis hill and to walk through the archaeological area, among the temples, before entering the museum, was considered as a situation which possibly would enable pupils to see the exhibited museum objects in the wider context of the Acropolis of Ancient Athens.

(4) The practical reasons for which this particular statue of The Acropolis Museum was selected were that there was enough room around it for pupils to sit and work, and that it was located in an area which was not as crowded as other areas of the museum.

Museum object b: A Hellenistic grave stele

Museum object b is a Hellenistic grave stele in relief, which belongs to the National Archaeological Museum of Athens. It is a typical Ancient Greek grave stele, engraved in a style which was firstly developed in Classical times.

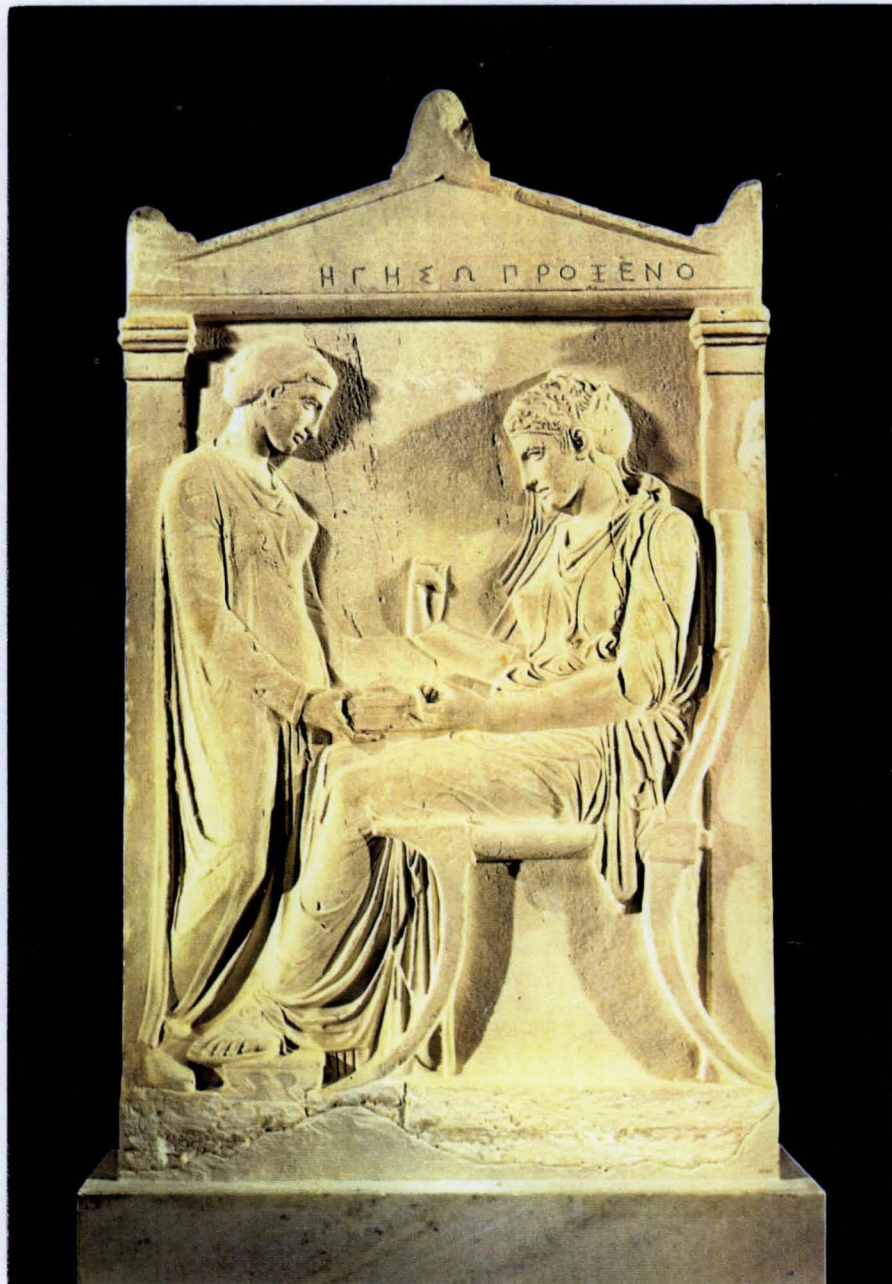
Its represented theme resembles the theme of one of the most famous grave steles of the Classical period, called 'The grave stele of Egesso'. It represents two women. A lady, the dead, is seated on a chair and she is taking a jewel out of a box that her slave female servant holds standing in front of her. The difference of social class between the two women is apparent mainly because of their different clothes and poses.

It was a custom to have a common, everyday scene, familiar to the person who died, represented on grave steles, which are known to have been manufactured only during a relatively short period of time in the Classical and Hellenistic periods, because afterwards their use was forbidden as a display of wealth.

This relief was presented to main groups B1 and B2, i.e. to pupils of main groups 1 and 2 when they were in the second secondary school grade, and who responded to questions b, c and d of task 1. It was also presented to the two additional groups, to additional group A3 (of the first grade) and to additional group C4 (of the third grade), which responded to the same questions of task 1 as well. (The above mentioned groups responded to question a of task 1 in relation to collection a.) This decision, which was made according to the cross-sectional aspect of the research, was based on the fact that this museum object posed a 'medium' level of difficulty for pupils' work, for reasons to be further discussed.



Museum object b. The Hellenistic grave stele.



The famous grave stele of 'Egesso'.

This grave stele was selected in the first place, because the famous grave stele of Egesso, with which it has much in common, and which was selected at first, had been temporarily removed from the museum halls. On the other hand it was more appealing than the grave stele of Egesso for pupils' work, because some of its parts are missing.

Generally grave steles are very important pieces of Ancient Greek sculpture, both for their artistic form, and for their significance as historical evidence for Ancient Greek religion, culture and art. These characteristics were important for the educational purpose of the relevant museum practice.

This particular grave stele was mainly selected for the following reasons related to the specific variables tested:

(1) Museum object b. poses a medium difficulty for pupils' work, because its represented theme is easily understood on a first level, but its type, its use and its deeper meaning are not clear to 'unsuspicious' visitors. Namely every one can understand that there are two women represented, one seated and one standing holding a box. But it was not expected that all pupils would realise its type, use and meaning i.e. that it is a Hellenistic grave stele, which was used on a grave of a woman, who is represented seated, and that its theme is a representation of a common every day scene, which was familiar to the dead woman before dying. Neither were all pupils expected to realise the difference of social class between the two women, which refers to slavery, to the social status of women and to many Ancient Greek customs.

Museum object b. was selected on the basis that it posed greater difficulty for pupils' work than museum object a. Among other things, it represents a scene related to human relations, which as such are open to complex interpretations and relevant questions. In contrast, the represented theme of museum object a. did not demand complex interpretations and relevant questions, at least on a first level, since it represents a man carrying an animal.

On the other hand some part of it are missing. This fact was interesting for the research for reasons discussed in connection with museum object a. But the missing parts of this relief play a more important role than those of museum object a, because, among other things, the seated woman's head is missing. So many questions may be raised about this woman and her represented role.

(2) There was no historical information of any kind offered in the museum about this museum object and its historical context. So this object was selected because it also let us study pupils' historical thinking as it evolved within a museum environment without being influenced by any dependently acquired historical information or knowledge. It will be clear that pupils' historical thinking and its influence by dependently acquired historical information is studied in relation to all other museum objects. (See the presentation of museum objects a, c and d.)

The museum itself is a huge museum with many collections, and so it does not enable visitors to see museum objects in their particular context. The only indirect information that visitors indirectly get is that museum objects exhibited in The National Archaeological Museum must be of archaeological significance.

(3) This grave stele was indirectly related to independent historical information or knowledge previously acquired at school by main groups B1 and B2, and by additional group C4, because pupils had studied Ancient Greek history when they were in the first secondary school grade. Only additional group A3 had studied Ancient Greek history that same year. In addition pupils' knowledge about Ancient Greek culture, art, customs were not directly related to grave steles, which were only mentioned in relation to other subjects in their history book. On the other hand pupils had general historical information or knowledge about slavery and about the status of women in the Ancient Greek world. They also had an idea about the respect that Ancient Greeks showed to their dead.

(4) The practical reasons for which this particular grave stele of The National Archaeological Museum was selected were that there was plenty of room around it for pupils to sit and work, and that it was located in a quiet area of the museum.

Museum object c: An Archaic clay mould for a bronze statue

This is a mended clay mould for the leg of a bronze statue of Apollo or of a kouros, made in the 6th century BC. in Athens. It belongs to the Agora Museum, which is housed in a Hellenistic gallery, in 'The Stoa of Attalos', which is located in the area of the Ancient Agora of Athens.

This clay mould was found in a work area next to the Temple of Apollo Patroos, in the Ancient Agora of Athens. The pit contained hundreds of fragments of clay moulds used to cast a figure two-thirds life-size. This large statue was made by the



Museum object c. The Archaic clay mould for a bronze statue.

lost-wax process. The fragments constitute the earliest archaeological evidence for the production of a bronze statue in Greece.

The fact that this museum object is evidence for Ancient Greek technology is its basic characteristic, for which it was selected for the educational purpose of the relevant museum practice. The fact also that the historical significance of this archaeological find is independent of its appearance or of its artistic value was another criterion for choosing it, because it could allow pupils to realise the historical significance of 'humble' objects.

This mould was mainly selected for the following reasons related to the specific variables tested:

(1) Museum object c was presented to main group C1 (to pupils of main Group 1, when they were in the third secondary school grade) in relation to questions b, c and d of task 1. (Main group C1 responded to question a of task 1 in relation to collection b.) This object was selected to be presented to pupils of the third grade, because of the high level of difficulty it posed for pupils work. In fact this object posed greater difficulty for pupils' work than museum objects a. and b., which were presented to both main groups when they were in the first and second secondary school grades respectively.

The general appearance of this object did not refer to any object with which pupils were familiar. It is a fragment, which has undergone alterations by time, and, although it has been mended, only relevant information could let unspecialized visitors understand that its shape and form relate to a leg of a statue, or rather to a mould of a leg of a statue.

The particular great difficulty that museum object c. posed for pupils' work was considered to be very interesting, because through it we could test how far pupils' historical thinking was influenced by this factor. In the main we could test if and how far pupils raised relevant questions, whether they appreciated the limitations of the 'problematic' presented museum object as source of information or evidence, and whether they stated their ignorance. See the relevant discussion and D. Shemilt's (1987, pp. 44-45) relevant argument in Part 2.1.2.3.

The particular difficulty, posed for pupils' work by museum object c., was interconnected with the sort of difficulty the dependent information offered in the museum posed for pupils. (See next paragraph.)

(2) The only information given in the museum about this museum object was by a label at the base of the mould reading: 'Clay mould for a bronze statue of Apollo, 6th century BC., found at the North- East side of the Agora'. Analysis of the data revealed that the word 'mould' (εκμαγειο) is a difficult word for most Greek pupils of secondary school, as was expected, because it is a technical word, which originates from Ancient Greek. So this dependent information offered in the museum let us study not only how far pupils' historical thinking was influenced by the dependently offered information, but how pupils faced the 'problematic' meaning of the offered information as well. (See Chapter 6.) Data analysis showed that a few pupils were familiar with the word 'mould', and so these pupils managed to use the offered information properly. In contrast, many pupils, who did not know the word, quite easily and without cross-checking the offered information with observations made on the presented object, described it as a bronze statue of Apollo. Only a few pupils stated their ignorance and their inability to understand what the presented object really was.

It must be mentioned here that the museum, and especially the archaeological site in which it is located, enables visitors to see the museum objects in their wide and *general* historical context. Museum visitors have to walk through a part of the Ancient Agora, which is located just below the Acropolis, and which is known to have been the centre of the Ancient city of Athens. However, the fact that the museum exhibits objects from the Prehistoric period to the Roman or even to the Byzantine period in one big hall, does not allow visitors to see museum objects in their *specific* historical context.

(3) The presented mould was not directly related to historical knowledge independently acquired at school, because pupils of main group C1 had studied Ancient Greek history when they were in the first secondary school grade. In addition Ancient Greek technology and the use of moulds are not even mentioned in the relevant school history book, a fact which reveals the theoretical character of the Greek educational system.

Museum object c. was presented to pupils of the third secondary school grade, namely to main group C1, according to the research design, and on the basis of the characteristics discussed above, which were related to the specific variables tested.

(4) The practical reasons for which this particular museum object of the Agora Museum was selected were, as in all the other cases, that it is quite big, that there

was plenty of room around it for pupils to sit and work, and that it was located in an area of the museum which is usually not very crowded.

Museum object(s) d: Replicas of the Parthenon reliefs

Main group C2 was presented with a collection of replicas displayed at the Acropolis Studies Centre, which is located near the Acropolis of Athens, and which is housed in a Neo-classical building of the 19th century. Pupils responded to all questions of task 1 while presented with this collection: that is each pupil had to choose one object he/she found interesting according to question a of task 1, and then to respond to all questions of the same task in relation to the chosen object.

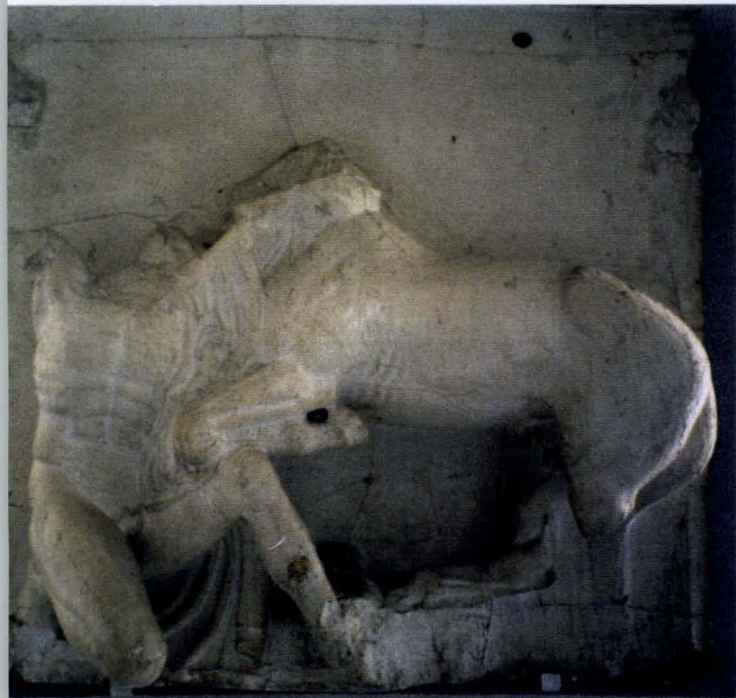
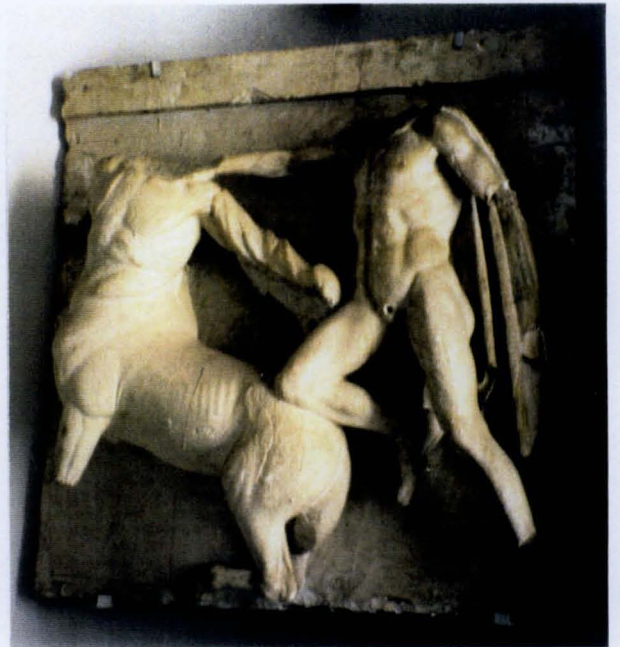
This variation from the standard scheme was decided, because all museum objects presented were similar in terms of size, type and general artistic and historical quality, and they had several parts missing. All were replicas of the sculptured 'decoration' of the same temple, while their represented themes were similar as well, namely they were concerned with Ancient Greek mythology and religion.

Each museum object d, that each pupil chose and worked on, was a replica of one of the bas-reliefs, which belonged to the pediments or the metopes of the temple. The replicas of the metopes were placed on the walls and the replicas of the bas-reliefs from the pediments were placed on a base near one wall. Their represented mythological themes were used on the Parthenon with symbolic significance related to Ancient Greek religion and to the glory and power of the city-state of Ancient Athens. They represent Ancient Greek gods, semi-gods, and scenes of the mythical 'Centauromachia' [the battle of Centaurs]. These replicas are made of plaster, but they still vibrate with the art of Classical Athens.

Museum object(s) d were presented to main group C2 (to pupils of main Group 2, when they were in the third secondary school grade) in relation to questions a, b, c and d of task 1. The fact that these similar museum objects (serving as museum object(s) d were replicas of famous prototype reliefs, was the basic characteristic for which they were selected for the educational purpose of the relevant museum practice. In addition pupils had the chance, after they had responded to task 1, to visit the other exhibition halls of the centre, and to attend a very interesting presentation on the works that are being carried out on the Acropolis for the protection and the conservation of the temples.



Museum object(s) d. Replicas of the West pediment of the Parthenon



Museum object(s) d. Replicas of the metopes of the North side of the Parthenon.

From the point of view of the research, museum object(s) d were mainly selected for the following reasons related to the specific factors tested:

(1) Museum object(s) d were selected to be presented to pupils of the third grade, because of the high level of difficulty they posed for pupils' work. First of all they are replicas and not originals, a fact which seemed interesting for research, because we could see if pupils could realise that all museum objects are not authentic relics. David Lowenthal (1985, p. 290) characteristically mentions: 'Viewers often fail to realise, even after repeatedly being told, that vanished or threatened relics have been replaced by modern contrivances.'

We could also see if pupils realise that there are questions about their reliability as sources of information or evidence, mainly because they are not 'pieces of the past' but copies of some 'pieces of the past'.

This difficulty posed for pupils' work, and tested by this research, is related to what Denis Shemilt (1987, p. 49) argues about the reliability of relics as sources. 'If a "relic" is authentic it is reliable - simply because it is a piece of the past and not testimony about the past. Of course, even authentic relics can mislead the historian, but the problem here is one of inference and inductive generalisation not of reliability.'

The fact that museum object(s) d were replicas and not authentic relics deprived them not only of their historical character as the 'tangible past', but of their 'romantic' or 'imaginative' evocations as well. David Lowenthal (1985, pp. 245 - 246) mentions: 'The taste, feel, and sight that etch relics into memory can also vividly conjure up their milieux. "Picking up for one's self an arrow-head that was dropped centuries ago, and has never been handled since", Hawthorne fancied he had received it "directly from the hand of the red hunter", thereby envisaging "the Indian village, amid its encircling forest", and recalling "to life the painted chiefs and warriors, the squaws at their household toil, and the children sporting among the wigwams; while the little wind-rocked papoose swings from the branch of a tree".'

Moreover, insofar as pupils are not historically unsuspicious, and they can see this difference, replicas still impose difficulties for their work. In David Lowenthal's (1985, p. 293) words: 'The copy may afford an historical experience as "true" as the original, but it is a *different* experience'. (For an analytical discussion see Part 3.3.2.2.)

On the other hand these replicas have many parts missing. The fact that the missing parts belong to represented mythological themes, was expected to impose considerable difficulties for pupils' work. Pupils had to distinguish scenes, which do not refer to 'real' human beings and situations. In addition these mythological scenes had to be perceived within their symbolic significance, because, as it has already been mentioned, the authentic reliefs were not used on the Parthenon as a simple decoration. They were pieces of great art with deep symbolic significance representing the religious beliefs of Ancient Athenians and the power of their city-state.

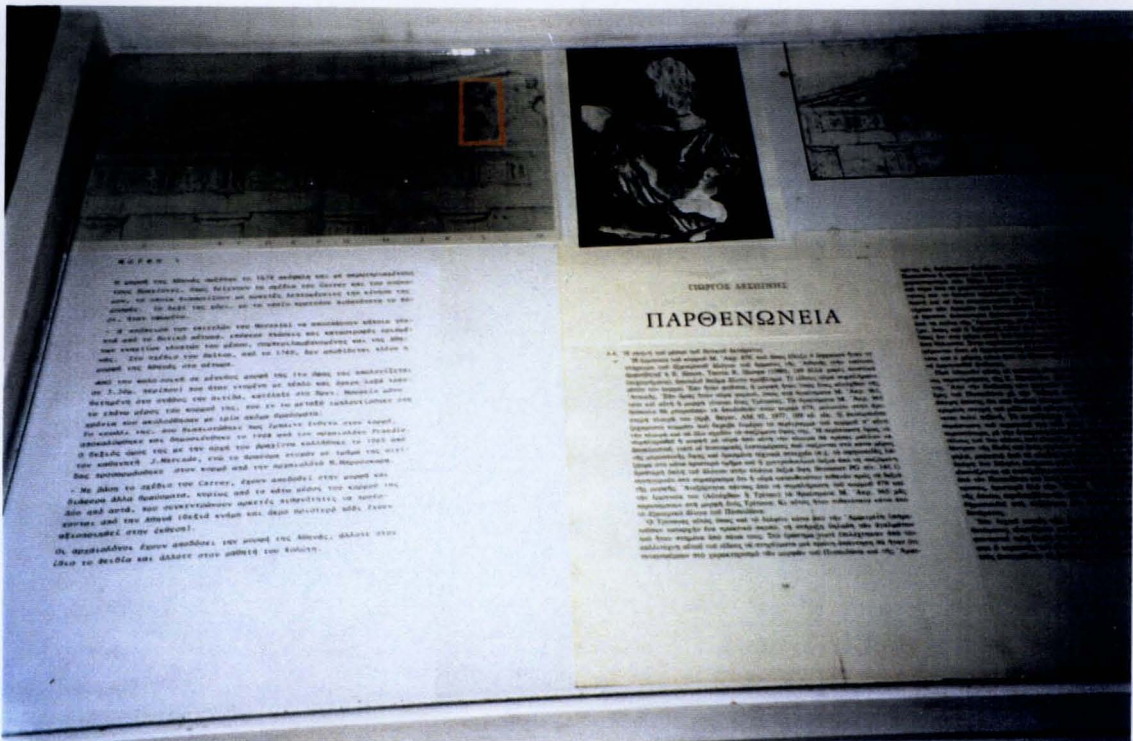
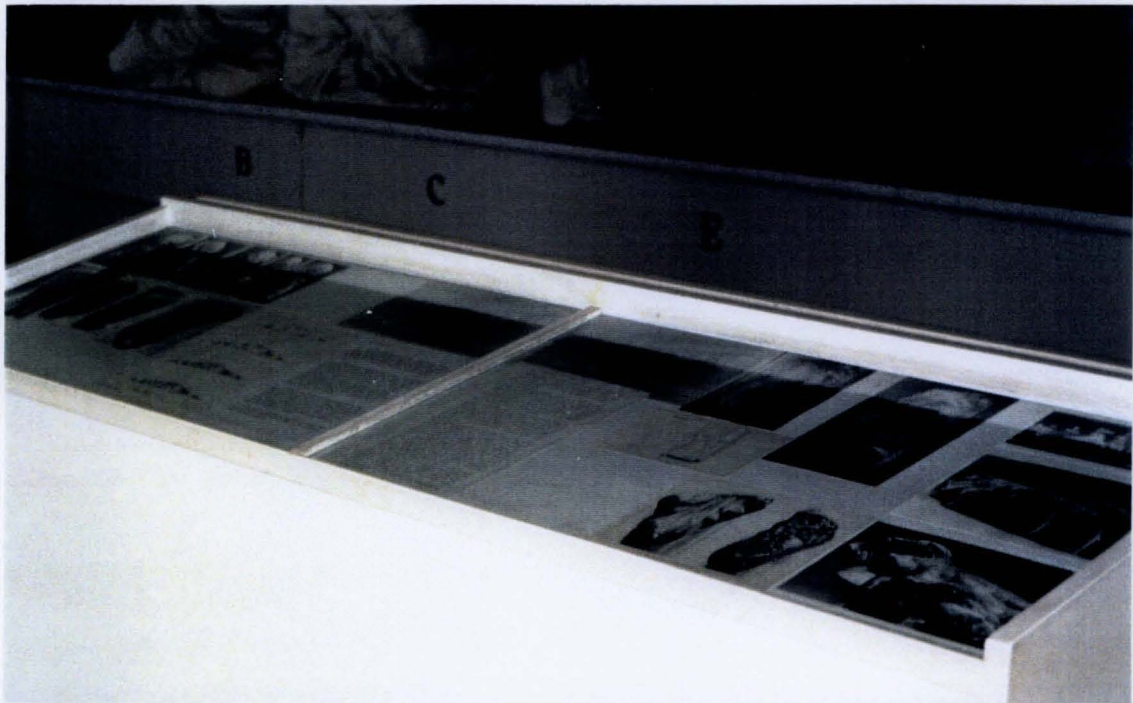
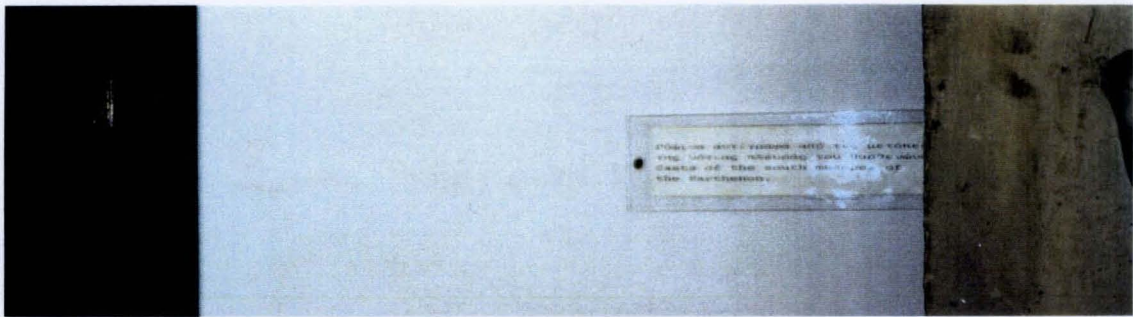
So, both main groups C1 and C2 (of the third secondary school grade) were presented with museum objects which posed greater difficulty for pupils' work than the museum objects with which all other groups, both main and additional, were presented. On the other hand the museum objects with which main groups C1 and C2 were presented respectively, posed a different type of difficulty. This scheme offered us the chance not only to study if and how far pupils' historical thinking was influenced by the different levels of difficulty museum objects pose for pupils' work, but also how pupils' historical thinking was influenced by the different type of difficulty of approximately the same level.

(2) Museum object(s) d were related to a substantial amount of dependently acquired information. Relevant information was given in the museum in two different written forms:

There was a pale, small label just next to the entrance of the exhibition hall, which informed only the very curious visitors (who might care to look at it) about the identity and origin of the exhibited objects: 'Replicas of the Parthenon pediments and of the metopes of the North side of the Parthenon'.

There was also quite wide information given in writing, and by some copies of photographs, placed in a window-case table in the middle of the hall. The written information was about the historical records of the authentic reliefs and included an interpretation of the represented themes.

This was the only case in which the selected museum objects were related to broad dependent information offered in the museum. This fact offered the opportunity not only to study if and how far pupils' historical thinking was influenced by the dependently offered information, but if pupils cared to use this type of information



Information offered in the Acropolis Studies Centre:

1. The small label next to the entrance 'Replicas of the West pediment and the metopes of the North side of the Parthenon.' 2. Extensive type of information placed in a window-case label in the middle of the hall.

as well. In other words it enabled us to see if, how far and how a different type of information, which is relatively extensive and which is offered by different means, influenced pupils' historical thinking. Of course, and as has already been mentioned, the latter is not central to this research, mainly because most museums in Greece offer one type of limited written information about the museum objects they exhibit.

It was nevertheless considered interesting to see if and how extensive information influenced pupils' historical thinking, even only in two cases; in this museum environment, and in task 3, in which many relevant books were available in class. According to D. Lowenthal (1985, p. 268), 'written signs obtrude both as objects and as linguistic symbols whose meaning and perhaps veracity must be pondered.' 'Identifying and classifying may tell us much about relics but often occludes our view of them, sacrificing communion with the past to facts about it. Showing off the past is the common result of identifying it. Labelling a relic affirms its historical significance; displaying it enhances its appeal.' (Ibid., p. 271.) 'To be temporarily "lost" is often better than to be over-informed.' (Ibid., p. 268.)

These ideas are closely related to the scope of the research, because they have implications for history education in general and for history education related to museum educational programmes in particular. In addition the method of this research was based on the fact that pupils were almost 'lost', at least not 'over-informed', in most of their museum work. Therefore, this major theme and its implications are analytically discussed in Chapters 2, 3 and 6.

Pupils of main group C2 knew that they had visited the Acropolis Studies Centre, a fact which was expected to offer them broad dependent information about the presented museum objects. In addition the excavations that were carried out outside the museum were expected to stimulate a sort of archaeological interest before the children entered the building.

(3) The independent historical information or knowledge that pupils of main group C2 had acquired previously at school was indirectly related to museum objects d. So both main groups C1 and C2 (of the third secondary school grade) were presented with museum objects (c and d respectively), which were not directly related to historical information or knowledge acquired at school that same year. In addition any relevant independent historical information or knowledge acquired at school the previous years was not directly related to the presented objects.

Pupils of main group C2 had studied Ancient Greek history two years before, when they were in the first secondary school grade. On the other hand Ancient Greek mythology had not been studied as a specific subject. Pupils did know some things about it, however, through primary school history and through the relevant references in their history books. They had also studied in the first and second secondary school grades the two epic poems of Homer, the *Odyssey* and the *Iliad* respectively, which have many mythological references. As a consequence it was expected that pupils would have some independent knowledge about Ancient Greek mythology, but rather confused or problematic, because Ancient Greek mythology is a very broad and deep subject. It is very broad, because it refers to many gods, semi-gods and heroes, and to their interconnected stories. It is also very deep because of its symbolic significance, which was developed through the Ancient centuries, in different geographical areas, and in accordance with the development of the different Ancient Greek city-states and their societies. So Ancient Greek mythology, though a 'simple' theme, if seen on a first level, is very confusing, if it is not methodically studied.

So museum object(s) d were only indirectly related to independent historical information or knowledge which pupils of main group C2 had previously acquired at school.

(4) The practical reasons for which museum object(s) d were collected were that they are quite big, and that they are exposed in a hall which is not crowded, since it is not usually visited by groups of tourist or school groups.

Museum object(s) e: Prehistoric museum objects

Museum object(s) e are Cycladic and Mycenaean, and they belong to the Prehistoric collection of the National Archaeological Museum of Athens. These objects were selected to be presented to main group B1 in relation to task 3. Twenty objects were pre-selected on the basis of their variety and their significance as representative objects of the Cycladic and the Mycenaean civilisations. These objects were also pre-selected on the basis of the availability of relevant picture-cards sold in the museum. (See the analytical presentation of task 3 in Part 3.2.2.5 above.)



Museum object(s) e. Some of the preselected Cycladic and Mycenaean objects of the Prehistoric collection of The National Archaeological Museum.

A card, presenting one of the pre-selected museum object(s) e in colour, was selected at random by each pupil of main group B1, in order to study the particular object in the museum and to write a presentation in class. It will be clear that these objects were not mainly selected on the basis of the specific factors tested in this research, because of their variety.

4.2.4.3. Criteria for the choice of museum collections

Generally museum collections were selected on the basis of the same variables in relation to which 'isolated' museum objects were selected. The selected collections did not pose increasing level of difficulty according to pupils' age; but the different tasks, the specific variables tested and practical factors were taken into consideration. In addition much attention was given to the variety of the objects, and to the relevant interest that they would stimulate in pupils, for the following reasons.

