

Kids, take a look at this! Visual Literacy Skills in the School Curriculum

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Abstract

Although the paradigm of visual literacy (VL) is rapidly emerging, the construct itself still lacks operational specificity. Based on a semiotic understanding of visual culture as an ongoing process of ‘making meaning’, we present in this study a skill-based classification of VL, differentiating four sets of VL skills: perception; imagination and creation; conceptualization; analysis. A qualitative curriculum analysis based on this framework revealed that curriculum standards for compulsory education in Belgium refer only peripherally to the use of visuals. The attention for VL skills also decreases from secondary education on, especially curriculum standards related to the analysis of images are scarce.

Keywords: Semiosis, cognition, visual literacy skills, curriculum standards, curriculum analysis

Introduction: Handling Images

Handling Images: A Process That Requires Learning

Learning to skillfully handle images is not a complete spontaneous process of itself. A number of visual literacy skills (VL skills) develop almost automatically and independently, based on direct experience and without the input of teachers (Avgerinou & Ericson, 1997; Bamford, 2003; Mitchell, 2008). For instance: seeing the difference between a foreground and background, or correctly interpreting certain simple visual prompts, such as learning to “read” icons in preschool education. This automatic acquiring of VL skills mostly concerns so-called ‘lower order thinking skills’ (Tillman, 2012). However, striving for a deeper and more durable use and understanding of images, and thus of today’s world, requires a conscious learning effort, and often also an intervention of an educator (Bamford, 2003; Mitchell, 2008; Seels, 1994). Such an intervention implies the recognition of the importance of VL by the teachers and, more general, an education system that outlines goals that go beyond the classic literacy process (reading, writing, counting and text memorization) and with more than just the occasional forays into images (Elkins, 2008; Stokes, 2001).

Teaching Visual Literacy: More Than Teaching Visual Arts

The question of how images are currently used in educational contexts is one that is only partially answered by research. Many research projects focus on the visual arts in education, but visual literacy and visual education are evidently not limited to lessons on visual arts (Duncum, 2002, 2003). Images are comprised in the didactic materials for almost all courses (from biology to history), as a mere illustration or as the object of knowledge transfer. Moreover, a multitude of pictures – from comics to tattoos – are part of the daily life of teachers and students and that availability of those images carries on into the classroom (e.g., via social media).

From a theoretic standpoint too, the arts world (art criticism, art philosophy, art history, etc.) is losing its prerogative to the use of images (Mitchell, 2008), because many of the issues connected to the use of images exceed the pure formal or aesthetic characteristics of images. Handling images is also linked to what we term information and knowledge gathering, visual communication, creativity, critical exploration and reflection, the formation of a cultural identity, etc., and those skills are not limited to the arts. Furthermore the construct of the visual arts itself also keeps knocking on its boundaries more often. Parsons (2004) states that “even the idea of art has become so loose, given the flood of visual images in our society, it is impossible to sort the art images from the non-art ones” (p. 786).

In short, research into visual arts won't allow us to map the multiplicity of the educational use of images. This doesn't necessarily mean that visual arts education needs to be replaced (Eisner, 2001), but at least more attention should be given to the broader and rapidly emerging paradigm of visual literacy (Brown, 2004; Duncum, 2002).

Setting the Scene: The Construct of Visual Literacy

In this article, the concept of 'visual literacy' occupies a central position. The term clearly shows the hybridity of educational work on imagery (Kress & van Leeuwen, 2001). But at the same time we do realize that the concept has drawbacks as well (Avgerinou & Ericson, 1997; Seels, 1994).

The term "visual literacy" was used for the first time by John Debes in 1969. In the past 45 years it became clear that visual literacy is a multi-faceted and multidimensional competence and as such, a topic that is easier to describe than to define (Avgerinou, 2009; Avgerinou & Ericson, 1997; Elkins, 2008; Pettersson, 2013). We think this has to do with the two parts of the term.

Attributing Meaning to an Image

The first part (*visual* literacy) indicates that it concerns a particular form of literacy, that is, literacy that is focused on what is visible. However, the focus on visual observation does not tell the full story because written and printed texts can also be visually observed¹. That is why Levie (1978) notes that literacy becomes visual literacy, not just because of the manner in which certain stimuli are received (visual perception), but also because of the 'meaning' that is given to the formal aspect of those stimuli (symbolic modality). So, visual literacy is clearly not only about the perception of images, but about the process of attributing meaning to the perceived images (what is also referred to as 'visuality' (Jenks, 1995)). This idea will be a core element in the visual literacy framework that we will introduce later on in this article.

Required Competences

This brings us to the second part of the term, the literacy aspect (*visual literacy*). Defining the term literacy implies that one states which skills someone needs to function as a literate person. By that, the term literacy fits in closely with a competence paradigm. From the first use of the term "visual literacy" onward, the concept was seen a set of competencies (Seels, 1994). In the original definition, Debes proposed two core skills: discriminating and interpreting visuals (Debes, 1969). Later on, others added a whole lot of skills. We list some of them here, without trying to be comprehensive: *understanding* and *using* images (Ausburn & Ausburn, 1978), *thinking* and *learning* in terms of images (Hortin, 1983), *expressing oneself*, *analyzing* the

syntax and evaluating the merits of images (Curtiss, 1987), *obtaining and constructing meaning* from and with visual information (Giorgis, Johnson, Bonomo, & Colbert, 1999; Sinatra, 1986); *gaining knowledge and experience* and *heightening conscious awareness* of the workings of the visual media (Messaris, 1994); *interpreting and producing images* to effectively *communicate* (Bamford, 2003). This is altogether an impressive list of skills, partly complementary, partly overlapping. A list like this immediately shows that, as Barbara Seels (1994) argues, visual literacy is more a theoretical construct than a construct with operational specificity, and even the theoretical underpinnings of the mentioned VL skills often lack cohesion (Braden, 1996). Consequently, the above list also lacks the coherence needed in education, both at the level of the curriculum and that of instruction.

