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Teaching Through Texts and Pictures. A Contribution of Jan Amos Comenius to Education

Enseñar con textos e imágenes. Una de las aportaciones de Juan Amós Comenio

Ma. Esther Aguirre Lora

lora@servidor.unam.mx

Centro de Estudios sobre la Universidad
Universidad Nacional Autónoma de México

Edificio de la Unidad Bibliográfica, 3er. Piso
Centro Cultural Universitario
Delegación Coyoacán, 04510
México, D. F., México

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Abstract

This article deals with some of the traditions which produced the first illustrated book with didactic purposes. This book is *Orbis sensualium pictus* or *The Visible World in Pictures*, by the Moravian thinker John Amos Comenius (Uhersky Brod, 1592 - Amsterdam, 1670). The debates, stirred up by Renaissance scholars' dissatisfaction with the schools' deficiencies and shortcomings, had become increasingly widespread and sharp since then. Particularly in the case of Comenius' work, the argument was over problems in the teaching of Latin, which the author tried to correct through a pleasant treatment of the subject. He used the students' mother tongue to introduce Latin, thus making the language understandable for the pupils, as well as rendering it favorable to the acquisition of encyclopedic contents, in the word's broadest sense. The book integrates illustrations and texts in Latin and in the vernacular for each theme. Together, these constitute authentic pictures of the 17th Century.

Key words: History, didactics, iconography.

Resumen

El presente artículo aborda algunas de las tradiciones que dan origen al primer libro ilustrado con fines didácticos. Se trata del *Orbis sensualium pictus* o *El mundo sensible en imágenes*, del pensador moravo Juan Amós Comenio (Uherský Brod, 1592 - Amsterdam, 1670). Los debates, que a partir de los educadores renacentistas cada vez son más extendidos e incisivos, en torno a las deficiencias y limitaciones de la escuela, en el caso de esta obra en particular, se refieren a las aberraciones de la enseñanza del latín que su autor trata de subsanar mediante una enseñanza placentera, apoyada en la lengua materna para introducir el latín haciéndolo comprensible a los estudiantes y propicia a la adquisición de contenidos enciclopédicos en el más amplio sentido del término. La obra integra, para cada tema, imágenes y textos en latín y lengua vernácula que constituyen verdaderos cuadros del siglo XVII.

Palabras claves: Historia, didáctica, iconografía.

Introduction

Contrary to what one might think, the practice of illustrating books for merely didactic purposes dates from the early modern era,¹ when regarding the school there were established various practices and discourses with which we are familiar today. In this text, I want to address some of the traditions that converge in the work *Orbis sensualium pictus* (*The Visible World in Pictures*), by the Moravian thinker Jan Amos Comenius (Uherský Brod, 1592-Amsterdam, 1670), since it inaugurated this genus of publication.

This work was written in the region which was home to the Germans, the Bohemians and the Moravians in the European atmosphere of the sixteenth and seventeenth centuries marked by the crisis that accompanied the onset of modernity: we are present at both the breakdown of the feudal and ecclesiastical systems, and the establishment of a new social order manifested in the emergence of the modern State and the unfolding of the capitalist economy. The center stage is occupied by religious wars, the conflicts between the Catholics, and the dissenters, with loud voices of counter-reformers and reformers. All this pervades the social and cultural fabric, cutting across various spheres of life of men and societies moving from a profoundly theocentric worldview—in which the explanation first and last of all that exists, and the meaning of life of men in the cosmos, all spring from the divine will and its revealed truths—to a vision that is gradually becoming secularized, and is testing other forms of explanation and argument about the universe and about the reason for the existence of man on Earth. In the maelstrom of ideas, man's sense of transcendence is dissolving.

Orbis sensualium pictus, a work barely known in Spanish-speaking countries, enjoyed well-merited fame in many other regions of the world: scarcely a year after it had been published in Nuremberg, in the German-Latin version, it was translated into English; and beginning with that, the editions multiplied until there were a hundred. There were even versions in Japanese and Russian. Authors like

Goethe remembered it fondly as one of the books in which they learned to read. Well worth the twenty-five years (1631-1658) the author invested in its production!

It is important to mention that in our country, it was not until recently, in 1992, as part of the research program “Old thinkers, new ideas, new thinkers, old ideas: based at the UNAM, this work was translated for the first time from Latin into Spanish, and was published jointly by The National Council of Science and Technology (CONACYT) and Miguel Angel Porrua. That year also saw the *Pampedia* translated by Federico Gomez Rodriguez de Castro, and published by the uned in Madrid. Thus, our available heritage of Comenian works was enriched, where before, we had had access only to the *Didactica Magna* since the mid-seventies, although the Spanish jurist Saturnino Lopez had translated and published it through the Madrid publishing house Reus in 1922.

