

Eckert. Beiträge 2017/1

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**The grammar of visual design and its didactic use in
history textbooks for the sixth grade of Greek primary
education**

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Eckert. Beiträge

Georg Eckert Institute for International Textbook Research

ISSN 2191-0804

Volume 2017/1

Editors

Nicola Watson and

Tim Hartung

Form for referencing:

Vasileios Zagkotas and Ioannis Fykaris. *The grammar of visual design and its didactic use in history textbooks for the sixth grade of Greek primary education*. Eckert. Beiträge 2017/1. urn:nbn:de:0220-2017-0115.

The grammar of visual design and its didactic use in history textbooks for the sixth grade of Greek primary education

Abstract

Based on Gunter Kress and Theo van Leeuwen's "Grammar of Visual Design", this study investigates the application of their methodology in an examination of the newly approved history textbook for the sixth grade of primary school. The researchers attempt to analyse each image in the book, both in terms of individual structural elements and in terms of interaction with other images on the same page. The authors consequently make didactic proposals for each image based on the results of the analysis. The study also examines the creators of the images, the subject, the date of the images or where the objects were originally produced and where the artworks are currently stored. The final discussion relates to the overall didactic functionality of the textbook's images, with regards to the incentive behind their use and how they are used by teachers in the classroom.

Key words: use of images in teaching, grammar of visual design

Introduction; defining and interpreting a visual representation

Visual representations are so prevalent in everyday life that modern civilization could well be described as a 'civilization shaped by the image'. An image is defined lexically as 'a picture in your mind or an idea of how someone or something is' (Cambridge online Dictionary) and has its roots in the Latin word 'imitari' which means 'to imitate'. This notion of an 'imitation of reality' is referenced by John Berger (1990: 9–10) who considers an image to be something once seen, that has been created and reproduced; detached from the place and time in which it first appeared and which each time embodies a different way of seeing that is dependent largely on the observer's cultural background. The image is therefore a technological, cultural and commercial object (Vryzas, 2005: 429) and its final definition could be summarised as 'any kind of visual representation' (Chalkia & Theodoridis, 2002).

Reviewing the perceptions of what art considers beauty to be, the philosophy of aesthetics distinguishes between two main ideas. The first, Aesthetic Realism, envisages beauty as something that pre-exists in nature and that the artist must reproduce with accuracy. Aesthetic Idealism, on the other hand, considers beauty to be a concept that can be approached through the artist's emotions and imagination (Harberg, 1986; Pettit,

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1987). Art historians and critics Erwin Panofsky and Ernst Gombrich highlighted the need to understand the inherent symbolism of an image whilst attempting to interpret it, and to be exempt from bias. They also pointed out that a basic requirement for an accurate interpretation is the prior knowledge of artistic styles and traditional cultural symbols (Gombrich, 1951: 9–36). Ioannis Vrettos, a modern Greek educationalist, refers to the three basic epistemological methods (phenomenology, hermeneutics and dialectics) in his approach to images, emphasising each method's different starting point along with the dynamic interaction between them (Vrettos, 1994: 54–56, 71–75, 85–87). German psychologist Rudolf Arnheim pointed out in his review of gestalt theory that human perception is basically visual: the human perceptual abilities are physical (we use our eyes to see reality) and psychological (we use our existing experience). Arnheim claimed that human beings tend to simplify forms and homogenise objects (Arnheim, 1969 & 1974). Italian semiotician Umberto Eco agrees with Arnheim in his theory of simplified structure (Eco, 1979: 106–120). Another semiotician, Roland Barthes, distinguishes between three kinds of messages within an image: the linguistic (any text or phrase in the image), the non-encoded iconic (the forms which compose the image) and the coded iconic message (all denoted symbolisms) (Barthes, 1977: 32–51).