Therefore we will now turn our attention to a specific cultural theory that seems appropriate for clarifying this complicated concept of visual literacy and helps structuring it so that the description of VL skills becomes sufficiently coherent for curriculum development and analysis. We will first outline the main characteristics of the theory.

A Cultural Theory as the Basis for a Skill-Based Framework

Culture as an Active Process of “Making Meaning”

As a cognitive theory of human culture, the ‘Culture in the Mirror’ theory² developed by van Heusden (2004, 2007, 2009a, 2009b, 2010) offers a specific and new way of looking at culture. This perspective is interesting to us because it does not simply state a definition, but it addresses both a clear investigation of what culture is and sets forth a number of clear directions and learning goals for handling aspects of culture (such as visual culture) in the classroom.

The theory studies first and foremost the development of human culture. More specifically, the theory holds that a semiotic interpretation of the development of human culture offers insight into and creates coherence between the different so-called *cultural skills* people use today and which should consequently, also be taught in education. Building on the work of developmental psychologists Nelson (2005) and the bio-cultural theory of evolution of Donald (1991, 2006), the theory starts from the problem of how people, ever since the dawn of humanity, handle the tension between what they remember on the one hand and the ever changing reality on the other hand. This “double scope” problem (a term borrowed from Fauconnier & Turner, 2002) is more than just a random philosophical brainteaser. It is used as the starting point for the theory because it endows human thought with its semiotic nature: the

constant comparison between what is being perceived and what is remembered from previous observations is a comparison between reality and an already known representation of that reality. This known representation of reality can be seen as a rudimentary sign as it is used as a representation to keep recognizing an ever changing reality, to interpret that reality and successfully interact with it. This semiotic act or sign process (semiosis), i.e., the process of constantly giving form and meaning to current events by means of memories (signs), and the fact that we are aware of that process, is typical for human culture. Spoken and written language is an important expression of this process, albeit not the only one. Looking, fantasizing, drawing, building, etc. are also expressions of this process. This is also important for our conversion of the theory into a framework for VL skills later on. Using this theory we will easily be able to argue that “visual literacy” is more than just a linguistic way of handling images (Elkins, 2008; Messaris, 1994; Raney, 1999).

Skills Framework for the Process of “Making Meaning”

To perceive culture not as a collection of artefacts or disciplines, but as an active process of “making meaning” using signs, offers us a wide-angle lens for the analysis of a specific and indispensable part of human culture: visual culture. It is a lens free from any specific cultural bias, or at least freer than any pure language-related definition of culture. The view, moreover, allows for openness toward cultural freedom and individuality, because the interpretations people construct about an image can and will always be based on different memories or represent a combination of different memories. This possibility accounts for the “meaning making” being inherently variable. For instance, based on different memories one person might be offended by a certain cultural expression (e.g., a cartoon), while another person might be amused by that very same expression. This variability, however, does not constitute a chance process or a trial-and-error process that underlies our in-

Table 1. Stages of Semiosis

Type of skill	Stage of semiosis
<i>Concrete / particular</i>	Perception Imagination
<i>Abstract / general</i>	Conceptualization (Theoretical) analysis

dividual thinking. It is a learning process that is deliberately influenced by, among others, parents, teachers and peers, and it is characterized by a specific cumulative learning sequence. To use the words of developmental psychologist Jean Piaget, it is a process of adaptation and construction that moves

from concrete to formal thought. Van Heusden discerns in that process four steps or stages of semiosis³. Every stage represents a number of specific skills that can be taught and trained, for instance in the classroom.

The first stage is the stage of *perception*. Our senses collect different types of data. Dealing with what we hear, see, smell, taste ... is our basic motivation for culture. In all its forms, visual and other, perception forms the basis for having an autonomous memory (a representation) which can in turn be connected to new perceptions. It is thanks to this perception ability that we can use perceptual or figurative signs.

The second stage is *imagination*. The imagination skill covers all the ways in which perceptual information can be manipulated. This can be purely at the mental level (e.g., when travelling abroad looking at a photo of your children might stimulate to imagine how they are doing), but making and using cultural artefacts are also expressions of imagination. Both Banksy's street art and the prehistoric cave paintings are the result of imagination processes. They are a visible and tangible representation of imagination.

The third stage is *conceptualization*. This phase comprises the conversion of concrete perceptions into abstract representations. This is possible thanks to our ability for conceptual thought. More specifically, this concerns the ability to give a sign both a *form* (signifier) as well as a *meaning* (signified). In that moment, the sign becomes a conceptual sign or a symbol. The use of abstract symbols – which is typical of humans – represents a linguistic ability. Again, language signs can receive a different meaning depending on the time and location. Therefore, symbol use is only possible when use is made of what is already known - social conventions or cultural shared knowledge – things that go beyond the features embodied in the sign vehicle (Deacon, 2012).