According to question a of task 1 pupils had to choose one interesting object and to explain why they had chosen it. So collections including a variety of 'interesting' museum objects were needed. These same circumstances were also needed for task 3, according to which each pupil had to study a museum object and to write a presentation of this object, while all pupils of the same group had to work in the same hall for practical reasons. In addition all museum objects had to be included in the same collection in order to enable pupils to guide themselves through this collection in their second visit, and to have an interesting discussion. For task 3 also, cards presenting many of the museum objects included in the selected collection had to be available, while task 2 demanded a collection of objects exhibited in many sub-groups. (See the analytical presentation of tasks in Part 4.2.2.)

Besides the above mentioned factors, the same practical factors already discussed had to be considered. The selected collections had to be displayed in large, not crowded halls, where pupils could move around easily and concentrate on their work properly.

On the basis of the experience gained through the pilot study and after much consideration four collections were selected; the Prehistoric collection of The National Archaeological Museum, the collection of the Agora Museum, the collection of casts of the Acropolis Studies Centre, and a small collection of objects of the Acropolis Museum.

4.2.4.4. Presentation of the selected museum collections

Collection a: The prehistoric collection of The National Archaeological Museum

The Prehistoric collection of the National Archaeological Museum of Athens includes three sub-collections; the Neolithic, the Cycladic and the Mycenaean collections. The Mycenaean collection is the most impressive collection for unspecialized visitors, because, besides anything else, it includes many gold objects. It displays a great variety of objects from the Mycenaean period, from several places in Greece: swords, jewels, vases, masks, wall-paintings etc., most of which are evidence for the quality of Mycenaean art.

A smaller collection of the Neolithic period and another of the Cycladic period are presented in two distinct areas of the large hall. Both smaller collections include very interesting and representative relics of the two relevant Prehistoric periods respectively. These relics are of great historical significance, and some of them are works of great art, but they do not 'shine' as the golden objects of the Mycenaean period, since most of them are made of clay, stone and marble.

Collection a was presented to many main and additional groups and in relation to several tasks for both practical and theoretical reasons. It was presented to main groups B1 and B2 when they responded to question a of task 1. It was also presented to main group B1 when it responded to task 3, and to main group B2 when it responded to task 2. Finally it was presented to additional groups A3 and C4, when they responded to question a of task 1.

Collection b: The collection of the Agora Museum

Collection b belongs to the Agora Museum. It includes many objects found in the area and originating from the Prehistoric to the Roman period. Most museum objects are of special historical interest, because they are evidence for the financial, political, religious, and cultural every-day life in Athens, since the area of the Agora was the centre of the city.

Collection b was selected as a very interesting educational environment for pupils to visit, because of the variety of objects included, and their historical significance as sources of information or evidence for life in the area during thousands of years. Collection b was selected to be presented to main group C1 in relation to question a of task 1, because of its great variety of interesting objects.



Collection a. The Prehistoric collection of The National Archaeological Museum.



Law against Tyranny. 336 B.C.



Countermarked Lead Weight. 4th century B.C.



WARRIOR. Impression taken from the cheek-piece of a helmet.



WINE JUG in the shape of a woman's head (pitcher rim missing above). She wears golden curls and a wool fillet.



Jurors' Ballots and Ticket. 4th century B.C.

Collection b. Some of the objects included in the collection of The Agora Museum

Collection c: The collection of replicas of The Acropolis Studies Centre

Main group C2 was presented with a collection of replicas exposed at the Acropolis Studies Centre. Pupils responded to all questions of task 1 while presented with this collection. Each pupil had to choose one object he/she found interesting according to question a of task 1, and then to respond to all questions of the same task working on the same object. The decision about this variation from the standard scheme and the reasons for which this collection was selected have already been discussed in the analytical presentation of object(s) d. (See also the relevant illustration in Part 4.2.4.2 above.)

collection d: The small collection of Archaic and Classical objects of The Acropolis Museum

Collection d is a small collection of Archaic and Classical vases, bowls, and lamps, which were found on the Acropolis of Athens. It is displayed in the Acropolis Museum, which is more famous for its sculptured objects. This collection was selected to be presented to main groups A1 and A2 in relation to question a of task 1, because it includes a series of simple, familiar objects, which are of great historical significance mainly because they relate to the religious context of the Acropolis. This collection was also chosen for practical reasons. It belongs to the Acropolis Museum to which museum object a belongs, which was chosen to be presented to both groups in relation to questions b, c and d of the same task 1. (See also Part 4.2.6.)



Collection d. The small collection of Archaic and Classic vases and lamps of The Acropolis Museum

4.2.5. The balance of data collection

The balance of the research design in terms of the data planned to be collected for each secondary school grade is shown in the following plan.

Schematic plan 40. The balance of the methodological design in terms of the data planned to be collected in secondary school grades A, B and C, by number of groups, number of pupils, number of tasks (and their questions) and number of responses

grade A (age 12/13)				grade B (age 13/14)				grade C (age 14/15)			
main groups											
groups	no. of pupils	tasks and quest.	no. of responses	groups	no. of pupils	tasks and quest.	no. of responses	groups	no. of pupils	tasks and quest.	no. of responses
A1	35	T: 1 Q: a b c d	 35 35 35 35	B1	35	T: 1 Q: a b c d	 35 35 35 35	C1	35	T: 1 Q: a b c d	 35 35 35 35
				B1	35	T: 3	35				
A2	35	T: 1 Q: a b c d	 35 35 35 35	B2	35	T: 1 Q: a b c d	 35 35 35 35	C2	35	T: 1 Q: a b c d	 35 35 35 35
				B2	35	T: 2 Q: a b c	 35 35 35				
additional groups											
groups	no. of pupils	tasks and quest.	no. of responses	groups	no. of pupils	tasks and quest.	no. of responses	groups	no. of pupils	tasks and quest.	no. of responses
A3	35	T: 1 Q: a b c d	 35 35 35 35					C4	35	T: 1 Q: a b c d	 35 35 35 35
totals											
3	105	1	420	2	70	3	420	3	105	1	420

The balance of data collection is based on the fact that the same number of responses were planned to be collected in each grade. (Total number of responses 420 respectively.) This 'absolute' balance was, of course, slightly affected by the real environment of data collection, because of some factors (like the absence of a small number of pupils) which could not be foreseen. (See Part 4.2.6 below.)

Schematic plan 41. Archaeological periods covered

<i>Prehistoric period</i>					
	Palaeolithic	Neolithic	Cycladic	Minoan	Mycenian
museum objects:	-	-	e	-	e
collections:	-	a, b	a	-	a, b
<i>Ancient period</i>					
	Geometric	Archaic	Classical	Hellenistic	Roman
museum objects:	-	a, c	d	b	-
collections:	-	b, d	b, c, d	b	b

Schematic plan 42. Data collection plan by groups, tasks, museum objects, collections and museums

groups	tasks	museum objects	collections	museums
<i>main groups</i>				
A1	1	a	and d	The Acropolis Museum
A2	1	a	and d	>>
B1	1	b	and a	The National Archaeological Museum
B2	1	b	and a	>>
C1	1	c	and b	The Agora Museum
C2	1	d	of c	The Acropolis Studies Centre
B2	2	-	a	The National Archaeological Museum
B1	3	e	of a	The National Archaeological Museum
<i>additional groups</i>				
A3	1	b	and a	The National Archaeological Museum
C4	1	b	and a	>>

4.2.6. How data collection was finally made

Generally data collection was carried out smoothly, and pupils seemed to enjoy this work, beyond any expectation. They concentrated on their work whilst seated on the floor around the museum objects they were presented with, without being disturbed by the crowded atmosphere of most museums visited.

Nevertheless, it was feared that this situation could have prevented pupils' from concentrating on their work and could have led them to give short responses of relatively low quality. It was after responses were collected and read that they proved to be very rich and of high quality. Indeed, the crowded atmosphere of most museums and the great number of pupils in each school group (35) were the only factors which made data collection at all difficult. However, only in one case did this affected data collection. The Acropolis Museum was very crowded when main groups A1 and A2 visited it. Pupils could not respond to question a of task 1, which asked them to choose one museum object and to write why they had chosen it. This fact destroyed the absolute balance of data collection, but it was not considered very important for the research, because only one question of task 1 was affected. Nevertheless, the longitudinal aspect of the field study was decided to be based on responses provided by the two main groups in relation to all other questions. On the other hand, responses to question a of task 1 were collected by groups A3, B1, B2, C1, C2 and C4, which covered all the three secondary school grades, and, therefore, they provided a broad basis for the relevant analysis.

4.3. Data Translation

Responses had to be translated from Greek into English. It was decided to give attention and time to ensuring the translated data was as close as possible to the original language of Greek pupils. For this reason the original expressions that pupils used, and the syntax of their sentences were not 'translated'. 'Word to word' translation was used instead. Only in cases in which Greek expressions did not really mean anything in English, were pupils' sentences 'properly' translated, and even then, the English version was kept as close as possible to the original Greek.

Data translation was not an easy task because pupils' speech was often characterised by imprecision, by grammatical, syntactical or even semantic errors. Therefore, a specific system of formulae was used to indicate these characteristics. This system was not used for data analysis. It just served data translation and the first 'reading' of data, so it was later ignored.³

The translation of the collected data was a time consuming work, which had to be checked many times. On the other hand the time and the effort spent for this work served as a good introduction to the content and the 'problems' of the data.

³ '*' denoted that there was an error, in pupil's speech (in Greek). It was used to underline matters which demanded careful handling during the study and the analysis of the collected data.

[*] The same formula was used, but within brackets, in order to distinguish my comments, especially in cases in which it was considered necessary to give the proper word, or to complete a meaning.

[* E] denoted an error in expression.

[* L] denoted an error in logic.

[* H] denoted a historical error.

[* HL] denoted problematic historical logic.

[* R] denoted a useless repetition.

[* Observing] denoted problematic observing skill.

[] Brackets were also used when a word or a phrase was not written in a sentence, because it had already been used in the previous sentence/sentences, a phenomenon which often appears in Greek. In these cases the 'missing' meanings were completed by the relevant words or phrases written within brackets.

() All other marks, like parentheses, or quotation marks, were used only if pupils themselves had used them in their written responses.

man [* m.f.] : the word 'man' is followed by this comment, when its meaning refers to both men and women (to human beings) in Greek.

'xxx' This formula denoted that a word could not be read.

'-' The hyphen was used to link two or even three words, in cases in which the relevant meaning is given in Greek by one word. Some times this denotation was very important for 'translating' the exact meaning of a phrase. e.g. 'γλυπτο' piece-of-sculpture. In addition this denotation was very important for the separation of sentences, because sentences were separated in terms of verbs. Each verb with its connotations was considered to form one sentence, a complete single meaning. e.g. used-to-go. The phrase 'used-to-go' was considered as one verb, because the same meaning is expressed in Greek by one verb in a special tense.

4. Data coding

Data were translated and at the same time they were coded by sentences. So a great deal of attention was devoted in order to avoid the alterations to the original number, sequence and variety of sentences by translating them into English.

The coding system used in the research was created to serve data analysis. It was used with the intention of coding all sentences included in all pupils' responses. This decision was made, because, although pupils' whole responses served as units of analysis, sentences served the initial detailed analysis. (See Chapter 5.) Each sentence was interconnected with all sentences included in the same response, with the response it belonged to, with the question and the task to which it was given as a response, with the pupil who wrote it (his/her group catalogue number in alphabetical order), with the pupil's group, and school grade. In addition the computing system, which was used for coding, interrelated the above coded elements with pupils' background demographic characteristics.

Schematic plan 43. The coding system

Formulae	Meaning	Examples
Cl/GR	Class / Group	B1 = class B / group 1
Cat.	Pupil's catalogue number	2 = the 2nd pupil of the group in alphabetical order
Task Q	Task, question	1c = task 1, question c
Tot. No..	Total number of sentences included in a response	13 = 13 sentences given in this response
No..	the number of each sentence given in a pupil's response	4 = The 4th sentence given in this response

Schematic plan 44. A typical example of coding

CL/GR	Cat.	Task	Q	Tot. No.	No.	Text	
B	1	2	1	c	13	4	Probably it is a Classical statue,
B	1	2	1	c	13	5	but I am not sure.

'Probably it is a Classic statue,' This sentence is the 4th sentence in a response of 13 sentences, given to question c of task 1, by the 2nd pupil in alphabetical order of the 1st group of secondary class B.

‘but I am not sure.’ This sentence is the 5th sentence in a response of 13 sentences, given to question c of task 1, by the 2nd pupil of the 1st group of secondary class B. It is obvious that these two coded sentences together form one particular thought expressed in one specific response.

Decisions about the technique employed, data collection, data translation and data coding were made in close relation to decisions about the method of analysis. The method of analysis and the relevant category systems are presented in the next chapter.

Chapter Five

The category systems and the analysis of responses

- 5.1. Basic decisions**
- 5.2. The category systems**
 - 5.2.1. The ‘methodology’ category system**
 - 5.2.2. The ‘focus’ category system**
 - 5.2.3. The ‘context’ category system**
 - 5.2.4. The ‘historicity’ category system**
 - 5.2.5. The ‘general evaluation’ category system**
- 5.3. The analysis of historical thinking**
- 5.4. The categorisation of responses**
- 5.5. The analysis of pupils’ questioning**
- 5.6. The analysis of the use of ‘dependent’ and ‘independent’
historical information or knowledge**
- 5.7. A typical specimen of analysis**

5.1. Basic decisions

Pupils' historical thinking was analysed in terms of its methodology, content and specific characteristics on the basis of the investigation and relevant definition of historical thinking in Chapter 2. (See Parts 2.1.1 and 2.1.2.) Historical thinking was studied through the interrelation of some representative issues of all its elements rather than through all its constituents. This decision was made primarily because the analytical study of each issue would have demanded a depth of concentration that a single study could not cover. In addition, such a broad study would not help to form a coherent picture of pupils' historical thinking as a whole and would also have resulted in an indefinite longitudinal study of pupils' historical thinking, because too many issues would have to be taken into consideration. (See also a typical specimen of analysis in Part 5.7.)

On this basis, the following type of analysis was decided:

Pupils' historical thinking was studied through the interrelation of some representative issues of its 'methodology', 'content' and 'specific characteristics'. (See the 'Historical Thinking Plan', attached at the back cover.) First it was analysed in terms of its 'methodology'. According to the distinctive levels of the 'methodology' category system, subjects' historical thinking was characterised as ahistorical, unhistorical, pseudo-historical, rational or historical, and was simultaneously related to distinctive levels of reasoning.

It was also analysed in terms of its content on the basis of its 'focus', 'context' and 'historicity'. These three issues were chosen as representative of historical content, because they determined whether historical thinking could be characterised as such. Other issues concerning the content of historical thinking described the content of thinking without determining its historical value. Therefore, these issues were discussed only in very general terms on the basis of observations, which were made on a first level analysis of the data. (See Part 5. 7.)

Pupils' historical thinking was also analysed in terms of its 'specific characteristics', on the basis of 'general evaluation', because this issue gave a general picture of the quality of subjects' historical thinking in terms of its 'specific characteristics'. On the other hand, because of their great number and their historical significance all other issues could not be fully examined within the limits of a single piece of research. Therefore, only some general observations were made, based on a first level analysis. (See Chapters 6 and 7.) The study was

confined to a separate, parallel analysis of pupils' questioning and use of 'dependent' and 'independent' historical knowledge only, because these issues were considered very important for reasons discussed in detail in Chapters 2 and 3 above.

Another decision concerned the units of analysis. It was decided that pupils' overall responses would serve better as units of analysis, than isolated sentences or thoughts. This decision was based on the experience gained from the prior detailed analysis of pupils' isolated sentences. This time consuming analysis did not lead to a valid appraisal of pupils' historical thinking, because it was too detailed. It did, however, give us the opportunity to study pupils' thinking sentence by sentence, concept by concept, thus increasing the validity of the more general analyses that followed. In fact, the analysis of pupils' historical thinking on the basis of isolated sentences could only have served the analysis of its 'content' and not of its 'methodology' and its 'specific characteristics', which were expressed through the semantic interrelation of all the sentences included in each complete response.

Pupils' isolated thoughts did not always provide reliable units for analysis, because sometimes it was not absolutely clear where one thought stopped and the next thought began. This difficulty was related to pupils' speech, which was often characterised by generalisations, imprecision and an absence of appropriate conjunctions. Nevertheless, the analysis of subjects' historical thinking in terms of its methodology, content and specific characteristics of isolated thoughts provided the foundations for the analysis of their responses. The interrelation of the results of the analysis of each isolated thought with the results of other thoughts in the same response increased the validity of the analysis, since this further ensured the given values. Moreover certain problematic issues concerning the interpretation and categorisation of some thoughts were solved as soon as these 'problematic' issues were analysed in relation to all thoughts included in a single response. (See a typical specimen of analysis in Part 5.7.)

The reliability and validity of the analysis were consolidated by the fact that the final category systems were more general and varied than the initial category systems on which they were based. They were more robust and simple, since they included a limited number of more general values than the previous systems. On the other hand, the final values did not lose their complexity, because they corresponded to the more elaborated values of the previous category systems. Thus, although some information might have been lost by the relevant consolidation, the analysis was ultimately more secure.

5.2. The category systems

The analysis of pupils' historical thinking was based on a two-way investigation, which consisted of a series of multiple analytical 'readings' of the collected data and of a parallel attempt to define historical thinking and its elements. The outcome of this parallel conceptual analysis and empirical work was the definition of historical thinking and of its elements and the construction of the category systems as parallel and corresponding constructs, which were determined by both theoretical and realistic, analytical parameters. Therefore, the presentation of the category systems does not include a discussion of their theoretical basis, because this has been analysed in Part 2.1.1 and Part 2.1.2 above.

5.2.1. The 'methodology' category system

The 'methodology' category system served the analysis of pupils' historical thinking, because of its primary significance in the scaling of pupils' historical thinking.

The 'methodology' category system was initially constructed on the basis of several distinctive categories of historical methodology, which were recognised in pupils' responses. In the light of the definition of historical thinking (see Part 2.1.1), of its methodology (see Part 2.1.2.1) and of its relation to distinctive levels of reasoning (see Part 2.2) these categories were further refined to correspond to distinctive levels of historical thinking and reasoning.

Pupils' historical thinking was categorised according to the highest level of methodology reached in each response, on the basis of the analysis of all included thoughts.

The 'methodology' category system

Analysis of thoughts	Analysis of responses
<i>'Concrete Operations' - 'Describer thinking'</i>	
Ahistorical thinking	
1. Description of the object as object qua object of the present.	1. Responses including thoughts of value [1] only
Unhistorical thinking	
2. Description of the object as object qua object of an imprecise past.	2. Responses including thoughts of highest value [2]
<i>Intermediate level</i>	
Pseudo-historical thinking	
3. Reproducing historical knowledge	3. Responses including thoughts of highest value [3]
4. Unsupported inferences	4. Responses including thoughts of highest value [4]
<i>'Formal Operations' - 'Explainer thinking'</i>	
Rational thinking	
5. Inferences by rational processes	5. Responses including thoughts of highest value [5]
Historical thinking	
6. 'Scientific' historical inferences by historical processes	6. Responses including thoughts of highest value [6]
7. 'Academic' historical inferences by historical processes	7. Responses including thoughts of value [7]

Exemplification of categories:

[1] 'It is a statue.', 'It is marble.'

This category was formed for the categorisation of responses which were limited to the definition or description of the studied museum object as an object qua object of the present. It related to ahistorical thinking (neither methodology nor any sort of historical conception were involved) and corresponded to 'concrete operations' or 'describer thinking' because thinking was restricted to the description of the immediate external situation.

[2] 'It is a broken statue.' 'It is damaged.'

Category [2] was formed for the categorisation of responses which were limited to the definition or description of the studied museum object as an object qua object

of an imprecise past. This type of thinking was unhistorical because there was no methodology involved, while only a slight notion of an imprecise and unhistorical past was implied. Category [2] corresponded to 'concrete operations' or 'describer thinking', because thinking was restricted to the immediate external situation.

[3] 'It is a Mycenaean vase of the 14th century BC.'

Category [3] covered responses in which the highest level of methodology was reached by the reproduction of historical information or knowledge, acquired dependently (in the museum) or independently (mainly at school). This type of thinking was pseudo-historical because there was only linear methodology involved: namely, the object was directly related to the relevant 'dependent' or 'independent historical information or knowledge' without further consideration. Category [3] corresponded to an intermediate level between 'concrete operations' or 'describer thinking' and 'formal operations' or 'explainer thinking', because it was neither restricted to the description of the immediate external situation, nor was it characterised by any need for demonstration in explanatory terms.

[4] 'It must be a Mycenaean vase.'

Category [4] was formed to cover responses in which the highest level of methodology was reached by the statement of unsupported inferences. This type of thinking was conceived as pseudo-historical because there was only linear methodology involved, since inferences were made directly from the object. Any attempt to interpret the object as historical evidence was absent. This category corresponded to an intermediate level of reasoning between 'concrete operations' or 'describer thinking' and 'formal operations' or 'explainer thinking' because it was neither restricted to the description of the immediate external situation, nor was it characterised by any need for demonstration in explanatory terms.

[5] 'The owner of this vase must have been rich, because it is gold.'

Category [5] was formed to cover responses in which the highest level of methodology was reached by the statement of rational inferences. This type of thinking was not conceived as historical because there was no clear historical orientation and no use of background historical knowledge. It was clearly rational, because there was only rational methodology involved, relevant to a 'detective' inquiry. This category corresponded to 'formal operations' or 'explainer thinking', because it was not restricted to the immediate situation and was characterised by rational demonstration in explanatory terms.

[6] ‘This Mycenaean tool is bronze, a fact that seems reasonable because it is known that bronze was used in the Mycenaean period. In fact the Mycenaean period belongs to the late Bronze period. On the other hand it has been historically asserted that bronze was not just known, but was broadly used in that period. Therefore, we may conclude that probably Mycenians used bronze tools broadly.’

Category [6] was formed to cover historical thinking, i.e. ‘scientific’ historical inferences about the interpretation of the object or the presented theme in historical terms, or as evidence about the past in particular. This type of thinking was conceived as consisting of a ‘scientific’ historical enquiry based on background historical knowledge, and as such corresponding to ‘formal operations’ or ‘explainer thinking’.

[7] ‘This Mycenaean tool is bronze, a fact that seems reasonable since many Mycenaean bronze objects have been found so far, and the Mycenaean period belongs to the late Bronze period. On the other hand it has been historically asserted that bronze was not just known, but was broadly used in that period. Therefore, we may suppose that probably Mycenians used bronze tools broadly. The fact that bronze, being a strong material, is a considerably cheap metal now, is another argument, which must be studied, though, in the historical context of the Mycenaean period. In addition the extent to which bronze was used for the manufacture of tools in comparison with other metals, is open to research, mainly because we cannot be sure about how far people of the past ‘recycled’ metals, and thus archaeological finds may be misleading.’

Category [7] was formed to cover historical thinking of academic standards. Historical thinking of level [7] was conceived as an academic-historical enquiry, based on background historical knowledge and scientific historical concepts, including the notion of historical relativity, and regarding questioning as inherent in the nature of history. It will be made clear that such thinking was conceived as corresponding to ‘formal operations’ or ‘explainer thinking’.

5.2.2 The ‘focus’ category system

The analysis of pupils’ historical thinking as a whole, in terms of its content, was carried out by the ‘focus’, the ‘context’ and the ‘historicity’ category systems.

The ‘focus’ category system was based on the relevant theoretical investigation in Part 2.1.2.2, and on Schematic plan 2.15. The initial detailed values for the

analysis of pupils' thoughts were made more robust for the analysis of responses, which, nevertheless, was carried out on the basis of the analysis of thoughts.

The 'focus' category system

the analysis of pupils' thoughts	the analysis of pupils' responses
[1] pupils' thinking focused on the object	[1] responses including value [1] only
[2] pupils' thinking focused on the 'past'	[2] responses including values [2] and/or [21]
[21] pupils' thinking focused simultaneously on the object and the 'past'.	

Exemplification of categories

[1] 'It is a Mycenaian clay vase.'

This thought is focused on the object.

[2] 'Mycenaian art was highly developed.'

This thought is focused on the past.

[21] 'This vase was made in a period which was very developed'

This thought is focused on the object and the past.

Responses which included thoughts of 'focus' value [1] only were given 'focus' value [1]. Responses which included at least one thought of value [2] or [21] were given 'focus' value [2].

5.2.3. The 'context' category system

The content of pupils' historical thinking was also analysed in terms of the context in which the object and/or the 'past' were conceived. Initially, the 'context' category system included many detailed categories because it was based on the relevant theoretical investigation and definition discussed in Chapter 2. above. (See Part 2.1.2.2 and Schematic plans 2.16, 2.17 and 2.18.) The initial categories were later refined to form more simple and robust categories, in order to facilitate the analysis of pupils' historical thinking on the basis of their responses.

The 'context' category system

Analysis of thoughts	Analysis of responses
Ahistorical thinking	
[A] The object was conceived as object qua object. Any notion of the historical past was absent.	[A] Responses including thoughts of value [A] only
[AHS] The object's presented theme was conceived in its illustrated human and/or social context. Any notion of the historical past was absent.	[AHS] Responses including thoughts of value [AHS] only, or of values [AHS] and [A]
Historical thinking	
[CBA] The object was conceived as object in a human and/or social context. The past was also conceived as consisting of human and/or social actions and thoughts.	[CBA] Responses including at least one thought of value [CBA]

Exemplification of categories:

[A] 'It is a beautiful vase.' 'It is a broken vase.'

Category [A] was formed to cover thinking which treated the object as object qua object; a historical notion of the past was absent.

[AHS] 'The girl illustrated is offering a box to the seated woman.'

Category [AHS] was mainly created to discriminate pupils' references to the presented (illustrated) human/social context from their references to a real historical human/social context. Responses which included thoughts of value [AHS] only, or of both values [A] and [AHS], were given value [AHS], because this value was considered higher than value [A], since at least the object was interpreted in its presented human/social context.

[CBA] 'The illustrated girl must have been very beautiful in reality.'

[CBA] 'It represents the Ancient Greek god Apollo.'

[CBA] 'It was made by a Mycenaean artist'

Category [CBA] was formed to cover thinking by which objects or their illustrated themes were related to real, historical human/social contexts, and, therefore, there was a historical conception of the past related to human/social situations. Responses which included at least one thought of value [CBA] were given 'context' value [CBA].

5.2.4. The ‘historicity’ category system

Finally the content of pupils’ historical thinking was analysed in relation to the notion of historicity, according to the relevant discussion in Part 2.1.2.

The ‘historicity’ category system

Analysis of thoughts	Analysis of responses
Ahistorical thinking	
[Pr.] content related to an ahistorical present	[Pr.] Responses including thoughts of value [Pr.] only
Unhistorical thinking	
[Pa.] content related to an imprecise past	[Pa.] Responses including thoughts of value [Pa.] only, or of values [Pr.]/[F.] and [Pa.]
[F.] content related to an imprecise future	[F.] Responses including thoughts of value [F.] only, or of values [Pr.] and [F.]
Historical thinking	
[HPa] content related to the historicity of the past	[HPa] Responses including at least one thought of value [HPa]
[HPr] content related to the historicity of the present	[HPr] Responses including value [HPr] only
[HF] content related to the historicity of the future	[HF] Responses including value [HF] only, or values [HPr] and [HF]

Exemplification of categories:

[Pr.] ‘It is a beautiful statue.’

Category [Pr.] was formed to cover thoughts which referred to the ahistorical present, and responses which included thoughts of value [Pr.] only. This category corresponded to ahistorical thinking.

[Pa.] ‘It was used with care.’

[F.] ‘It will not be destroyed, because it is gold.’

Category [Pa.] was formed to cover thoughts which referred to an unhistorical past, and responses which included thoughts of value [Pa.] only, or [Pr.]/[F.] and [Pa.]. Category [F.] was formed to cover thoughts which referred to an unhistorical future, and responses which included thoughts of value [F.] only, or [Pr.] and [F.]. In either case pupils’ historical thinking was conceived as unhistorical, as it was neither restricted to the present, nor did it refer to historicity.

[HPa.] ‘These tools belong to the Mycenaian period.’

[HPr.] ‘The tools of our age are highly developed.’

[HF.] Tools 2001 AD. would be electronic.’

These three categories were formed to cover thoughts which referred to the historical past, present or future respectively. In all three cases pupils’ historical thinking was conceived as historical because the notion of historicity was present. It was decided that value [HPa.] would be given to responses which included at least one thought of value [HPa.], because this notion was more significant to the study than the other two. ‘The tools of the Mycenaian period were not as developed as contemporary tools. The tools of today are highly developed.’ [HPa]

5.2.5. The ‘general evaluation’ category system

The analysis of pupils’ historical thinking, in terms of its specific characteristics, was made by the ‘general evaluation’ category system. Pupils’ thinking was evaluated generally, in terms of whether its outcome was valid, according to the relevant theoretical investigation in Part 2.1.2.3.

The ‘general evaluation’ category system

Analysis of thoughts	Analysis of responses
[+] valid outcome of thinking	[+] Responses including thoughts of value [+] only
[+*] acceptable outcome of thinking	[+*] Responses including thoughts of value [+*], or of values [+] and [*]/[+*]
[*] quite problematic outcome of thinking	[*] Responses including thoughts of value [*], of values [-] and [+]/[+*], or of values [*] and [+*]
[-] invalid outcome of thinking	[-] Responses including thoughts of value [-], or of values [*] and [-]

Exemplification of categories:

(Examples of thoughts about a Mycenaian relief depicting a woman.)

[+] ‘It is a Mycenaian relief depicting a young woman.’ ‘It is a beautiful work of art.’

‘General evaluation’ value [+] was created for thoughts whose outcome was valid, and for responses which included thoughts of value [+] only.

[+*] 'It is a Mycenaian statue.' 'It must be a Minoan relief.'

'General evaluation' value [+*] was formed for thoughts whose outcome was not absolutely valid, but could be acceptable because of a (minor) problematic issue, and for responses which included thoughts of value [+*] only, or of values [+] and [+*]/[*].

[*] 'It is a Mycenaian relief depicting a man.'

Value [*] was formed for thoughts whose outcome included both valid and invalid elements, and for responses which included thoughts of value [*] only, of values [+] and [-], or of values [+*] and [*].

[-] 'It is a vase.' 'It is Roman.' 'It is a Minoan relief depicting a man.'

Value [-] was given to thoughts whose outcome was invalid, and for responses which included thoughts of value [-] only, or of values [-] and [*].

5.3. The analysis of historical thinking

In the first place, pupils' responses were analysed in terms of the methodology of historical thinking and accordingly defined as ahistorical, unhistorical, pseudo-historical or historical. Secondly, all responses were analysed in terms of the 'focus' of historical thinking, in order to see how many responses of each 'methodology' level were focused only on the object [1] and how many included inferences about the 'past' [2]. The matrix of the methodology and the focus category systems formed the following categories:

	'methodology' levels						
	1	2	3	4	5	6	7
	ahistorical	un- historical	pseudo- historical		rational	'scientific' historical	'academic' historical
1	1.1	2.1	3.1	4.1	5.1	6.1	7.1
2	---	---	3.2	4.2	5.2	6.2	7.2

Responses were also analysed in terms of the 'context' of historical thinking, in order to see how far pupils' thinking as a whole could be defined as historical in terms of the 'context' in which the objects and/or the 'past' were conceived.