The grammar of visual design

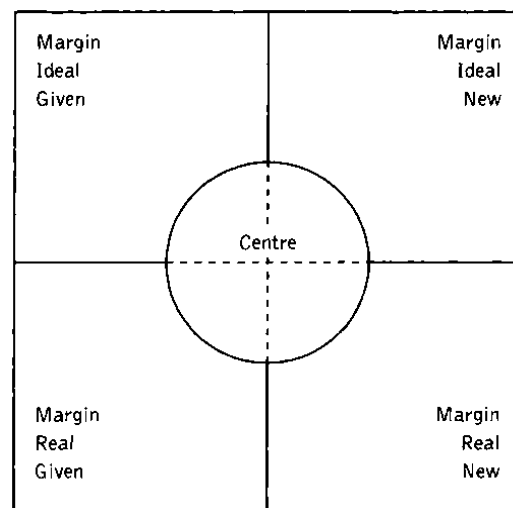
Of all the theories of interpretation, the social semiotics approach is of most interest in this instance. According to M.A.K. Halliday, Gunter Kress and Theo van Leeuwen, the communication between the participants (the artist, the persons depicted in the artwork and the viewer/observer) is not arbitrary: instead, it is intentional and requires the artist to choose easily decodable forms to render his or her message understandable by choosing easily decodable forms. These forms (methods of expression) are determined by the artist's social, cultural and psychological context, which should correspond to that of the observer. This framework is defined by each participant's environment and experiences (Kress & van Leeuwen, 1996: 8).

To decode the messages behind the images, Gunter Kress & Theo van Leeuwen developed a methodological tool named the 'Grammar of Visual Design'. Viewing visual representation as non-linguistic communication, they built upon Halliday's three non-linguistic communication metafunctions:

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The ideational metafunction (Kress & van Leeuwen, 1996: 42) examines the semiotic way an object is represented. This depends on the choices made by the artist, which are then viewed in conjunction with the interaction between the image's structural elements. It is subsequently possible to view the representation from a narrative perspective (regarding the relationship between the represented participants) and a conceptual perspective (Regarding the relative positions of the image's structural elements).

The interpersonal metafunction considers the interaction between the represented participants and the observer of an image/painting (therefore, the artist as well). For example, if there is eye contact between a specific represented participant in a portrait (a depicted figure) and the observer of the painting, the former appears to be seeking something from the latter: in other words, he/she has a demand. If there is no eye contact, the viewer is required only to observe: in which case the depicted figure is making an offer. Another essential element is the social distance between the represented participants and the observer of the painting, which is distinguished in close personal, far personal, close social, far social, and public distance, depending on how a person is illustrated (head only, head and shoulders, upper half of the figure, full figure, with other figures). Finally, the degree of the observer's involvement depends on the viewing angle. The images are



Ideal, Real, Given and New (Kress & van Leeuwen, 1996)

perceived subjectively (the viewer observes only from a certain point of view) and objectively (everything is revealed to the observer) depending on the horizontal or the vertical angle (Hall, 1966: 110–120; Halliday, 2004: 106–108; Kress & van Leeuwen, 1996: 116–119, 124–125, 130).

The textual metafunction combines all the above information into one textual whole. The elements located at the centre of the image are conceived by the artist to be the main message. Each geographical part of the image is associated with a concept: The upper part of the image represents the Ideal and the lower part represents the Real. Similarly, the left part represents the Given/Known and the right part represents the New

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(view image). Moreover, this metafunction includes each structural element's projection and framing (Kress & van Leeuwen, 1996: 175–215).

The use of images in teaching procedures

The 'Grammar of Visual Design' provides us with the information necessary to construct a new methodological tool. Further investigation into how this visual grammar is applied in Greek history textbooks could be illuminating, as images occupy a distinct role in this subject. The use of images in the classroom could also be beneficial in the following ways:

- helping students learn to recognise symbols and motifs (Chapman, 1978) and to personalise and memorise the visual information (Grosdos, 2010).
- helping teachers to better organise the course through a variety of techniques such as demonstration, discussion, dialogue, question and answer sessions, practical exercises, work groups and case studies (Trilianos, 2004; Matsagouras, 2008; Fykaris, 2015).

It should be noted that the use of art works in the classroom is dependent upon the curricular framework. Furthermore, from 2006 onwards, the introduction of multimodality in modern Greek textbooks has gradually highlighted the need for an aesthetic appreciation of the images they contain and for art to be used to aid pupils' creativity (Trend, 1992: 53–58; Kapsalis&Charalambous, 1995: 161; Hodolidou, 1999; Tsi-tsanouidi-Mallidi, 2008: 49–50). Moreover, in history lessons, visual material is generally part of the historical source material. There is, therefore, great value in exploring the application of optical design in Greek textbooks. This study will focus on one history textbook for the sixth grade and its use of images in conjunction with textual information.