Around the *Orbis pictus* are woven anecdotes: although it was a picture book for the teaching of Latin, some of its local editions had very few illustrations, and sometimes none. The task of finding a good engraver was titanic. Paulo Kreuzberger resolved the problem admirably by making woodcuts. These are the illustrations in the original publication of the work, and are preserved such editions as our own, which are based on that circulated by the Czechoslovakian Academy of Sciences (1970).

Many of the works of Comenius, with one foot in the 17th and the other in the 18th century, were ignored or directly blocked by the Encyclopedists, the precursors of the Enlightenment movement—Pierre Bayle among them—obsessed with prohibiting everything that was not within the “paradigm of reason”. Jan Amos, of course, did not fit into their schematic because of the Platonic legacy present in his thought, his millenarist beliefs and his friendship with the prophets of the region. However, *The Visible World in Pictures* never ceased to be published, even when some of its chapters were omitted, for instance, those referring to his religious concepts or to knowledge that was no longer consistent with the advancement of science, as we will see later on.

Since my purpose is to discuss this work as a cultural product, I assume theoretical references that come from the field of cultural sociology, particularly that of Pierre Bourdieu, and approach it not as any ordinary text in the abstract, but as a book that speaks to us of the circumstances in which it was written. That is, who the author was, what his intellectual commitments were, for whom he was writing, what tensions were present in the society, what the cultural atmospheres were in that historical moment that particular region. From my point of view they were three, principally—the traditions that converged in the *Orbis pictus*:

- a. Those referring to the teaching of Latin;
- b. Those referring to the organization of knowledge in that era;
- c. Those referring to the use of pictures as a support for teaching.

The controversies surrounding education

The Visible World in Pictures gave an answer to some of the criticism educators had been advancing since the Renaissance about the school. Their prime concern was the renewal of this institution, permeated with the now unacceptable and scholastic formalism, according to the new demands made by the signs of the times. Criticism of the training processes was constant, and were expressed through various means: from the most renowned thinkers' references to the experiences they themselves had suffered; to satire, performing arts and painting. This criticism hit the nail on the head on the subject of the deficiencies of scholastic life. A target of criticism was the length of the years of training as compared with the meager results, the uselessness of the contents and teaching methods, the violence and arbitrariness of the paths taken,² the disorder in schools, the lack of appropriate facilities, the shortage of those who devoted themselves to teaching.

While the concept of schools as teaching institutions dates from very early, since schools were established in the early Middle Ages, attached to the cathedrals and monasteries, with the intention of teaching the Christian *ethos* to the monks and children of various social conditions, it was in the fifteenth century that a constellation of thinkers took school life as an object of reflection, considering references, experiences and perspectives which they reconstructed in depth. Rabelais, Erasmus, Vives, Montaigne, Locke, Loyola, Ratke, Descartes, Bacon and many others abound in this kind of criticism, and imagine new forms of schooling. Their writings are valuable testimony about the establishment of the field of pedagogical theories, precisely at the threshold of modernity.

Now among the school's many shortcomings was precisely *the way Latin was taught*: routinely and repetitively, taking the classics as a model, doing exercises so as to achieve a formal mastery of certain elements of literary and stylistic perfection; valuable, yes, but alien to the students' daily reality. There was committed the transgression of teaching Latin by using Latin itself, based on the most abstract and hard-to-understand aspects. The need to reorient these teachings, according to new requirements posed by social life, prompted major efforts of educators such as Vives, Ratke and others to review what was being done with the Latin; out of that review came a significant aspect of the Comenian educational program.

One of the novelties introduced by the *Orbis Pictus* was to learn Latin, not from Latin itself, but from the students' vernacular. This proposal drew on two important movements: one, broader, related to the legitimation of local European languages vs. classic Latin, the other related to the Czech cultural heritage, and more specifically, to the Hussite tradition. The author is sympathetic to this movement and was brought up in it. Both specify the movement's history in the Bohemian region; that is to say, Hussism³ was a local movement that, while retaining its own specificity, was connected with generalized movements around Europe in local languages.

The Hussite reformation of the 14th and 15th centuries was in fact the first European religious reformation. It was born linked to movements that sought to strengthen nationalism. It began from a relationship historically experienced as problematic and disadvantaged by peoples who depended on the Czech crown to defend them against the Germans. With a patriotic sense of preservation and consolidation of nationality, they took Czech as their official language, and under these conditions, the Czech language became a symbol of national unity. The translation of the Bible into Czech, using popular idioms in order to make it accessible to large sectors not Latinized, came about quickly (14th Century).

The Hussite movement manifested itself there as a local expression of other European movements with a common source, in the gradual legitimation of regional languages—as an expression of the particular—instead of classical Latin. The local languages moved from orality to their legitimation, in writing, as literary languages with the participation of men of letters of the magnitude of Dante, Petrarch, Cervantes, Shakespeare, etc., and with local versions of the Bible. This use of local languages extended to other areas of knowledge, like the case of the new science that, particularly in England, was furthered by the artisans and merchants.