The fourth stage is *analysis*. Analysis or theoretical thought contains all skills used to discover, aided by concepts, the structures or patterns of certain perceptions. Unlike the conceptualization skill, analysis is not based on social conventions; it is an abstract manner of perception.

Research Questions

This article addresses two sets of questions. The first set is of a conceptual nature. It concerns the elaboration of an analytic framework for VL skills based on the theory outlined above.

Q1: Can we construe a coherent analytical framework for visual literacy that is enclosing, theoretically based, and operational?

While this first question aims to develop a theory-based tool for curriculum development and analysis on visual literacy, the subsequent set of questions is of an empirical nature.

Q2: Can we use the developed framework to analyze the national curriculum of Flanders (Belgium)?

Q2, a) Are VL skills mentioned in the curriculum standards of the intended school curriculum?

Q2, b) If yes, which VL skills are referred to in the standards?

Q2, c) If yes, where exactly are these VL skills included in the school curriculum: in the art and/or in the non-art classes? In preschool education, primary education and/or secondary education?

Our analysis is applied on the existing standards formulated for all subjects (the horizontal curriculum) as well as across all different grade and school levels (the vertical curriculum) of preschool education (age 2,5-6), primary education (age 6-12), and secondary education (age 12-18). The questions are important to see the coherence in the curriculum, as well as to check if the standards don't give cause to an uneven distribution of VL skills being taught.

The rest of this article is organized as follows. The next section lays out the analytical framework for visual culture. This will help us to assess what VL skills precisely entail from the particular perspective of the learner. Based on that framework, we will then, in the next section, assess to which extent the current school curriculum responds to the different VL skills in the framework.

Building a Theoretical Framework for Visual Culture (Q1)

Towards a New VL Framework

How do we develop a new analytical framework for visual literacy (Q1)? We do so not by testing or criticizing a series of existing theories or frameworks, nor by trying to integrate the disparate approaches and definitions of visual literacy. We construct the framework based van Heusden's theory, which we expand to the area of visual literacy.

As described before, the theory we use is rooted in a perspective that extends beyond the visual arts: a semiotic understanding of culture in which giving meaning is key⁴. This starting point seamlessly connects with descriptions of visual literacy that also build further on the tension between memory and actuality. Sinatra (1986) for instance defines visual literacy as "the active reconstruction of past visual experience with incoming visual messages to obtain meaning" (p. 5). The different stages recognized by van Heusden also correspond to a large extend with the major stages in the development of a child's perceptual abilities⁵. When we further apply the semiotic perspective on culture that is incorporated in the theory, we first of all should consider dealing with images as a process of "making meaning" and the images

themselves as (collective) vehicles of meaning. Applying the theory in this way, also shows that the theory matches insights from visual cognition that stress how visual literacy is, in the first place, a process based on a number of (nonverbal) cognitive skills (Miller & Burton, 1994). Visual literacy is more than seeing images and making images (such as photos, paintings, drawings, etc.) as natural or neutral activities (Raney, 1999); it is a thinking process, one that implies specific cognitive actions like interpretation and reflection, understanding and comprehension, awareness, etc.

Using the above stages of semiosis, let us now offer a comprehensive description of visual literacy, one in which the broad spectrum of visual literacy is divided into four sets of skills. This is the way we narrow down van

Table 2. Analytical Framework for VL Skills Based on the Stages of Semiosis

Stage of semiosis	VL skills	Skills referring to	The use of visuals as
Perception	Visual perception	The perception of visual information	Concrete visual information
Imagination	Visual imagination and creation	The representation or manipulation of existing images and the creation of new images	Concrete visual tools
Conceptualization	Visual conceptualization: visual language and communication	The abstract (symbolic) use of images in or as a language	Abstract symbols or icons
(Theoretical) analysis	Visual analysis: analyzing the structure and function of visual information and using visual information for analysis	Analyzing patterns and structure with and in images	Abstract structures or diagrams

Heusden's analytical framework of culture to visual literacy. The different aspects of the analytical framework are briefly discussed below.

The skill of *visual perception* is obviously a necessary skill in visual literacy. It is a matter of – again in words of Piaget – collecting perceptual images (Lansing, 1966). In terms of education, teaching visual perception is to teach pupils how to have a “good eye.” This “good eye” is a lot of things at the same time: the openness for visual experience, visual curiosity, perceptual sensitivity; the ability to focus, to filter and select; the ability to discriminate and decipher what one (wants to) see(s); the sensory experience itself; the ability to coordinate visual stimuli with other types of stimuli; the taking of visual pleasure, and so on. Visual perception, like seeing the different graphic elements of an image on a canvas, needs training.

Visual imagination and creation is another set of skills in visual literacy. This concerns the use of perceived images with the intention to make some-

thing new out of that image information. It is a matter of visualizing new images or reconstructing existing images. This can mean fantasizing images, but also creating a new image through a physical carrier, for instance taking a photograph with a smartphone or composing an image on a flyer. Visual imagination and creation can be used for functional/communicational purposes as well as for aesthetic purposes (or both at the same time). It is closely related to visual creativity.