The current study, methodological review

The study was conducted in the latter half of 2014 and examined the functionality of illustrations in a sixth grade history textbook and their didactic implications. This was done by analysing each image in the book using a methodological tool based on the 'Grammar of Visual Design'. This particular textbook was selected because of its recent introduction into Greek primary schools (2013) and the pluralism and particular values

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imparted by its illustrative material. The methodology of the approach combines the interpersonal and textual metafunctions of the ‘Grammar of Visual Design’ with the interpretative approach of content analysis. An overview of previous studies of Greek textbooks revealed that the majority were conducted either with quantitative or descriptive-analytical methods. However, both these methods produce either subjective interpretations or simple descriptions, focusing mainly on textual data formats: they lack a systematic image analysis tool which covers both basic structural elements and the combination of images and captions (Bonidis, 2004: 198–199). The ‘Grammar of Visual Design’ can provide these valuable methodological tools.

We therefore began by analysing the ‘identity’ of the image: the nationality of the creator of the image, the object type and its origins. Then we attempted to interpret each image separately taking into consideration the interpersonal and textual functions of the ‘Grammar of Visual Design’. The next step was to propose how this illustrative material could best be employed didactically. Before evaluating the overall process, the paper addresses what the findings reveal about the role of images in motivating learning and the use of images as supplementary material. The paper also discusses how the illustrative material is connected to curricula and teacher manuals. Finally, it examines the extent to which students are able to compose a complete answer to an issue based on the illustrative material.

The sixth-grade history textbook consists of five units (50 chapters). It examines the period from the fall of Constantinople (1453) up to the Greek accession to the European Union (1981). Great emphasis is placed on the Greek War of Independence from the Ottoman Empire (1821-1830). Each chapter begins with an introductory single page that briefly summarises the chapter and is accompanied by a large image and a timeline. The next single page contains the main information and a small glossary explaining potentially unknown words. The last two pages contain fragments from source texts, a small inset with parallel historical information called ‘View into the Past’, images, maps and one or two final questions.

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Can we change history? A discussion based on Bruegel's 'Fall of Icarus'

Pages eleven and twelve of the book introduce the chapter on Geographical Discoveries and the Enlightenment. To the right of this double page are three uncaptioned images. One of these is a painting of people working in a rural coastal setting (ploughing, fishing and tending animals). The image covers approximately one sixth of the page (9.0 x 5.5 cm) and contains earthy shades, without sharp shadows or extravagant colour tones.

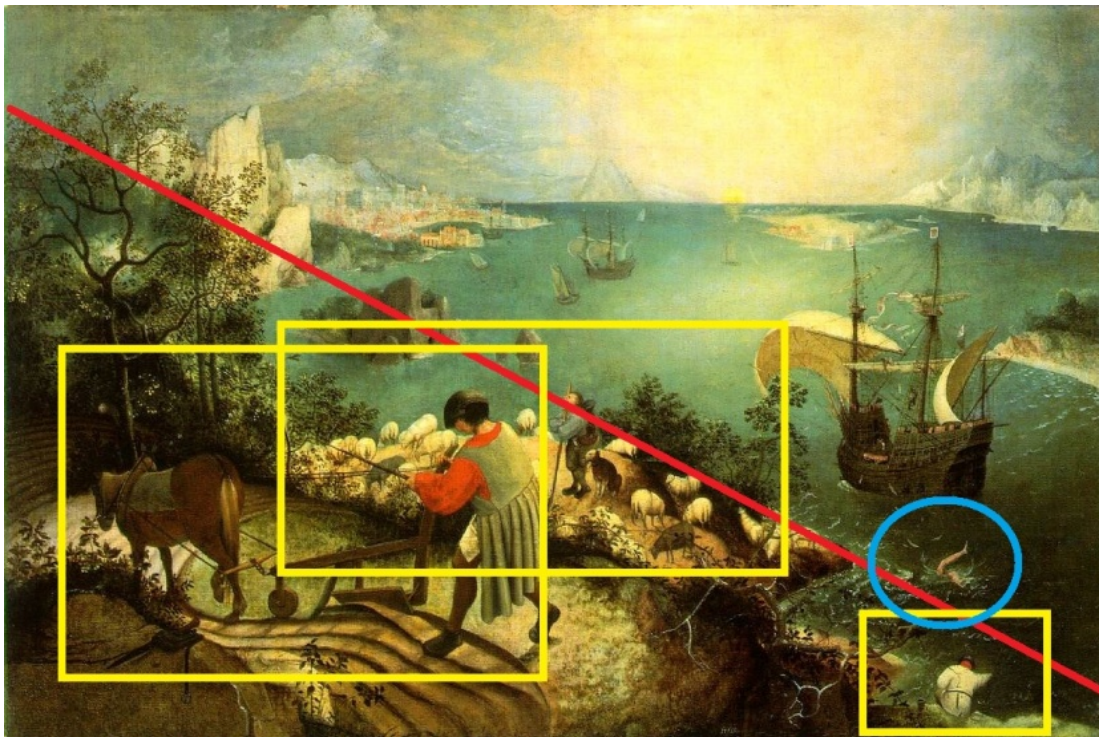
Using the grammar of visual design to analyse the image and, considering the ideational metafunction, one could classify this image as a narrative representation: many individuals together on a beautiful background landscape. As for the interpersonal metafunction, the lack of eye contact between the participants and the viewer represents an offer. The represented participants are depicted in the 'public distance', which implies an impersonal relationship between the represented participants and the observer of the painting. The perspective of the picture combines the frontal horizontal with a vertical high angle, giving the observer a dominant view and a direct involvement in what is happening. In other words, the forms the painter uses seek to engage the observer with the activities in the scene by stimulating him or her to examine the meanings that are not immediately apparent.