‘context’ ‘methodology-focus’ levels

	a- historical	un- historical	pseudo- historical		rational	‘scientific’ historical	‘academic’ historical
A or AHS ahistorical	1.1.	2.1.	3.1.	4.1.	5.1.	6.1.	7.1.
			3.2.	4.2.	5.2.	6.2.	7.2.
	1.1.A	2.1.A	3.1.A	4.1.A	5.1.A	6.1.A	7.1.A
			3.2.A	4.2.A	5.2.A	6.2.A	7.2.A
CBA historical	—	—	3.1.CBA	4.1.CBA	5.1.CBA	6.1.CBA	7.1.CBA
			3.2.CBA	4.2.CBA	5.2.CBA	6.2.CBA	7.2.CBA

Thirdly, responses were analysed in terms of historicity in order to see how far responses referred to the historical past, present or future and how far were related to an ahistorical present or an unhistorical future or past. It must be emphasised here that only responses of methodology levels 3, 4, 5, 6, and 7, of ‘context’ value [CBA] could be analysed in terms of historicity, because responses of ‘methodology’ values 1 and 2, being related to ‘context’ values [A] or [AHS] only, corresponded to thinking by which objects were treated as objects qua objects, and the past was treated as an ‘empty area of time’. In addition, ‘methodology’ level 5 was by definition not related to historicity, because it was strictly rational. However, responses of ‘methodology’ level 5 were analysed in terms of historicity, since they could include thoughts of levels 3 and/or 4, potentially related to the notion of historicity .

‘historicity’ ‘methodology-focus-context’ levels

	pseudo- historical		rational	‘scientific’ historical	‘academic’ historical
not historical P=[Pa.]/ [Pr.]/ [F.]	3.1.CBA	4.1.CBA	5.1.CBA	6.1.CBA	7.1.CBA
	3.2.CBA	4.2.CBA	5.2.CBA	6.2.CBA	7.2.CBA
	3.1.CBA.P	4.1.CBA.P	5.1.CBA.P	6.1.CBA.P	7.1.CBA.P
	3.2.CBA.P	4.2.CBA.P	5.2.CBA.P	6.2.CBA.P	7.2.CBA.P
historical H=[HPa]/ [HPr]/ [HF]	3.1.CBA.H	4.1.CBA.H	5.1.CBA.H	6.1.CBA.H	7.1.CBA.H
	3.2.CBA.H	4.2.CBA.H	5.2.CBA.H	6.2.CBA.H	7.2.CBA.H

(The analysis of pupils' responses in terms of 'historicity' included all values in the historical category [H] and in the non historical category [P].)

Finally, all responses were analysed in terms of 'general evaluation', in order to see how far the outcome of pupils' historical thinking was valid, acceptable, problematic or invalid. The following 'appropriate' or 'valid' categories of historical thinking were formed on the basis of the analysis of pupils' historical thinking, in terms of all the representative issues of its elements.

Appropriate categories of historical thinking

valid ahistorical	valid unhistorical	valid pseudo-historical	valid rational	valid historical
1.1.A.P.+	2.1.A.P.+	3.1.CBA.H.+ 3.2.CBA.H.+ 4.1.CBA.H.+ 4.2.CBA.H.+	5.1.A.P/H.+ 5.1.CBA.P/H.+ 5.2.A.P/H.+ 5.2.CBA.P.H.+	6.1.CBA.H.+ 6.2.CBA.H.+ 7.1.CBA.H.+ 7.2.CBA.H.+

Accordingly, historical thinking corresponded to methodology levels [7] ('academic' historical) or [6] ('scientific' historical); to 'focus' categories [2] (focused on the 'past') or [1] (focused on the object); to 'context' category [CBA] (the past and/or the objects were conceived in a human/social context); to 'historicity' category [H] (the content of historical thinking was related to the notion of historicity, because it referred to the historical past [HPa], present [HPr.] or future [HF]); and to 'general evaluation' category [+] (the outcome of historical thinking was valid). On this basis, pupils' responses were analysed in terms of historical thinking, as the following categorisation of responses demonstrates.

5.4. The categorisation of pupils' responses

Surprisingly, the first reading of the collected data revealed that pupils' responses were richer than expected. Indeed, they bore no relation to the written material that they usually produced at school in their history classes, nor were they limited to a simply responding to questions. On the contrary, pupils worked productively and offered us great insight into their historical thinking through their intellectual involvement with the museum world.

Their responses revealed vigorous intellectual activity combined with broad interests, knowledge, and reasoning, as well as sentimental reactions and aesthetic investigations. Perhaps most importantly, the collected responses revealed pupils' capacity not only to meet the demands of the devised tasks, but also to invent or investigate ways to express their fertile reasoning in general, and their historical thinking in particular.

The first reading showed that the data could be analysed in terms of several interesting aspects, such as pupils' aesthetic ideation. Therefore, the decision to limit the scope of the analysis to some elements very significant to the study was made with difficulty and after much consideration.

Concentration on the study of pupils' historical thinking led to the observation that, above all, subjects' historical thinking was differentiated with respect to its methodology, as all other elements were largely dependent on this. Because, when pupils' historical thinking was limited to the description of objects as objects of the present or of an imprecise past, historical uncertainty or empathy proved insignificant. Therefore, the presentation of the categorisation of responses¹ corresponds to the seven 'methodology' levels, and all other issues are discussed in relation to these.

Before the methodology categories are set out, it will be useful to consider some difficult cases in terms of the allocation of 'context' and 'historicity' values. These demanded careful decisions.

'It presents a goddess/ a god of the sea/ a centaur/ a sphinx/ a slave/ a sacrifice/ a woman wearing a chiton.'

Thoughts of this type were given 'context' value [AHS], because the presented theme was related to its illustrated human/social context, and 'historicity' value [Pa], because the presented theme was, even indirectly, related to an imprecise past, when people believed in goddesses, gods of the sea, centaurs etc., and slavery, sacrifices or chitons existed.

'It presents Apollo.', 'It is a statue of Apollo.'

This type of thought was given 'context' value [CBA] and historicity value [Pa], because by the reference to a particular Ancient Greek god it is related to the social

¹Responses were translated almost word for word, and errors in expression, punctuation, etc. were not corrected.

context of Ancient Greek religion. But since the particular historical past (Ancient Greek) was not stated, this type of thought was given 'historicity' value [Pa]. If similar thoughts referred to a particular historical past, they were given 'historicity' value [HPa] 'It presents the Ancient Greek god Apollo.', 'It is an Ancient Greek statue of (the Ancient Greek god) Apollo.'

'It is a kouros.' Thoughts referring to 'Kouros', were given 'context' value [CBA] and 'historicity' value [HPa], because pupils' used this word with its social and historical connotations according to the relevant historical knowledge that was previously and independently acquired at school. That is the word 'Kouros' was used in the sense of a typical Ancient Greek statue, presenting a young man in a characteristic pose.

In contrast, the use of other words referring to objects of the past, like names of vases ('crater' or 'amphora'), or to mythology, were considered as being generally related to the past, and not to a particular historical past, and therefore the relevant thoughts were given 'historicity' value [Pa].

In some thoughts it was not clear if the word 'Ancient' denoted the particular historical past, or the past in general, meaning 'old'. It was decided to analyse this word as referring to the particular historical past, provided that its meaning as 'old' was not absolutely clear. (e.g. 'It is so Ancient.' = 'It is so old.')

Thoughts of the type 'It is well made', 'It is a well-made object', were given 'historicity' value [Pr.], because by these thoughts the object was not related to the past, but it was described as an object of the present. On the other hand, thoughts of the type: 'It was sculptured with art' were given 'historicity' value [Pa], because they referred to an imprecise past, when the object was made.

With this discussion in mind, it is possible to delineate the methodology values.

'Methodology' level [1]

At this level, there was no historical thinking of any kind, because pupils simply defined or described the museum objects or collections as objects qua objects of the present. The only significant issue was 'general evaluation', as this showed whether this definition or description was 'valid', 'acceptable', 'problematic' or 'invalid'. It was clear that the 'general evaluation' value was largely dependent on pupils' observing skill and on the level of difficulty that museum objects posed.

The content was not of great importance because ‘methodology’ level [1] was related only to ‘focus’ value [1] (about the object), to context value [A] or [AHS] (the object was treated as object qua object, or in its presented context), and to ‘historicity’ value [Pr.] (ahistorical present). e.g. ‘It is a big statue.’ [1.1.A.Pr.+]², ‘There is a woman depicted.’ [1.1.AHS.Pr.+]

At this level, thinking was ahistorical, and could be differentiated mainly with respect to subjects’ capacity to give valid definitions or descriptions of the objects.

‘Methodology’ level [2]

Thoughts and responses at ‘methodology’ level [2] were similar to those of level [1]. The only difference was that museum objects (or their presented themes) were related to an imprecise past. Therefore, thinking at this level was unhistorical. Both ahistorical and unhistorical thinking at levels [1] and [2] respectively were categorised as ‘concrete operations’ or ‘explainer thinking’ because they were restricted to a description of the immediate situation. Accordingly, thoughts such as ‘It is a beautiful object.’, ‘It is an old object.’ were given ‘methodology’ value [4], since subjects did not only describe the external aspects of objects, but also formed (unsupported) inferences about them.

It must also be noted that not many responses were categorised at level [1] or [2], because, although many responses included thoughts of values [1] and/or [2], most included thoughts of higher ‘methodology’ levels as well. Nevertheless, the validity of thoughts at level [1] and/or [2] was very important for the validity of the overall response, because the latter was often largely dependent on the accuracy of the initial definition or description of the object.

‘Methodology’ level [3]

Subjects’ thinking at level [3] was mainly characterised by its ‘pseudo-historical’ methodology, and it was mainly differentiated by its ‘general evaluation’, which determined whether the reproduction of ‘dependent’ or ‘independent historical information or knowledge’ was ‘valid’, ‘acceptable’, ‘problematic’ or ‘invalid’. ‘It is an Ancient clay mould for a bronze statue’ [3.1.A.Pr.+]; ‘It is an Ancient mould for a clay statue’ [3.1.A.Pr.+*]; ‘It is a bronze mould’ [3.1.A.Pr.*]; ‘It is a clay statue’ [3.1.A.Pr.-]. (Thoughts reproducing ‘dependent’ information about an Ancient clay mould for a bronze statue.)

²Values in brackets are given in the following order: ‘methodology’, ‘focus’, ‘context’, ‘historicity’ and finally ‘general evaluation’ value. Information about the coding elements of some quoted responses are given in parentheses, in the following order: Class and group, number of pupil, task and question.

At this level, historical thinking was ‘pseudo-historical’ because its methodology was limited to the reproduction of ‘dependently’ or ‘independently’ acquired historical knowledge. The ‘focus’, ‘context’ and ‘historicity’ issues at this level were not very significant, because they were dependent on the content of the information reproduced. Of course, there was an important difference between the reproduction of ‘dependent’ information and ‘independent’ knowledge. In most responses ‘independent’ knowledge was used to support historical inferences at ‘methodology’ levels [6] and [7], or underlay unsupported inferences at ‘methodology’ level [4]. Therefore, both issues were separately studied as significant ‘specific characteristics’ of historical thinking. (See part 5.6.)

‘Methodology’ value [4]

Many thoughts and responses were categorised at ‘methodology’ level 4. These were focused either on the objects or on the past (focus’ values [1] and [2]), while both the objects and the past were often treated in a human/social context (‘context’ value [CBA]). In most cases, subjects’ historical thinking was related to historicity, particularly to the historicity of the past [HPa]. Furthermore, the outcome of many responses was valid (‘general evaluation’ value [+]). In addition, it is important to emphasise, that even certain responses of ‘context’ value [AHS] were very significant, because they showed that, at this level, pupils were capable of interpretations distinguished by their high ‘content’. To our surprise, many pupils realised that museum object b was a grave stele, and/or interpreted it in its presented social context, i.e. they realised that the presented women belonged to different social classes. Other pupils made unsupported inferences about the social reality of the past. ‘This object gives us information about the clothes of that age, maybe [it gives us information] about certain habits of that age and about the fact that people were separated in social classes.’ [4.2.CBA.HPa.+] (B1/27/1b)

At this level, however, despite its high-level historical content, and the valid use of ‘dependent’ or ‘independent historical information or knowledge’, historical thinking was limited by low-level ‘methodology’. In fact objects were used as if they could themselves reveal their historical identity and the historical reality of the past, and inferences were unsupported: objects were neither interpreted as evidence, nor was any demonstration in explanatory terms shown.

However, responses and thoughts at this level were very significant to the study, because they revealed pupils’ potentials with respect to the content of historical thinking. Moreover, it was made clear that pupils from the age of twelve to fifteen

were potentially capable of expressing and developing high-level historical thinking, provided that they were educated on the 'methodology' and 'specific characteristics' of historical thinking.

Historical thinking at 'methodology' levels [3] and [4] constituted an intermediate level of reasoning between 'concrete operations' or 'describer thinking' and 'formal operations' or 'explainer thinking'. Although responses were not restricted to the immediate situation, and related the phenomenon to other phenomena using abstract concepts, there was no reasonable support of inferences nor any demonstration in explanatory terms. Therefore, 'methodology' levels [3] and [4] were 'pseudo-historical'.

'Methodology' level [5]

Thinking at level [5] was characterised by reasoning; inferences were rational and supported. Objects were interpreted as evidence by a rational process, as part of a 'detective' inquiry. Thus, although subjects' thinking was characterised by rational methodology, it was not historical because its methodology, content and specific characteristics were not historical. Pupils' thoughts referred to an ahistorical present, or to an unhistorical past or future, and there was no sense of historical orientation.

Characteristic thoughts at 'methodology' level [5] were found even in responses by pupils in the first year of secondary school. 'This object presents a scene in which a child is offering something to a woman who is seated. I think that this fact shows obedience because the child is not seated but is standing.' (A3/87/1c) This pupil interpreted the presented theme by means of a 'detective' inquiry, and, although capable of 'referring the phenomenon to other previously experienced phenomena, and to generalisations and concepts ['obedience'] independently formed' (E. A. Peel, 1965, p. 171), the pupils' thinking was not characterised by any historical orientation.

'This object shows to us a person giving a gift to an older person who is probably his mother or who is probably someone else. He might be giving it because there is a feast or an assembly but you can never know for sure why he is giving the gift who [is giving it] to whom [he is giving it] and when [he is giving it]. (B2/59/1c) Despite a lack of articulacy and a limitation to an ahistorical interpretation of the presented theme, the pupil uses his/her reasoning, and provides demonstration in explanatory terms. The limitations of evidence and the notion of uncertainty are recognised.

Thoughts and responses at 'methodology' value [5] were considered very significant to the study, because, although ahistorical, they showed that in general pupils' thinking corresponded to 'formal operations' or 'explainer thinking'. Therefore, we may speculate that given 'proper' history education they could potentially develop scientific historical thinking. (See Chapters 6 and 7.)

However, not many responses of 'methodology' level [5] were found because most responses which included thoughts at level [5] included thoughts of historical level [6] as well. 'When you see it for the first time it does not give you the impression that it is the mould for the leg of Apollo. Many centuries have passed also and it has sustained damages and losses. [All historical issues were based on 'dependent' historical information.] [5] It is very important for us and for historians because it shows the technology of that period.' [6] (C1/11/1c)

Many responses at level [5] were given 'historicity' value [Hpa], although thoughts at level [5] did not refer to the historical past, because other included thoughts at level [3] or [4] did so.

It is also important to emphasise that some thoughts were categorised at level [5], although pupils' rationale was not (clearly) stated, but was implied. '...it is presented beautifully we understand what it says to us.' (A3/73/1c) [We may say that the presented theme is illustrated clearly, since we realise what it is about.] Thinking at level [5] was often characterised by the use of 'simple' concepts, and by the absence of appropriate punctuation, conjunctions etc. This could lead us to speculate that, although reasoning corresponded to 'formal operations' or 'explainer thinking', concepts were not very developed, and were often restricted to the level of 'spontaneous' concepts, to use Vygotsky's (1934) term.

'Methodology' level [6]

At this level, pupils' thinking was historical, mainly because both its methodology and content were historical. 'This statue must have been manufactured at the beginning of the 5th century. Its free movement [the expression of movement] indicates the 5th [century] but the hair style [indicates] the 6th [century] (Archaic). That is why I conclude that art has slipped away from the 6th [century into the 5th century]. (A2/61/1b)

'This object gives us information relative to the art and artistic style of the period in which it was produced. The [*artistic] figures of the period must be huge. This is

shown by the size of the finding [*the object found] itself, which gives us an idea about the enormity of the rest of the statue. People must have known the use of bronze so they had the necessary means for its extraction and elaboration. Even the [*found] leg shows that their artistic style was especially developed. The figure is not very elaborate – a fact that may indicate the aesthetic values of the period as well.’ (C1/22/1b)

‘The centaur’s and man’s heads do not exist and so we cannot tell if they are in a fight situation or if they have a friendly relationship. In my opinion there are two [*possible] cases. Maybe the centaur is teaching the human being, something common to mythology, since centaurs were wise. The other case is that the centaur and the human being are fighting, a thing which might be real [*actual] as well, since we know from mythology about the wars between centaurs and human beings.’ (C2/52/1c)

Responses in which the highest level of methodology was reached by historical inferences using historical processes were categorised at ‘methodology’ level [6]. This type of thinking was conceived as historical, because there was historical methodology involved, particularly based on the interpretation of the museum object or of its presented theme in historical terms, or as evidence about the past. This type of thinking constituted a historical enquiry based on background historical knowledge. It corresponded to ‘formal operations’ or ‘explainer thinking’, because the phenomenon was related to (historical) generalisations and concepts, and reasoning was demonstrated in explanatory (historical) terms.

It should be stressed that not all thoughts at ‘methodology’ level [6] were ‘scientific’ historical, in a strict sense. In several cases the validity of the historical outcome was problematic. In addition, the ‘specific characteristics’ were not developed, mainly because most pupils had no consideration for the notions of historical uncertainty, relativity, or the ‘limitations of evidence’. However, since the purpose of the research was to study the evolution of historical thinking by pupils educated in the reproduction of historical ‘knowledge’ according to the Greek traditional educational system, even thoughts of marginal historical significance were categorised at ‘methodology’ level [6]. (Their weaknesses were shown by the relevant ‘content’ and ‘general evaluation’ values.) Even marginal historical thoughts were very significant to the study, since they showed pupils’ potential. Historical thinking at this level showed that pupils were at a ‘sensitive period’, i.e. receptive to historical instruction; as Vygotsky argues, ‘with

assistance, every child can do more than he can by himself - though only within the limits set by the state of his development'. (see Vygotsky, 1934, pp. 184-189.)

Indeed, there were great differences in historical thinking at level [6]. Some thoughts were even illogical '... We also see that they [the presented persons] are seated on an engraved seat so we understand that they knew writing [*how to write].' (A3/80/1b) In others, though the outcome was valid, the whole process by which it was reached was not clear, but was implied. 'As it looks [*it appears that] the object is a grave stele and the [*illustrated] box shows that people believed in life after death.' (A3/81/1b) Generally, a great difference was noticed in terms of the development of concepts between the first and the third year of secondary school, a fact which is analytically discussed in Chapter 6.

On the other hand, many thoughts and responses at level [6] were characterised by historical methodology, historical content focused either on the historical identity of the object or on the past, and related to a human/social context in terms of historicity. The outcome of historical thinking was valid, and in some cases surprisingly perceptive considering the subjects' age. Valid outcomes were often based on accurate use of 'dependent' and/or 'independent' historical information or knowledge. In addition, a few thoughts were characterised by the notion of historical uncertainty, by the recognition of the limitations of the evidence available, and by contextual empathy. The potential of subjects' historical thinking was illustrated by relevant questioning: 'How can it be used as a historical source?', 'What sort of information can a historian get from it?', 'How can we find out the period in which it was made?' (See also Part 5.5.)

At this level, pupils seemed to be receptive to history education concerning the 'methodology', the 'content' and the 'specific characteristics' of scientific historical thinking.

'Methodology' level [7]

'These scales were found in royal Mycenaean tombs, that means they were "kterismata". They are gold, which means that Mycenians used gold and that the civilisation was developed. The fact that they [golden Mycenaean scales] are so thin, engraved and elaborate shows us that people then did not only care about the practical aspect of an object but about aesthetics as well. This poses to us some questions, whether they were used in everyday life or whether they had a symbolic or decorative use. It is very much possible that Zeus used them to weigh the souls of people (that's why they were in a tomb). (In the Iliad, in verses X 209-210, we

read: "Then the father of gods got his golden scales ...") That probably means that these small instruments were especially made for burial use and that they had a symbolic religious meaning. If this is true, they give us a lot of facts about their religious ideation. Mycenians believed that, when the body of a man died his soul went on existing and went to "Hades". In these tombs we have found many objects which lead to the same conclusion. A fact that supports the above statement is that these instruments are so thin, fine and small, that if we weighed anything real, they would break (they were found broken). So they were probably not used for weighing. The butterflies and flowers which were engraved on the thin surface are probably some symbols of that age. So we see the mentality of Mycenians, their great religious belief and their artistic sensitivity.' (B1/21/3c)

Few responses were categorised as 'methodology' level [7]. This type of thinking was academic historical; academic historical 'methodology', based on the interpretation of the museum object or its presented theme in historical terms, or as evidence about the past.

This type of thinking constituted an academic historical enquiry using broad and highly developed background historical knowledge. It included the notion of the relativity of historical thinking and knowledge, and questioning was used as inherent in the nature of history. It corresponded to 'formal operations' or 'explainer thinking', because it was characterised by the accurate use of scientific concepts and by demonstration in explanatory academic terms.

It is important to emphasise that, although limited, pupils' responses at 'methodology' level [7] were very significant to the study. They showed that even through traditional history education, at least some pupils at this age could develop their historical thinking to the level of academic historical thinking. The lively potential of pupils' intellectual abilities was very promising; this fact was considered of great significance to history education in regard to the 'zone of proximal development' (Vygotsky, *ibid.*, p. 187.), and the variables which influence historical thinking.

As expected, the categorisation of pupils' responses demonstrated that historical thinking was influenced by a number of variables. All the elements of historical thinking - its methodology, content and its specific characteristics - seemed to be influenced by pupils' age. On the other hand, it was clear that pupils' historical thinking was not only related to age. A great number of responses provided by pupils in the first year of secondary school corresponded to historical level [6],

while many responses by second and third-year pupils were restricted to unhistorical or pseudo-historical thinking. Pupils' historical thinking seemed to be influenced by the following variables: individual differences; the level of difficulty that museum objects posed; the absence or presence of relevant 'dependent' historical information or knowledge, and the form it took; relevant 'independent' historical information or knowledge; the different tasks set. Therefore, the method of data collection and observations made during the categorisation of responses were taken seriously into consideration in the discussion of the analysis results.

5.5. The analysis of questioning

For the study of pupils' questioning all responses were analysed, in particular those to tasks 1d and 2d, which were especially devised for this purpose. As anticipated, the analysis proved that unless specifically required to ask questions, pupils' questioning was limited.

The analysis of pupils' questioning was founded primarily on its methodology. However, the methodology category system for the analysis of pupils' questions was analogous to the relevant category system for the analysis of pupils' statements, because questioning was considered as a special type of thinking. (See Part 2.2.)

The 'questioning' category system in terms of 'methodology'

Analysis of thoughts	Analysis of responses
<i>'Concrete Operations' - 'Describer thinking'</i>	
Ahistorical thinking	
1. Questioning related to the object's description as an object of the present.	1. Responses including questions of value [1] only
Unhistorical thinking	
2. Questioning related to the object's description as an object of an imprecise past.	2. Responses including questions of highest value [2]
<i>Intermediate level</i>	
Pseudo-historical thinking	
3. Questioning stating ignorance by posing questions to be answered by others, not limited to the object's description.	3. Responses including questions of highest value [3]
4. Questioning as a statement of uncertainty not limited to the object's description.	4. Responses including questions of highest value [4]
<i>'Formal Operations' - 'Explainer thinking'</i>	
Rational thinking	
5. Rational questioning as the basis of a rational 'detective' inquiry.	5. Responses including questions of highest value [5]
Historical thinking	
6. Historical questioning as the basis of a historical enquiry.	6. Responses including questions of highest value [6]
7. Academic historical questioning as inherent in the nature of historical thinking, and as being a basic constitutive part of its public scientific character.	7. Responses including questions of value [7]

As with their statements, pupils' questions were also analysed in terms of all representative issues relevant to the study of historical thinking as a whole, according to the same category systems.

Before discussing the various different types of pupils' questioning, it must be noted that most questions were given 'general evaluation' value [+], because all sorts of questions were considered to be worth asking. The only types of questions which were not given value [+] were those questions which included a conceptual element which was in contradiction to the object itself. The question 'What does this statue present?' was given 'general evaluation' value [+*] if the object was not a statue, but a relief, because it did not correspond exactly to the object studied. In addition a few questions were given value [*] in cases in which

pupils posed questions based on a wrong presupposition or on an inaccurate use of 'dependent' or 'independent' historical knowledge: 'Was it [this grave stele] situated in a gymnasium?' Obviously invalid questions of value [-] were not found.

The different types of pupils' questions are grouped in relation to their 'methodology' level because pupils' questioning was primarily differentiated by its methodology.

1) Ahistorical questioning related to the object's description or definition as an object of the present.

A very simple type of questioning addressed the objects' definition or description as objects of the present. This type of question was given 'methodology' value [1], 'focus' value [1] (about the object), 'context' value [A], (the object treated as object qua object), 'historicity' value [Pr.] (related to the ahistorical present), 'general evaluation' value [+] (valid outcome). e.g. 'What is it?' [1.1.A.Pr.+] If the question referred to the presented theme in its presented human/social context, it was given 'context' value [AHS]. 'Is the figure presented a woman?' [1.1.AHS.Pr.+]

2) Unhistorical questioning related to the object's description or definition as an object of an imprecise past.

Questions of this type, which were quite rare, were given 'methodology' value [2], because they addressed the object's definition or description as an object of an imprecise past, 'focus' value [1] (about the object), 'context' value [A] (object treated as object qua object), 'historicity' value [Pa.] (related to an imprecise past). i.e. 'What is missing?' [2.1.A.Pa.+] Or about the presented theme: 'What did the missing face of the woman presented look like?' [2.1.AHS.Pa.+]

3) Pseudo-historical questioning stating ignorance by posing questions to be answered by others, not limited to the objects' definition/description.

'Methodology' value [3] was given to questions which asked for factual information to be given by an authority (i.e. teachers, books), not limited to the objects' definition/description, and which did not include any sort of presupposition about the matter at hand. (See methodology level 4.) i.e. 'When was it made?', 'Where was it found?', 'How was it made?', 'Of what period is it?', 'Who made it?' 'How did they use it?'

It must be emphasised here that the content of this type of question varied, therefore, several 'focus', 'context' and 'historicity' values were given to questions of 'methodology' level [3], as the following examples demonstrate.

'When/where was it made?', 'When/where was it found?', 'When/where does it come from?', 'Who made/used it?'

Questions of this type were given 'focus' value [1] (about the objects), 'context' value [CBA] (objects conceived in their human/social context), and 'historicity' value [HPa.] (related to the historical past).

'How was it made?', 'What was its use?', 'How was it found?'

Questions of this type were given the same 'focus' and 'context' values as the previous type of question, but they were given 'historicity' value [Pa.], because they were related to an imprecise, unhistorical past.

'When/where did the maker make it?', 'When/where did they use it?'

Questions of this type were given 'focus' value [21] (about the object and human beings of the past), 'context' value [CBA] (objects treated in a human/social context), and 'historicity' value [HPa.] (related to the historical past).

'How did the creator make it?', 'How did they use it?'

Questions of this type were given the same 'focus' and 'context' values as the previous type of question, but they were given 'historicity' value [Pa.], because they were related to an imprecise, unhistorical past.

4) Pseudo-historical questioning as a statement of uncertainty

A great number of pupils' questions corresponded to methodology level [4], and accordingly covered a wide range. Distinctive types of questions of 'methodology' level [4], which were of 'focus' level [1] (about the object) were the following:

'Is it a beautiful statue?', 'Does it have a specific characteristic?', 'Why is it big?' (There must be a reason.), 'Why is the figure presented carrying a calf?', 'What are the depicted figures' roles?'

Questions of this type were given 'context' value [A] (objects treated as objects qua objects), or value [AHS] (treated in its presented human/social context), and 'historicity' value [Pr.] (related to the ahistorical present).

‘Was it beautiful?’, ‘Did it have a specific characteristic?’, ‘Does it depict a slave?’ Questions of this type were given the same ‘context’ value as the previous questions, but they were given ‘historicity’ value [Pa.], because they related to an imprecise past. (The interpretation of one figure as depicting a slave indirectly related to a past in which slavery existed.)

Many questions of ‘methodology’ level [4] and of ‘focus value [1] treated objects in their human and/or social context. They were, therefore, given ‘context’ value [CBA]. Most of them were related to the historical past and so they were given ‘historicity’ value [HPa]: ‘Which century of the Classic period does it belong to?’, ‘Whom does it represent?’ or ‘Who was the person that the object represents, in reality?’, ‘By whom was this beautiful statue created?’, or ‘Who was the creator of this beautiful statue?’, ‘What was its significance at the time it was made?’. Other questions of the same type related to an imprecise past and were thus given ‘historicity’ value [Pa.]: ‘Why have not the statue’s legs been found?’, ‘Was it used in a house?’ Few questions were related to the ahistorical present, and they were given value [Pr.]. ‘What is its particular significance/meaning?’.

Many questions of ‘methodology’ level [4] referred to the human and/or social reality of the past so they were given ‘focus’ value [2], and ‘context’ value [CBA]. ‘Was he a good artist?’, ‘Was art highly developed in the Mycenaean period?’. Many questions of this type referred to both the past and the objects presented, so they were given ‘focus’ value [21]. ‘Why was it made?’ or ‘Why did they make it?’ (They must have had a reason for making it.), ‘How did they wear these jewels?’. These questions were given ‘historicity’ value [Pa.], because they related to an imprecise past. But the following questions related to the historical past, so they were given ‘historicity’ value [HPa]: ‘For whom did he make it?’, ‘Was there a particular custom in that period, which it was made for?’, ‘Was its creator a known artist?’

General questions about the use of museum objects as sources were given ‘methodology’ level [4] because pupils presupposed that objects could be treated as sources. ‘What sort of information can we get from it?’, ‘How can we know its origin?’, ‘How can it help us?’ Questions on historical methodology, stated as such, were given ‘methodology’ value [6]. ‘How can it be used as a historical source?’ This distinction was not very clear, but since this type of question was very rare (no more than ten relevant questions were found), it was deemed acceptable.

5) Rational questioning

Pupils' questions which were given 'methodology' level [5] were rational questions, since they were posed in the form of a rational 'detective' inquiry. Pupils stated, although not always very clearly, how the answers to these questions could help them understand the museum objects and/or the past, as if this understanding was only a matter of reasoning. 'I would like to know what is it made of, to gain insight into the financial status of its creator'. Most questions of 'methodology' level [5] related to simple concepts, and as the above question shows, they could be posed in any rational, non-historical enquiry. It must be mentioned here, however, that only few questions were of 'methodology' level [5], although a considerably greater number of pupils' statements corresponded to this level. In general, pupils' responses either included questions up to 'methodology' level [4], or they included at least one question of 'methodology' level [6], mainly because they included concepts related to historicity. 'Because we see that there is someone [*presented] who is giving something to another person, I would also like to know what exactly he is giving him, and why he is giving it to him. It would also be interesting to know what was in the gift [*the presented box] in order to understand what [*type of] gifts they used to give others in that period.' (B1/30/1d) Indeed, the categorisation of this type of questioning was quite problematic because it was mainly rational, but at the same time, it included historical notions, that level [5] could not bear. It was therefore decided to categorise this type of question at level [6].

6) Historical questioning

Typical questions of 'methodology' level [6] intended to study the objects presented and/or the past on historical grounds. 'Of what period is it, where was it discovered, and by whom was it made? If I knew these facts they would be sufficient in order to find the rest. In addition if the historian knew more facts, as for example where it was found, he could also find what its use was.' (B2/61/1d) This type of question was given value [6] because the pupil posed questions to himself with the intention of leading him to a historical inquiry. This sort of historical questioning was quite limited in terms of the 'specific characteristics' of historical thinking, a fact which was generally expected because pupils were educated by the Greek traditional system and they did not have any sort of relevant instruction or practical experience. In some cases, pupils' historical thinking was only underlying their questioning, and was shown by the sequence of their questions only. 'Are there any other moulds preserved? Is it a method for the manufacture of statues of a certain region or is it a method that was used in all regions?' (C1/24/1d) The historical thinking of the above quoted question was

much better understood when studied within the overall response, which included the following questions as well: 'What is it? Of what period is it? Where was it found? Was it found at an excavation? What was it used for? What material is it made of? How was it made? ...'