The images we perceive and make are concrete entities that are not simply “out there.” We define and describe them, we talk about them, we use them to visualize and communicate ideas, we organize them so they tell a story, etc. In other words, we also use them in abstract or symbolic ways. This takes us one step further than imagination and creation: understanding the vocabulary, grammar and syntax of images, and by so doing, we add symbolic meaning to the image(s). At that point, we see and use visual information in a more abstract way: as a language to communicate (Bishop Berkeley used the term “visual language” for this), as they become the building blocks of (re)constructing meaning. In a language, we use these building blocks not for the concrete information they provide, but for the mental *concepts they mirror*. We structure and classify them in a certain way, based on visual conventions (e.g., narratives), or we describe them with linguistic concepts.

Pictorial discourse requires linguistic support to gain context to allocate the meaning of the otherwise abstract and arbitrary formation of shapes with shifting differentiation values and degrees of generalization. Points, lines, angles, open and closed figures may signify anything, since there are many ways to represent a given conceptual structure. In such a context, the linguistic discourse, as a highly standardized and common means of communication, conveniently helps to determine the meanings of pictorial elements, which need an “outside imposition of limitations of possible readings” (Turkovic, 1995, p. 335). Without linguistically determined references, pictorial forms are like syntax without semantics, or like empty containers which must be filled. (Kazmiercak, 2001) As this is a more abstract skill than imagination and creation, this process is sometimes called encoding and decoding images (Heinich, Molenda, Russell, & Smaldino, 1999).

Analysis means that the embedding and context of images is approached in such a way that the structure or the system that lies at the foundation is revealed (e.g., the historical context of an image). Through analysis, the actual or necessary connections between images, and between images and other information (e.g. texts), are discovered and recorded. Analyzing images and using images for analysis is an important aspect of visual reasoning and visual thinking. It enables us to use and evaluate the visual language, for example,

for analyzing the history of an image, for judging the maker's intentionality, or to understand cultural constructions (e.g., race, gender, age) mediated by visual experiences (Elkins, 2008).

What Pleads for this New Framework?

Like earlier attempts our framework breaks down the construct of visual literacy in different elements or parameters or items (Avgerinou, 2007; Raney, 1999; Seels, 1994). It encloses a lot of skills that can be found in other frameworks on visual literacy. It offers for example a strong analogy with the theoretical parameters of VL as described by Burbank and Pett (1983): visual perception, visual imagery, cognitive styles, visual language. Like the VL index by Avgerinou (2007) our framework pays attention to both basic skills, such as visual discrimination and visual memory, and higher order thinking skills, such as constructing meaning. It also clearly illustrates that teaching VL is not only about teaching ways of looking at things (*visual perception* and *visual analysis*) but also about production skills (*visual imagination and creation* and *visual conceptualization*).

What makes this framework somehow different from most other frameworks (e.g., Burbank & Pett, 1983; Debes & Williams, 1978) is that it offers a broad skill-based classification that stems from a broader theory on human culture. The classification is not just a mere enumeration of skills; it demonstrates coherence on the basis of an underlying cultural theory. Furthermore, the framework is not construed in a linear fashion, as in the ACRL's visual literacy Competency Standards for Higher Education (Association of College and Research Libraries, 2011). It rather takes on the form of a spiral. This implies that a competence like *visual imagination and creation*, for example, is considered a skill that needs to be trained at recurring times, though each time with raising expectations on the side of the teacher.

As an extension of van Heusden's cultural theory, our framework describes VL skills as cognitive skills⁶. That is why thought and interpretation do not represent separate skills in the model; they are after all comprised in all the described skills. Moreover, the more intuitive skills (experiencing feelings about or interest for images), which are not or hardly "teachable," aren't explicitly addressed in our framework neither. This makes the model well suited for educational research.

Analyzing Visual Literacy Skills in the National Curriculum of Flanders (Belgium) (Q2)

Qualitative Content Analysis

We will now analyze the occurrence of VL skills in preschool and com-

pulsory education through this framework, using the curriculum standards designed and published by the Flemish government (Belgium) as a case. Although we calculated the number of standards with references to VL, our method is essentially qualitative because of the researchers' interpretative reading. So our method can be seen as a qualitative content analysis (Kuckartz, 2014; Neuendorf, 2002), in which the theoretical framework is used as a grid or a tool for analysis and the different aspects of the theoretical framework are used as thematic categories. More precisely the analysis is a *directed content analysis* because, unlike a conventional content analysis, the initial coding scheme or relationships between codes are determined by the theoretical framework and not derived from the data themselves (Hsieh & Shannon, 2005). In table 3 we present the coding scheme that was used in analyzing the curriculum standards.