On the other hand, the expansion of the press induced the development of linguistic studies, resulting in the production of books about the refinement achieved by writing, as well as the teaching of languages. Tremendous, the explosion of dictionaries and grammatical studies that sought to regulate the use of the written word—because the power of writing now fixed the word at a certain time and in a certain space, capable of all types of analysis and refinements.⁴ In spite of all that, it was impossible to avoid learning Latin, which continued to be the favored language for writing, and was used in public spaces, in intellectual circles in the sphere of masculinity itself. The vernacular, not coincidentally called the “mother tongue”, was closer to the oral culture, and was easily assimilated into the world of the feminine.

The author of *The World in Pictures* suggests some areas for using languages:

These are necessary: one's mother tongue, regarding domestic life; neighbor languages, for communicating with adjacent countries such as Polish, Hungarian and German, on the one hand, and on the other, Vlach and Turkish. And in order to read the great, wise books: Latin, for general scholarship; Greek and Arabic, about philosophers and physicians, and Greek and Hebrew, on the subject of theology (Comenius, 1988. p.122).

He also established some of the standards by which to regulate the teaching of languages:

Every language must be learned more by use than by the use by rules; [...] the first exercises in the new language must have to do with familiar material; [...] each language must be learned separately: first, of course, ordinary language, then what is often used instead of the usual, like those of the surrounding countries (I think

that for the erudite, those should come before the common languages) [...] (idem. pp. 122-127).

The learning of Latin, as well, would have to enjoy the placidity and kindness that was now required of schools in general.

Beyond these concerns, another of the most scathing criticisms made by educators in those centuries, addressed the *misuse of memory*, its reduction to the meaningless mechanical repetitions which constituted the practice that had taken over the medieval schools, and whose most obvious symptom was the concept of *lectio*. This demanded the provision of new forms of interface between knowledge and memory.

Aristotle is very clear about this: he locates memory *before* knowing, as an initial phase given by recognition of the past, and *after* the expression of knowing, as recollection of the experience learned and deposited in the memory, but always with the nature of a subordinate role in the structuring and appropriation of knowledge, that is to say, not as an autonomous function, having value in itself.

Thus, one of the searches of the era's teachers was directed toward devising memory compensations which speed up the process of teaching: drawings, algebraic symbols, numbers and characters, languages of various types are some of the proposals that in referring to the development of *artificial memory*—efficient memory support given by nature to every human being—were made part of the renovative school program, with the purpose of properly storing relevant information without unnecessary saturation. "Imagination and memory, full of visual images, do not capture or retain everything with equal facility. They should, therefore, be helped" (Comenius, 1992, p. 253).

Particularly innovative is the proposal to *use pictures for teaching purposes*, as in this book.

In this regard, the author compiled the traditions of the *art of memory*,⁵ in which he had been brought up and trained, and transferred some of the principles of Christian pedagogy⁶ to the school environment. Furthermore, he expresses the influence of some of the utopianists of previous centuries: Campanella and Andreae, and their purpose of giving the light of knowledge to everyone:

Campanella travels around the seven concentric walls of the *City of the Sun*, and shows its interior and exterior walls painted with figures, as if they were a book:

It is Wisdom who causes the exterior and interior, the higher and lower walls of the city to be adorned with the finest pictures, and to have all the sciences painted upon them in an admirable manner. [...] There are magistrates who announce the meaning of the pictures, and boys are accustomed to learn all the sciences, without toil and as if for pleasure... [...] (Campanella, 2009).⁷

Andreae, in turn, divides the city-fortress of artisans into four zones, and assigns to each one a group of buildings in which specific activities are performed:

There is a special building dedicated to dissection and anatomy, and everywhere there are pictures that help to teach and study. In the laboratory of natural history, the walls are painted with illustrations of the phenomena studied here, with representations of animals, fish, gems, etc. (Andreae, 1619, p. 157).⁸

Comenius appropriates these lessons and applies them to the school:

It will also be of great benefit to reproduce the contents of the books on the walls of the classroom, now the texts (with energetic conciseness), now drawings and pictures or emblems which continuously impress the senses, memory and understanding of the learners. The ancients tell us that on the walls of the temple of Aesculapius are written the precepts of all the medicine that Hippocrates transcribed when he visited the temple (Comenius, 1988, p. 103).

Aristotle also contributes grounds for using pictures to appeal to the senses in his debate on the problem of sensation, imagination and thought;⁹ of the relationship between the sensory and intellective soul: "*Nihil est in intellectu quod non prior fuerit in sensu*" ("There is nothing in the intellect that has not previously been in the senses"). The Aristotelian doctrine locates the ultimate basis of knowledge in the senses, and particularly in sensations. Many of the fundamentals of the *Orbis pictus* are supported here:

[...] it should be a golden rule for those who teach, that all be presented to as many senses as possible. In other words, the visible to the sense of sight; the sonorous to the hearing; the fragrant to the olfactory sense; to the taste, what is flavorful; and to the touch, what is tangible; and if some thing could be perceived by various senses, it should be offered to all of them [...]. Since the senses are the most faithful providers of memory, this sensual demonstration will give as a result in perpetuity of knowledge; that is, what each one knows, let him know it with constancy (Comenio, 1988, p. 110).