Moreover, many questions at level [6] were historical because they were of the type: 'If I were a historian I would wish to know who made this object and why he made this object and I would also wish to know what he had in mind as he was making it. These questions could show me the character of the creator and the mentality of the people and many things about the statues and sculpture of that period in general.' (B2/59/1d)

7) Academic historical questioning

'By using these objects as [if we were] historians we begin with the fact that these objects present two musicians an element that shows to us that in that period there was a development in music. The first question refers to [the hypothesis] if this development relates to the [islands of] Cyclades or more generally to the Greek reegion. But the historian must question himself whether the activity of music presents a picture of the reality of the period or if it has been inspired by another place or by a mytn of an older period. Another question might be: Does the presentation of the instruments correspond to reality or has it been changed in relation to the technical constraints of sculpture? Are the instruments that we see really a harp and a flute?' (B2/68/2d)

This type of questioning was categorised at level [7] mainly because questions (concerning historical inferences in relation to the interpretation of objects as historical evidence) were posed as inherent in the nature of historical thinking, and as being a constitutive part of its public scientific character. It must be noted, though, that only few responses corresponded to this level. This fact might be dependent on many variables, including the traditional approach to history education, by which pupils were educated. However, the fact that a few responses were characterised by academic historical questioning was considered very positive, because it reveals the high level of historical thinking and questioning that can be potentially achieved by pupils of secondary school.

5.6. The analysis of the use of ‘dependent’ and ‘independent’ historical information or knowledge

The study of the use of ‘dependent’ and ‘independent’ historical information or knowledge was considered very important, mainly because of its great significance to both school history education and education in museums, as was analytically discussed in Chapters 2 and 3 respectively. The relevant analyses of pupils’ responses were made on the basis of all thoughts included in each response, according to the following category system.

The ‘dependent/independent historical knowledge’ category system

the analysis of thoughts	the analysis of responses
[+] accurate use	[+] Responses including thoughts of value [+] only
[+*] generally accurate use	[+*] Responses including thoughts of value [+*] only, or of values [+] and [*]/[+*]
[*] problematic use	[*] Responses including thoughts of value [*] only, or of values [+]/[+*]/[*] and [-]
[-] inaccurate use	[-] Responses including thoughts of value [-] only
[0] absence of any use	[0] Responses including thoughts of value [0] only

The following examples are reflections about a mould, for which the following information was offered in the museum: ‘Clay mould for a bronze statue of Apollo, 6th century BC.’

[+] ‘It is a clay mould.’ ‘This mould was used to make a bronze statue.’ ‘It is an Archaic mould.’

Thoughts in which there was accurate use of ‘dependent’ and/or ‘independent’ historical knowledge were given value [+] in the respective analyses. In the last example, there was accurate use of both ‘dependent’ and ‘independent’ historical information or knowledge: the pupil used the ‘dependent’ information properly and he/she also related it to accurate, ‘independently’ acquired historical knowledge, since the 6th century BC. belongs to the Archaic period. Accordingly, pupils’ responses in terms of ‘dependent’ and ‘independent’ historical knowledge were

given value [+], if all thoughts included in each response were of value [+] respectively.

[+*] 'It is a bronze mould for a statue of Apollo.' 'It is a mould for a clay statue of Apollo.' 'It was made in the beginning of the Classic period.'

Thoughts in which there was generally accurate use of dependent and/or independent historical knowledge, but in which there was also a slightly 'problematic' element, were given value [+*] in the respective analyses. In the last example, there was generally an accurate use of both 'dependent' and 'independent historical information or knowledge', but with a slightly problematic element as far as the use of 'independent historical knowledge' was concerned, since the Classic period begins just after the 6th century BC. So this thought was given 'dependent historical knowledge' value [+], and 'independent historical knowledge' value [+*]. Accordingly, pupils' responses in terms of 'dependent' and 'independent historical knowledge' were given value [+*], if all thoughts included in each response were of value [+*], or of values [+] and [+*] respectively.

[*] 'It is a clay mould from the 3rd century BC.'

Thoughts in which there was both accurate and inaccurate use of dependent and/or independent historical knowledge were given value [*] in the respective analyses. Accordingly, pupils' responses in terms of dependent and independent historical knowledge were given value [*], if all thoughts included in each response were of value [*] respectively, or if they included thoughts of values [+]/[+*]/[*] and [-].

[-] 'It is made of bronze.' 'It is a bronze statue of Apollo.' 'It is Palaeolithic, because it is a bronze statue.'

Thoughts in which there was inaccurate use of 'dependent' and/or 'independent historical knowledge', were given value [-] in the respective analyses. In the last example, there was inaccurate use of dependent historical information, because it was not a bronze statue. Also the pupil made inaccurate use of 'independent historical knowledge', since bronze statues were not made in the Palaeolithic period. Thus this thought was given 'dependent' and 'independent historical knowledge' value [-] in the respective analyses. Accordingly, pupils' responses in terms of 'dependent' and 'independent historical knowledge' were given value [-], if all thoughts included in each response were of value [-].

[0] 'It is an interesting object.'

It will be made clear that thoughts and responses were given value [0] in the relevant analyses, if there was no use of 'dependent' and/or 'independent' historical knowledge.

Generally pupils' historical thinking varied in terms of the use of 'dependent' and 'independent' historical knowledge. Moreover, the use of 'independent' historical knowledge was accurate in a great number of responses. But the use of 'dependent' historical information seemed to be largely influenced by the type of information that was offered in the museum, and by pupils' capacity to understand it, to use it with consideration, or to question it. (See the relevant theoretical investigation in Chapters 2 and 3, and the discussion of the results of the respective analyses in Chapter 6.)

5.7. A typical specimen of analysis

Pupils' historical thinking as a whole was first explored by the analysis of pupils' thoughts in terms of 'methodology', 'focus', 'context', 'historicity' and 'general evaluation'. Each response was then analysed on the basis of all included thoughts, and was given the highest value reached in terms of each issue respectively.

The following response was given by pupil 25, Class B, group 1, to task 1, question b, in which pupils were indirectly asked to use one pre-selected museum object as source: 'By looking at this object we can get much information about itself /1/ and about its age. /2/ First of all we see that it has been manufactured of marble that's why it is quite well preserved. /3/ We also understand from its [*the presented figures'] clothes, namely by the 'chitons' that they wear, information about the style of dress in the period. /4/ The fact that this object is marble leads us to believe that it belongs to the Classic period or that it belongs to the Hellenistic years since there was a great acme of sculpture in these periods.' /5/

This response includes five thoughts. The first thought was given 'methodology' value [4], 'focus' value [1] 'context' value [A], historicity' value [Pr.] and 'general evaluation' value [+] because it is an unsupported inference about the object, which is treated as object qua object of the present, and the outcome is valid.

Accordingly, the second thought is given 'methodology' value [4] (unsupported inference), 'focus' value [21] (about the past and the object), 'context' value [CBA] (related to a human/social context), 'historicity' value [HPa] (reference to the historical past), and 'general evaluation' value [+] (valid outcome).³

The third thought was given 'methodology' value [5] (rational inference by logical processes), 'focus' value [1] (about the object), 'context' value [CBA] (related to a human/social context in reference to how it was made), 'historicity' value [Pa] (reference to an imprecise past), and 'general evaluation' value [+] (valid outcome).

The fourth thought was given 'methodology' value [6] (historical inference), 'focus' value [2] (about the past), 'context' value [CBA] (related to the human/social context of the past), 'historicity' value [HPa] (reference to the historical past), and 'general evaluation' value [+] (valid outcome).

The fifth thought was given 'methodology' value [6] (historical inference, although not all parameters were clearly stated), 'focus' value [21] (about the object and the past), 'context' value [CBA] (related to the human/social context of the past), 'historicity' value [HPa] (reference to the historical past), and 'general evaluation' value [+] (valid outcome, although the relevant historical reasoning was not clearly stated, but implied).

On this basis, the response was given 'methodology' value [6] (the highest value reached), 'focus' value [2] (because there was at least one thought of value [2]), 'context' value [CBA] (at least one thought of value [CBA]), 'historicity' value [HPa] (at least one thought of value [HPa]), and 'general evaluation' value [+] (because all thoughts were of value [+]).

This response was also given 'questioning' value [0] (absence of questioning), 'use of dependent historical information' value [0] (no relevant use - as expected, since no information was provided by the museum), and 'use of independent historical knowledge' value [+] (appropriate use).

³Indeed, these two first thoughts could be interrelated with the subsequent thoughts, but all 'introductory' thoughts were analysed separately, because it was often not clear how they related to the following thoughts.

As far as the other issues of 'content' were concerned, the following observations were made on the basis of the relevant theoretical investigation in Chapter 2: the object was related to a specific human/social context [s] (Classic or Hellenistic period), and was treated both as an object and as a 'representum' [OR]. In terms of '*particular content 1*', this response referred to the object's origin [O], manufacture [M], and its existence in the present [N]. In terms of '*particular content 2*', the object's perceived identity was related to its description [d], to its significance or meaning as a source of information [s], to past human/social thoughts, habits etc. [h], and to time [t]. In terms of the concept of time, it was related to the time from which the object originated [Ot], and to its existence now [Nt]. There was no reference to the concept of space.

As far as the other issues of 'specific characteristics' were concerned, this type of historical thinking was defined as valid [+] in terms of its 'logic', although this was not clearly stated; as accurate [+] in terms of its 'observing skill'; the notion of 'uncertainty' was present but not of 'historical uncertainty' [U]. There was neither any recognition of the 'limitations of evidence' [0] nor any use of the notion of 'relativity' [0]. As far as 'empathy' was concerned, this type of thinking was at the level of 'pseudo-historical empathy', i.e. unsupported empathy [4], because the subject realised that the arts (sculpture) and style of dress are determined by the historical context of the period to which they belong, but this realisation was not supported in historical terms.

Analysis, however, revealed that individual issues demanded a separate, in-depth study that a single research could not cover. Discussion was therefore limited to some general observations that allowed us to draw overall conclusions, and, above all, raised questions for further research.

Chapter Six

Discussion of results

- 6.1. Introductory notes**
- 6.2. Historical thinking and the museum environment**
 - 6.2.1. Historical thinking and the educational environment of museums**
 - 6.2.2. Historical thinking and the use of 'dependent' historical information**
- 6.3. Historical thinking and museum objects of different type**
 - 6.3.1. Historical thinking in relation to single 'isolated' museum objects and collections**
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- 6.5. Historical thinking and the questions set**
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 - 6.5.2. Evaluation of the questions set**
- 6.6. Observations on pupils' historical thinking in relation to their work with museum objects**
 - 6.6.1. Observations on pupils' historical thinking in terms of issues relating to its content**
 - 6.6.2. Observations on pupils' historical thinking in terms of issues relating to its specific characteristics**

6.1. Introductory notes

Focusing on the study of pupils' historical thinking within a museum environment, this longitudinal field study was based on observations made on 1079 responses provided by 141 pupils to a series of specially devised tasks relating to work with museum objects over a period of three years.

As explained in the discussion in Chapter 2, historical thinking was conceived as a complex intellectual activity, constituted by the interrelation of many elements and involving many abilities and skills. It was also argued that historical thinking is differently conceived by different historical theories and their associated approaches to history education, according to their basic historical philosophy and assumptions. (See Chapter 2.)

On the other hand, a museum environment was not conceived as a steady and neutral environment, but as an enabling educational environment, which, nevertheless, relates to the changing character of museums today according to different museological philosophies and theories and their associated museological approaches. In addition, the historical significance of museum objects as sources was investigated on the basis of their conception as 'opera aperta', open to several and alternative interpretations, both historical and not. (See Chapter 3.)

The study of pupils' historical thinking within a museum environment, therefore, had to take into consideration a series of conditions and variables: (1) relating to the sample (pupils' cultural and social background and individual characteristics, the type of education they had so far, their intellectual development and their age); (2) relating to the particular museum practice through which data were collected (the tasks set, the type of museum objects studied and the level of difficulty they posed for pupils' work, and the general character of museums in which this longitudinal field study was conducted).

Accordingly, the results of the analysis of pupils' responses in terms of historical thinking are discussed on the basis of both the particular museum practice through which this longitudinal field study was conducted and the background characteristics of the sample.

6.2. Historical thinking and the museum environment

The longitudinal field study of pupils' historical thinking was conducted in museums, because museums were assumed to offer an enabling educational environment in relation to many fields of human knowledge and experience, among them to history. The historical vibration of archaeological and historical museums in particular were expected to attract pupils' historical thinking from the time they entered the museum, since they were surrounded by material evidence for human life in the past.

As has been suggested in Chapters 2 and 3, where this hypothesis was investigated on the basis of broad theoretical work and literature, museums were not conceived as steady and neutral institutions, but as relating to their social, economical and ideological context, and, therefore, as changing according to the changing character of the different museological philosophies and theories and their associated museological approaches. On this basis museums today were distinguished in relation to their type, by being schematically labelled 'traditional', 'modern' and 'postmodern'.

This longitudinal field study was conducted within 'traditional' museums for both practical and theoretical reasons. First, most museums in Athens are of the traditional type, and, secondly, traditional museums do not display museum objects in their historical context; usually only a limited sort of information is offered in the form of small labels. This situation was considered very interesting for the research because its aim was to study pupils' historical thinking as it occurred within a museum environment on the basis of pupils work with the objects themselves and not through given interpretations. On this basis, the primary focus of the research was on the evolution and development of pupils' historical thinking in relation to their work with museum objects, while the museum environment was conceived as the general surrounding educational environment in which this longitudinal field study was conducted.

Indeed, most museums visited either offered a limited sort of information about some of the objects displayed (a few scientific archaeological facts about their style and/or origin) or they displayed objects in 'open storage'; the underlying logic of the display could be 'read' only by experts, and not by lay visitors and pupils. Nevertheless, even this 'neutral' display was conceived as forming a particular museological environment within which the historical significance of museum

objects was enlightening. In other words, it was assumed that if the same museum objects were studied in class, or in any other environment outside museums, their historical significance and pupils' approach could be different.

The fact that all museums visited were of the 'traditional' type did not allow the study of pupils' historical thinking in relation to different museum environments. The longitudinal field study of pupils' historical thinking within a 'traditional' museum environment, however, enabled discussion of the general educational significance of museums and of museum practices relating to school history education, and pointed up some issues for further research.

6.2.1. Pupils' historical thinking and the educational environment of museums

The hypothesis that museums in general, and archaeological museums in particular, would stimulate pupils' historical thinking from the time pupils enter the museum was studied by question a, which was a 'history free' question asking pupils to choose one museum object and to give the reasons for choosing it.

This question led pupils to have a look around and thus to form a general picture of the museum collection before starting responding. The analysis of their responses in terms of the objects chosen in relation to their choosing criteria enabled study of how far pupils' first approach to the museum world was historical. In order to test this, pupils' thinking expressed in their responses to question a was analysed in terms of whether it was historical or not on the basis of its methodology, focus, context and historicity.

Figure 1. Results of the analysis of pupils' responses to question a in terms of whether pupils' general approach was historical on the basis of 'methodology'

	methodology levels					
	historical			pseudo-historical		
	academic	scientific	rational	unsupported inferences	reproducing	unhistorical / ahistorical
(groups: A3, B1, B2, C1, C2, C4) respondents 197	0%	25%	18%	54%	3%	0%
'historical' or pseudo-historical approach: 82%	v	v		v	v	

Figure 1 shows that 82% of the pupils who responded to question a expressed a sort of historical thinking in terms of methodology, irrespective of the particular methodology level they reached (historical or pseudo-historical). e.g. *'The object I liked most was a golden little leaf in relief because through it we see how much they had succeeded in developing themselves in this art then and their ability in observing since they had engraved even the fibres of the leaf. Another object that I liked was a golden horse in relief which was chased by two lions. I liked it because we see scenes which belong to nature and how nature influenced them.'* (B1/1a/26)¹ This boy had a historical approach to the museum world as he entered the museum, because his response to question a was, among other things, at a historical methodology level; i.e. he explained his choice in historical terms, on the basis of the use of museum objects as evidence.

Only 18% of pupils provided rational, non historical responses which showed that they did not have a historical approach towards the museum world. e.g. *'I chose one sculptured body without arms and head because I wished I could see it complete to see what it represents.'* (C2/1a/57) But the number of pupils who did not have a historical approach was even smaller, because many responses of the 'rational' methodology level included thoughts of 'pseudo-historical' level. (Responses were categorised according to the highest level of methodology reached.) e.g. *'I chose some jewels which belong to the Mycenaean period. [1] I like them because they have a lot of detail although they are very small and thin.'* [2] (B1/1a/7) This response corresponds to 'rational' methodology, because the rational methodology level of the second thought was the highest reached. The first thought, however, corresponding to the 'pseudo-historical' methodology level 'reproducing historical information', offered a 'historical' colour to the whole response.

The fact that the museum environment generally enabled pupils to have a historical approach towards the museum world as they entered the museum, is clearly stated in the following response, of 'historical' methodology: *'I chose one jewel (necklace) from a vaulted grave of the 14th - 13th century BC. It is a jewel of little stones, which are round mainly and of grey colour I chose this object first of all because it is beautiful and because this type of jewels exist and are used by people in our age. I also think that if you did not see it in a museum you could not realise*

¹Information about the quoted responses given in parentheses refers to the secondary school grade and the number of the school group / to the task and the question set / to the catalogue number of the pupil who provided the response. Responses are translated almost word to word, without any corrections in expression or punctuation. Any necessary comments are included in brackets. There were many spelling mistakes, much more than those appearing in the English translation.

that it is of the 14th century because there are a lot of almost similar jewels now.' (B1/1a/12) This suggestion is supported further by the results of the analysis of pupils' responses to question a in terms of content: 'focus', 'context' and 'historicity'.

Figure 2. Results of the analysis of pupils' responses to question a in terms of whether pupils' general approach was historical on the basis of 'focus'

groups:	respondents	focus on the past	focus on the objects
A3, B1, B2, C1, C2, C4	197	39%	61%

Only 39% of pupils provided responses focusing on the past. e.g. *'The objects that attracted my special interest are certain slabs with hieroglyphs They show to us the developed social status of the period They also show their highly developed culture.'* (C4/1a/141)

The fact that 39% of pupils who responded to question a focused on the past was considered positive for our hypothesis, because question a primarily led pupils to focus on the objects, since it asked them to chose one object and to give the reasons for choosing it. In addition, according to the relevant theoretical investigation in Chapter 2, the historical value of pupils' thinking was not supposed to be minimised if it was focused on the objects; both pupils' inferences about the past on the basis of the objects and their interpretations of museum objects in historical terms was considered as relating to historical thinking.

Figure 3. Results of the analysis of pupils' responses to question a in terms of whether pupils' general approach was historical on the basis of 'context'

groups:	respondents	museum objects and the past were treated in their human/social context	museum objects and the past were treated in their illustrated human/social context	museum objects were treated as objects qua objects and the past, if not absent, as an imprecise empty area of time
A3, B1, B2, C1, C2, C4	197	88%	5%	7%

The analysis of pupils' responses in terms of 'context' showed that the great majority of pupils had a historical approach towards the museum world as they entered the museums, because they treated the objects and/or the past in a human/social context. e.g. *'The jewels of the Mycenian period attracted my interest*

because they show to me how people were dressed then and how they adorned themselves then Some times the jewels that people put on or the clothes can tell you a lot about their character So these jewels show to us the life then in general and the society of people who lived in the Mycenian period.' (B2/1a/59) Only a few pupils treated the objects in their illustrated human context: *'I chose the object which presents a centaur and a man who are fighting. I chose it because the fight and the mode by which the centaur is attacking imposed a special impression on me.'* (C2/1a/46); or as objects qua objects: *'According to my opinion the sword is very beautiful. It impressed me by its golden hilt and its blade.'* (A3/1a/98) Characteristic of the difference in historical approach between this pupil and another pupil who chose swords as the most interesting objects was the second pupil's comment: *'... Although these swords must have killed many people I was enthusiastic about them.'* (B2/1a/47)

Figure 4. Results of the analysis of pupils' responses to question a in terms of whether pupils' general approach was historical on the basis of 'historicity'

groups:	respondents	the objects/past conceived in terms of historicity	the objects/past not conceived in terms of historicity	
			imprecise past	present
A3, B1, B2, C1, C2, C4	197	59%	28%	13%

Figure 4 shows that 59% of the 197 pupils who responded to question a treated the chosen objects in historical terms, since they were treated in terms of historicity. e.g. *'One of the objects that attracted my interest is one big-size amphora of clay which was made in the Geometric period. It is of black colour and of the colour of clay and is covered by typical geometric designs.'* (C1/1a/16)

It must be mentioned here, that among the pupils who did not conceive the past in terms of historicity only 13% treated the objects as objects of the present, e.g. *'I like the stamps. They have a beautiful colour and a beautiful shape.'* (A3/1a/76); 28% of pupils treated the chosen objects as objects of an imprecise past, e.g. *'I chose a box. It is a masterpiece that the long time has not managed to destroy.'* (A3/1a/86) Therefore, 87% (59% + 28%) of pupils treated the objects in relation to the past, either in terms of historicity or not. Therefore results suggest that the museum environment led 87% of the pupils to form a sort of historical approach

towards the displayed objects, since they were read as objects of the past rather than of the present.

On the basis of the above discussion we may claim that a traditional archaeological museum environment led the majority of pupils to form more or less a historical approach towards the museum world, since generally pupils 'read' the museum objects in historical terms; in terms of historical methodology, focus, context and historicity.

If we take into consideration that the traditional museums visited displayed objects, more or less, in 'open storage', a type of display which is favoured by 'postmodern' museological approaches (see Chapter 3), we could suppose that, more likely than not, a similar approach could be evolved by pupils in postmodern museums, unless they have deconstructed their archaeological character. In addition, if we consider that 'modern' archaeological/historical museums display objects more or less in their historical context, we may suppose that pupils' historical approach would be even more clear in modern museological environments. On this basis we could claim that museums which display archaeological/historical objects, irrespective of their type (traditional, modern or postmodern) are educational environments of great significance to history education, because they seem to lead most pupils to 'read' museum objects in historical terms or at least as objects relating to the past. In contrast, in a series of other places like supermarkets or fairy-lands people are likely to treat objects, even old ones, as objects of the present. Also, most people would tend to think that an Ancient statue displayed in a school or in a private house is a contemporary copy. The main difference among museums of different type in their significance to historical thinking would rest on the different historical 'philosophy' and the relevant historical interpretations they imply.

It must be emphasised that many theorists and museologists, among others E. Hooper-Greenhill (1992), argue that museums, according to their type, enable the shaping of a relevant type of knowledge. The relevant hypothesis of the research was the following: Since historical thinking is an active intellectual activity that it is not limited to the acquisition of a 'ready made' knowledge, it may be influenced by the different museological environments, but it is not absolutely dependent upon them. In addition it was hypothesised that pupils' historical thinking would be more influenced by the tasks set than by the atmosphere of the museums themselves, especially when they visit museums in school groups to take part in a particular museum practice. On this basis pupils' historical thinking was studied in

relation to the different tasks and questions set, and the different museum objects studied in Parts 6.3 and 6.5 below.

This hypothesis is in agreement with some observations that were made during three years on pupils' general behaviour while working in museums. Generally, pupils concentrated on their work, despite the noisy and crowded atmosphere of most museums, a fact that seems to imply that pupils' work was more influenced by the tasks set than by the general atmosphere of the museums visited. In addition, only a few responses showed that pupils took into consideration the general environment in which objects were displayed. Characteristic is the fact that only a few pupils used the word 'museum' in their responses, while only in 4% of the 1079 responses provided was there reference to the place or the environment in which both the objects studied and the pupils themselves were. *'This object was distinguished from all other objects displayed in this museum hall, and although they had placed it to stand in a corner and it was not well visible it imposed a great impression to me from the beginning...'* (B1/1a/31) *'Among the objects that are displayed in this hall I liked the masks most ...'* (C4/1a/132)

Also, only three pupils of main group C2 realised that the casts from the Parthenon reliefs that were displayed in the Acropolis Studies Centre, located just underneath the Acropolis of Athens, were related in any way to the Parthenon, or at least to the Acropolis. In fact the small label offering relevant information was not easily observed by any other than especially curious visitors, while only a few pupils read the extensive written information offered.

These general observations together with the primary hypothesis that pupils' historical thinking might be related to any historical information that was offered in the museums, led to further study of pupils' historical thinking in relation to the particular museums visited in terms of the historical information they offered. This study aimed to explore how far pupils used the offered historical information and whether this use was accurate, acceptable, problematic or inaccurate, because pupils' historical thinking and the validity of its outcome were expected to be largely associated with the accuracy of this use.

6.2.2. Historical thinking and the use of dependent historical information

6.2.2.1. The extent of the use of dependent historical information

The information or knowledge that was offered about the museum objects studied in the museums was called ‘dependent’ historical information to make this discussion easier and to distinguish it from the background historical information or knowledge that was acquired previously and independently, mainly at school, which was called ‘independent’ historical knowledge.

The study of how far pupils used ‘dependent’ historical information was based on the analysis of pupils’ responses in relation to museum objects for which such an information was offered in the museum, either in a limited or extensive form.

Figure 5. Number of respondents using dependent historical information, in relation to its limited or extensive type

grade group	task	quest.	respondents	type of dependent information available		use	no use
A	3	1	a	35	limited	20	15
B	1	1	a	33	limited	18	15
B	2	1	a	32	limited	19	13
C	1	1	a	33	limited	30	3
			b	33	>>	28	5
			c	32	>>	31	1
			d	33	>>	11	22
C	2	1	a	32	extensive	6	26
			b	32	>>	3	29
			c	32	>>	4	28
			d	32	>>	4	28
C	4	1	a	32	limited	22	10

The use of dependent information seemed to be associated with the type of information offered in the museum. We see that most pupils were more likely to use dependent historical information if it was limited, i.e. in the form of a label, placed next to the objects, than if it was not limited.

This observation is based on the results that show that only a few pupils of group C2 used the extensive type of information that was offered in The Acropolis Studies Centre, in relation to all questions set.

Figure 6. Number of respondents using extensive dependent historical information offered in the museum or in class

grade	group	task	quest.	respondents	type of dependent information available	use	no use
C	2	1	a	32	extensive in the museum	6	26
			b	32	>>	3	29
			c	32	>>	4	28
			d	32	>>	4	28
B	1	3	c	29	extensive in class	29	0

All the pupils of group B1 used the extensive type of dependent information that was available in class. We see, then, that an extensive type of dependent information offered in class led all pupils to use it, while the majority of pupils of group C2 did not care to read and use an extensive type of dependent information offered in the museum.

These results seem to suggest that a museum environment, more likely than not, led pupils to focus on the objects displayed rather than to the extensive information offered, a situation which, more possibly than not, led pupils to activate their intellectual powers and to generate inferences based on the interpretation of the objects as sources. On the other hand in class, where pupils found themselves in their familiar educational environment, they were more likely to use extensive information as they were used to doing since primary school. In addition, in class they only had a picture-card of the objects studied, which, more likely than not, could not replace the appeal and the ‘feeling’ of the real, ‘actual’ objects.

The difference that was shown in the use pupils made of the extensive dependent information that was offered in museums and in class, irrespective of whether the relevant supposition discussed above is accepted or not, underlines the difference that exists between the museum and the school as educational environments. It must be emphasised here that the relevant supposition is in accordance with a substantial theoretical work, especially with D. Lowenthal’s (1985) arguments on the significance of relics as the touchable past. The accessibility of tangible relics impresses even indifferent people or very young children, since their presence is ‘directly available to our senses.’ (D. Lowenthal, 1985, p. 245.) The object ‘bears an “eternal” relationship to the receding past, and it is this that we experience as the power of “the actual object”.’ (S. M. Pearce, 1990, p. 25.)

On the other hand, differences among the results in the use of limited dependent information offer some indications that the extent of this use was more or less associated with the questions set in relation to the type of the objects studied and with the presence or absence of relevant independent historical knowledge.

Figure 7. Number of pupils of group C1 using dependent information about a 'difficult' museum object that was not related to independent historical knowledge

grade	group	task	quest.	respondents	type of dependent information available	use	no use
C	1	1	b	33	limited	28	5
			c	32	>>	31	1
			d	33	>>	11	22

The only case in which the great majority of pupils used dependent historical information (offered in a limited form) was in relation to the broken clay mould, which was an object that posed extremely high difficulty for pupils work, because among other things, it was not 'directly' related to pupils' independent historical knowledge. It sounds reasonable that an 'unknown' object let most pupils of group C1 rely on the offered information. However, only a relatively smaller number of the same pupils did use the offered information about this 'difficult' object in relation to question d, by which the pupils were asked to pose their questions, about the same 'difficult' object. This fact indirectly underlines differences in historical thinking that appear between stating historical inferences and posing historical questions. (See Part 6.5.1, where pupils' questioning is discussed in detail.)

Figure 8. Number of pupils of groups A1 and A2 using dependent information about an object that was directly related to independent historical knowledge

grade	group	task	quest.	respondents	type of dependent information available	use	no use
A	1	1	b	31	limited	7	24
			c	31	>>	3	28
			d	31	>>	1	30
A	2	1	b	31	limited	12	19
			c	32	>>	8	24
			d	32	>>	2	30

In contrast, groups A1 and A2 made a limited use of dependent historical information in relation to a statue, 'The Calf-carrier', which was closely related to independent historical knowledge both groups had acquired at school that same

year. Results seem to suggest that the extent of the use of dependent historical knowledge was most likely related to the presence or absence of relevant independent historical knowledge.

Figure 9. Number of pupils of group B2 using dependent historical information in relation to a single object and a collection of objects

grade/ group	task	quest.	type of objects	respondents	type of dependent information available	use	no use
B2	1	a	<i>single</i>	32	limited	19	13
B2	2	a	<i>collection</i>	30	limited	7	23
		c		28	>>	11	17
		d		27	>>	1	26

The use of dependent historical information by Group B2 was limited in relation to task 2, according to which pupils were presented with a collection of objects, a fact which seems to suggest that the use pupils made of dependent historical information was, more likely than not, associated with the type of objects (single or collections) they worked with.

On this basis, results seem to suggest that the extent of the use of dependent historical information was, more likely than not, primarily associated with the type and the extent of the information itself. It also seems possible that it was associated with the type of the objects studied (single objects or collections, level of difficulty), to the tasks (museum work or interrelation of museum work and work in class) and the questions set (asking for pupils' statements or questioning), and to the presence or absence of relevant independent historical knowledge.

6.2.2.2. The accuracy of the use of dependent historical information

The use of dependent historical information was also tested in terms of its accuracy. According to the following table, results show that on the whole the use of dependent historical information was relatively accurate.

Figure 10. Percentages of pupils using dependent historical information in terms of accuracy (ac = accurate, pr = 'acceptable' or problematic, in = inaccurate)

grade	group	task	quest.	respondents	type of dependent information	use	accuracy of use		
							ac.	pr.	in.
A	1	1	b	31	limited	7	100%	0%	0%
			c	31	>>	3	100%	0%	0%
			d	31	>>	1	0%	100%	0%
A	2	1	b	31	limited	12	67%	33%	0%
			c	32	>>	8	88%	12%	0%
			d	32	>>	2	50%	50%	0%
A	3	1	a	35	limited	20	70%	30%	0%
B	1	1	a	33	limited	18	78%	22%	0%
B	1	3	c	29	extensive in class	29	90%	10%	0%
B	2	1	a	32	limited	19	79%	21%	0%
B	2	2	a	30	limited	7	100%	0%	0%
			c	28	>>	11	64%	36%	0%
			d	27	>>	1	100%	0%	0%
C	2	1	a	32	extensive	6	100%	0%	0%
			b	32	>>	3	67%	33%	0%
			c	32	>>	4	100%	0%	0%
			d	32	>>	4	75%	25%	0%
C	4	1	a	32	limited	22	91%	9%	0%

Despite the general accurate use of dependent historical information by the majority of pupils who used such information, a number of pupils did not make accurate use of dependent information. This was especially shown in the responses of the pupils of group C1, in relation to a 'difficult' museum object, a broken clay mould.