Table 3. Coding Scheme used for Curriculum Analysis

VL skills	Skills referring to	Code
Visual perception	Willing to perceive images (attitude) and realizing what they might cause	P1
	Visual perception by focusing on certain images (controlled by emotion or recognition)	P2
	Memorizing and (based on that) recognizing images	P3
Visual imagination and creation	Mental representation and ability to imagine	I1
	The creative use of material and technique	I2
	Imagination as a way to reflect on images	I3
Visual conceptualization: visual language and communication	The creation of a linguistic frame of reference	C1
	The contextualisation and framing of images	C2
Visual analysis: analyzing the structure and function of visual information and using visual information for analysis	Investigating and analysing the structure and function images	A1
	Evaluating and assessing the structure and function of images	A2

The steps of the content analysis were as follows. First we read the complete curriculum content in its current form and structure with the aim of selecting only those curriculum standards that have a reference to visual literacy. This was done by looking for text elements that refer in one way or another to our concept of visual literacy. This was done by one researcher. After that the content of all the selected curriculum standard was coded using the cod-

ing scheme above. Through this procedure a detailed standard-by-standard analysis of the goals and targets in the curriculum was produced. The coding was done twice, by two independent researchers, using NVIVO software. Using the software ReCal2 we calculated the interrater reliability (Cohen's Kappa) for each category of our coding scheme. For all categories Cohen's Kappa was higher than 0.708, which suggest a good level of inter-rater agreement. Based on the coded standards we were able to investigate trends and gaps in the curriculum.

Why is such a content analysis of the curriculum standards important? The manner in which a curriculum is described on paper (beforehand) determines to an important extent what an educator teaches about and what students will eventually learn. In other words, curriculum standards give rise to a shared discourse between teachers, but also between school administrations, pupils, parents, etc. on what children should learn (Tyler, 1949).

The Core Curriculum for Formal Education in Flanders (Belgium)

Education in Belgium is governed by the communities. The three communities (the Flemish, the French, and the German-speaking Community) each have their own education system. The Government of the Flemish speaking northern part of the country supervises the quality of education starting from a common core curriculum for all preschool, primary and secondary schools (De Vries, 2010). This core curriculum, dated 1991 but slightly developed since, consists of two types of curriculum standards: *development goals* (for preschool education) and *attainment targets* (for primary and secondary education). The goals and targets are what the government considers the minimum goals of knowledge, insight, skills, and attitudes for every child. In the Flemish curriculum, the level of detailed description of the goals and targets varies widely. The nature of the goals and targets is also very different. But this is the case for many standard-based curricula (Eisner, 2002). The *development goals* are considered "desirable" for a certain pupil population. They symbolize what a pupil should be able to know or do. *Attainment targets* are directives which are considered "necessary and achievable" for a certain pupil population (De Vries, 2010). They represent the level of attainment needed to receive a degree. Compared to other European countries, curricula in Flanders are mapped out rather extensively. In the Appendix we give an overview of all subjects and areas of learning for which goals and targets are formulated. Most of these standards are subject-specific, although a number of cross-curricular goals have been formulated for secondary education⁷.

The Distribution of VL Skills in the Curriculum

A first general observation is that references to visual literacy can be

found in a rather fair although not overwhelming number ($N= 157$) of the present Flemish curriculum standards. Sometimes that reference is explicit, and sometimes it is more implicit. The interpretation of the standards is not always easy, because some standards miss clarity (e.g. ‘The pupils know how to use their own audiovisual language and are able to understand the relativity of the massive range of audiovisual possibilities’).

As the education level increases, the attention for VL skills in the curriculum decreases, or in any case the *number* of goals and targets that directly or indirectly refer to interaction with images, whatever their form, decreases. For preschool education 27 out of 202 standards (13.4%) refer to images in one way or another. In primary education only 22 out of 322 standards (6.8%) refer to aspects of visual literacy. The decrease continues goes on in secondary education (still 27 out of the 347 subject-specific standards or 7.7% in the first grade, but less than 20 subject-specific standards in the second and third grade). This decreasing number of goals and targets referring to VL skills could be interpreted as a conviction on the part of curriculum developers that VL is especially to be taught in preschool education, a little less in primary education and the first grade of secondary education, but once students reach the second grade of secondary education apparently VL skills are considered to be acquired.

It is also notable that references to VL skills in the curriculum standards are not limited to one course or learning area. Although VL skills are especially represented in the standards for artistic classes and artistic learning areas (both in preschool, primary education and the first grade of secondary education), interaction with images is also occasionally integrated into other non-artistic courses. It is remarkable though how VL skills are hardly mentioned in the cross-curricular goals concerning ICT (8 to 10 standards, depending on the grade) although nowadays the making of images is almost inherently linked to digital media. On the other hand, VL skills are very often included in language courses – often in an illustrative and supporting capacity. VL skills function more as a functional or communicative means there. They are not the ultimate aim of those curriculum standards. It seems that from the second grade of secondary education onward VL skills especially have to be used to support the learning of foreign languages.

Types of VL Skills in the Curriculum

Until the first grade of secondary education, there is a lot of attention in the curriculum for VL skills related to *visual perception*. Some examples are included in Table 4.

Compared to the skills related to visual perception, the curriculum pays less attention to *visual imagination and creation*. This is striking because

Table 4. Examples of Curriculum Standards Related to Visual Perception in the State Curriculum of Belgium (Flemish Community)