With regards to the textual metafunction and the informative value of each structural element, an imaginary diagonal axis running from top left to bottom right divides the image into two triangles. The southern triangle includes what happens onshore, while the northern one illustrates what takes place at sea. In this upper triangular area, various ships are depicted sailing into a bay whilst a large vessel is sailing very close to the coast and into the centre of the observer's view. The sea and the open horizon suggest the unknown, a search for an ideal, whilst also depicting the beauty of the natural landscape. The position of these structural elements by the artist refers both to the ideal (upper part: searching, discovering, admiring the beauty of nature –while the lower part represents work and the exploitation of nature) and to the relationship between the given and the new, while each figure's starting point is his homeland (the settlement is positioned on the left of the image which represents the given). The sea also represents the unknown, for example new quests or discovery (the sea occupies a large proportion of the right side of the image and represents the new). The width of the given area is clearly disproportionate to that of the new, covering not only all the image's left part, but the

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lower right as well. The vector created by the arrangement of the elements leads the eye towards the sailing ship to the right of the image, which is significant because this is where the main theme of the painting (the Fall of Icarus) occurs.

The viewer's attention, however, is drawn primarily to the multitude of elements in the onshore triangle. In the foreground a farmer is ploughing his land. A little way behind him, a shepherd is supervising his flock. Near the sea, a fisherman is throwing his hook into the water. None of these three participants is looking at the viewer. Although the painter highlights their activities by placing them in the foreground, the avoidance



All four Participants in Bruegel's painting. Nobody seems to help the fallen Icarus. History could have been different if we had taken action?

of direct contact with the spectator restricts him/her to the role of observer. The vectors created by the three men's bodies –especially that of the farmer– guide the observer to the left, and presumably towards their family homes; inland and away from adventures. The top portion of the scene appears to present a sharp contrast to the routine of daily life as pursued by the participants in this southern triangle. The relationship between the two creates an imaginary circle within the image, the interpretation of which depends on the chosen direction of reading. Every new search either leads to new places where every human group creates its own routine (reading from right to left) or everyday life leads to new quests (reading from left to right). The observer is placed at a vantage point high

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above the participants, thus assuming a dominant position. This position is not incidental. The viewer must be able to distinguish the pair of legs half submerged in the sea near the sailing ship.