Figure 11. Percentages of pupils of group C1 using 'problematic' dependent historical information, in relation to a 'difficult' object, in terms of accuracy (ac = accurate, pr = 'acceptable' or problematic, in = inaccurate)

grade	group	task	quest.	respondents	type of dependent information	use	accuracy of use		
							ac.	pr.	in.
C	1	1	b	33	limited	28	39%	57%	4%
			c	32	>>	31	35%	45%	20%
			d	33	>>	11	45%	55%	0%

The problematic or inaccurate use of dependent historical information by a number of pupils, especially of group C1, allowed some basic observations on the importance of variables that might influence the accuracy of this use, such as advanced skills in 'reading' and comprehending texts, clarity and transparency of museum labels. The latter is supported by the results of group C1, which responded to questions b, c and d in relation to a 'difficult' object for which limited but 'problematic' information was offered in the museum. Results showed that the relevant information was misunderstood or not clearly understood by a great number of pupils on the basis of the fact that it included the word 'mould' which was given in Greek by a technical term of Ancient Greek etymology. Only a few pupils had the courage to state their ignorance or inability to understand the object and/or the label. This situation, was considered of great importance for education on the basis of the discussion in Part 2.1.2.3, in relation to D. Shemilt's relevant argument (1987, pp. 44-45).

The number of pupils of group C1 who provided 'valid historical thinking' was low (9% - 6% respectively), a fact which, more possibly than not, is associated with the fact that both the object studied and its labelling, the dependent information offered in the museum, were very difficult for the pupils to handle. Even a first reading of pupils' responses shows that this fact led a great number of pupils to misunderstandings and inability to provide 'valid historical thinking'.

The effect of pupils' inability to 'read' and understand some museum labels on their historical thinking is a major issue of great significance to both the educational function of museums and to history education, especially because it relates to language problems that make history itself a 'difficult' school subject. (See D. Edwards, 1978.) It also highlights the language problems that many pupils might face when they have to use written (primary) texts as sources and to interpret them as evidence about the past. On this basis also, the decision to study the evolution and the development of pupils' historical thinking within a museum environment in relation to the use of museum objects as sources seems to be justified.

In order to offer a feeling of pupils' problematic or inaccurate use of dependent information few characteristic examples follow:

Label: 'Vases of the "sea style" and the "palace style" from Kakabato, Prossymna and Thoriko - 15th century BC.'

'[I chose] one vase of the sea style and of the palace style which comes from Kakabato, Prossymna and Thoriko ...' (A3/1a/100)

This child reproduced the offered information without any attempt to use it critically; the object is referred as belonging to two different styles of art and as originating from three different places. This type of labelling simply taxonomises objects according to experts' knowledge, and thus implies the idea that the past is known. Visitors deeply feel their ignorance, they tend to refrain from trying to interpret objects. Objects belonging to a known past, that visitors ignore, become either objects to be ignored, or objects to be understood through decoding or reproducing rather than the offered information.

A number of pupils misunderstood and misused labels, although the relevant type of information did not set any language problems, mainly because it referred to the time and place from which the displayed objects originated, and only in some cases to their style. But this type of 'academic' archaeological information seems to serve archaeologists, museum curators and specially educated visitors rather, than common visitors and, especially, children.

Label: 'Clay mould for a bronze statue of Apollo, found at the North-East side of The Agora - 6th century BC.'

'It is a bronze statue presenting Apollo. People in that age were highly developed and we can see this from the statue and from the material which they used. The statue was also very well made.' (C1/1b/8)

'... This mould is a statue of Apollo and it is made of bronze.' (C1/1c/6)

'... It is shown even from the leg that their art style was especially developed. The figure is quite un-elaborated a fact that might indicate the aesthetic values of the period as well.' (C1/1b/22)

The majority of the responses of group C1, in relation to the clay mould, included a lot of misunderstandings which were based on both the difficulty of the object and the fact that most pupils did not know the word 'mould'. So we see that pupils relied on the offered information, and reproduced it a-critically: they did not hesitate to describe the broken clay mould as a bronze object of art, representing Apollo. According to D. Lowenthal written signs and labels 'orchestrate and at times dominate the view.' (1985, p. 273.)

This type of dependent information offered in a museum proved problematic, but not only because of its wording. Its 'problematic' character was associated with the fact that objects were indifferently displayed, out of any context, at least for

pupils' eyes, since they did not offer any hints that could lead pupils to decode the underlying logic of the display.

Like most relevant labels of traditional museums, this type of information was 'object oriented', showing no care for visitors' needs. In this way objects seem to lose a great part of their archaeological, museological and historical significance. In contrast with the high historical significance of this broken clay mould - it constitutes the earliest archaeological evidence for the production of a bronze statue in Greece, the particular museum environment in which it was displayed and its label misled a great number of pupils to treat it as an object of art. In fact, some pupils admired its artistic quality, others treated it as an indifferent object of art, while one pupil, having the courage to question its artistic quality, could not understand why it was displayed in the museum: *'Generally it is a freak of Ancient art and I cannot understand why they put it in a museum.'* (C1/1c/35) Only a few pupils saw it as evidence for Ancient technology: *'I realised how much important it is for history because it indicates the technology with which the Ancients made their statues.'* (C1/1c/14)

Pupils' responses overall showed that their historical thinking to a large extent relied on labelling, while in some cases 'problematic' labelling, in relation to the indifferent display of objects, led pupils to misunderstandings which influenced the general quality of their thinking. Therefore, results overall seem to suggest that (1) it is important for education to let pupils learn how to 'read' objects, 'material culture'; (2) pupils' historical thinking seems, more likely than not, to be advanced in a museum environment, if the museum objects studied generally (not directly) relate to pupils' background historical knowledge (see M. Booth, 1978); (3) limited dependent information offered in museums seems to guide pupils' historical thinking, and therefore, it might be more 'dangerous' than extensive information; (4) labelling and display of objects are difficult tasks, especially if they are addressed to the museum public and they do not only serve the curators' taxonomic work. This task becomes very difficult if we take into consideration that there is not one public but many publics of different age and of several different cultural, educational and social backgrounds.

Moreover, pupils' responses clearly showed that, through the particular labelling and display of objects, the museums visited implied the following traditional archaeological, museological, and historical ideas:

archaeological	museological	historical
The archaeological significance of the object is dependent upon the uniqueness of its artistic form and its origin from the known and taxonomised past.	'Object-oriented' museums, as guardians of the authentic past, and producers of authentic knowledge display objects according to experts' taxonomic systems. Museum objects lead to knowledge of the real past, that confines present interpretations.	Museum objects as sources relate to the real past, which 'exists', and is known or can be known on the basis of unquestionable historical information or knowledge that experts offer.

On this basis results are in agreement with the primary research hypothesis that each type of museum and its underlying philosophy (mainly through its particular display and labelling) forms a distinct educational environment which encourages a relevant type of historical thinking. (See Chapter 3.) Yet, results showed, also, that pupils' historical thinking as a vital intellectual activity was not dependent only upon the educational character of the museums visited. In relation to the particular method and underlying 'philosophy' of the research pupils' historical thinking proved to be more or less associated with all the museological and educational conditions tested: the type of museum objects studied, the tasks and the questions set.

6.3. Historical thinking and museum objects of different type

Pupils' historical thinking was studied in relation to the museum objects with which they were presented, because it was hypothesised that it would be related to their different type and the level of difficulty they posed for pupils' work. First, results are discussed in terms of the analysis of pupils' historical thinking in relation to single 'isolated' museum objects and collections, and then in relation to everyday objects and objects of art. Results on the association of pupils' historical thinking with museum objects posing increasing difficulty for their work are discussed in Part 6.4 below, in relation to age.

6.3.1. Historical thinking in relation to single 'isolated' museum objects and collections

Based on the expectation that pupils' historical thinking might be influenced by whether the objects studied were single 'isolated' objects or collections task 1 and task 2 were devised. Task 1 let pupils concentrate on one museum object, while task 2 let them concentrate on a collection of objects.

Differences appearing in the results of the analysis of pupils' responses in terms of historical thinking between task 1 and task 2 were based on the pupils of main group B2, who responded to questions a, c and d of both tasks. Museum object b and collection a did not pose a high level of difficulty for pupils' work. (See Chapter 4.) Accordingly, the study of pupils' historical thinking in terms of the differences that appeared in pupils' responses relating to task 1 and task 2 was made on the following methodological grounds:

The methodological design on the basis of which pupils' responses to task 1 and task 2 were compared, according to Schematic plan 34²

	Task 1	< --- >	Task 2
	related to a single museum object		related to a collection of objects
level of difficulty of objects:		medium (not high)	
questions:		a, c, d	
group:		B2	
age:		13/14	

²The numbering of the schematic plans follows their initial presentation in Chapter 4.

Generally, it was hypothesised that pupils' concentration on one museum object would enable them to express historical thinking at a relatively higher level, in respect to all historical issues studied, than a collection of objects, mainly because pupils' were not expected to be able to handle a group of objects in historical terms. But on the other hand, it was expected that a group of objects might facilitate pupils to focus on the past rather than on the objects, because their common origin or type might highlight their significance as sources about the past.

First, two responses are quoted, with which one pupil of group B2 gave a presentation of a single object and a collection of objects, according to question c of task 1 and task 2 respectively. These responses highlight basic differences in historical thinking that appeared between the two tasks.

Task 1, question c: presentation of a single object, The Hellenistic grave stele: *'This object is a relief presentation in marble. It presents two persons a woman and another person who has the head missing (but apparently this is also a woman if we consider the body formation) The woman (who has a head) gives a box to the other 'headless' one The 'headless' one is seated and she wears a chiton This fact and the type of the other woman's smile reveal that this piece of sculpture belongs to the Hellenistic period.'* (B2/1c/39)

Task 2, question c: presentation of a collection: *'These objects are the ancestors of the contemporary objects that we use in order to cover our needs They have excellent work and details that reveal to us that Prehistoric craftsmen had relatively developed tools. These objects are very well preserved that means that they used to take care of them and that they stored them in good conditions for their preservation. They are made of expensive materials a fact which directly shows to us that they belonged to a rich person.'* (B2/2c/39)

Despite differences in terms of several historical issues, these two responses do not really differ in terms of methodology; they were both categorised as corresponding to historical methodology, because historical inferences were based on the interpretation of objects in historical terms, as evidence. Nor do they differ in terms of historicity; both are related to the notion of historicity. But they differ in terms of focus; the presentation of the Hellenistic stele is focused on the object, while the presentation of the collection is focused on the past. They also differ in terms of context: in the first response the object and the past are mainly treated in the illustrated human/social context (relating to the two illustrated women), while

in the second response the objects of the collection and the past are treated in a historical human/social context (relating to Prehistoric and contemporary people).

So these two responses show that both the single object and the collection were treated by the pupil in historical terms (as evidence, in terms of historicity), but the single object led the pupil to focus on it rather than on the past, and to treat it, to a large extent, in its illustrated human/social context rather than in a historical human/social context.

These basic distinctions, which are of importance for history education, especially for the development of pupils' historical thinking on the basis of pupils' use of museum objects as sources, correspond, more or less, to the main differences that were shown by the analysis of all responses provided by the pupils of main group B2 to task 1 and task 2, despite individual differences.

In the first place, potential differences appearing in pupils' responses, in terms of their historical thinking, relating to task 1 (single object) and task 2 (collection) were studied on the basis of the methodology of historical thinking. The relevant results were as follows:

Figure 12. Percentages of responses of main group B2 to tasks 1 (single object) and 2 (collection) in terms of methodology

tasks	responses	----- methodology levels -----					unhistorical / ahistorical
		historical		rational	pseudo-historical		
		academic	scientific		unsupported inferences	reproduction	
task 1 <i>single object</i>	95	0%	20%	18%	54%	4%	4%
task 2 <i>collection</i>	85	2%	19%	10%	66%	2%	1%

Generally, no great differences appeared in pupils' responses between task 1 and task 2 in terms of the methodology of historical thinking; 20% and 21% of the responses to task 1 and to task 2 respectively were of historical ('academic' and 'scientific') methodology, while the majority of the responses were of the pseudo-historical methodology level, 'unsupported inferences'.

Results seem to suggest that pupils' responses were not much differentiated, in terms of the methodology of historical thinking, by the different type of objects (a single object or a collection of objects) with which tasks 1 and 2 were related respectively. But the limited sample (36 pupils) and the fact that only main group B2 responded to task 2, being presented with one particular object and one particular collection of objects limits the weight that this conclusion will bear.

The results of the relevant analyses in terms of the content of historical thinking, i.e. of focus, context and historicity, were as follows:

Figure 13. Percentages of responses of main group B2 to tasks 1(single object) and 2 (collection), in terms of focus

tasks	questions	responses	'focus' values	
			responses focused on the object(s)	responses focused on the past
task 1 <i>single object</i>	a, c and d	95	72%	28%
task 2 <i>collection</i>	a, c and d	85	52%	48%

Figure 13 shows a tendency of the majority of pupils' responses to focus on the object rather than on the past when pupils were presented with a single object. In contrast, responses that were provided to task 2, in relation to a collection of objects, were almost equally focused on the past (48%) and on the objects (52%). We may say then that, as was hypothesised, a collection of objects, because of their common origin or type, highlighted their significance as sources about the past more than a single 'isolated' object did.

In contrast, results of the analysis of pupils' responses to tasks 1 and 2 in terms of context and historicity did not show great differences because in both cases the majority of pupils treated the museum objects and/or the past in a historical human/social context and in terms of historicity.

Figure 14. Comparative results between responses to task 1 (single object) and task 2 (collection), in terms of historical context and historicity

tasks	questions	responses	historical	in terms of historicity
			human/social context	
task 1 <i>single object</i>	a, c and d	95	76%	61%
task 2 <i>collection</i>	a, c and d	85	91%	72%

In fact the small differences that appear in Figure 14 between pupils' responses in relation to a single object and a collection in terms of historical context and historicity are mainly dependent upon marked differences that appeared between pupils' responses to question c of both tasks, in which pupils were asked to give a presentation of the object and the collection respectively.

Figure 15. Comparative results between responses to task 1 (single object) and task 2 (collection), in terms of historical context and historicity, in relation to different questions set

tasks	questions	responses	historical	in terms of historicity
			human/social context	
task 1 <i>single object</i>	c	31	39%	19%
task 2 <i>collection</i>	c	28	86%	61%
task 1 <i>single object</i>	a, d	64	94%	81%
task 2 <i>collection</i>	a, d	57	95%	79%

We see that, generally, pupils treated both the single object and the collection in terms of historical context and historicity in the majority of their responses to questions a and d. In contrast, when they gave a presentation of the object and the collection in relation to question c of both tasks respectively, only in a relatively small number of pupils' responses was the single object treated in a historical context (39%) and in terms of historicity (19%).

Results seem to suggest that although most pupils were generally able to treat both the single object and the collection of objects in historical terms (in terms of

historical context and historicity), their perceptions of the single object and the collection, as shown in their presentations, were different. More analytical results in terms of historical context show that the perception/presentation of the single object was related to its illustrated human context in the majority of responses, while no response about a collection of objects was related to the illustrated human context. This fact was clearly shown also in the two quoted responses in the beginning of this discussion.

Figure 16. Percentages of responses of main group B2 to question c of task 1 (presentation of an object) and task 2 (collection)

		in terms of 'context'		
task / question	responses	'context' values		
		object(s)/past treated in a historical human/social context	object(s)/past treated in the illustrated human/social context	object(s) treated as objects qua objects, absence of historical past
1c <i>single object</i>	31	39%	61%	0%
2c <i>collection</i>	28	86%	0%	14%

We see that the percentage of responses in which the object(s) studied were treated in a historical human/social context was higher in task 2, related to a collection of objects (86%), than in task 1, related to a single, 'isolated' object (39%). Indeed, in the latter case in 61% of responses the object and/or the past were treated in the illustrated human/social context. e.g. *'I think it represents a scene of an offering. According to my opinion it is about a girl who is giving something as a present to a certain beloved person. Probably to a certain female relative.'* (B2/1a/63)

In contrast, no response to task 2 presented the collection of objects in their illustrated human context. In addition, results suggest that in no response presenting a single object was the object treated as object qua object, while 14% of responses presenting a collection treated the objects of the collection as objects qua objects. e.g. *'This collection includes jewels several vessels in the shape of a pan and supportive elements for those vessels small statuettes and some knives.'* (B2/1c/66)

Results seem to suggest, that most pupils were attracted by the representation of the single object and therefore they conceived the single object on the basis of its illustrated human context. The latter is in agreement with observations indicating

that isolated objects led pupils to provide responses 72% of which were focused on the object. On the other hand, when presented with a collection, they did not give much attention to the representations of the several objects included, and, therefore, they either treated the collection in its historical context on the basis of the objects' common origin or type, or they treated the included objects as objects qua objects.

The fact that no response of task 2 treated the collection studied in its illustrated human/social context is in agreement with a general observation indicating that when pupils were presented with a collection of objects their inferences were based on the objects rather than on their represented themes, while when presented with single objects (according to task 1) their responses were almost equally based on the objects and their represented themes.

Despite the fact that the study was limited to one museum object (a relief representing a human/social scene) and one collection of objects (some of which represented human/social scenes), we may claim that, most likely, pupils treated single 'isolated' objects on the basis of both 'what they are' and 'what they say', while collections of objects were treated on the basis of 'what they are'. This is an interesting theme for further research because of its educational implications, since written texts are more likely to be treated by pupils on the basis of 'what they say' rather than of 'what they are'. (See Chapter 3.)

Despite differences, in terms of several historical issues discussed above concerning the way a single object and a collection were conceived by pupils, according to their responses to question c of task 1 and task 2 respectively, results overall (according to figures 12, 13 and 14) seem to suggest that both the single object and the collection enabled pupils to express historical thinking in a great number of their responses, in terms of all historical issues studied.

Generally, we may say that pupils' historical thinking related to the type of objects with which they were presented: with a single object or a collection of objects. But, nevertheless, this condition has to be studied further on the basis of a broader sample, in relation to several isolated objects and collections, because several tendencies were indicated, but no positive claims could be made because the sample on which the comparison rests is a small one.

All these indications seem to be very interesting for education, and if studied further, might lead to a better understanding of pupils' abilities in treating museum objects and collections in historical terms.

For the time being, we could say that, generally, a collection of objects enabled more pupils to treat it in historical terms than a single object. But on the other hand a collection of objects was treated by 14% of the pupils as objects qua objects, while no single object was treated as object qua object. On this basis we could claim that a single object was more easily studied by pupils, because they could concentrate on it and express advanced historical thinking about it. On the other hand a collection of objects was more difficult to handle - some pupils treated the objects as objects qua objects - but pupils who managed to handle all of them as a collection in historical terms managed also to use them as evidence about the past. Characteristic is the fact that two of the five responses of 'academic' methodology level that were found in the 1079 responses from 141 pupils over three years, to all tasks and in relation to several museum objects, were related to a collection of objects in association with task 2.

'This collection consists of objects of the Prehistoric period. Always a work of art is distinguished by its historical significance besides its artistic [aesthetic] significance. But especially objects of such a distant period are of increased historical significance. I am personally impressed by their relation to other elements of the period that are known through the epic tradition and by the fact that they can be cross-tested.' (B2/2a/68)

This historical response about a collection of objects introduces the theme of the following part: pupils' historical thinking in relation to everyday objects and objects of art.

6.3.2. Historical thinking in relation to everyday objects and objects of art

The hypothesis that pupils' historical thinking might be associated with the character of museum objects studied, in terms of whether museum objects were objects of art or everyday objects, was supported by a broad theoretical investigation and a substantial amount of relevant literature discussed in Chapters 2 and 3. This hypothesis, however, was tested by a relatively limited study, because the research was conducted in several archaeological museums of Athens, which display mainly objects of Prehistoric and Ancient Greek art. Therefore, the selection of museums, museum objects and collections was for the most part based

on several other primary theoretical and practical criteria. (See the relevant analytical discussion in Chapter 4.)

The fact, however, that main group C1 responded to question a of task 1 in the Agora Museum, which displays a more or less equal number of objects of art and objects relating to everyday life in Ancient Athens, enabled study of pupils' historical thinking in relation to this distinction.

According to question a of task 1, pupils were asked to chose an interesting museum object and to give the reasons for choosing it. Therefore, in the first place, pupils' responses were analysed in terms of the character of the chosen objects and, in the second place, in terms of choosing criteria. The relevant results were as follows:

Figure 17. Number of pupils choosing everyday objects and objects of art

respondents	everyday objects	objects of art
33	29 (88%)	4 (12%)

We see that most pupils of main group C1 chose everyday objects, while only 4 pupils chose objects of art. Characteristic of pupils' choices of objects directly relating to their personal life and interests was the fact that among the several objects displayed most pupils (60%) chose the few objects that related to children's life and death in the past: a feeding bottle, an anatomic chair with a 'chamber' pot, a grave of a girl and a pithos burial of an infant.

'I chose the clay 'chair' of a child because I was impressed by the invention of the parents of that age. I did not expect that even so early as the 6th century BC. parents would have manufactured a chair of this type wishing to ensure the security of their child and to avert several uncomfortable situations With this chair both the child could be secured and the parents relaxed. I am also impressed by the fact that although it is an object of everyday use it has a special, pleasant decoration.' (C1/1a/34)

Figure 18. Percentages of choosing criteria of those choosing everyday objects and those choosing objects of art respectively

number of pupils	historical (at least one historical criterion)	non historical (absence of historical criteria)		
	mainly or partially historical	museological	aesthetic	other
choosing everyday objects: 29	94%	3%	0%	3%
choosing objects of art: 4	75%	0%	25%	0%

We see that 94% of pupils who chose everyday objects and 75% of pupils who chose objects of art based their choices on historical criteria. These results seem to suggest that the majority of pupils' showed a general historical attitude in their choices irrespective of the type of objects chosen.

According to figures 17 and 18 we could say that when presented with a museum collection including both everyday objects and objects of art the majority of pupils chose everyday objects, and that in either case the majority of pupils (94% and 75% respectively) based their choices on historical criteria. This indication seems to be associated with the historical significance of museum objects in relation to their museological display and the enabling atmosphere of archaeological museums, as discussed in Part 6.2 above.

However, the fact that the majority of pupils (88%) of main group C1 responded to this task/question on the basis of (chosen) everyday objects enabled limited study of pupils' historical thinking in relation to everyday objects. The results of the analysis of historical thinking expressed by the pupils of main group C1 (most of which had chosen everyday objects) in terms of historical methodology were compared with the relevant results of all groups which responded to the same task/question at different ages, but in relation to objects of art only.

Figure 19. Percentages of pupils whose historical thinking was in the 'historical' methodology category, on the basis of all groups who responded to question a of task 1, in relation to objects of different type*

type of objects	grade	group	task	quest.	respondents	'historical' methodology
mostly everyday objects	C	1	1	a	33	40%
objects of art only	C	2	1	a	32	19%
>>	C	4	1	a	32	28%
>>	B	1	1	a	33	15%
>>	B	2	1	a	32	28%
>>	A**	3	1	a	35	17%

* Pupils' responses to question a was related to several collections of objects, which did not pose increasing difficulty for pupils' work. ** Main groups 1 and 2 did not respond to question a of task 1 in the first secondary school grade (A) because of practical reasons.

Figure 19 shows that, having mainly worked with everyday objects in relation to question a of task 1, 40% of the pupils of main group C1 expressed historical thinking of 'historical' methodology. In contrast, a much smaller number of pupils (from 15% to 28%) of all groups, reached the 'historical' level of methodology in their responses to the same question and task, when dealing with objects of art only. Also, only 15% of the pupils of the same group, main group 1, reached this level of historical thinking when they were in secondary school grade B. Therefore, despite the limits of the study, results seem to suggest that, more possibly than not, pupils' historical thinking, in terms of the percentage of pupils who reached the level of 'historical' methodology, was associated with the different type of the museum objects studied in relation to this distinction.

Everyday objects, and especially objects attracting pupils' personal involvement (relating to children's life and death) enabled a great number of pupils to express historical thinking at the 'historical' methodology level. e.g.

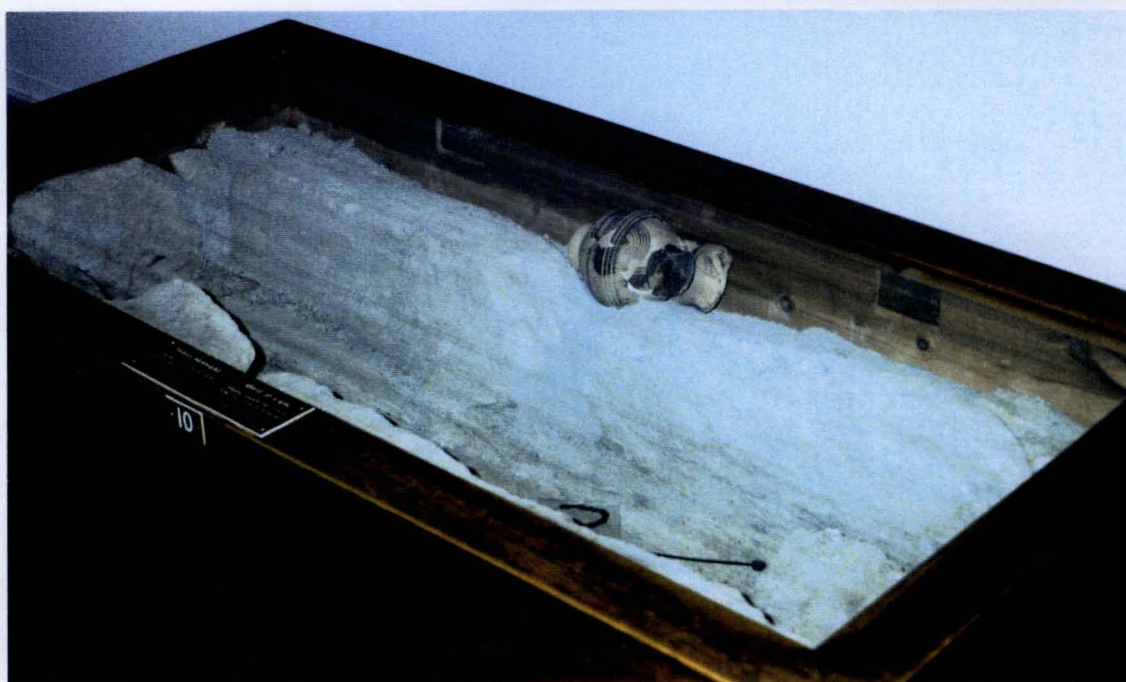
'The objects that attracted my interest are several "kterismata" from graves. I found them interesting because they give us a picture in relation to the mentality of Greeks about matters concerning death. From the fact that they used to put objects of everyday life into the graves we could conclude that Ancient Greeks respected their dead, and that they probably believed in life after death, a fact that reveals influences by other religions.' (C1/1a/3)



2.



1.



1. Protogeometric cist grave of a young girl with a number of small pots and simply jewelry. 2. Pithos burial of an infant. The small vases were found within the burial urn, which was covered with a stone slab. Most pupils of main group C1, who visited The Agora Museum, chose one of these two objects as the most interesting object displayed.

'The object that attracted my interest is a jewel, a ring in particular. It is of gold, it has complicated sketches It impressed me because I see that even in that age women used to dress up and they tried to become more beautiful with any means they could find. I also see that they saw the beauty of the ring in the same way in which we see its beauty The designs are beautiful and complicated they are like the contemporary ones.' (C1/1a/12)

Characteristic of pupils' personal involvement and great interest in objects relating to children's death, in particular, is the following response: *'The object that attracted my interest is the grave of a girl. It attracts my interest because it is very rare to see a grave in a museum especially if it is so old (1000 BC.). If I were in this girl's position I would not like it at all to be seen by thousands of people who would come to the museum every day. Another important thing is the relics which are in the grave, because they show the habits of the Ancient people then.'* (C1/1a/5)

The above discussion opens a number of issues for further study, such as the effect of (especially young) pupils' personal interest in the sources themselves on the evolution of historical thinking; such issues might be of significance for museum educational programmes in general, and for history education in particular. A relevant parallel study of the potential relation of pupils' historical thinking to written texts of different character, i.e. to 'everyday' written texts and literary texts, would highlight pupils' historical thinking on the basis of their work with objects of art. Such studies could offer significant information on how pupils approach and/or interpret objects of art, and on the potential association of pupils' historical thinking with the character of the sources they work with.

For the time being, some general qualitative observations that were made during the several readings of pupils' responses are offered. In fact, a number of pupils within the age range from 12/13 to 14/15 - not only at the age of 12/13 - treated objects of art at face value, and, thus, their interpretations were characterised, among other things, by anachronism and historical incoherence. The following response, about an Archaic statue, 'The Calf-carrier', is an extreme specimen of this type of treatment: *'It must have been made in the Palaeolithic period because we see the use of tools and the details at the eyes and that he is carrying an animal shows that people had permanent dwellings and that they bred animals We also understand that it is a period of peace because we see the smile at the person's face.'* (A2/1b/58)

But on the other hand, a substantial number of pupils interpreted (quite successfully or not) the objects of art with which they were presented as evidence about the development of art in the Ancient times - according to their school history education, history was studied in terms of the development of human life and civilisation in different historical periods. In a general sense, many pupils approached museum objects as works of art of different historical periods and as artistic forms developing within their developing historical context. They defined or described the museum objects studied, in terms of their association with particular historical periods of art: Prehistoric, Palaeolithic, Cycladic, Minoan, Mycenaean, Ancient, Geometric, Archaic, Classical, Hellenistic or Roman art.

A child at the age of 12/13 wrote: *'This statue [The calf-carrier] must have been manufactured in the beginning of the 5th century. Its free movement indicates 5th [century] but the hair style 6th [century] - Archaic. That's why I conclude that art has just slipped away from the 6th [century].'* (A2/1b/61)

A few pupils made some comments on the aesthetic significance of the objects, and explained the illustrated themes on the basis of the symbolism of art. One pupil interpreted one human figure as being a goddess on the basis of the fact that this woman, although illustrated seated, was sculptured having the same height with the standing woman. This girl not only made a type of observation that most people do not often make, but she interpreted the represented theme on the basis of the symbolic meaning of this artistic deviation from reality. *'This statue rather presents a goddess because although [the illustrated figure] seated she is bigger than the other woman who is offering her a present.'* (B2/1c/60) Another child pointed out the fact that the background was not illustrated, and interpreted this characteristic as implying the wish of the artist to highlight only the central theme.

Some pupils, but only a few, straightforwardly put some problems that arise in terms of the reliability of works of art as historical sources, on the grounds that artistic representations do not often correspond to the reality they suppose to represent.

'Using these objects as historians we begin with the fact that these objects illustrate two musicians an element that shows to us that in that period there was a development of music. The first question refers to whether this development relates to the Cyclades or more generally to the Greek region. But the historian must question himself whether the activity of music presents a picture of the reality of the period or if it has been inspired by another place or by a myth of an older

period. Another question might be: Does the representation of the instruments correspond to reality or has it been changed in relation to the technical constraints of sculpture? Are the instruments that we see really a harp and a flute?’
(B2/2d/68)

These observations show that, although everyday objects seemed to enable a greater number of pupils to express historical thinking at the historical methodology level than did objects of art, a significant number of pupils seem to have managed, more or less, to treat objects of art in both historical and aesthetic terms, despite great individual differences. This is important for education, because it seems to suggest that pupils’ work with every day objects, especially with those which attract their personal interest and involvement, might enable them to express historical thinking at the historical methodology level, i.e. on the basis of the interpretation of the objects in historical terms and their use as sources of information or evidence about the past. On the other hand, since a significant number of pupils within the age range from 12/13 to 14/15 seem, more or less, to be at a ‘sensitive’ period for treating objects of art in historical terms, secondary history education could aim at the use of objects of art as historical sources, because pupils’ work with them could enable them to advance their historical thinking with respect to both historical and aesthetic aspects.