Level of education	Curriculum standard	Subject / area of learning	Codes
Preschool education	1.3 Preschoolers can distinguish between color, line, surface, rhythm, form and decoration, and can articulate the discovery of image elements	Expressive arts	P2, P3
Primary education	5.1 The pupils can observe image signals so that remarkably good and less successful things can be examined and recognised	Expressive arts	P2, P3
Primary education	6.2 The pupils are able to look at and listen to art without prejudice	Expressive arts	P1
Secondary education first grade	1. The pupils can look in a targeted manner and can contrast their viewing experiences with previously acquired knowledge, previous experiences or their own imagination	Artistic education	P2, P3
Secondary education first grade	1. The pupils can observe in a targeted manner using all their senses and can articulate their observations	Natural sciences	P2

visual imagination and creation are without a doubt very important for young children. Children's own creation of images is a way for them to give form, meaning, and expression to their experiences, ideas and environment – especially when language skills are still very much in the process of being developed. The importance of imagination in their development is especially significant at the end of preschool education and at the start of primary education (e.g., imagination, role play, etc.) (Berk, 2010). We notice that concrete skills implying imagination and creation are targeted in the core curriculum until the first grade of secondary education, but that this is barely the case from the second grade of secondary education onward (from the age of 14 years on). This clearly suggests that skills related to the creative handling of images should be acquired by the age of 14. Clearly this represents a shortcoming in the curriculum precisely because training the creative skills is *and* remains so important, throughout the entire school career (Lucas, Claxton, & Spencer, 2013).

An often-heard criticism in academic research on VL is that image-making in education is too often offered as a targetless exercise that is especially meant to lead to fun, but not a widening of the pupil's competencies (Dondis, 1973). Here, within the analyzed state curriculum, this is not the case since imagination and creation are not just included with a view to fun, but also for purposes of authentic creation; development of sensibility to materials, expressive style, and storytelling abilities; use of methods and acquiring of techniques. What is remarkable, however, is that the expected development

of a pupil at the level of image creation is described in much less detail in the curriculum standards than the learning progress vis-à-vis knowledge about for instance history or mathematics.

Table 5. Examples of Curriculum Standards Related to Visual Imagination and Creation in the State Curriculum of Belgium (Flemish Community)

Level of education	Curriculum standard	Subject / area of learning	Code
Preschool education	1.4 The preschoolers can use different expressive, technical means and can use those together to arrive at an expressive work	Expressive arts	I1
Primary education	5.2 The pupils can experience that a visual image, which may be accompanied by a new sound, can call up a new reality every time	Expressive arts	I1
Primary education	1.5 The pupils can solve image problems, apply techniques, and wield tools and materials to represent an image in a way that satisfies them	Expressive arts	I2
Secondary education first grade –	6 The pupils can record their thoughts and ideas through a sketch	Artistic education	I1, I2

Table 6. Examples of Curriculum Standards Related to Visual Conceptualization in the State Curriculum of Belgium (Flemish Community)

Level of education	Curriculum standard	Subject	Code
Preschool education	1.3 The preschoolers can distinguish color, line, surface, rhythm, form and decoration and can articulate the discovery of image elements	Expressive arts	C1
Primary education	5.4 The pupils can use their own audio-visual language and can put the massive audio-visual offer into perspective	Expressive arts	C2
Secondary education first grade –	The pupils can arrange simple textual, auditory and audio-visual information according to time frame, spatial frame and social dimension	History	C2
Secondary education second grade –	5. Pupils can determine the function of the complimentary visual information in planning, executing and reflecting on listening assignments	Dutch	C2
Secondary education third grade –	10. Pupils can use visual information depending on the speech and conversation goal(s) and audience in planning, executing and reflecting on speech assignments (for GSO and ASO*:also conversation assignments)	Dutch	C2
Secondary education third grade –	16. Pupils can describe the different communication means (textual, figurative and architectural) from the classical antiquity and clarify their communicative function	Latin / Greek (optional subject)	C1, C2

The abstract (symbolic) function of *images in or as a language* receives the most attention in the curriculum. The relation between the different types

Table 7. Examples of Curriculum Standards Related to Analyzing Patterns and Structure with and in Images in the State Curriculum of Belgium (Flemish Community)

Level of education	Curriculum standard	Subject / area of learning	Code
Primary education	5.5 The pupils can recognize, examine and compare simple, audio-visual information from their own environment	Expressive arts	A1
Secondary education – first grade	10 The pupils can offer their personal opinion on various image creations from different cultures and show interest for image creations, both traditional and newer ones, including for those outside their own cultural environment	Artistic education	A1, A2
Secondary education – third grade	19 The students can illustrate and analyze the role and social significance of artistic expressions vis-à-vis society	Social sciences (optional)	A1

of VL skills does evolve throughout the school career however. From the second grade of secondary education onward, more attention is clearly paid to the development and application of visual language than to the other VL skills.

Of all the examined visual literacy skills, the analysis of the structure and function of visual information and the use of visual information for analysis is given the least attention in the core curriculum. In preschool education, analysis of images and image language is as good as absent from the standards (only 2 out of 202 standards (1.0%) referring to visual analysis), and this while children of that age are certainly capable of distinguishing and evaluating the structure characteristics of images and image language, even if they cannot yet conceptually (with spoken language) name them (Gardner, 1972). The curriculum standards for primary education pay somewhat more attention to the analysis of images. After this, the attention paid to the explicit analysis of images again decreases.

Discussion and Conclusion

Visual Literacy Skills

Even though we almost continually generate automatic reactions to a range of visual stimuli, handling images is for the most part also a learning process. Can we however expect education to still take a real “visual turn”? Or does education today already pay sufficient attention to visual literacy in addition to verbal-mathematical reasoning on the basis of verbal and written language? And which VL skills exactly should education teach and stimulate? It is difficult to answer these important policy questions as long as it remains unclear what the concept of visual literacy precisely entails. And as long as this remains unclear, it is also difficult to pinpoint exactly which VL

skills we should expect our teachers to teach.