When using the textbook the teacher can, at this point, turn to his or her own research regarding the identity of the image. The painting is called ‘Landscape with the Fall of Icarus’ (Brussels, Royal Museums of Fine Arts of Belgium) and it was created in around 1560 by the famous Flemish artist Peter Bruegel the Elder. The submerged figure shown in the water is Icarus, who has just fallen from the sky and is struggling for his life. Attempting to creatively apply the above image analysis to the teaching process, the teacher may initially ask the students to recount the myth of Icarus or to find corresponding images on the Internet (lithography, ancient ceramics and other paintings). Students may even be asked to dramatize the myth, through a short theatrical improvisation. After researching images on the Internet, the students may highlight a new element: other representations of Icarus in variably depict his whole body located in the centre of the piece, whereas in this painting only his legs are visible and he is not immediately seen by the observer. This composition portrays Icarus’s struggle for survival as just a slight distraction in the everyday routine of the other participants. Using the technique of directed discussion, the teacher can lead the students to the conclusion that many important things happen around us that we either do not notice or cannot understand. Even if some people do notice them (e.g. the fisherman or the sailors) they do not perceive their importance. The students then realise that history can be written every day and that they can become more accurate observers, evaluating historical events on many levels. Human intervention into historical events is another issue that can be discussed. The intervention of the represented participants could have saved Icarus’s life. However, none of the participants appears to notice Icarus, or if they do they ignore his fate. All that was needed was a little action (for example the fisherman’s help) and the life of Icarus could have been saved. Minor actions could frequently have changed the course of history. This conclusion can be applied to certain activist movements, examples of which are present in Greek textbooks (and in other sources available to students). This is one of the primary reasons why the picture should be analysed in class. The story of Icarus also features a child disobeying a parent. A fact that may be extrapo-

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lated to show that disobedience of any kind of power, whether rooted in necessity or superficiality, may have far-reaching consequences.

This didactic approach to Bruegel's painting could be used as part of history teaching or other courses (e.g. visual arts or the golden hour).

Discussion of the survey findings

The above didactic analysis and didactic proposal concerns only one of the 435 textbook images. Each of them has been could be analysed in terms of structural elements, the relevance of the caption and position on the page.

The works of 40 Greek artists are used in the book. Dionysios Tsokos, a painter from Zante, is featured most regularly; sixteen works of his are included in the book, mostly portraits. Second is Demetrius (or Panagiotis) Zografos, a veteran of the Greek War of Independence, with seven paintings, most of which were created under the guidance of another warrior for independence, General Ioannis Makrygiannis. Theodoros Vryzakis, a very famous Greek painter comes third with seven paintings. 70 non-Greek artists are featured. Among those, the painter most frequently featured is the German artist Peter von Hess who also witnessed many events during the War of Independence. The picture editors appear to use, when possible, artists contemporary to the period in question. The caption includes the artist's name 55 percent of the time when the artist is Greek, however the percentage reduces to 27.2 per cent when artists of other nationalities are featured.

A short overview of illustrative material reveals paintings as the most commonly used (192 of 435) images. Most paintings (78 of 192) are portraits and the majority refer to the Greek War of Independence (1821-1830). Photographs are the second largest category (114 of 435), and they generally depict historical moments (treaty signatures, army landings, war scenes, etc.) or large groups of people (refugees, soldiers, etc.). The textbook also features engravings (lithography, copper-engraving and woodcut), written documents, posters, stamps and stickers.

The book provides very limited information regarding where the depicted works are stored. Only 118 captions provide any such information, and they show us that fifteen of the objects illustrated are kept in foreign museums and 133 are held in Greek museums. 92 of these 133 objects are kept in museums in the capital, Athens, which makes it diffi-

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cult for students in other prefectures to visit them. Finally, the book provides very limited information regarding the ages and dates of objects: dates are only included in nineteen captions, eleven of which refer to the twentieth century.

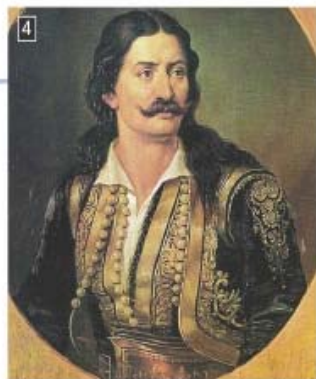
One basic didactic role of the images used is to train the students' observational skills. For this reason, the history textbook for the sixth grade starts each chapter with a large image called a pre-organiser: it is a starting point for the teaching process and includes a brief chapter summary and timeline. The vast majority (82.3%) of these pre-organisers use coloured images, underlining the intention of the editors to engage the reader's attention. The same percentage of pre-organisers also use large images (over 6x6 cm), which are invariably placed strikingly in the centre of the page.

In most cases (340 of 435) the images used are small. Since the page size is 540cm², we considered small images to be those that do not exceed ten per cent of the page size, medium to be images occupying between ten and twenty per cent of the page size and large to be all images exceeding twenty per cent (i.e. over 108cm²). Most of the small images (209 of 340) can be found in the extra material at the end of each chapter. Almost all the remaining small images (79 of 340) are located in the short insert 'View into the Past'. Medium size images can also be found in the extra material while large images are always on the opening pages of chapters (pre-organisers). The images are equally spread across the five units.