6.4. Historical thinking and age

An important research hypothesis was that pupils' historical thinking might be associated with age. This was conceived as relating to the general process of children's maturation, regarding not only physical biological aspects, but social, intellectual, sentimental, psychological and aesthetic aspects as well. On the other hand, it was hypothesised that pupils' historical thinking might be, as well, associated with many other variables, and, particularly, with the level of difficulty that museum objects posed for pupils' work. On this basis the method of the research was designed to enable study of pupils' historical thinking in both cross-sectional and longitudinal terms.

The cross-sectional aspect of the research enabled study of pupils' historical thinking in relation to age, since pupils' historical thinking was studied as it was expressed at different ages within the age range from 12 to 15 by different groups who were presented with the same museum object. Additional group A3 (of the first secondary school grade) and additional group C4 (of the third secondary school grade) were presented with the same museum object with which main groups B1 and B2 were presented. Also the common museum object with which these groups were presented, posed a 'medium' level of difficulty for pupils' work. The estimation of the level of difficulty of museum objects was mainly based on their general appearance, on their represented theme, and on the familiarity pupils had with their type. (See the analytical presentation of museum objects in Part 4.2.4.2.)

In the longitudinal aspect, the development of pupils' historical thinking from the age of 12 to 15 was studied on the basis of the responses by main groups 1 and 2, in relation to museum objects which posed increasing difficulty for pupils' work according to pupils' age. In the first secondary school grade (at the age of 12/13) both main groups were presented with an object which posed a low-level difficulty for their work; in the second secondary school grade (at the age of 13/14) they were presented with a museum object which posed a relatively medium-level difficulty; in the third secondary school grade (at the age of 14/15) main group 1 was presented with a museum object which posed an extremely high-level difficulty, while main group 2 was presented with an object of a relatively high-level difficulty. (See Chapter 4.)

Since main groups A1 and A2 did not respond to question a of task 1, all relevant longitudinal and cross-sectional analyses were made on the basis of questions b, c and d. In addition, question b, ‘indirectly’ asking pupils to use museum objects as sources, proved of great significance to the study. Therefore, the study of pupils’ historical thinking in relation to age was based on the analysis of pupils’ responses to all common questions (questions b, c and d), and especially to question b.

The methodological design, according to Schematic plans 30, 31 and 32

Task 1, questions b, c and d				
age 12/13 grade A		age 13/14 grade B		age 14/15 grade C
longitudinal study				
main group A1 <i>museum object a</i>	->	main group B1 <i>museum object b</i>	->	main group C1 <i>museum object c</i>
main group A2 <i>museum object a</i>	->	main group B2 <i>museum object b</i>	->	main group C2 <i>museum object d</i>
cross-sectional study				
additional group A3 <i>museum object b</i>		main group B1 <i>museum object b</i>		additional group C4 <i>museum object b</i>
		main group B2 <i>museum object b</i>		

Pupils’ historical thinking was studied in terms of its ‘methodology’ and ‘general evaluation’, because a series of analyses showed that the quality of pupils’ historical thinking was mainly differentiated in terms of the interrelation of its methodology level and the validity of its outcome. Therefore, both the cross-sectional and the longitudinal study of pupils’ historical thinking was primarily based on them. However, some general observations on the general quality of pupils’ historical thinking at different ages, especially in terms of the use of language and concepts, are discussed first, because they form a picture overall of the development of pupils’ historical thinking within this age range.

6.4.1. Qualitative observations

The main research hypothesis that pupils' historical thinking might be related to age was supported by the following general qualitative observations that were made throughout various analyses and 'readings' of the data.

General qualitative observations on pupils' historical thinking at the age of 12/13

(1) In general, pupils' responses were largely based on the use of a narrow sort of relevant independent knowledge, in the form of stereotypes, not really critically used to support their inferences. Groups A1 and A2 generated most of their historical inferences on the basis of the fact that museum object a, 'The Calf-carrier', resembled a kouros. Many responses in which more complex independent historical knowledge was used showed that pupils had formed a rather confusing frame of knowledge including both valid and invalid elements.

'I would suppose that this object is Philip the king of Macedonia. I understand this by its legs the one of which is shorter than the other. Also it would be in the 5th century because its body expresses a greater freedom. (one leg in front and the other behind) its look is smiling and its arms are not attached [to the body].'
(A2/1c/70)

'... Because he doesn't wear anything under and he has a chiton over it means that it was made in Sparta.' (A2/1b/60)

(2) One or two known elements were considered adequate to support inferences, in which the notion of historical uncertainty was usually absent: *'It shows to us a kouros and we understand it by its legs one of which is in front of the other. We could also say that it is a work of 580 BC.'* (A2/1b/49)

(3) In many responses historical thinking was not clearly expressed, but was implied by the sequence of sentences or thoughts. *'It looks as if the object is a grave stele and the [illustrated] box shows that people believed in life after death.'*
(A3/1b/81)

(4) Attempts to demonstrate inferences in explanatory terms were usually deficient or incomplete. Historical inferences were often deficiently supported. *'[It is] of about the 5th century because its legs are not joined.'* (A2/1b/53)

(5) In a number of responses pupils' historical thinking could be characterised as simple or even naive; *'It gives me the impression that in that period every person had to kill animals in order to cover his physical needs (for ex. food). By this we understand how much exercise every person must have had.'* (A2/1b/70) Even responses of valid, 'scientific' historical thinking were characterised by the use of simple 'spontaneous' concepts and by weak expression. *'That they had clothes,*

that they had boxes and seats even for their feet namely they had a developed culture.' (A3/1b/97) In addition, in a few cases a logical gap appeared in pupils' thinking. *'We also see that they [the illustrated women] are seated on an engraved seat so we understand that they knew writing [how to write].'* (A3/1b/80)

(6) Thoughts were some times unrelated to each other, some thoughts of different content intervened between two similar thoughts related to the same aspect. In addition many responses included thoughts of both 'high' and very 'low' values in terms of many historical issues. *'The fact that it has the one leg in front of the other its arms are not attached to the body its expression is pleasant All these lead us to the conclusion that the statue was made in the 5th century They also have made even the slightest detail so they had tools'* (A2/1b/66)

However, a few pupils at the age of 12/13 provided responses of 'valid historical thinking' and of distinctive quality in terms of many historical issues. *'By the calf he is carrying he seems to be a "moschoforos" [a 'calf-carrier'] and to come from Ancient Greece, after the period of "kouroi" because it seems like a kouros, but it is more detailed than a kouros.'* (A1/1b/9)³ *'... It doesn't have any colour (it would have had long ago) It has a clear expression on its face. The man is smiling. The meaning of the statue is that an X is formed by the man's arms and the calf's legs which shows their tender relation (people used to offer their best [animals] as a sacrifice to the gods) Also by having the two heads (of the man and the animal) the one next to the other we realise the difference in mental power between the animal and the man.'* (A1/1c/16)

The fact that some pupils' provided 'valid historical thinking' of relatively high quality at the age of 12/13, points up the differences that appeared among individuals of each age and among their responses, in terms of many issues concerning historical thinking. But, despite this fact, we may say that pupils' historical thinking at the age of 12/13 was characterised by the above mentioned elements, which were not present (at least not to the same extent) at the age of 13/14, and which almost disappeared at the age of 14/15.

³It must be noticed here that 'The calf-carrier' is characterised by the typical 'Archaic smile', and although it reminds us of typical Archaic statues, and especially of 'kouroi', it is very innovative in terms of the synthesis of its represented theme, and of its artistic construction. Its archaeological significance has been underlined by specialists as a representative example of the development of Archaic sculpture towards Classical fineness.

General characteristics observed in pupils' historical thinking at the age of 13/14

At the age of 13/14 pupils in general supported or even tested their historical inferences relatively more analytically and efficiently, the notion of uncertainty and possibility appeared, independent historical knowledge was more critically used and in a broader sense, while the use of language was more sophisticated than at 12/13. *'First of all we can see the materials that they used for the manufacture of everyday life representations or that they used for the manufacture of representations of a certain specific significance that the makers wished to touch upon. We also see their clothes, their dressing style and some of the facts concerning their goods. In my opinion it is probably of the Classical period. It must have been sculptured to touch on certain religious elements of the period or for a mythological purpose. Surely it might be the case that it was sculptured to show elements of everyday life that relatively quite impressed them.'* (B1/1b/26)

On the other hand, there was a clear urge, at least by some pupils, to use 'scientific' concepts, although not always satisfactorily. Therefore, some times pupils' responses were characterised by the use of 'big words' or portentous statements. *'I could say about this object that it is not included 100% in the world of statues but of bas-reliefs.'* (B2/1c/61) This urge appeared at the age of 14/15 too, but only in a few responses was this use unsatisfactory: *'... Since we observe that the colour is white it would be a worth telling statement to see it from the point of art...'* (C2/1b/65) Thoughts within each response were usually interrelated, and, since many historical inferences were efficiently supported, it was generally noted that longer responses were usually of higher level. This contrasts with the situation at 12/13, where long responses usually included many separate low-level thoughts, because most of the time historical inferences, while inadequately supported, were expressed in 2 or 3 sentences.

Besides the four pupils that provided five responses of 'academic' methodology level at the age of 13/14, some other pupils too at this age expressed thoughts revealing a mature intellectual and aesthetic sensitivity. *'It is sorrowful, maybe it comes from a grave stele. It shows a woman who is giving a box to another woman who has her hand missing. It is well made, worked out in detail. We could say that the woman who is seated on the stool knows that the content of the box is a bad announcement, maybe of death.'* (B2/1c/69)

General characteristics observed in pupils' historical thinking at the age of 14/15

At the age of 14/15 pupils' historical thinking generally appeared more developed in terms of all the elements discussed above, despite individual differences and the influence of other variables, discussed throughout this chapter. Typical examples of the general higher level of historical thinking that was expressed in pupils' responses at the age of 14/15 are the three responses, provided by pupils of the three relevant groups, that are quoted here.

(Group C1 - in relation to museum object c, the broken clay mould, that posed considerable difficulties for most pupils)

'When I first saw the object I didn't immediately understand what it is and this because it has sustained damage and losses by the centuries passed But when I was informed [by the label] what it is I realised how important it is for history because it indicates the technology with which the Ancients made their statues.'

(C1/1c/14)

(Group C2 - in relation to a relief illustrating a scene of the mythological battle of centaurs)

'Even just the theme of this bas-relief tells a lot to me. I look at it with awe and I see how different those people's ideas were and what strange beings they believed in. Surely their belief in gods must have been great and strong. I consider that this centaur is a piece of our history,' (C2/1b/59)

(Group C4 - about a Mycenaean golden death-mask, known as 'The mask of Agamemnon')

'Among the objects that are displayed in this hall I liked most the golden masks and especially the one of Agamemnon. I chose this object because generally the masks represent the Mycenaean period. They show how much bound the Mycenians were with the idea of death. They used to adorn the face of the dead with gold. This fact makes clear that they believed in life after death. This object is a sample of a culture which was very developed in such mystic matters as death.'

(C4/1a/132)

These three responses, provided by pupils of groups C1, C2 and C4 respectively at the age of 14/15, despite their differences and weaknesses related to a series of historical issues, indirectly indicate that they are very unlikely to have been written by pupils at the age of 12/13, mainly because of the concepts used ('mystic matters') and the successful demonstration of inferences in explanatory terms. On the other hand, these responses could be characteristic of what many pupils wrote at the age of 13/14.

Therefore, these general qualitative observations, although they cannot be tested for their statistical significance, seem to support two basic claims about the relation of pupils' historical thinking to age: (1) Pupils' historical thinking was related to age; (2) greater differences appeared in historical thinking between the ages of 12/13 and 13/14 than between the ages of 13/14 and 14/15.

Pupils' responses quoted above show that differences appearing in historical thinking between the different ages were associated with differences relating to several interrelated issues, such as differences in expression (in the use of proper punctuation and conjunctions), in the relation of thoughts and the organisation of questions within each response, and in the use 'scientific' concepts. The general quality of pupils' historical thinking was to some extent differentiated, in terms of the interrelation of these issues, among individuals and their responses, but mainly among groups at different ages. These differences were related to relevant differences concerning a series of other abilities and skills that this museum practice demanded by pupils: aesthetic development and ability to treat museum objects as objects of art, use of 'independent' historical knowledge as knowledge critically built and not as offered information, questioning, empathy etc.

A great number of responses of 'historical' methodology, provided at the age of 12/13, touched upon historical matters with a significantly lower conceptual (historical or other) insight than lower level responses provided at the age of 14/15. But, despite the fact that pupils' use of concepts and language seemed to be developing by age, great differences were shown among individuals, and among the responses of some individuals. 'Academic' methodology, which required relatively highly developed concepts, was reached by four pupils at the age of 13/14, with no equal results at the age of 14/15.

So we may say that the use of developed concepts and language, with which the quality of pupils' historical thinking was associated, seem to be generally related to pupils' age, since distinct differences were shown among responses provided at different ages. Generally, many pupils at the age of 12/13 seemed to have a simple, external and narrow historical approach to museum objects, in terms of most historical issues studied, while pupils at the age of 13/14 and 14/15 seemed to have a relatively 'complex', deep and broad historical approach. We could say then that at the age of 12/13 pupils' historical thinking generally seemed to relate to 'concrete' or 'early formal' thinking, and that by 13/14 'formal' and historical thinking was stabilised, but there were, nevertheless, crucial differences in historical behaviour.

6.4.2. Historical thinking and intellectual development

In this study, pupils' historical thinking in relation to intellectual development was studied by a first level analysis in terms of the relation of historical methodology to mature reasoning only. The intention was not to study intellectual development as such, but to see if pupils' historical thinking was dependent upon it.

The hypothesis that pupils' historical thinking in the age range from 12 to 15 years must be associated with pupils' intellectual development was based on the assumption that these years are of great importance for intellectual development because at this age human beings proceed to higher levels of reasoning and thinking. This is a general argument based on the work of numerous researchers within the cognitive development theoretical orientation, including Piaget (B. Inhelder and J. Piaget, 1958), Peel (1971), Vygotsky (1934), and L. Smith (1986).

Far from accepting that intellectual development depends only on age, and that different stages of intellectual development appear at specific points of growth, it was assumed that the exploration of adolescents' thinking in general, and of historical thinking in particular, in relation to their intellectual development might be of great significance to education. 'Adolescence' is an intermediate, transitional stage between childhood and maturity, therefore relevant studies might enable us to explore the process of thinking from a 'simple' level of reasoning, dependent on the immediate environment, to a 'mature' level of hypothesising and conceptualising.

Moreover, it was hypothesised that, since 'adolescence' is a transitional stage, a number of pupils in this age range might have not reached a level of intellectual development corresponding to Piaget's 'formal operations' or to Peel's 'explainer thinking', and thus their historical thinking could be limited to pseudo-historical, unhistorical or ahistorical levels, because the evolution of historical thinking at a 'scientific' or 'academic' level, demands, among other things, a mature level of reasoning. (See M. Shayer and H. Wylam, 1978.)

On the basis of these two theories pupils' intellectual development was not tested as a whole, but only in terms of reasoning. In addition, both Piaget's and Peel's theories were used on the basis of the primary criteria by which their distinct levels are differentiated, and in terms of their general correspondence with each other. On

this basis, they were used only as a basic tool for the study of primary differences in pupils' intellectual development. The theoretical basis for such a decision, and relevant objections to the use of these theories in studies of historical thinking have been analytically discussed in Part 2.2.

Pupils' responses were studied in terms of their correspondence to 'formal operations'/'explainer thinking', to 'concrete operations'/'describer thinking', or to intellectual development of an intermediate level, in terms of reasoning only, on the basis of the following schema:

'Concrete Operations' / 'Describer Thinking'

1. Description of the object as an object of the present
2. Description of the object as an object of an imprecise past

Intermediate level

3. Reproducing historical information or knowledge
4. Unsupported inferences made directly from the object

'Formal Operations' / 'Explainer Thinking'

5. Inferences by rational processes
6. 'Scientific' historical inferences by historical processes
7. 'Academic' historical inferences by advanced historical processes

According to this schema pupils' responses of methodology levels [1] or [2] were conceived as expressing thinking relating to 'concrete operations'/'describer thinking', because they were limited to description. Responses at levels [3] and [4] were conceived as expressing thinking of an intermediate level, because they did not show any need for demonstration in explanatory terms, but, on the other hand, they were not limited to the description of the immediate situation. Responses at rational methodology level [5] and at both historical levels [6] and [7] were conceived as expressing thinking of 'formal operations'/'explainer thinking', because, besides their differences associated with historical matters, they all demanded mature reasoning.

Accordingly, the study was based on the following proposition: If the development of pupils' historical thinking followed more or less the route of their intellectual development, as shown in their responses, then there could be good grounds for thinking in terms of a relation between historical thinking and intellectual development. Therefore, pupils' intellectual development was studied first, in terms of mature reasoning, on the basis of the age at which they provided their first

response corresponding to mature reasoning, i.e. to either rational or historical ('scientific' or 'academic') thinking.

The longitudinal results of the two main groups, who responded to several tasks over a period of three years, when pupils were at the age of 12/13 (A), 13/14 (B) and 14/15 (C), corresponding to the first, second and third secondary school grades respectively, gave the following picture of pupils' intellectual development:

Figure 20. Number of pupils who did not give any responses corresponding to 'formal operations' / 'explainer thinking' at the age of 12/13, and by the ages of 13/14 and 14/15

groups	respondents	age A 12/13	age B 13/14	age C 14/15
main group 1	31	8	1	1
main group 2	32	3	2	0
totals	63	11	3	1*
%		17.5%	5%	1.5%

* This pupil was of mature intellectual development and of extremely high abilities according to his school performance, and to the teachers' evaluation of pupils' intellectual abilities irrespective of their school performance. Therefore, it seems likely that the low-level responses were dependent on the pupil's will not to be involved in group work, something repeatedly done by the same pupil in class.

We see that only at the age of 12/13 do any substantial number of pupils (17.5%) not provide responses of mature reasoning, corresponding to formal operations / explainer thinking, in terms of methodology (rational or historical). At the age of 13/14 a much smaller number of pupils (5%) had not provided responses corresponding to mature reasoning (of rational or historical methodology). By the age of 14/15, almost all pupils had provided responses corresponding to 'formal' reasoning, and there are strong grounds for thinking that the one pupil who did not provide such a response failed to do so for other reasons. In a general sense, this follows the trend as formed by Shayer and Wylam (1978), in terms of scientific reasoning.

On this basis we could claim that intellectual development in terms of reasoning seemed to be developing by age. A substantial number of pupils (82.5%) expressed 'formal' reasoning at the age of 12/13, but 'formal' reasoning seemed to be stabilised at the age of 13/14 (only 5% of the 71 pupils did not express such

reasoning), while at the age of 14/15 it was reached by almost all pupils. Therefore, we could claim that, in a general sense, ‘formal’ thinking seemed to be present at all ages but it continued to progress with age. According to the qualitative observations discussed in Part 6.4.2 above also, formal thinking in terms of concepts seemed to be progressing by age and to be stabilised by 13/14.

On the basis that intellectual development seemed to be progressing by age, and that it seemed to be stabilised at the age of 13/14 in terms of both reasoning and use of concepts, the relation of pupils’ historical thinking to intellectual development was tested on the following grounds: If pupils’ historical behaviour was progressing according to the same route, then there could be strong grounds for this relation. Pupils’ historical behaviour was studied in terms of the ages at which pupils expressed historical thinking at the ‘historical’ (‘scientific’ or ‘academic’) methodology level, i.e. generated historical inferences on the basis of the interpretation of museum objects in historical terms and their use as evidence.

The longitudinal results of the analysis of the responses provided by both main groups during three years to one common task including three common questions (task 1, questions b; c and d) about isolated objects, gave the following picture of pupils’ historical behaviour in expressing historical thinking of ‘historical’ methodology at the ages of 12/13, 13/14 and 14/15.

Figure 21. Number of responses of ‘historical’ methodology of the two main groups to common task 1 (questions b, c and d)

groups	age	responses	responses of ‘historical’ methodology	%
main group 1	A	93	24	25.80%
	B	99	33	33.33%
	C	98	26	26.53%
main group 2	A	95	39	41.05%
	B	94	28	29.78%
	C	96	33	34.37%

Results show that the number of responses falling into the ‘historical’ methodology category given at each age by the two groups was not increasing by age, as might have been anticipated from their intellectual development. A similar picture is given also by the historical behaviour of the 71 pupils’ of both main

groups in expressing historical thinking of 'historical' methodology level, in longitudinal terms over a period of three years.

Figure 22. Global longitudinal observations on the historical behaviour of the 71 individuals of both main groups in expressing historical thinking of 'historical' methodology over a period of three years

Basic categories of pupils' behaviour in terms of expressing historical thinking of 'historical' methodology	pupils of main group 1	pupils of main group 2	%
Number of pupils that did not reach 'historical' methodology at any age	5	0	40%
Number of pupils that did not reach 'historical' methodology at the second and/or the third grade, although they did so at the age 12/13	9	14	
Number of pupils that did not reach 'historical' methodology at the age of 12/13, but did so at the age of 13/14 and/or 14/15	9	9	(26%)
Number of pupils that expressed historical thinking of 'historical' methodology at the three ages	11	11	(31%)
Number of pupils that could not be counted because they were present at the relevant museum work at one age only	1	2	3%
Total number of pupils: 71	35	36	100%

On one hand, we see that 31% of the pupils of each group expressed historical thinking of 'historical' methodology at all ages, and that 26% expressed 'historical' thinking at the age of 13/14 and/or 14/15, but not at 12/13. On the other hand, we see that 40% of the pupils of each group behaved differently, since either they did not express historical thinking of 'historical' methodology at any age, or they did not express such thinking at the age of 13/14 and 14/15, although they did so at the age of 12/13. On this basis we could say that (1) the historical thinking of 40% of the 71 pupils did not develop with age; and, therefore, (2) the development of their historical thinking in terms of 'historical' methodology did not follow the route of their intellectual development in terms of reasoning.

As suggested by 40% of the 71 pupils of both groups, the expression of historical thinking at a 'historical' methodology level ('scientific' or 'academic') was most

likely influenced by other variables. Therefore, we may say that intellectual development may be a necessary but is clearly not a sufficient condition for the evolution of historical thinking at a historical methodology level ('scientific' or 'academic'), especially at the age range from 12/13 to 14/15.

Moreover, many theorists suggest, among others Vygotsky (1934), that children's intellectual development is related to age, though not appearing at precise points of growth. Therefore, great differences are likely to appear between historical thinking expressed by young children and adolescents depending on their different levels of intellectual development, if we accept that 'formal' reasoning is a necessary condition for the evolution of historical thinking at a historical methodology level ('scientific' or 'academic'). (See L. Smith, 1986.)

The above claims do not contradict the questions posed by many theorists, as by Dickinson and Lee (1978), and Booth (1987), about the contribution of either Piaget or Peel to the study of children's historical thinking, because they support the idea that children's historical thinking is not evolved and developed in absolute accordance with their intellectual development, and thus they indirectly imply that historical thinking cannot be in the main studied in relation to such theories.

On the other hand, these claims indirectly suggest that research into historical thinking could use such theories, before any substantial analyses in terms of clear historical matters are made. ('Pre-formal' intellectual development does not seem likely to allow the evolution of children's historical thinking at a 'scientific' or 'academic' historical methodology level.) On this basis, these claims are in agreement with and supportive of the work of M. Booth (1978, 1987), D. Shemilt (1980), and D. Thompson (1984), on which the decision to study pupils' historical thinking in terms of its relation to intellectual development was based.

It is important to emphasise here that, since the primary aim of the research was the longitudinal study of pupils' historical thinking as was expressed by pupils within this age range in a museum environment, the study of the potential relation between historical thinking and intellectual development, was necessary limited. Despite the fact that both historical thinking and intellectual development were conceived as complex intellectual processes, which involve a series of closely interrelated elements, the study of their potential relation was confined, for analytical reasons, to the relation of 'historical methodology' to 'mature reasoning'. Nevertheless, qualitative observations discussed throughout this chapter are in agreement with the claims suggested by the results of the first level

study of pupils' historical thinking in relation to intellectual development, namely that at the age of about 14 most children seem likely to express a sort of 'scientific' thinking. (See Shayer and Wylam, 1978.

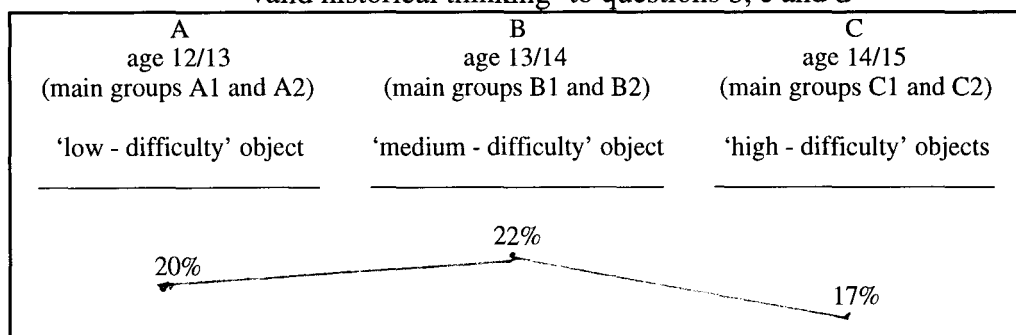
6.4.3. Historical thinking and age in relation to museum objects of increasing difficulty

As has already been stated, the method of the research was designed on the basis of the primary hypothesis that pupils' historical thinking might be related, not just to age, but to the level of difficulty museum objects posed for pupils' work. So the design of the research enabled (1) longitudinal study of pupils' historical thinking in relation to museum objects which posed increasing difficulty at each age - group, and (2) comparison of the longitudinal results with the results of the cross-sectional study of pupils historical thinking at different ages, in relation to the same museum object.

Pupils' historical thinking in relation to age and museum objects of different difficulty was studied in terms of 'valid historical thinking', because pupils' historical thinking seemed to be largely differentiated in terms of the interrelation of its methodology level and the validity of its outcome. Results are discussed in terms of both the number of pupils who expressed 'valid historical thinking' and the number of responses in which such thinking was expressed, in relation to common task 1, to common questions b, c and d, and to museum objects which posed an increasing level of difficulty at different ages.

According to the longitudinal results, the number of responses of 'valid historical thinking' that were provided to questions b, c and d of task 1 by the two main groups in relation to museum objects that posed increasing difficulty were as follows:

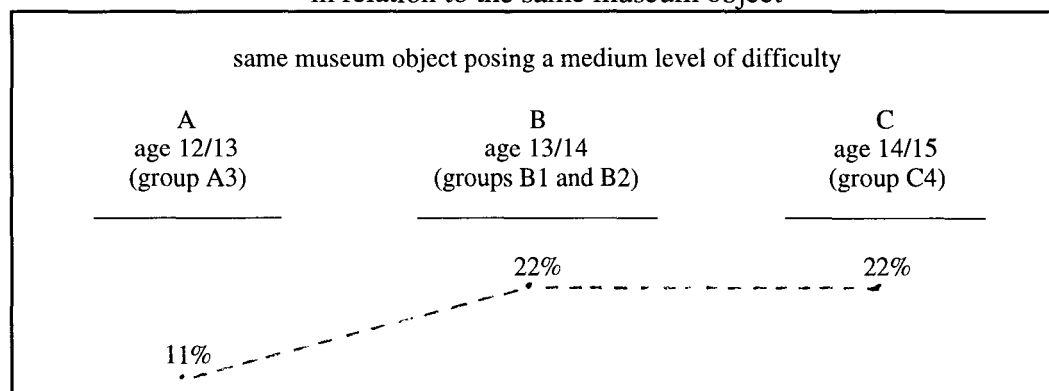
Figure 23. Longitudinal results in terms of the percentage of responses of 'valid historical thinking' to questions b, c and d



This figure shows that, despite the increasing level of museum objects' difficulty, the percentage of responses of 'valid historical thinking' that were provided to questions b, c and d at the age of 13/14 (22%) was a little higher than the relevant number at the age of 12/13 (20%). In contrast, the relevant percentage at the age of 14/15 (17%) was smaller than the percentage at both other ages (20% and 22% respectively).

In order to see how far pupils' historical thinking was related to their age and how far it was associated with the increasing difficulty of museum objects, relevant cross-sectional results were studied, which were based on groups A3, B1, B2 and C4. These groups were presented with the same museum object at all the three different ages.

Figure 24. Cross-sectional results in terms of the percentage of responses of 'valid historical thinking' of groups A3, B1, B2, and C4 to questions b, c and d, in relation to the same museum object

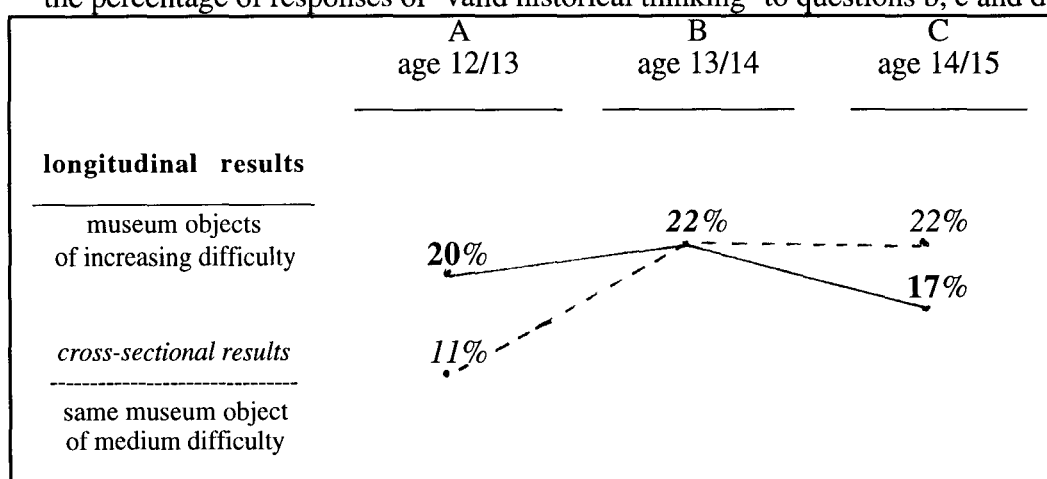


This figure shows that the percentage of responses of 'valid historical thinking' that were provided at age of B (22%) was much higher than the relevant percentage at age A (11%) and equal to the relevant percentage at age C (22%). According to this figure pupils' historical thinking appeared to progress by age, in terms of

‘valid historical thinking’ (‘historical methodology’ and ‘valid’ outcome), between the ages of 12/13 and 13/14, while it appeared as remaining constant between the ages of 13/14 and 14/15.

If we compare the longitudinal and cross-sectional results in terms of the percentage of responses in which ‘valid historical thinking’ was expressed, the association of pupils’ historical thinking at different ages with the difficulty level of museum objects becomes clearer.

Figure 25. Comparison of the longitudinal and cross-sectional results, in terms of the percentage of responses of ‘valid historical thinking’ to questions b, c and d



According to these comparative results, it seems possible that the relatively smaller increase (2%) of the percentage of responses of ‘valid historical thinking’ between ages A (20%) and B (22%) in the longitudinal study, than the relevant increase (11%) shown in the cross-sectional study, is associated with the fact that the museum objects with which main groups 1 and 2 were presented at age A and B respectively posed increasing difficulty for pupils’ work.

In addition, the difference of 9% between the longitudinal study (20%) and the cross-sectional study (11%) in the percentage of responses of ‘valid historical thinking’ at age A might be associated with the fact that in the longitudinal study pupils were presented with a low-difficulty museum object, while in the cross-sectional study pupils of the same age (A) were presented with a medium-difficulty object.

On this basis, the relatively large increase of 11% that was shown in the cross-sectional results between these two ages, was reduced to 2% in the longitudinal results, because pupils were presented with museum objects whose level of

difficulty increased in accordance with pupils' age: age A / low-level object - age B / medium-level object.