Finally, a taste for the pictures shown throughout the work sends characteristics of the *baroque man* to the sensitivity and imagination, except with this particularity: they are filtered through the eyes a thinker proceeding from the realm of the reformers. It has to do with the representations closest "to the reason that describes reality" and to that extent, more distant "from the emotion that tints with the strength of various hues." Perhaps this treatment of the more rational images exhibits, in part, that sort of interior iconoclasm which is close to the mentality of the Reformed Church, particularly the austerity of Calvinism.¹⁰ However, some of the figures that Comenius presents to us have the *Baroque fingerprint* evident in the fondness for expression of the spiritual in appealing forms, which, in addition to being a source of delight, produce the visual persistence of the content and influence moral behavior, such as the symbolic representation of the virtues.

Structure of the book

The *World in Pictures* is organized into one hundred fifty-two chapters which recognize the organization of knowledge and of 17th-century men's perception of reality as a whole. These are real *pictures of the epoch*.

The author, from the very subtitle of the book, promises, "Pictures and names of all the fundamental things in the world and activities in life". Later on, in the preface, he says it "...is a breviary of everyone and of every language," and again refers to the book, calling it "our little encyclopedia of sensitive things." Actually, the content it addresses is encyclopedic—let us not forget that Comenius is a disciple of one of the most recognized of the Herborn Encyclopedists, J. F. Alsted, who shares the holistic perspective of taking into account all the kinds of knowledge that exist in the cosmos, one of humankind's eternal concerns.

With the *Orbis pictus* in hand, we search the entire universe: beginning with God/Creator, there is outlined a descending path that addresses the four classical elements—fire, air, water, earth—to bring us into the three kingdoms of nature and arrive at man. This is man facing nature and the divinity that integrates both equally, harmoniously. The fruit of human labor are the trades and technological advances that lead him to build his habitation and to improve his living conditions.

It also recreates the world of school and of the liberal arts, as well as man's life in the presence of his moral and social condition; life in cities, and finally, the religions known in those centuries.

It can be said that the illustrations inserted in this work show great teaching experience, and ample knowledge—true of the societies of those years—in various fields: they obey a program clearly produced in conjunction with the teaching of Latin in the vernacular, like a living language which incorporates content from the surrounding reality; organized around thematic pictures that act as *generating nuclei*. The text appears in as many columns as there are reference languages—e.g. Latin, Czech and German—and some words are related through a number with some particular object of the image as a whole. The efforts of the teacher focus on helping the student to unite the visual sign with the auditory.

Analysis of some images of the *Orbis pictus*

To illustrate the contents of this book, I have selected certain chapters, and will go on to analyze their contents.

Dignifying the teacher's image

The chapter that opens the work is the "Invitation"; in it, the teacher directs the student to accompany him down the path of wisdom, and assuming the Biblical call according to which the man gives names to things, he says: "I will take you through

all the things, I will show them all to you, and I will give them a name for you [...] we will go through the world and look at it all” (Comenius, 1993, p. 79).

The teacher thus becomes the figure of moral authority and, as a model who mediates between God and the student, a ray of light, coming from the cosmic sun, crosses it and descends to the student in the form of knowledge and virtuous conduct that brings out the best in him.

The sun/teacher analogy leads us to think of honoring the office of teacher through his solar affiliation, his inner light, his spiritual perfection, conditions favorable for carrying out his messianic destiny: to save humanity through the gifts of culture and civilization.



Figure 1. Teacher and child

This image is particularly significant for those years, if we consider the centuries of deterioration that accompanied whoever was devoted to teaching: in ancient Greece, teaching the first letters was considered a lowly profession, not proper for free men; the *pedagogo*, for example, was a slave, whose only task was to lead the children to school and sometimes to review the lessons. In Rome, to be a *grammatistes*, or ABC teacher, was considered a genuine personal misfortune. There was a saying: “He is either dead, or teaching the ABC’s.” Closer to our region, the situation was no different: from colonial times the job of teaching the first letters was marked by social origin, it was said that: “Being a tutor was a profession that did not require purity of blood. It was a profession open to all races: Spanish, mulattos, mestizos, blacks and Indians” (Staples, 1981, p.119).

The onset of modernity, by making new demands related to scholastic training, brought about the establishment of other practices:

[...] since they are rare—there being as many men as human affairs—those who either know or can, or are without employment so as to give themselves to the teaching of their own, long ago, with informed purpose it was established that selected people, notable for their knowledge of things and consideration of customs, should be in charge of educating at the same time the children of many others. And these trainers of youth are called tutors, teachers, professors; and the common places for these lessons: schools, literary studios, auditoriums, colleges, gymnasiums, academies, etc.. (Comenius, 1988, p. 27).