In accordance with a new tradition in the literature on visual literacy, we attempted in this article to further clarify the concept of VL. Many visual literacy theories begin with an analogy or a comparison with written and printed literacy, but this comparison often has a limiting aspect (Brill, Dohun, & Branch, 2007; Sucy, 1985). That is why this article adopted a broader perspective: a cultural theory that describes the different cultural skills from a semiotic perspective. By tracing the general skills that people use to give their environment meaning (perception, imagination, conceptualization, and analysis), we arrived at the realization of the specificity of human signification and, more importantly, today's human culture. Visual culture is an important part of that culture, a part that might also become increasingly important in education. By applying the semiotic cultural theory to the interaction with images, we elaborated an analytical framework for VL skills with a clear theory behind it. Our framework is skill-based because the question of how to define visual literacy is after all a question best answered when formulated in the following manner: What should a person be able to do to be visually literate? In the framework we described the skills, but not the preferred level of achievement. This was done intentionally because, as Raney (1999) argues, what it means to be visually literate "will vary from culture to culture, and from period to period in the same culture, depending on the dominant focus of representation" (p. 45). Situating a framework for VL skills within the field of semiotics helps to defragment VL as a complex and complicated phenomenon. It also helps to relate the still vague and undertheorized concept of VL to more coherent operational constructs or sub-concepts: visual perception, visual imagination and creation, visual conceptualization, and visual analysis.

Although this first exercise seems promising to us, the practical added value of the analytical framework in education and research is to be further explored. And of course, like any framework, this one too has its limits. Because VL is seen as a meaning-making act, the outlined VL skills in our framework are still very broad. Moreover, the classification of VL skills does not necessarily help in the act of education itself. The coherent description of VL skills after all does not yet prescribe "how" VL skills can and should be taught, nor does it constitute an instrument with which to measure VL skills.

The Curriculum

Although there is no single right answer to the question how visual literacy should be inserted in the core curriculum, the second half of this paper illustrates how the analytical framework can be used as a grid to analyze a national curriculum, taking the different VL skills as different dimensions.

We analyzed the state curriculum for preschool education (ages 2, 5-6), primary education (ages 6-12) and secondary education (ages 12-18) in Belgium (Flemish community). The analysis of this case showed how visual literacy is only present in the curriculum in a rather peripheral way. Probably, Belgium is not unique in this. We could state – like scholars such as Yeh and Lohr (2010) – that student's visual abilities are still relatively ignored in schools in favor of verbal and writing abilities. We also noticed that goals and targets related to VL skills are most often present in the curriculum standards for the artistic subjects, although objectives related to VL skills are also set forward in other non-artistic subjects (like history and languages). This is a plea to see the use of visual information broader than just the field of visual art education. This way, continuities could also be created between the different subjects and subject areas.

Although the framework does not state that equal weight should be given to the four different sets of skills, we did notice that one-sided choices are sometimes made in the present curriculum. Naturally, the curriculum for younger children emphasizes visual perception and visual imagination and creation more than that for older children. At the same time, the evaluation begs the question if visual perception skills, the sensory experience itself, and taking visual pleasure in it are still sufficiently represented in the curriculum standards for the higher grades in secondary education. Similarly, one could ask whether enough objectives are being set at the level of higher order thinking skills for children in preschool and primary education. The foundations for pictorial discourse and theoretical (visual) thinking could already be laid for the latter group.

We realize that with our qualitative analysis of this state curriculum we only assessed the intended curriculum. Differences may of course exist between the intended and the executed curriculum. Teachers often implement one and the same curriculum in very different manners. The scope of this article prevented further examination of this. That is why, as Stokes (2001) suggests, it would certainly be worth the effort to further explore the focus on VL in the actual classroom. We are convinced that our analytical framework for VL skills can offer added value for further curriculum research (evaluation, transnational comparison, etc.) and curriculum development, and can thus be an interesting tool for researchers, practitioners and policymakers.

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Notes (Endnotes)

- 1 In fact, the visual side of a text is often very important because it indicates the way a text should be understood. One could compare it with intonation when speaking.
- 2 Because of space limitations only the most important characteristics of this theory are discussed here.
- 3 This theory posits that these four steps followed each other in the evolution of human culture and each time further built on each other. They do not operate independently. This aspect will not be further discussed here.
- 4 The idea of giving meaning is key to the field of cognitive semiotics, which this theory also fits into.
- 5 Let's take for example the distinction Jean Piaget made between different images: “(...) Piaget makes a clear distinction between perceptual images, representational images, and conceptual schemas. It would seem that the perceptual images are the ones we have as we look at an object;

representational images are the ones that we retain (as memory images) after our experience with the object has passed; and conceptual schemas are the informational materials about the object that we retain in the mind in the form of words.” (Lansing, 1966, p. 33-34). Jerome Bruner elaborated on this theory and stressed that learning is mainly dependent on the forms of representation available to the learner to construct knowledge. Arthur Efland writes about the theory of Bruner: “Because learning in early childhood is largely grounded in the senses, the curriculum at that level should make use of concrete objects and pictures, and because the older students are less dependent upon sensory stimuli, and can employ abstract symbols, they are encouraged to discover general categories that make use of verbal or mathematical symbols that express the leading ideas of a discipline.” (Efland, 1995, p. 137).