The difference of 5% that is shown between the cross-sectional (22%) and the longitudinal results (17%) in terms of the percentage of responses of 'valid historical thinking' that were provided at age C must be related to the fact that, in the cross-sectional study pupils of age C were presented with a 'medium-difficulty' object, while in the longitudinal study pupils of the same age (C) were presented with 'high-difficulty' objects; especially main group 1 was presented with a museum object of extremely high difficulty.

Moreover, this table shows that greater differences appeared between ages A and B than between ages B and C. Characteristic is the fact that in the cross-sectional study the same number of pupils (22%) expressed 'valid historical thinking' at both ages B and C. We see then that pupils' ability to generate valid historical inferences on the basis of the interpretation of museum objects in historical terms as evidence seems to be stabilising at the age of 13/14. e.g. *'This Ancient grave stele is of marble and is quite big. It illustrates two Ancient women, one seated and one standing. It is quite detailed and nicely elaborated. One of the two women, the one standing, is offering to the other woman a box which most possibly includes jewels. I hypothesise from her simple dress that she is a slave-servant. On the contrary, the seated woman is dressed better and she is adorned Her head is missing. She would rather be a noble-woman or a rich woman who died. I hypothesise that she is dead, I say this, because this presentation may symbolise that the seated woman is receiving one of her beloved objects by her servant e.g. jewels from life or a certain gift to accompany her in the underneath world, in Hades.'* (B1/1c/16)

This response is not one of the best responses provided at the age of 13/14, but, despite several weaknesses in historical issues, it shows that this pupil at the age of 13/14 was able to give a valid historical interpretation of this grave stele. This interpretation was historical because the represented theme was interpreted in historical terms, e.g. human/social relations were seen in their historical context (slave-servant/noble-woman). In addition, the inferences were based on the evidence available, as clearly demonstrated in explanatory terms. Therefore, although this girl did not use the museum object as evidence about the past, she interpreted its representation in historical terms, and this historical interpretation was valid, beyond any expectations. This response corresponds to mature reasoning, highly developed concepts, sensitivity and active historical thinking

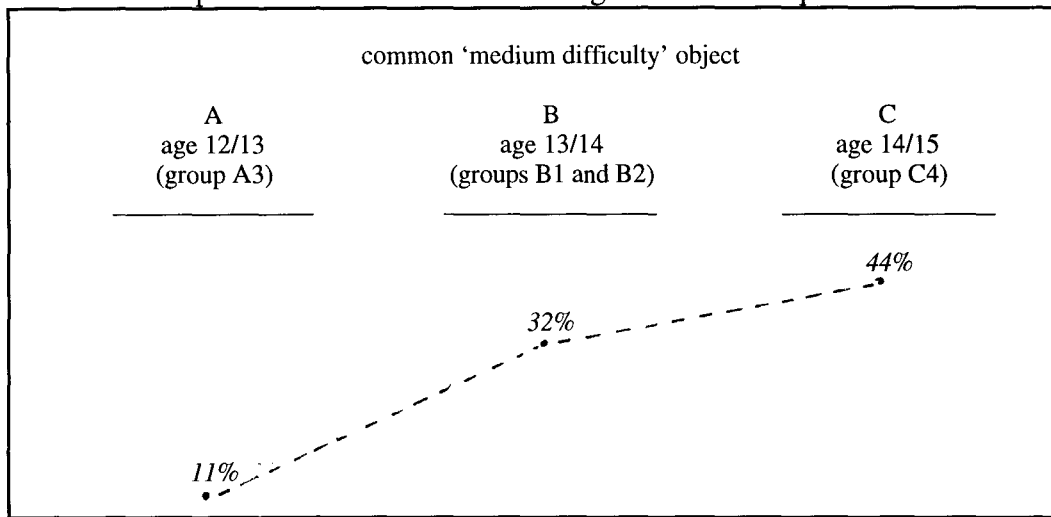
related to background historical knowledge, and generating historical inferences on the basis of the use of the museum object in historical terms.

On the other hand, the number of pupils who expressed 'valid historical thinking' at the age of 14/15 was smaller in the longitudinal study, because pupils were presented with a 'high-difficulty' museum object. Characteristic of the effect of the difficulty of the museum object on pupils' historical thinking is the following response, which was provided by the same girl in the 14/15 age-group, in relation to the broken clay mould for a bronze statue of Apollo. *'It is a bronze mould of a statue of Apollo. It is in bad condition since its upper part is missing and some pieces of the whole body are missing. We see that it has been put together since it was found broken It is of the 6th century BC. Its size is big, it is of the colour of clay and some pieces of clay are added in order to be united with the rest Probably it was found in excavations which took place in the Ancient Agora.'* (C1/1c/16) We see that, despite her obvious efforts, this same pupil did not manage to express 'valid historical thinking', because she either reproduced the offered information a-critically ('bronze mould') or generated 'problematic' rational inferences on the basis of the evidence ('it has been put together since it was found broken').

These observations are of considerable importance for history education and especially for the use of museum objects posing a different level of difficulty as sources in relation to pupils' age.

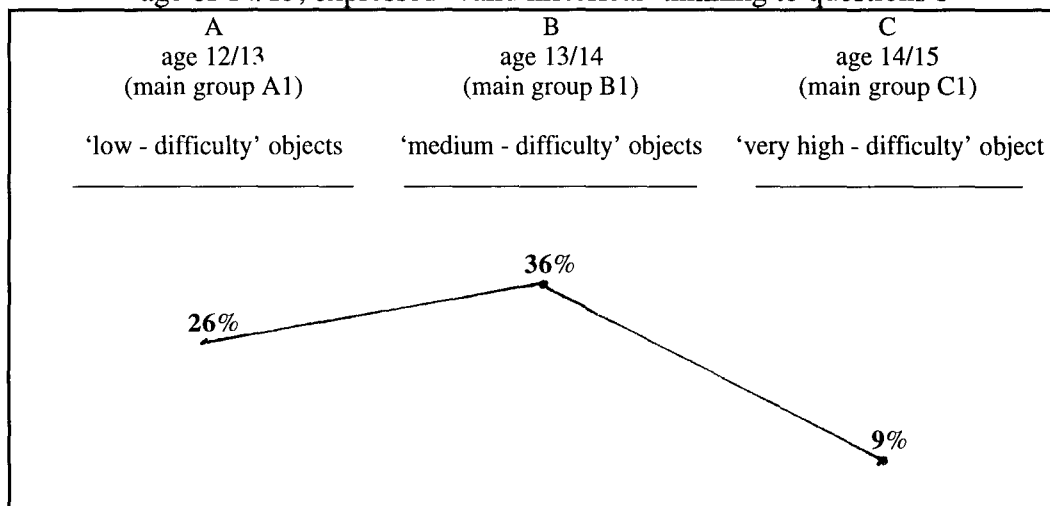
The relation of pupils' historical thinking to age and the effect of the difficulty of museum objects on pupils' historical thinking is supported further by (1) the longitudinal results in terms of the pupils of main group 1 who expressed 'valid historical thinking' to question b, being presented at the age of 14/15 with a museum object that posed extremely high difficulty; and (2) by the comparison of these results with the relevant cross-sectional results.

Figure 26. Cross-sectional results in terms of the percentage of pupils who expressed 'valid historical thinking' in relation to question b



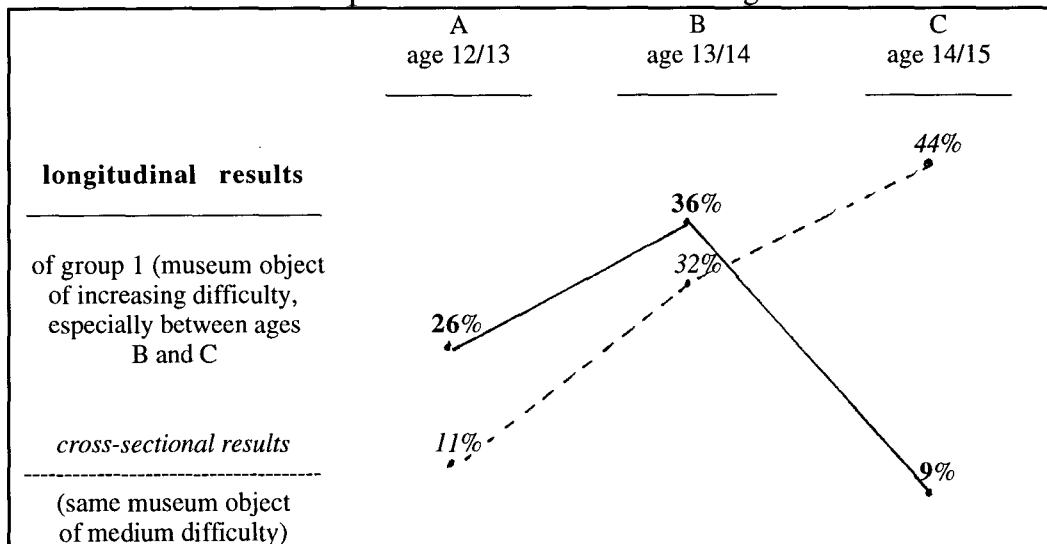
In this figure we see that, according to the cross-sectional study, the percentage of pupils who, presented with the same 'medium - difficulty' museum object, expressed 'valid historical thinking' in relation to question b, increased by age, and the percentage differences between ages A and B was 21%, and between ages B and C 12%.

Figure 27. Longitudinal results in terms of the percentage of pupils of main group 1 who, presented with museum objects of increasing difficulty, especially at the age of 14/15, expressed 'valid historical' thinking to questions b



We see that the percentage of pupils who expressed 'valid historical thinking' in relation to a 'very high-difficulty' object at the age of 14/15 was dramatically low; lower than at both other ages 12/13 and 13/14.

Figure 28. Comparison of the cross-sectional results with the longitudinal results of group 1, in relation to question b, in terms of the percentage of pupils who expressed 'valid historical thinking'



These figures show that the percentage of pupils of main group 1 who expressed 'valid historical thinking' fell dramatically at age C, when pupils were presented with a museum object which posed extremely high difficulty for their work. Especially the last figure shows that, although the percentage of pupils of main group 1 who expressed 'valid historical thinking' at ages A (26%) and B (36%) was higher than the percentage of pupils who expressed 'valid historical thinking' at ages A (11%) and B (32%) according to the cross-sectional study, the percentage of pupils of main group 1 who expressed 'valid historical thinking' at age C (9%) was dramatically lower than the relevant number of the cross-sectional study (44%).

Longitudinal results seem to suggest that pupils' historical thinking developed by age because the number of pupils who expressed 'valid historical thinking' increased from age A to age B, despite the increasing level of difficulty that was posed by the respective museum objects. In contrast, at age C, when pupils were presented with an object which posed high difficulty, it is likely that pupils could not treat it historically as compared with the previous years, as indicated by the fact that the number of pupils who expressed 'valid historical thinking' was dramatically decreased in accordance with the extremely high difficulty of the object.

Summarising this long discussion, we could state the following claims about the relation of pupils' historical thinking to age and its association with museum objects' difficulty:

- (1) Intellectual development may be a necessary but is clearly not a sufficient condition for the evolution of historical thinking at a 'scientific' level.
- (2) Pupils' historical thinking was related to age, as cross-sectional results show, and as longitudinal results indirectly imply.
- (3) Generally, greater differences were shown in historical thinking between the ages of 12/13 and 13/14, than between the ages of 13/14 and 14/15. By 13/14 'formal' and historical thinking seemed to be stabilised, but there were, nevertheless, crucial differences in historical behaviour.
- (4) Besides the relation of pupils' historical thinking to age, their historical thinking was also related to the level of difficulty museum objects posed.
- (5) Pupils' historical thinking was largely influenced by the association of pupils' age with the level of difficulty that museum objects posed. Therefore, when pupils were presented with objects which posed higher difficulty than their age could bear, the quality of their historical thinking was reduced by the difficulty posed. This was clearly shown by the comparative results at the extreme ages.

6.5. Historical thinking and the questions set

Generally, it was hypothesised that, among other things, pupils' historical thinking might be influenced by the questions set, and especially by whether their content implied, even indirectly, a historical attitude. Therefore, two types of questions were devised: 'history free' and 'indirectly historical' questions.

The different types of questions are discussed in the form they had in task 1, which was the common task, to which all groups of pupils responded, and which included two questions of each type.

Task 1

'History free' questions:

Question a.

Please choose one object that you are interested in. Why have you chosen it?

Question c.

How can you present this object? (What can you say about it?) [The aim of this question was to lead pupils to give a presentation of the object on the basis of their overall perception of it; not just to describe it.]

'Indirectly historical' questions:

Question b.

What information does this object give you about itself and about its period?

Question d

What are your questions about this object? (Suppose you were a historian, who wished to find about the past by studying this object.)

Questions a and c could be called 'history free' questions, since their content did not refer to history or historical thinking at all, while questions b and d could be called 'indirectly historical' questions, since their content indirectly referred to history, to the past, to the work of historians or to museum objects as historical sources.

This decision was based on the aim of studying pupils' historical thinking within a museum environment without imposing on them a certain historical attitude, or a particular way of seeing things. The aim of this research was to see if, how and how far museum objects were treated as historical sources, and, more generally,

what sort of historical thinking pupils expressed in a museum environment without having been taught or directly instructed to do so.

By means of ‘history free’ questions we could study pupils’ historical thinking as it evolved within a museum environment without having instructed them in any way to think historically. Only the fact that they were in a museum and that they were presented with museum objects were likely directly to influence their thinking. By means of ‘indirect historical’ questions we studied the sort of historical thinking pupils expressed when they were ‘indirectly’ asked to think historically, but without having any indications about what type of method or historical thinking was expected. This situation was achieved by two means: All questions were open-ended, and their wording was as neutral as possible with the intention of avoiding predetermined responses. (See the analytical presentation of tasks in Part 4.2.2.5.)

6.5.1. Historical thinking in relation to different questions

The results of the analysis of the 965 responses that were provided by all groups at the age of 12/13, 13/14 and 14/15 to common task 1 were as follows.

Methodology of historical thinking

Figure 29. Common task 1: Methodology of responses by question
(% of responses)

questions	responses provided	methodology levels					
		historical		rational	pseudo-historical		unhistorical / ahistorical
		academic	scientific		unsupported	reproducing	
‘history free’							
a	197*	0%	25%	18%	54%	3%	0%
c	253	0%	25%	25%	44%	2%	4%
indirectly historical							
b	258	0%	56%	4%	38%	2%	0%
d	257	0%	9%	0%	75%	14%	1%
4 questions	965	0%	29%	12%	53%	5%	1%

*The number of responses provided to question a is limited because main groups A1 and A2 did not respond to this question because of practical reasons related to the museum availability.

We see that in 56% of the responses to question b historical thinking of ‘historical’ methodology was expressed, while ‘historical’ methodology was present in a

much smaller percentage of the responses to all other questions. Results seem to suggest, therefore, that, as was expected, the historical content of question b, even if 'indirectly' stated, led pupils to express historical thinking of 'historical' methodology in the majority of their responses, and to a greater proportion than in their responses to other questions.

If we take into consideration, also, that pupils historical thinking was largely differentiated in terms of methodology, we may claim that the content of questions influenced pupils' historical thinking to a large extent. This claim is of great importance for history education and museum educational programmes, because it suggests that much attention has to be given to the questions set to children, because their different content and nature, even if indirectly implied, might lead pupils to evolve thinking of different type.

Against this, 'indirect historical' question d (which asked pupils to pose their own questions) did not behave accordingly, since the majority of responses (75%) were related to a pseudo-historical level of methodology. However, this may be accounted for pupils' traditional education. Results seem to suggest, therefore, that pupils, educated by a traditional system, did not know, as a whole, how to pose historical questions that could lead them to treat museum objects as sources of historical information or evidence. This suggestion is supported also by the fact that pupils' questioning appeared only in 2% of the 795 responses that they provided to all questions of all tasks that did not asked for their questioning. We see, therefore, that only a few pupils conceived questioning, even indirectly, as a constitutive part of historical thinking. One of the rare responses that included questioning as inherent in historical thinking is the following response of 'academic' methodology level:

'These scales were found in royal Mycenaean tombs, that means they were "kterismata". They are gold, which means that Mycenians used gold and that the civilisation was developed. The fact that they are so thin, engraved and elaborate shows us that people then did not only care about the practical aspect of an object but about aesthetics as well. This poses to us some questions, whether they were used in everyday life or whether they had a symbolic or decorative use. It is very much possible that Zeus used them to weigh the souls of people (that's why they were in a tomb). (In the Iliad, in verses X 209-210, we read: "and then father Zeus took the golden scales ...") This probably means that these small instruments were especially made for burial use and that they had a symbolic religious meaning. If this is true, they give us a lot of facts about their religious ideation.

Mycenians believed that, when the body of a man died his soul went on existing and went to 'Hades'. In these tombs we have found many objects which lead to the same conclusion. A fact that supports the above statement is that these instruments are so thin, fine and small, that if we weighed anything real, they would break (they were found broken). So they were probably not used for weighing. The butterflies and flowers which were engraved on the thin surface are probably some symbols of that age. So we see the mentality of Mycenians, their great religious belief and their artistic sensitivity.' (B1/21/3c)

In this response this girl posed some questions, thinking that they can form the basis of the interpretation of the museum object as evidence; having 'already in his [her] mind a preliminary and tentative idea of the evidence he [she] will be able to use... Questions and evidence, in history, are correlative... Anything is evidence which enables you to answer your question - the question you are asking now. A sensible question ... is a question which you think you have or are going to have evidence for answering.' (Collingwood, 1946, p. 281.)

On the other hand, the fact that only 12.7% of responses were at the 'pseudo-historical' level of posing questions to be answered by others was considered positive. It suggests that, although pupils were educated to rely on historical 'knowledge' offered by their unquestionable text books and their teachers, the majority of their responses was not limited to a relevant level of questioning. e.g. 'When was it made?', 'Where was it found?', 'What does it represent?'

In fact, in 75% of responses pupils expressed a personal wondering, which could have led them to express 'historical' questioning, if it was related to 'historical' methodology, i.e. posed in historical terms as discussed above. This consideration was also based on the observation that, although pupils' questioning was not of a 'historical' methodology level, it was of high quality in terms of its general content. Questions touched upon matters of great historical significance, a fact which seems to suggest that if they were educated in historical method, pupils could have expressed historical thinking of distinctive quality. The high content of pupils' questioning, in relation to its low-level methodology, is shown in the following response:

'When was this object created? Does this object represent the broader type of art of that period? Who is the sculptor? What was the personal relation of the [illustrated] persons [in reality], what was the hierarchy [between them]? What were the values

of the slave-woman and [what were the values] of the [person who appears as the] mistress? Where was this creation found?’ (C4/1d/134)

Some of these questions are posed by other pupils in terms of ‘historical’ methodology, i.e. discussing how these questions could lead to a historical interpretation of the evidence: e.g. *‘Who is the artist? In what period was it made? Where was it found? With these questions as a base I would try to get to some hypotheses about the past, not just about the object, but about the people then and I would try to find out why was this work made, what did they used it for, and what did the artist have in his mind as he was making it, as he was creating it..’* (C2/1d/59)

‘First of all I would like to know the origin of the persons who made this work in order to search for other relevant facts so that I could get information about them and about the object.’ (C4/1d/115)

The high quality of historical questioning that can be reached within the age range from 12 to 15, in terms of historical methodology, content and specific characteristics, was shown in the following response which was categorised at the ‘academic’ level.

‘Using these objects as historians we begin with the fact that these objects illustrate two musicians an element that shows to us that in that period there was a development of music. The first question refers to whether this development relates to the Cyciades or more generally to the Greek region. But the historian must question himself whether the activity of music presents a picture of the reality of the period or if it has been inspired by another place or by a myth of an older period. An other question might be: Does the representation of the instruments correspond to reality or has been changed in relation to the technical constraints of sculpture? Are the instruments that we see really a harp and a flute?’ (B2/2d/68)

In this response questioning is a constitutive part of historical thinking: questions are posed by the ‘historian’ to himself or herself; historical questioning is closely interrelated with historical statements.

On this basis, pupils’ questioning, although mainly limited to the ‘pseudo-historical’ level of ‘personal wondering’, was considered as a good ground on which history education could be based to let pupils develop their questioning

further, at a ‘historical’ level, by introducing them to historical methodology and to questioning as inherent in historical thinking.

Focus of historical thinking

Pupils’ historical thinking was studied in terms of whether it was focused on the museum objects studied or on the past. According to the ‘focus’ category system, responses including at least one thought focusing on the past were considered as focusing on the past, i.e. not only on the objects. (See Chapters 2 and 5.)

Figure 30. Common task 1: Focus of responses by question (% of responses)

questions	responses provided	percentage of responses to each question focused on the past	percentage of responses to each question focused on the objects
‘history free’			
a	197	39%	61%
c	253	18%	81%
indirectly historical			
b	258	73%	27%
d	257	53%	47%
totals			
4 questions	965	46%	54%

This figure shows that the majority of responses which were provided to ‘history free’ questions were focused on the objects, since in 61% of the responses to question a and in 81% of responses to question c pupils’ historical thinking was focused on the object. In contrast, in 73% of the responses to question b pupils’ historical thinking was focused on the past. Pupils’ responses to question d were almost equally focused on the past (53%) and on the object (47%). Results seem to suggest that, especially ‘indirectly historical’ question b led the majority of pupils’ responses to be focused to the past.

The focus of pupils’ historical thinking is also likely to have been related to the focus of the questions themselves, since ‘history free’ questions were focused on the objects, while ‘indirectly historical’ questions were focused on the objects and the past. More precisely, question a asked pupils to chose one object and to explain why they chose it. In this way, it led pupils’ thinking primarily focus on the objects, but since the reasons for which objects were chosen could be related to many other aspects, such as their historical origin or their aesthetic or historical

significance, historical thinking of a great number of pupils (39%) focused on the past. On the other hand, question c, asking pupils to give a presentation of objects, was focused only on the object. Accordingly, only a relatively small number of pupils' (18%) focused on the past.

'Historicity'

Pupils' responses were studied in terms of whether the objects and/or the past were conceived in terms of the notion of the historicity. (See chapters 2 and 5.) Responses related to the notion of historicity, e.g. 'It is an Archaic statue', were considered of higher historical value than responses in which the objects and/or the past were related to an imprecise past or to the ahistorical present, e.g. 'It is an old statue.' or 'It is a beautiful statue.'

Figure 31. Common task 1: Historicity of responses by question (% of responses)

questions 'history free'	responses provided	historicity values	
		the past conceived in terms of historicity	the past not conceived in terms of historicity
a	197	59%	41%
c	253	38%	62%
indirectly historical			
b	258	88%	12%
d	257	94%	6%

In the majority of pupils' responses to 'indirectly historical' questions b and d (88% and 94% respectively) historical thinking was expressed in terms of historicity, while in about the half of pupils' responses to 'history free' questions a and c (41% and 62% respectively) the notion of historicity was absent. This fact is probably related to the 'indirectly' historical content of questions b and d, in which pupils were asked to treat museum objects as sources and to pose their questions accordingly. We see, then, that the content and the nature of questions set influenced pupils' historical thinking in terms of 'historicity' too.

'Valid historical thinking' (of 'historical' methodology and 'valid' outcome)

The analysis of pupils' responses in terms of 'valid historical thinking' was based on the observation that pupils historical thinking was largely differentiated in terms its 'historical' methodology level and the validity of its outcome.

Figure 32. Common task 1: 'Valid historical thinking' of responses by question
(% of responses)

questions	responses of all groups (several museum objects)	% of responses of 'valid historical thinking'
'history free'		
a	197	21%
c	253	9%
indirectly historical		
b	258	29%
d	257	9%

We see that the percentage of pupils' responses of 'valid historical thinking' in 'indirectly historical' question b (29%) was relatively greater than the percentage of the relevant responses in question a (21%), and much greater than the relevant percentage of the responses in questions c (9%) and d (9%) respectively. A rather similar balance appeared in the relevant results of the cross-sectional study, by which different groups of pupils were presented with the same museum object at different ages.

Figure 33. Comparison of the results shown in figure 32 (all groups - different museum objects) with the relevant cross-sectional results of groups A3, B1, B2, C4 (same museum object), in terms of 'valid historical thinking'

questions	% of responses of valid historical thinking	
	all groups - several objects	groups: A3, B1, B2, C4 - same object
'history free'		
a	21%	18%
c	9%	5%
indirectly historical		
b	29%	29%
d	9%	14%

Results seem to suggest that pupils' historical thinking, in terms of 'valid historical thinking', was related to the questions set irrespective of the groups involved and the museum objects studied.

The results of the several analyses of pupils' responses, in terms of the four different questions, all seem to suggest that the expression of pupils' historical thinking in their responses was related to the content and the nature of the questions set. This suggestion, as has already been mentioned, points up the

importance of the educational method used in both history education and museum educational programmes, since even the wording of questions and the relevant attitude they imply seem considerably to influence pupils' thinking in general, and historical thinking in particular.

6.5.2. Evaluation of the questions set

The relation of pupils' historical thinking to the different questions set was seen within the general educational, historical and museological nature of the research, i. e. in terms of the tasks set, the museum objects studied, and the educational character of museums. This is implied by the discussion of results throughout Chapter 6.

Question a.

In a general sense, all questions set allowed pupils to express historical thinking at a more sophisticated level than had been expected. Question a proved a good introductory question, because it led pupils to have a look around, as they entered a museum, in order to choose an interesting object. Pupils' responses to question a revealed several aspects of their thinking besides those specific to historical thinking, such as their aesthetic and museological ideas and their general interests and ways of seeing. The main significance of question a to the research, however, was that it enabled study of how far pupils' approach to the museum world was historical at the time they entered the museum. (See Part 6.2 above.)

Question b

Question b, being an 'indirectly historical' question, proved a valuable question for the study of pupils' historical thinking, because by leading pupils to attempt a historical interpretation of museum objects it let them express historical thinking of a higher level than the other questions set. In this way it allowed the study of pupils' potential in historical thinking.

Question c

One illuminating feature of responses to this question was that pupils proceeded to interpretations of museum objects as 'opera aperta'. In this way question c enabled observations - more appropriate for a future research than for analysis here - on several aspects of pupils' relevant thinking and ideation associated with potential psychological problems or their aesthetic attitudes. Characteristic is the fact that one boy, known to have built his personality under the pressure of an imposing mother figure gave the following response to question c, in relation to the

Hellenistic grave stele which illustrated two women. ‘I can present it as a masterpiece of art. I consider that it represents a son who is offering a present to his mother.’ The psychological basis of this response becomes clear when seen in comparison with the other responses provided to the same question, in relation to the same object. Indeed, most pupils described it as illustrating two women, while a great number of pupils realised, to our surprise, that the one woman must be a slave-servant and the other her mistress. In addition a substantial number of pupils realised that this relief must be a grave stele and its represented theme must be related to death.

Question c proved important for the research, because it made possible investigation of pupils’ historical thinking on the basis of the responses provided by main group B1 to task 3, in which museum work was interrelated with work in class. The aim of this task was to see if historical information acquired from relevant books available in class, enriched pupils’ historical thinking, or if their responses were limited to the reproduction of the acquired information. This study seemed very interesting for the research, because pupils were used to the reproduction of ‘historical knowledge’ according to the nature of their traditional history education. (See Part 4.2.2.)

The comparison of the responses of the pupils of main group B1 provided in the museum to question c of task 1 with their responses provided in class to question c of task 3, in terms of historical thinking was made on the following grounds.

Comparison of responses to task 1 with responses to task 3, on the basis of common question c, according to Schematic plan 35

Task 1	< ----- >	Task 3
main group B1		main group B1
question c		question c

Figure 34. Percentages of respondents of group B1 in each category of ‘methodology’ for task 1 and task 3

tasks	no. of respondents	methodology levels					
		historical		rational	pseudo-historical		unhistorical / ahistorical
		academic	scientific		unsupported inferences	reproduction	
task 1	33	0%	24%	36%	40%	0%	0%
task 3	29	7%	52%	3%	3%	34%	0%

Historical thinking in the category of 'historical' methodology was expressed by 24% of the pupils of main group B1 in their responses to task 1, while a great number of pupils (40%) were at the pseudo-historical level 'unsupported inferences'. It must be noticed here that this picture is in agreement with the relevant overall picture that was formed on the basis of the relevant analysis of the full response set (N = 1079).

In comparison, in task 3 historical thinking of 'historical' methodology level was expressed by 59% of the respondents, and, more precisely, two pupils responded at the 'academic' methodology level. However, 34% of the pupils were limited to the a pseudo-historical level of methodology, 'reproducing historical information'.

Hence, when the relevant substantive historical information was available in class the majority of pupils (59%) were able to express historical thinking at a 'historical' methodology level, and two of them (7%) at an 'academic' level. Only 24% of the same pupils at the same age expressed historical thinking of 'historical' methodology to question c of task 1, while no pupil reached the 'academic' methodology level. This suggests that substantive information available in class made a difference to the level of historical thinking.

On the other hand, the results seem to suggest that the relevant substantive historical information that was available in class for task 3 led a substantial number of pupils (34%) to reproduce the information they collected from books. It must be noticed that these pupils completely ignored their observations and potential inferences made on the basis of the museum object studied in the museum, and were limited to the reproduction of the information collected. It was astonishing to see that pupils who presented the same object (because two or three pupils had chosen at random the same museum object) provided similar responses, since pupils reproduced - rewrote rather - the information available without changing a word.

We may suggest, therefore, that the fact that in task 3 historical information was available through relevant books enabled most pupils (59%) to express historical thinking at a 'historical' methodology level, but on the other hand led 34% of pupils to reproduce this information, without taking into consideration their work in the museum, as if they had not even visited it.

The significance of this suggestion becomes clear if we consider that these pupils were educated with a traditional approach to history education, by which they were used to reproducing the historical information or 'knowledge' that was offered by their history text books. On this basis it seems possible that the education pupils had received greatly influenced their responses in terms of the methodology of historical thinking, since it almost nullified the relevant museum practice.

Results seem to suggest, therefore, that the limited museum practice pupils had in working with museum objects as sources, which was not complemented by relevant school history education, does not seem to have led, at least, a great number of pupils (34%) to express historical thinking of 'historical' methodology. This suggestion is supported further by the fact that the museum practice that main groups 1 and 2 had over a period of three years did not seem to have advanced their historical thinking in comparison with additional group C4, who worked only once in a museum.

This suggestion is of importance for history education, because it implies the claim that museum work is not of great educational significance if it is not broadly and deeply interrelated with relevant school education.

Question d

The significance of question d to the research was great because it enabled study of pupils' historical questioning which otherwise could not be made, since the great majority of pupils did not pose questions if not being asked to. (See Part 6.5.1 above.)

6.6. Observations on pupils' historical thinking in relation to their work with museum objects

In Chapter 2 historical thinking was investigated as a complex intellectual activity constituted by the interrelation of many issues associated with its methodology, content and specific characteristics. All these issues could not be studied in depth by a single investigation; a first level analysis, however, allowed some general observations with respect to them. Some of these observations are discussed here in brief, especially those which might advance understanding of pupils' historical thinking in relation to their work with 'physical' objects.

6.6.1. Observations on pupils' historical thinking in terms of issues relating to its content

'Particular content 1' and 'Particular content 2'.

The content of historical thinking was studied by a first level analysis in terms of its '*particular content*' by two parallel systems: '*particular content 1*' and '*particular content 2*'. These systems emerged from the data. Indeed their distinctive values were defined by the grouping of several different relevant perceptions that appeared in pupils' responses. The '*particular content 1*' category system was constructed in terms of categories corresponding to the object's perceived identity relating to its historical environment, while the '*particular content 2*' category system was constructed in terms of categories which corresponded to several other aspects of the object's identity.