In other words, dignifying the teacher's social image was also constructed from an extensive *program of professionalization* of his work, which gave him the required training and contributed to giving him solidity through study and the preparation of his activities: the improvisation that prevailed in this respect was now preceded by *dedication* to work of this nature. To the teacher belonged dominion over the educational situation with an attitude that was caring, vigilant, affectionate and kind, *exemplary*.

This resulted in identification with the profession of teacher, and *by* the profession of teacher, a new social perception of the image of the teacher and how his work was perceived.

a. The novelty of the onomatopoeic alphabet

The sixteenth and seventeenth centuries, sensitized to the widespread application of literacy, were prolific in the invention of *alphabets* and provided a broad classification for them. Thus, we find *cosmic alphabets*, in whose book of nature, God printed characters; *philosophical alphabets*, lexicographic, depending on various fields of knowledge; *mnemotechnical alphabets*, belonging to the *ars reminiscendi*; alphabets of thought, *symbolic*, *pictorial*, living, names used interchangeably to refer to the alphabets of letters.






	A a áá	<i>Cornix cornicatur</i> <i>The crow cryeth</i>
	B b hééé	<i>Agnus balat</i> <i>The lamb blaieth</i>
	C c cí cí	<i>Cicada stridet</i> <i>The grasshopper chirpeth</i>
	Dd du du	<i>Upapa dicit</i> <i>The whooppoo saith</i>
	Ee ééé	<i>Infants ejulat</i> <i>The infant cryeth</i>

Figure 2. Onomatopoeic alphabet

The Word in Pictures introduces a novel tool for learning to read: an *alphabet of letters* that the author sometimes calls a “*symbolic alphabet*” and sometimes a “*living alphabet*”. This resource provides the pronunciation of letters using animal onomatopoeias, “where each letter is related to the voice of an animal, and that voice is imitated by the letter” (Comenius, 1993, p.73). These are presented as an alternative to the primers in use, to fix the letters in the memory.

The practice of these alphabets had been preceded by other, similar expressions, like Romberch’s *Congestorium artificiose memoriae* (1520), widely distributed among teachers, merchants, lawyers, philosophers, theologians and other men of letters; which presented the *visual alphabets* as a means to strengthen the memory, and whose illustrations include the letters of the alphabet, either having the numbering of animal drawings arranged alphabetically according to the letter with which the animal’s name begins, or in another way: objects whose shape showed the letter illustrated, for example, open scissors to represent X.

The most immediate antecedent to what the *Orbis pictus* presents, however, was constituted by the living alphabet *De Codicillus*, Chapter II of the *Ordo studiorum*, 1576 (Capkosa, 1970).

b. Valuation of craft knowledge

The author of *The World in Pictures*, according to the production of knowledge at the time, expressed his knowledge of the artesanal world through the numerous chapters devoted to various trades of the time. An example is Chapter LXII, “The Shoemaker” (Comenius, 1993, p. 148).

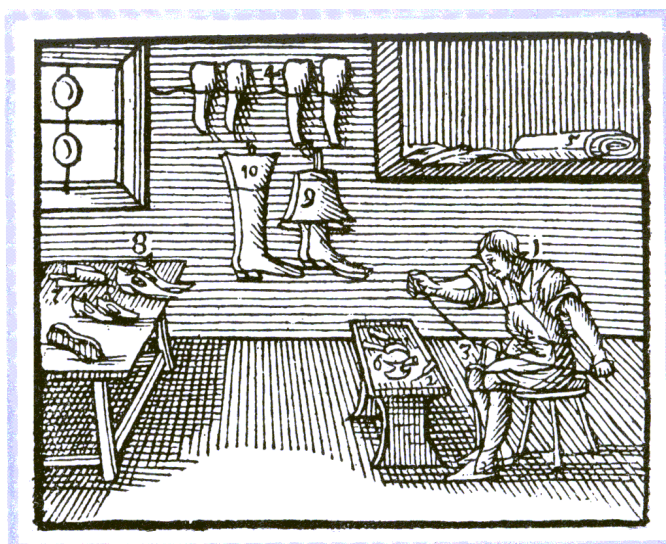


Figure 3. Artesan

Comenius, from his own point of view, agreed with many of the protagonists on the threshold of modernity, those leaders who assumed the task of ending the prolonged separation that up to the Middle Ages had stood between the liberal arts and the mechanical arts; between intellectual knowledge strictly speaking, and technical knowledge. Thus, the 16th and 17th centuries were conducive to closer ties between scientists and craftsmen whose meeting, as well, held up a banner of protest against the abuse of books, lessons and the authority of the ancient Greeks and Latins, and renewed the kinds of knowledge.