The distribution of colour and black-and-white images, however, is rather uneven. Colour images constitute two thirds of all illustrative material but they are located mainly in the fourth and fifth units (covering the nineteenth and twentieth centuries). Unit five uses predominantly black-and-white photographs: a decision that prioritises the use of genuine historical sources above the attractiveness of the page presentation. However, there are individual cases where black-and-white images are used for specific effect. For example, page 89, in the chapter on the start of the Greek Revolution in Central Greece, features three adjacent images. The first is a portrait of Athanasios Diakos, the leader of the revolution who was eventually impaled by the rival Turk general, Homer Vryonis, who himself is depicted in the third image in a famous painting by Eugene Delacroix. Between these images is a black-and-white photograph of Diakos's monument at the place of the martyrdom. It is a modern photograph and could have been in colour. The editors' intention in this case is presumably to charge the emotions of the observ-

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er, as black-and-white are more sombre colours. Moreover, in order not to distract the observer from the main theme, the editors omit any reference to Delacroix under Homer Vryonis's portrait.



▲ Ο Αθανάσιος Μασαβέτας, που έμεινε γνωστός ως Αθανάσιος Διάκος επειδή είχε χειροτονηθεί Διάκονος



▲ Το μνημείο του Διάκου στη γέφυρα της Αϊαμόνας, όπου στυβήστηκε από τους Τούρκους



▲ Ο Ομήρ Βρυώνης

A black-and-white image of a dead fighter's monument. The editors have chosen these colours to make the image more mournful.

The above information also illustrates the importance of captions on pictures. Taking into consideration the image and its caption as a whole, we can apply an analysis based on the textual metafunction of visual design. When, the caption precedes the image or is situated above it, the editor's intention is for the observer to first read the caption information and then observe the image. In the opposite case, i.e. when the caption follows the image, the information is simply complementary. Of the 435 images in the book 337 (75.7%) have a caption, while the remaining 98 do not. Of these 337, only 24 have a caption to the left or above them. The information given in the captions mainly (95.5%) refers to what the observer can already see i.e. descriptions of the person or scene, and only 4.5 per cent of the captions add further details such as the artist or where the item is held.

With regards to the use of perspective, most (57.2%) images place the viewer on the same plane as the participants, thus seeking his or her involvement, while the vertical perspective, used in 56.1 per cent of the images, puts him or her in an equivalent or dominating (35.9%) position. The scenes where the viewer is assigned a dominant position (whether it's a demand image or an equal viewing angle) are mostly action scenes (i.e. battles and naval scenes), while in portraits the viewer's position is equivalent to

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the portrayed person. Images that engage the viewer by using a lower angle mainly depict monuments or buildings.

The images used in a textbook can also be employed to evaluate the objectives of each chapter. The teacher can use both the activities suggested in the curriculum and the illustrations to organise their teaching. However, only eleven of the textbook's ninety-nine suggested activities involve the images on its pages. Moreover, the images cannot generally be used to answer the questions at the end of each chapter; only six of the forty-nine questions require the student to examine images included in the chapter. In contrast, 67.1 per cent of the additional tasks contained in the teacher's manual can be completed using the illustrative material.

Conclusions

With regards to the methodological procedures and their results, the conclusions of this study can be summarised as follows:

1. The grammar of visual design can be applied to Greek history textbooks for primary schools. In terms of textual metafunction, the given-new and ideal-real arrangement can be applied to the vast majority of the images.
2. The illustrative materials can be used to great effect in the classroom. Dialogue and discussion as didactic techniques could constitute a wide framework within which the students, after observing the basic structural elements of each image, can reach conclusions on the importance of symbols, on the role of protagonists and on the underlying causes and consequences of historical events.
3. If teachers research with their students, better didactic results may be achieved. In some cases, teachers may be able to provide students with additional illustrative material; and should be prepared to do this.

In summary, the choice of illustrative material in textbooks can act as a catalyst to the teaching process. In a wider context, reference to and use of works of art in everyday teaching could motivate students to think and act in a more critical and creative way, which could in turn help them adapt to the constantly evolving modern 'culture of images'. The new challenge for modern Greek schools is to navigate the transition from printed textbooks to teaching packages and multimodality. Therefore, the main quest

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should be to find ways to interpret images in order to help the students develop their critical ability and creativity.

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