- 6 A similar ‘cognitive view’ on visual skills has been taken by many other scholars, such as Ernst Gombrich, Nelson Goodman, Jerome Bruner, Howard Gardner.
- 7 Flemish secondary education is characterized by four parallel educational tracks from the second level of secondary education on: general secondary education (GSO), arts secondary education (ASO), technical secondary education (TSO) and vocational secondary education (VSO)

APPENDIX

Education type	Education level	Type of curriculum standard	Classification into subjects / areas of learning
Preschool		<ul style="list-style-type: none"> • Developmental goals (DG) 	<ul style="list-style-type: none"> • Physical education • Music education • Dutch • World orientation • Mathematics initiation
Primary		<ul style="list-style-type: none"> • Learning-area specific attainment targets (LSAT) • Non-learning-area-specific attainment targets (NSAT) 	<p>LSAT</p> <ul style="list-style-type: none"> • French • Physical education • Music education • Dutch • World orientation • Mathematics <p>NLAT</p> <ul style="list-style-type: none"> • ICT • Learning to learn • Social skills
Secondary	1 st level A	<ul style="list-style-type: none"> • Subject-specific attainment targets (SSAT) • Cross-curricular attainment targets (CCAT) 	<p>SSAT</p> <ul style="list-style-type: none"> • Geography • Artistic education • History • Physical education • Modern foreign languages French-English • Natural sciences • Dutch • Technical education • Mathematics <p>CCAT</p> <ul style="list-style-type: none"> • Global • ICT
	1 st level B	<ul style="list-style-type: none"> • Developmental goals (DG) • Non-subject-specific developmental goals (NSDG) 	<p>DG</p> <ul style="list-style-type: none"> • Artistic education • French • Physical education • Civic education or history and geography • Natural sciences • Dutch • Technical education • Mathematics <p>NSDG</p> <ul style="list-style-type: none"> • Global • ICT
	2 nd level, GSO	<ul style="list-style-type: none"> • Subject-specific attainment targets (SSAT) • Pass mark attainment targets (PMAT) • Cross-curricular attainment targets (CCAT) 	<p>SSAT</p> <ul style="list-style-type: none"> • Geography • History • Physical education • Modern foreign languages French-English • Natural sciences • Dutch • Mathematics <p>PMAT</p> <ul style="list-style-type: none"> • Economy • Social sciences • Greek/Latin • Sciences <p>CCAT</p> <ul style="list-style-type: none"> • Global • Technical-technological education
	2 nd level, VSO	<ul style="list-style-type: none"> • Subjects-specific attainment 	<p>SSAT</p> <ul style="list-style-type: none"> • Physical education • General courses project

			<ul style="list-style-type: none"> targets (SSAT) Cross-curricular attainment targets (CCAT) 	<ul style="list-style-type: none"> • Modern foreign languages French-English CCAT • Global
	2 nd level, TSO		<ul style="list-style-type: none"> • Subject-specific attainment targets (SSAT) • Cross-curricular attainment targets (CCAT) 	<ul style="list-style-type: none"> SSAT • Geography • History • Physical education • Modern foreign languages French-English • Natural sciences • Dutch • Mathematics CCAT • Global
	2 nd level, ASO		<ul style="list-style-type: none"> • Subject-specific attainment targets (SSAT) • Cross-curricular attainment targets (CCAT) 	<ul style="list-style-type: none"> SSAT • Geography • History • Physical education • Modern foreign languages French-English • Natural sciences • Dutch • Mathematics CCAT • Global
	3 rd level, GSO		<ul style="list-style-type: none"> • Subject-specific attainment targets (SSAT) • Specific attainment targets (SAT) • Cross-curricular attainment targets (CCAT) 	<ul style="list-style-type: none"> SSAT • Geography • History • Physical education • Modern foreign languages French-English • Natural sciences • Dutch • Mathematics AT • Economy • Social sciences • Greek/Latin • Modern Languages • Sports • Sciences • Mathematics • Competitive sports (ASO/TSO) CCAT • Technical-technological education • Global
	3 rd level, VSO		<ul style="list-style-type: none"> • Subject-specific attainment targets – first and second year (SSAT 1 / 2) • Subject-specific attainment targets – first and second year (SSAT 3) • Cross-curricular attainment targets (CCAT) 	<ul style="list-style-type: none"> SSAT 1 / 2 • Physical education • General courses project • Modern foreign languages French-English SSAT 3 • Physical education • General courses project • Modern foreign languages French-English CCAT • Global
	3 rd level, TSO		<ul style="list-style-type: none"> • Subject-specific attainment targets (SSAT) • Cross-curricular attainment targets (CCAT) 	<ul style="list-style-type: none"> SSAT • Geography • History • Physical education • Modern foreign languages French-English • Dutch • Mathematics CCAT • Global
	3 rd level, ASO		<ul style="list-style-type: none"> • Subject-specific attainment targets (VGET) • Cross-curricular 	<ul style="list-style-type: none"> SSAT • Geography • History • Physical education

		attainment targets (CCAT)	<ul style="list-style-type: none">• Modern foreign languages French-English• Dutch• Mathematics• Global
General	General cross-curricular attainment targets for Secondary education	<ul style="list-style-type: none">• Cross-curricular attainment targets (CCAT)	