The observation and recognition of the activity of artisans to transform their work material, moreover, caused Jan Amos to see schools as “workshops of men”, suggesting that training model:

Artisans do use theories to entertain those who are learning their art, but put them to work so that by producing, they learn to produce; by sculpting, to sculpt; by painting, to paint; by jumping, to jump; etc.. Then also in schools they should learn to write by writing; to talk by talking; to sing by singing; to reason by reasoning, and so on. (Comenius, 1988, p.97).

c. Persistence in the geocentric concept

Although during his training at the University of Heidelberg, Comenius had had access to the forbidden work of Copernicus, *De revolutionibus orbium celestium*, he was not able to integrate the new theories either into his thought or his work, in spite of the fact that they were attractive to him; proof of that is Chapter III, “Heaven” (Comenius, 1993. p.85), which still shows the earth as the center of the sun and other planets. Similarly, in some of his other works he addresses the issue without overcoming the geocentric solution.¹¹ This vision, transmitted in books destined for teaching, promoted an ignorance of heliocentrism in the dissident reformers’ zone of influence.

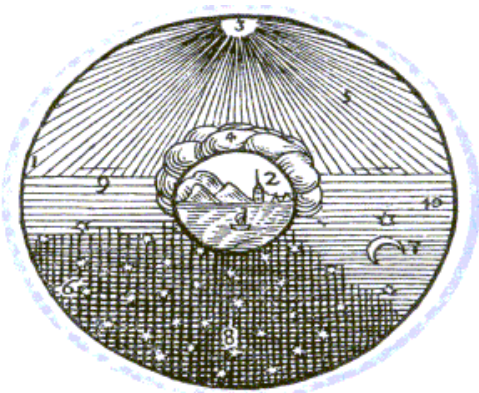


Figure 4. Geocentrism

However, heliocentrism constituted a danger to the Christian world in general; Catholics and dissenters alike rejected and condemned it through their respective ruling bodies, whereas Ptolemy's explanations remained accepted for about fifteen centuries. These explanations were compatible with dogmas which referred to the perfection of man, center of the creation; meanwhile, the earth was the center of the universe.

d. Plants and Animals

Comenius addressed a detailed classification of minerals, plants and animals in Chapters X to XXXIV, in which, furthermore, he commits himself with his careful illustration (Comenius, 1993. P.92-116). Among the sources he used for this information, it is possible that he may have resorted to Pliny's 37-volume *Naturalis Historia* (23-79 AD); Aldrovandi's *Ornithologia* (1525-1606); to *Animalia Historia*, Book II, *De quadrupedibus oviparis*, and Book V, *De serpentibus*, by C. Gesner (1516-1565)—nicknamed the German Pliny—and to "*De herbas virtutibus*" by Pseudo-Apuleius (Cervenka, J. "Comments", in Comenius, 1993. P. 28).



Figure 5. Animals

Conrad Gesner (1551-1621), in the five volumes of his *Animalia Historia* addressed in totality the known contributions of ancient and modern authors regarding the characteristics of animals (how they live, what they eat, etc.), which, in addition, he enriched with his own observations. Ulysses Aldrovandi (1551-1621) wrote more than eleven volumes, of which he managed to publish three relating to birds and insects. Curiously, although the two did not share the common belief in monsters and fantastic animals, since this was part of the information circulating around them, they also included these creatures in their works.

To a great extent, the work of the naturalists of the 16th and 17th centuries was to recover what the Greeks had done on the subject, in order to resume this type of

study. Their main Greek source was Pliny, whose encyclopedia of natural history addresses all the knowledge and beliefs of the time. He begins with the creation of the universe, the earth, man, animals, plants, metals, trades, and goes on to the liberal arts. Pliny often mixes reality and fantasy, as in the case of the unicorn, which Comenius also included in Chapter XXVIII, "Mountain Livestock" (Cervenka, J. "Comments" in Comenius, 1993. P. 110).

e. The human body

In the treatment of man as a living being, Chapters XXXIX "Flesh and Viscera" (Comenius, 1993. P. 121) and XL "Channels and Bones" (Comenius, 1993. P. 123), Comenius shares with us his anatomical and physiological knowledge, learned during his student years in Herborn, when he was in contact with the works of Vesalius (1514-1564).