Figure 35. The content of pupils' historical thinking in terms of '*particular content 1*' on the basis of the full response set (N = 1079)

N. object's perceived identity related to its existence in the present:	997	92%
M. related to its manufacture:	557	52%
P. related to an imprecise past:	502	47%
O. related to its origin:	323	30%
F. related to its discovery, 'finding':	198	18%
U. related to its use:	40	13%
A. related to its treatment by archaeologists or historians:	44	4%
L. related to the fact that it was out of use or forgotten, 'lost':	7	1%

These results show that the content of pupils' thinking, as was expressed in their responses, mainly related to the objects' identity as an object of the past, and/or of a specific origin, to its manufacture and to its existence in the present. In fewer responses it was related also to the objects' discovery (18%), while references to the objects' use were even more rare. (This was probably associated with the fact that most objects studied were objects of art. Pupils' reference to the use of everyday objects was more frequent.)

Results of this first-level analysis seem to suggest that pupils mainly perceived the objects studied in terms of their manufacture and/or origin and their existence in the present. The objects' identity in relation to their history from the time they were made till now was ignored by the majority of pupils.

Figure 36. The content of pupils' historical thinking in terms of
'particular content 2' on the basis of the full response set (N = 1079)

d. object's perceived identity related to its definition/description:	1016	94%
s. related to its significance or meaning as a source:	752	70%
t. related to the concept of time:	711	66%
g. related to past human and social thoughts, purposes, etc.:	476	44%
p. related to the concept of space:	292	27%
r. related to its presented theme's relation to reality:	208	19%
c. related to its capacity to stimulate thoughts, feelings, etc.:	165	15%
h. related to its historical significance or meaning (clearly stated as such by pupils):	51	5%
f. related to its familiarity:	21	2%
str. related to its strangeness:	18	2%

This figure shows that 94% of the 1079 responses referred to the objects' definition and/or description. 70% of the responses referred to the objects' significance or meaning as sources, and 66% referred to time, while 44% referred to the objects association with human/social thoughts, wishes, feelings, purposes etc. e.g. *'This object represents a sea-monster. Most probably it was made to frighten people there and to remind them that gods have sovereign authority.'* (C2/1c/53) The latter three were considered very significant to the study because they suggest that the content of a substantial number of pupils' responses was of historical character, despite the fact that only in 5% of the 1079 responses the historical significance or meaning of objects was clearly stated as such.

The fact that in 70% of responses pupils referred to the objects' significance or meaning as sources shows that pupils had a historical approach towards the museum objects irrespective of the level of historical thinking they reached and the type of the question they responded to. This was especially highlighted in responses to question a, which asked pupils to choose one object and to give their reasons for choosing it. Only in a few responses were the objects not perceived as bearing a historical significance as sources. e.g. *'I chose the head of the Minotaure because it is an elegant work and the necklace which was found in a royal grave Both of them are very beautiful.'* (B2/1a/53) Even at the age of 12/13 many pupils perceived the objects as sources: *'The object that attracted my interest was a small eagle which is the symbol of power It was found in Mycenae. I liked it because through it I see how Mycenians saw their king.'* (A3/1a/84)

Although the historical significance of objects was not clearly stated as such in the majority of responses, in a few responses such references appeared either in the form of statements or questions: 'It is very important as a historical source', or 'How can it be used as historical source?'. This was considered very important, because working with museum objects pupils who did not have any education in historical method were led to ask questions about the historical use of objects as sources.

Pupils' reference to the concept of time appeared in a greater number of their responses (66%) than their reference to the concept of space, probably suggesting that the historical identity of museum objects was perceived in relation to time. This suggestion might be associated with the chronological nature of their history education, and the fact that they had mainly studied Greek history.

Surprisingly, pupils were not much attracted by the strangeness or the familiarity of museum objects, since such references appeared only in 2% of their responses. It must be emphasised here, though, that familiar objects usually led pupils to compare the objects of the past to contemporary objects and to generate historical inferences in which both the past and the present were seen in terms of historicity. e.g. *'These tools resemble those of today. We may say that, despite their differences, the tools of the Prehistoric past have influenced contemporary tools. So contemporary tools are made on the experience that the past has offered.'* (B1/1a/34)

Concept of time

Figure 37. The content of pupils' historical thinking in terms of the concept of time on the basis of the full response set (N = 1079)

Ot. the concept of time related to the time from which the object originates:	325	30%
Pt. related to an imprecise time of the past:	225	21%
Mt. related to the time in which it was made:	222	21%
Nt. related to its existence or treatment now:	157	15%
Ft. related to the time in which it was discovered, found:	54	5%
Ut. related to the time in which it was used:	14	1%
Lt. related to the time in which it remained out of use or lost:	4	0.3%
At. related to the time in which it was archaeologically treated:	2	0.1%

Results of the first-level analysis of pupils' responses in terms of the concept of time seem to suggest that objects were mainly seen in relation to two distinct points of time: the time of their origin or manufacture and the present.

Concept of space

Figure 38. The content of pupils' historical thinking in terms of the concept of space on the basis of the full response set (N = 1079)

Fp. the concept of space related to the place in which the object was found:	171	16%
Np. related to its existence or treatment in the museum:	47	4%
Op. related to the place from which the object originates:	43	4%
Up. related to the place in which it was used:	33	3%
Mp. related to the place in which it was made:	30	3%
Pp. related to an imprecise place of the past:	17	2%
Lp. related to the place in which it remained out of use or lost:	3	0.3%
Ap. related to the place in which it was archaeologically treated:	1	0.09%

This table shows that reference to the concept of space was made mainly in relation to the place where the object was found (16%), while the appearance of the concept of space in relation to all other places associated with the object's history was very low (from 0.09% to 4%). Characteristic is the fact that the museum environment in which pupils worked was mentioned only in 47 of the 1079 responses provided.

Finally, it must be mentioned that the most typical questions posed by pupils in reference to the concepts of time and space were: 'When was it made?' and 'Where was it found?'

Although the study of pupils' historical thinking in terms of different issues relating to its content was based on a first-level analysis, the relevant general observations give a picture of the broader content of pupils' historical thinking, and open up issues for further research, such as children's conceptions of time duration and change in time.

6.6.2. Observations on pupils' historical thinking in terms of issues relating to its specific characteristics

The quality of pupils' historical thinking was evaluated in terms of several issues which were called 'specific characteristics' of historical thinking, according to the analytical discussion in Chapter 2. Generally, pupils, being educated by a traditional approach to history education, were not expected to express historical thinking of high quality, according to criteria set by changing modern approaches to history education.

The first-level analysis of specific characteristics allowed a general picture of pupils' historical thinking in terms of most of them. Basic differences in this area of analysis were shown in terms of the criterion of whether specific characteristics were directly or indirectly related to historical thinking. 'Indirect' specific characteristics were considered the issues that could not be absent from pupils' responses, because they relate to all types of thinking, irrespective of their historical character: 'general evaluation' of outcome, 'logic', 'reading/observing' skills. 'Direct' specific characteristics were considered the issues that characterised the quality of historical thinking as such, even by their presence or absence: use of 'dependent historical information' and 'independent historical knowledge', 'historical questioning' (in tasks not asking for pupils' questions), 'empathy', 'recongnition of the limitations of the evidence', 'historical uncertainty' and 'historical relativity'.

The first-level analysis of pupils' historical thinking in terms of its specific characteristics allowed, among other things, some important observations.

(1) Pupils expressed valid and/or acceptable historical thinking in the majority of their responses in terms of 'indirect' specific characteristics that are basic

constituents of an educated intellect (general validity and logic of statements related to accurate ‘reading’ or observing skills).

(2) As far as ‘direct’ specific characteristics are concerned, the use of ‘dependent historical information’ and ‘independent historical knowledge’, and ‘empathy’ (see Chapter 2) were present in a substantial number of pupils’ responses. In contrast, ‘historical questioning’ (conceived as inherent in historical inferences), ‘recognition of the limitations of the evidence’ and the notions of ‘historical uncertainty’ and ‘historical relativity’ were present in a very small number of responses.

Figure 39. Pupils’ historical thinking in terms of ‘historical questioning’, ‘recognition of the limitations of the evidence’, ‘historical uncertainty’ and ‘historical relativity’ on the basis of the full response set (N = 1079)

	collected responses	responses in which the issue could be present	present		absent	
			no.	%	no.	%
	1079					
questioning (in tasks not asking for pupils questions):		795	(15)	2%	(780)	98%
recognition of the limitations of the evidence:		1079	(63)	6%	(1016)	94%
historical uncertainty:		1079	(96)	9%	(983)	91%
historical relativity:		1079	(5)	0%	(1074)	100%

These finds seem reasonable, if we take into consideration that the historical conceptions that these issues imply are in contradiction with pupils’ traditional history education, by which pupils were used to the reproduction of the unquestionable ‘historical knowledge’ that their history text books supplied. This raises the possibility of the influence of school history education in its cultural context on pupils’ historical thinking, assumptions and ideas. (See R. Ashby and P. Lee, 1996.)

Chapter Seven

Conclusions

- 7.1. A picture: a scale applied to reality
- 7.2. Conclusions: the picture
 - 7.2.1. Historical thinking and educational variables
 - 7.2.2. Historical thinking and museological variables
- 7.3. Significance for future research and history education
 - 7.3.1. Studying historical thinking
 - 7.3.2. Questions for further research
 - 7.3.3. Significance for history education

Epilogue

7.1. A picture: a scale applied to changing reality

This thesis set out to explore historical thinking among secondary-school pupils aged 12 to 15 years as it evolved and developed within a museum environment. It has not been the aim of the thesis to present pupils' historical thinking overall, nor to offer a complete picture of its evolution and development in this age range within a museum environment: both of these endeavours are beyond its scope. Both historical thinking and the museum environment were conceived as complex identities changing according to the changing historical, social, cultural, economical and political context.

Historical thinking was investigated as a complex intellectual activity being realised within the social character of historical process, and being thus conceived differently by each theory of history and its associated approach to history education. In this sense the study of pupils' historical thinking in this research relates to changing approaches to history education in Britain.

On the other hand historical thinking was conceived as involving the selection and interpretation of evidence, on the basis of which historical inferences and questions about the past are generated. Thus historical thinking was conceived as directly relating to historians' conceptions of evidence, its interpretation, and its use; i.e. as relating to historians' treatment of the evidence according to their theoretical view of the historical process and their effort to make sense of it. On this basis, all different types and modes of history were conceived as being realised on the basis of this system of conceptions, albeit seen from different perspectives. Museums, also, were investigated as historical institutions whose identity and function are changing within the changing historical, cultural, social, economical and political context.¹

Therefore, an analytical schema was devised by which the complex intellectual activity that is historical thinking could be explored by different approaches to history and history education, in terms of its constitutive elements and several interrelated issues.

¹There is no essential museum. 'Not only is there no essential identity for "museum", but such identities as are constituted are subject to constant change as the play of dominations shifts and new relations of advantage and disadvantage emerge.' (E. Hooper-Greenhill, 1988a.)

On this theoretical basis the research offers a picture of pupils' historical thinking as it evolved and developed in a group of Greek pupils, educated by a traditional approach to history education, within the educational atmosphere of 'traditional' archaeological museums in Athens. It is clear that the picture of pupils' historical thinking would be different if the research were conducted in museums of different type, in a different social and cultural milieu, in terms of different approaches to history and history education.

Museum objects were conceived as 'opera aperta', open to alternative interpretations. In this sense, pupils' historical interpretations of museum objects as sources of historical information or evidence were 'read' as being closely interrelated with a series of aesthetic, psychological, museological and archaeological interpretations. Accordingly, the study of historical thinking took into consideration subjects' cultural, social and educational background, and their identity as active intellectual personalities distinguished on the basis of individual differences: general intellectual and aesthetic abilities, sensitivity and interests in historical investigation, ways of knowing and thinking.

The study of historical thinking on the basis of the analysis of 1079 responses provided by 141 Greek pupils', within the age from 12 to 15 years, in a museum environment, over a period of three years, was not an easy task, mainly because historical values were not diaphanous within the complexity, wealth and constraints of children's thoughts. Therefore, conclusions must be 'read' as mental models, produced by the research for helping us to understand pupils' historical thinking. They form a picture that we made to ourselves of pupils' historical thinking; a picture 'like a scale applied to reality.' (Wittgenstein, 1922, p. 39.)

Moreover, the conception of historical thinking per se on the basis of which pupils' historical thinking was explored was, to a large extent, formed in the light of the first 'readings' of pupils' responses through which a primary attempt was made to decode its historical nature. On this basis, these children did not only make the study of historical thinking within a museum environment possible, but they also enabled investigation of what historical thinking might be.

7.2. Conclusions: the picture

The results of the analysis of pupils' responses in the light of the six-year dialogue with children's thinking allowed the following picture of the evolution and development of pupils' historical thinking within a museum environment:

1. Children's historical thinking within the age range from 12 to 15 years seemed to be related to intellectual development, in terms of both reasoning and use of concepts, but it was not absolutely dependent upon it. Intellectual development may be a necessary but is clearly not a sufficient condition for the evolution of 'scientific' historical thinking. Findings are generally in agreement with a number of researchers of different orientation: Booth (1978, 1987), Dickinson and Lee (1978), Shemilt (1980), Shayer and Wylam (1978), Smith (1986).

2. Historical thinking was related to age. A great number of children expressed valid historical thinking at the age of 12/13, but their historical thinking continued to develop with age, in terms of many issues concerning the level and the quality of historical thinking, such as its methodology, the validity of its outcome and the accurate use of 'scientific' concepts. Greater differences, however, distinguished children's historical thinking between the ages 12/13 and 13/14 than between the ages 13/14 and 14/15.

3. Pupils' historical thinking was associated with a series of educational and museological conditions, besides intellectual development and age. In addition, as a complex intellectual activity, it was related to individual differences in terms of intellectual potential, aesthetic development, sensitivity and interest in historical investigation, ways of knowing, questioning and thinking.

7.2.1. Historical thinking and educational variables

(1) Pupils' historical thinking was associated with the tasks set and the educational 'philosophy' they implied. Indeed, the tasks, not relating to a traditional approach to history education, enabled pupils, in a general sense, to evolve historical thinking beyond the limits of their traditional school history education.

(2) Pupils' historical thinking was associated with the questions set in terms of whether they were 'history free' or 'historical'. 'Historical' questions enabled

pupils to express higher level of historical thinking than 'history free' questions, in terms of most issues studied.

(3) Pupils' historical thinking was, in a general sense, affected by the educational environment in which it was realised. Differences appeared in the level and the quality of pupils' historical thinking, in terms of whether it was expressed in the presence of the museum objects studied, within a museum environment or, afterwards, in class, where relevant books were available.

(4) Moreover, pupils' work with museum objects within a museum environment enabled them to express historical thinking beyond the level of reproducing 'dependent' or 'independent' historical information or knowledge (acquired in the museum or previously, mainly at school). In this sense, pupils' historical thinking appeared as going beyond the limits set by their traditional history education. On the other hand, the affect of their traditional history education was shown with respect to the fact that most responses implied the assumption that the past is really known, or can really directly be known. This was especially suggested by the absence or limited use of the notions of historical uncertainty and relativity, and the recognition of the limitations of the evidence. Among other things, pupils' questioning showed that, although most pupils posed questions of a relatively high-quality content, they did not pose historical questions (at a 'historical' methodology level), conceived as inherent in the nature of history.

7.2.2. Historical thinking and museological variables

(1) Pupils' historical thinking was activated by the educational environment of the archaeological museums visited. The majority of subjects had a historical approach towards the museum world from the time they entered museums. In this sense (archaeological) museums proved to offer an enabling educational environment for the evolution and the development of historical thinking.

(2) Traditional museums seemed to facilitate a type of historical thinking that related to traditional archaeological, museological and historical assumptions and ideas. But pupils' work with museum objects in relation to specially devised tasks, which let pupils attempt their own interpretations of museum objects as 'opera aperta', seemed to enable a substantial number of pupils to develop historical thinking beyond traditional assumptions and ideas.²

²Conclusions touching upon museological issues are in agreement with the argument of E. Hooper-Greenhil (1988a, p. 350): 'There is no one "truth" that may be constituted through the

(3) Indeed, pupils' historical thinking, as a complex intellectual activity, was not simply dependent upon the environment in which it was realised. Pupils' historical thinking, based on their work with museum objects within a museum environment, according to specially devised tasks, was evolved and developed in close relation to the nature of this educational practice rather than to the surrounding museological environment.

(4) Pupils' historical thinking was closely related to the museum objects studied, in terms of whether museum objects were single 'isolated' objects or collections, 'everyday' objects or objects of art, and in terms of the level of difficulty they posed for pupils' work.

Single 'isolated' objects and collections:

Indeed, collections of objects seemed to facilitate pupils to focus on the past and to treat objects in their historical context more than single objects did. But they seemed to be more difficult for pupils to handle; pupils treated them mainly in terms of their physical existence and not in terms of their 'representum' or the interrelation of their physical existence and their representum. In contrast, single objects were more easily treated as sources, in terms of both their existence as objects and their 'representum'. Therefore, pupils' historical inferences on the basis of collections of objects were more general than their inferences generated on the basis of single objects.

Everyday objects and objects of art:

Everyday objects seemed to facilitate the evolution of pupils' historical thinking more than objects of art did. Despite the several difficulties that objects of art pose as historical sources, however, a great number of pupils proved to be able to treat them in both aesthetic and historical terms, and to express valid historical thinking of distinctive quality.

Objects posing increasing difficulty:

Pupils' historical thinking was closely related to the level of difficulty museum objects posed for their work, in terms of their appearance, the presence and the type of relevant labelling ('dependent' historical information offered in the museum) and their relation to pupils' background historical knowledge ('independent' historical knowledge previously acquired, mainly at school).

socio-historical articulations of knowledge and things. Forms or rationality vary, and existing pronouncements from "authorities" can be rejected, denied, opposed. New meaning can be articulated through new discourses.'

Most pupils at the age of 12/13 were able to treat 'low-difficulty' objects in historical terms and they were thus enabled to express 'valid historical thinking'. But when presented with 'medium-difficulty' objects their historical thinking was appreciably affected.

At the age of 13/14 and 14/15 pupils were able to treat 'medium-difficulty' objects in historical terms and to express 'valid historical thinking'. 'High-difficulty' objects considerably affected pupils' historical thinking at the age of 14/15; the higher the difficulty the greater its effect upon the level and the validity of pupils' historical thinking.

Generally, results suggested that there were limits in the level of difficulty that each age could bear. This suggestion led to the conclusion that the evolution of 'valid historical thinking' at each age and the development of historical thinking from the age of 12 to 15 were closely related to the interrelation of pupils' age with the level of difficulty museum objects as historical sources posed for their work.

Pupils reliance on 'dependent historical information' was associated with its form; extensive information offered in museums was ignored. The wording, also, of labels and their museological 'philosophy' ('object oriented') largely affected the expression of 'valid historical thinking'.

Differences shown among individuals and responses in the expression of historical thinking in terms of several issues, but especially in terms of its methodology and validity, led to the conclusion that, besides developmental, educational and museological conditions, pupils' historical thinking within this age range was largely related to their personal intellectual powers, abilities and interest in historical investigation.

7.3. Significance for future research and history education

As was argued in Chapter 2, the theoretical investigation of historical thinking, the devised schema and the relevant analytical method of the research could, as potential mental tools, serve future researchers in their own studies of historical thinking, according to their own theoretical conceptions of historical thinking, history education and history.

Indeed, the analysis of pupils' historical thinking according to the above mentioned investigation, schema and method showed that the analysis results could be 'read' and discussed on the basis of different approaches to history, history education and historical thinking. 'Traditional' approaches would have focused on the content of pupils' historical thinking rather than on its methodology and specific characteristics, paying close attention to the issue of whether its outcome corresponded to 'dependent' historical information offered in museums or to 'independent' historical knowledge acquired previously at school. 'Modern' approaches, with which the research was associated, would have focused on the methodology and specific characteristics of pupils' historical thinking rather than on its content, while 'postmodern' approaches would have focused on its 'rhetoric', conceived as the essential element of historical thinking.

On this basis, the potential contribution of the study to relevant future research might be the construction of a theoretical schema and the proposal of a method, on the basis of which historical thinking could be studied by different approaches to history and history education; several historical issues could be separately studied and at the same time interrelated with other issues and basic elements of the complex and changing intellectual activity that is historical thinking.

The theoretical investigation of historical thinking and the relevant schema and method that the study proposes for future research might advance the dialogue on history education both among the different approaches and within each approach. According to this theoretical model, different theoretical conceptions of controversial issues, like empathy, could be illuminated, understood in terms of their different orientation and their associated assumptions.³

The particular longitudinal field study of pupils' historical thinking aimed to be useful to history education in terms of its contribution to a better understanding of the evolution and development of historical thinking on the basis of pupils' work with museum objects within a museum environment. In accordance with its aim the study offers a picture of pupils' historical thinking in terms of a number of historical issues studied, and points out a series of questions for future research.

³Characteristic is the fact that only pure 'modern' historians seem to appreciate the significance of empathy to historical thinking, because empathy is closely interrelated with the 'modern' conception of history; empathy is not only a necessary issue for the reconstruction of the past, but the concept of empathy per se also presupposes that the past can be reconstructed. Therefore, historians with no clear 'modern' orientation question its value or reject it, because it contradicts their general conception of history.

Despite its limitations, the research led to a number of conclusions which touch upon significant issues of history education, such as whether theories of intellectual development can be of any help to the study of historical thinking. In addition, its conclusions about the use of museum objects as sources in relation to the evolution and the development of pupils' historical thinking within a museum environment could contribute to the relevant dialogue on pupils' use of sources and evidence; enlarge understanding of the use of museum objects and objects of art as sources; shed light on some differences that exist in the use of museum objects and written texts as sources; and generally underline the enabling atmosphere of (archaeological) museums, especially in stressing the importance of educational tasks that let children attempt their own interpretations of objects, 'read' as 'opera aperta'.

7.3.1. Studying historical thinking

Pupils' historical thinking was primarily differentiated in terms of its methodology and the validity of its outcome. Therefore, 'valid historical thinking' could be primarily tested on the basis of the interrelation of 'methodology' and 'general evaluation'. The content of historical thinking, being a very broad theme, could be initially studied in terms of 'focus', 'context' and 'historicity'; but the study of other issues related to content, especially in terms of how objects are perceived ('object-representum', 'particular content 1' and 'particular content 2'), could offer an important insight into pupils' historical thinking. The study of the concepts of time and space could reveal important aspects of pupils' thinking, both historical and general. In addition, the study of the specific characteristics of historical thinking could enlighten the quality of children's historical thinking and its association with traditional, modern or postmodern historical ideas and assumptions concerning the past and its relation to present historical investigations.

7.3.2. Questions for further research

The thematic breadth of the research leads to a series of questions for further research, irrespective of whether they have already been suggested by other researchers. (See Chapters 2 and 3.) Basic questions or topics that emerged, especially on pupils' historical thinking in association with their work with 'physical' museum objects are:

(1) Relevant study of historical thinking on the basis of a broader sample from different social and cultural milieus.

- (2) Study of pupils' historical thinking within the age range from 9 to 12 (possibly corresponding to 'pre-formal' level of reasoning and use of concepts) and from 15 to 18 (possibly corresponding to 'advanced-formal' level).
- (3) Study of pupils' historical thinking in depth in terms of the use of 'scientific' concepts, and questioning.
- (4) Study of historical thinking in terms of each of its elements (methodology, content and specific characteristics) in depth.
- (5) Comparative study of museum objects and written texts as sources in terms of language problems, everyday 'texts' and 'texts' or art, single 'texts' or 'collections', authentic 'texts' and copies, and in terms of the different contemporary environments they are displayed in: museums, libraries or archive centres.
- (6) Children's aesthetic assumptions and ideas in relation to the use of objects of art as historical sources.
- (7) Children's assumptions and ideas about the identity of museums visited in relation to the use of displayed objects as historical sources.
- (8) The underlying 'traditional', 'modern' or 'postmodern' philosophy of pupils' assumptions and ideas about the past and the evidence: in terms of whether the past is or can be really directly be known on the basis of the evidence available, whether it can be reconstructed in terms of present interpretations of the evidence, or whether it is lost, and the evidence available is its only trace available open to present 'wondering' of interpretations. In fact, this area is already under study, in relation to written historical texts, by R. Ashby and P. Lee (1996).
- (9) Comparative analysis of pupils' historical thinking according to criteria set by 'traditional', 'modern' and 'postmodern' approaches to history and history education.
- (10) Study of pupils' historical thinking in 'modern' or 'postmodern' archaeological museums, or in museums of non archaeological/historical character.

7.3.3. Significance for history education

Taking into consideration that results related to pupils who, being educated by a traditional approach, had no instruction, education or practice in matters concerning 'scientific' historical thinking and work with sources, the research conclusions might be of significance for history education, because they offer a picture of pupils' historical thinking that is, more or less, articulated by their own historical ideas and potential in historical thinking.

This picture could lead to a better understanding of the limits of pupils' historical thinking, within the age range from 12 to 15, that could be significant to education on the basis of Vygotsky's (1934) argument that education and assistance can lead children to do more than they could do by themselves 'though only within the limits set by their state of development'.

In this sense, the research conclusions offer an insight into many aspects of the potentialities of history education in relation to this 'sensitive' age range from 12 to 15 years. They suggest that in this age range, pupils' historical thinking could be advanced further, if their education is aimed at the development of all the elements of historical thinking: methodology, content and specific characteristics. Such education would involve working with sources with parallel 'reading' of historians' work, and articulation of historical speech, in which questioning would be conceived as inherent.

The research conclusions suggest that the age range from 12 to 15 years is a 'sensitive' period for history education, because most pupils seem to reach a mature level of reasoning at the age of 13/14, which is a necessary condition for the expression of 'scientific' historical thinking. At the age of 12/13 pupils' reasoning is not especially advanced and their concepts are 'spontaneous' rather than 'scientific', to use Vygotsky's term. But they can handle sources and express historical thinking at a more or less 'technical' level. From the age 13/14 pupils are likely to treat museum objects as sources in historical terms and to express valid historical thinking at a 'scientific' level, since both their reasoning and the use of concepts continue to develop with age. According to Booth, historical thinking 'can be attained at an abstract level by a high proportion of 14 and 16 year olds, particularly if pictorial materials are used.' (1978, p. 118.) (See also relevant trends in Shayer and Wylam, 1978.)

Accordingly, the selection of museum objects should take into consideration that pupils at the age of 12/13 seem to be able to handle 'low-difficulty' objects only. In addition, although pupils' ability to handle 'difficult' objects as historical sources increased with age, extremely high-difficulty objects affected pupils' historical thinking at the age of 14/15.

Conclusions also suggest that pupils' work with museum objects in a museum environment might be of great significance to the development of their historical thinking for the following reasons.

Museum objects do not pose language problems that written texts are likely to pose, especially for young children. They seem to stimulate pupils' imagination, aesthetic abilities and sensitivity mainly because they are conceived of as the touchable past. Pupils' interest and involvement in historical investigations seem to be enlarged through a feeling of the reality of human presence in the past.

Pupils' work with museum objects as sources within a museum environment is likely to be enjoyed more than in class, and to stimulate innovative intellectual work which might result in social and aesthetic development besides advances in historical thinking.

The advantages of museum practices might be enlarged especially if certain conditions are taken into consideration, such as the interrelation of museum practice with everyday school history. Indeed great influence on pupils' historical thinking should not be expected if museum practice occurs occasionally, from time to time.

The quality of pupils' historical thinking was largely dependent on the use of 'independent' historical knowledge they had previously acquired at school. Background historical knowledge, in the form of a general frame of reference, seems, more likely than not, to be significant to the evolution of 'valid historical thinking'.⁴

Since results were not compared with relevant results of pupils educated by a different approach to history education, we could not study in depth the effect of pupils' traditional history education on their historical thinking. Pupils' traditional history education, offering a one-way pass to history through the reproduction of historical 'knowledge', generally let pupils enrich their historical ideation rather than their historical thinking, in terms of historical content. On the other hand, by depriving pupils of the opportunity to develop their historical thinking in terms of historical methodology and specific characteristics, its positive effect was minimised.

⁴According to Booth, 'knowledge of the period ... and an understanding of its concepts seem to be of prime importance in the development of such thinking. Such knowledge has to be synthesised if inductive thought is to be achieved. Here the pupil's interest in the subject - his desire to "do" history and to think about its problems - seems to be of significance; and this interest will be fostered by a supportive home.' (1978, p. 118.)

education from children's reality. Traditional history education does not seem to have realised that between the nineteenth century and the 3rd millennium AD the 20th century intervened.

The discussion of results suggests, however, that these children as a whole, despite the affect of their particular traditional history education, expressed historical thinking beyond the limits set by their history education, in terms of historical methodology, content and specific characteristics. Although pupils' historical thinking was confined by their traditional history education within the borders of a ready-made, unquestionable historical 'knowledge', an educational condition which implies that the past is known, many pupils expressed historical thinking of 'scientific' methodology and of rich historical content. In addition, a number of pupils' implied the idea that the past cannot really directly be known. This fact was considered very positive. It shows that pupils' potential went beyond these limits in terms of issues concerning basic philosophical assumptions on the basis of which different theories of history and their associated approaches to history education are differentiated.

Epilogue

In this thesis I tried to present my investigation of children's historical thinking. 'I thought of that archbishop of Canterbury, who set out the intention of proving that God exists; then the alchemists who searched for the philosophical stone [...] I thought of Averroes, who, being closed within the orb of Islam, could never manage to comprehend the meaning of the terms *tragedy* and *comedy*. I narrated his case; but as I went along I felt like that god must have felt, that Buffon mentions, who, intending to create a bull created a buffalo instead. I felt that the work was mocking me. I felt that Averroes, wishing to imagine what drama is without ever having suspected what theatre is, was no more absurd than I, who tried to imagine Averroes with a few fragments from Renan, Lane and Assin Palacios as my only sources. In the last page, I had the feeling that my narration was the symbol of the person that I was while writing it, and that since I managed to write this narration I must be that person, and in order to be that person I had to write this narration and so on. (The moment I stop thinking of him as being true, "Averroes" disappears.)'

J. L. Borges, *The investigation of Averroes*

Pupils' historical thinking lies there, between the lines of the 1079 collected responses. This thesis, simply, presents my interpretation of it.



N. Gyzis' *Historia*, 1893

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Historical Thinking Plan

Reasoning	Historical Thinking	Methodology	
		Statements	Questions
		1 – 7	1 – 7

<i>concrete operations</i> – <i>describer thinking</i>	ahistorical thinking	1 description of the object (present)	1 questions about the description of the object (present)
	unhistorical thinking	2 description of the object (past)	2 questions about the description of the object (past)

<i>intermediate level</i>	pseudo-historical thinking	3 reproducing historical knowledge	3 questions stating ignorance (not limited to the object's description)
		4 unsupported inferences	4 questions stating uncertainty (not limited to the object's description)

<i>formal operations</i> – <i>explainer thinking</i>	rational thinking	5 rational inferences by rational processes	5 rational questions (detective inquiry)
	historical thinking	6 historical inferences by historical processes	6 historical questions (historical enquiry)
		7 academic historical inferences by academic processes	7 academic historical questions (inherent in the nature of historical thinking)



Representative issues

Content							
Focus	Context	Object - Representation	Particular Content 1'	Particular Content 2'	Time	Space	Historicity
1, 2	A, AHS, CBA	O, R, OR / O°	P.O.M.U.L.F.A.N.	d.c.g.s.h.r.t.p.str.f.	Pt.Ot.Mt.Ut.Lt.Fl.At.Nt.	Pp.Op.Mp.Up.Lp.Fp.Ap.Np.	P (Pa, Pr, F) H (HPa, HPr, HF)

1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2

3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4

5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7



Issues determining the content of historical thinking

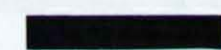
Issues describing the content of historical thinking

Specific Characteristics									
General Evaluation	logic	dependent historical knowledge	independent historical knowledge	observing skill	questioning	uncertainty	limitations of the evidence	relativity	empathy
valid, acceptable, problematic, invalid	valid, acceptable, problematic, invalid	accurate, acceptable, problematic, inaccurate	accurate, acceptable, problematic, inaccurate	accurate, acceptable, problematic, inaccurate	0 – 7	0, U, P	0, L	0, R, HR	1 – 7

1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2

3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4

5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7



Issues characterising historical thinking

Absence