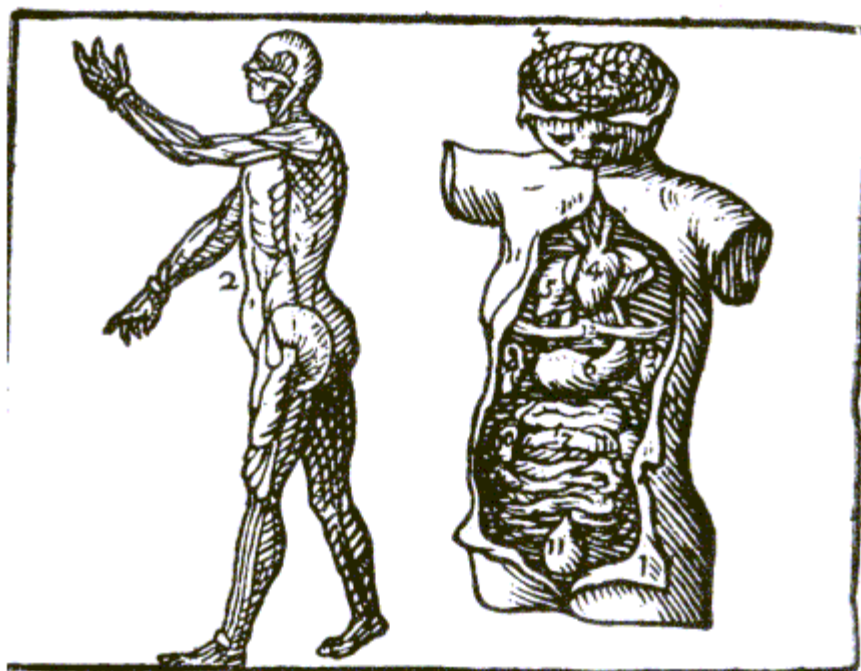


Figure 6. Muscles and viscera

The impact of *De humani corporis fabrica* (1543), by the Belgian, Andreas Vesalius, in the circles of European scholars, had been very intense. In it he concentrated on his childhood experiences—he had lived in Brussels “near the city walls, a place where, in his childhood, he often saw the bodies of tortured and executed criminals that remained hanging until the vultures left nothing but the bare bones” (Garzon and Rincon, 1999. p. 85)—as well as on his extensive experience as a physician and surgeon. The greatest success of this work were the prints he introduced for explaining the anatomy.

Vesalius's work is to medicine what the *Orbis pictus* is to education, and without a doubt, both share in the traditions surrounding the illustration of books for teaching purposes.

f. Study as a practice resulting from literacy

With the spread of printing and the access of more people to books, other cultural practices related to literacy were established.

Having books available so as to make knowledge one's own, lead to personal autonomy, because the person who developed himself in these matters could gain access to various bodies of knowledge, and thereby advance in the search for truth—mobile, for that era—without depending now on the lecture coming directly out of the teacher's mouth. The processes of transmission moved from the ear to the eye, from the spoken word to the reading of texts, which the student would have to go through in environments conducive to study—quiet and intimate—with the possibility that there might open up other meanings for the texts as part of the interpretation process. Chapter XCVIII, “The Study”, in its very concept is extremely significant when viewed through the eyes of Comenius:

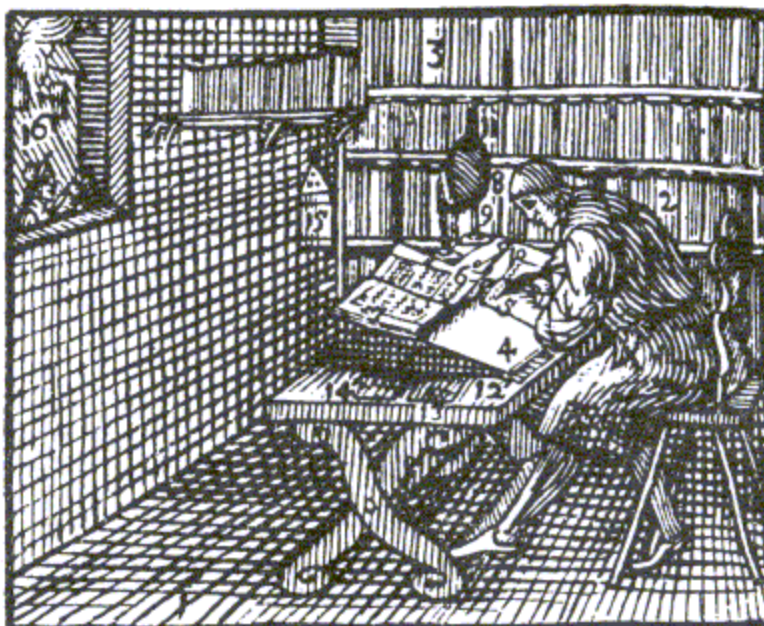


Figure 7. Study

“The study is a place where the student, away from others, sits in solitude dedicated to his pursuit; he reads books, open before him on an easel, and from them he writes the best down in his notebook or makes annotations, either underlining or in the margin with an asterisk [...]” Comenius, 1993. p. 185).

The independence generated by having access to different books with relative ease, and being able to study by themselves, made possible other ways of

approaching learning: “[...] Do we not have, perhaps, something else to do in this life than go here and there to other people and find out where they disagree, agree or rave? [...] Why do we have to use other people’s eyes better than our own?” (Comenius, 1988. P. 86).

Written culture, then, would have altered the way of seeing the world and traveling in it as radically as the new cyber culture has done today.

Final thoughts about the culture of images

The short journey through the traditions and legacies which underlie the use of pictures/images for teaching purposes, shows that these practices have been subsidiaries of the daily life of our schools since the threshold of modernity. They are not casual nor free nor circumstantial; they are cultural practices which have been built over time, and which have many implications.

Recourse to orality, writing, the audiovisual or electronic culture that prevails in our time, is not innocent. Each of these cultures, with its share of gains and losses, has a profound meaning in the way people apprehend and interpret reality; People perceive themselves and others; they retrieve information, organize it, preserve it, disseminate it. The constant and daily practice of these processes, in turn, contributes to the formation of certain structures of thought, competencies and mentalities, a way of seeing the world and the place of human beings in it, of communicating with others. It also develops support materials and appropriate technologies.

Finally, although the images were introduced in a formal way for teaching purposes at the threshold of modernity, when the West assumed the task of establishing a new social order, and in the midst of this undertaking, there were outlined the scholastic processes of education which are approaching us. The illustrations in textbooks and books for general study which seem “natural” to us today are, we would say, paraphrasing Gramsci, “daughters of their time.” This leads us to stop along the way to investigate the senses with which we have been endowing societies of other times and other places.

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Translator: Lessie Evona York-Weatherman

UABC Mexicali

¹ While modernity is a polysemic concept, it underlies the various manifestations of the civilizing program of Western civilization, which participates from a linear conception of progress in history, of the displacement of the theocentric worldview by a secularized perspective of the oriented by the predominance of reason, of man's dominion over nature, the growing development of capitalism, the constant specialization of knowledge and social life, of the establishment of the modern state and of new institutions, etc. These changes profoundly affect the everyday life of society. Giddens notes that "the notion of modernity refers to the ways of life or social organization that emerged in Europe from about the seventeenth century onwards and whose influence, since then, have become more or less global" (Giddens, 1993. P. 15).

² In his children's allegory, *The Labyrinth of the World*, Comenius points out this situation: "[...] I see that the reformation was of great cost to those who were in greatest poverty. Not the pocketbook, but the hide, I say, that they had to offer. And also surely upon these came to fall the fist, the pointer stick, the rod, in the face, on the head, on the back, on the seat, until the blood came and they were nearly always full of bruises, scratches, contusions, calluses" (Comenio, J. A., 1905. p. 59).

³ John Huss (1369-1415) was a professor at the University of Prague, linked as a preacher with large sections of the population and committed to the renewal of the Christian Church. Because of his convictions he was imprisoned and burned at the stake. From Huss' ministry came various dissident movements that converged in the Czech Reformation Church.

⁴ Walter Ong, in analyzing the transition from orality to literacy, defined the features of these cultural practices.

⁵ Devices for supporting memory functions date back to the ancient Greeks and are re-created from century to century. These devices are born associated with oral culture and acquire orientations with the written culture, but there is always present a concern for antidotes against forgetting.

⁶ I mean the practices developed from the thirteenth century onwards, for teaching the truths of faith, and for influencing religious and moral behavior, which made use of the images expressed through painting and sculpture.

⁷ English quotation taken from the Project Gutenberg Ebook, released in 2009; original work published in 1623. See references.

⁸ Translator's note: In some cases where the author of this paper, in preparing the original work, used sources in their Spanish translation, and where the original versions were unavailable to me, I was obliged to translate from the Spanish, producing either a *back-translation* or a *translation of a translation*—for which I herewith tender my most humble apologies.

⁹ Aristotle refutes Plato's concept of innate ideas, claiming that they are configured from the data the senses capture, hence the world is perceived from the information brought by sensations. The Aristotelian maxim, stated in *De anima*, is taken up again by the scholastics and the empiricists.

¹⁰ Peter Ramus decided that in the memory there is no space for places nor for images, to the cry of "Down with the imagination!", "Long live the dialectic!", "Long live the analytical method!" (Giordano Bruno, 1987. p. 286). Ramus led a movement that revived the *ars memoriae* in connection with the problem of method, where order is deposited in the aseptic rationality of sequences, and not the affective charge of the classical *loci e images*, in which the dialectic goes to the aid of the memory. This is the rational concatenation that one to recall what was learned. We should not forget that Ramus sympathized with the iconoclastic movements that were scattered over the reformed territories of France, England and the Netherlands; he defended himself in some of his theological works, using the arguments of the Old Testament against idolatry. He was consistent in all his actions: outlawing images of Catholic worship, but also images of classical art from the memory.

¹¹ In the *Didactica magna*, Chapter XXIX "Idea of the common school"—childhood—IX, Comenius says, "They will learn the principle of cosmography, the roundness of Heaven, the globe of the earth hanging in the middle" (Comenius, 1988. p. 169). In *Cosmographiae compendium*, Chapter I "Astronomiae" he writes: *1 Centrum est coeli terra* ("The earth is the center of the heavens") (Comenius, 1978. P. 47).