Gramotnost, pregramotnost a vzdělávání

Odborný recenzovaný časopis zaměřený na problematiku čtenářské, matematické, informační a přírodovědecké gramotnosti a pregramotnosti

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Obsah/Contents

Editorial/Editorial

Empirická studie/Empirical study

Výzkumná studie/Research study

Přehledová studie/Systematic review

Teoretická studie/Theoretical study

Diskuse/Discussion

Recenze/Review

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Univerzita Karlova, Pedagogická fakulta
Praha, 2020

Dear Readers,

We present you with an issue of the magazine which is entirely devoted to literacy in music and art. Both music and art education develop a sphere of the personality that is either untouched or only marginally touched by other subjects. This is primarily an emotional sphere, an understanding of art as a language of its own, which uses means other than words to communicate. That is why musical and visual art works can easily cross borders and in different countries do not need interpreters in the true sense of the word. However, a deeper understanding of the musical and visual arts cannot be achieved without systematic education, which should develop perception, skills and knowledge. Proportionate representation of these components also ensures the development of musical and artistic literacy.

The contributions on musical literacy are aimed precisely at the level of perception and skills. The authors of the empirical study 'Musical Literacy in Primary Education' examine musical skills in Grade 6 of primary school. In doing so, they draw on investigations that have been conducted in the past. And although the actual level of musicianship was quite satisfactory, new questions arose. Musical literacy is not only formed by musical ability, but also by the aforementioned knowledge. Future testing will therefore need to examine both areas in their interconnectedness.

The authors of the research study 'Visualisation of Music and Its Application into the Process of Education' focused on the connection of auditory and visual perceptions. They presented a number of models and options in which visualisation is an important support for musical perception, particularly based on synaesthesia. However, despite their usefulness, there are still gaps in teaching and textbooks in this area.

Connecting musical activities with activities from other areas is also the subject of M. Kmentová's peer-reviewed publication, 'Musical and Speech Expressions of Preschool Children and Their Mutual Influence'. The publication presents the results of research in which the musical and speech expressions of preschool children were used to mutually support both types of expressions. Musical activities proved to be a positive factor in the development of speech and vocabulary. And the vocabulary in the

musical expressions in turn provided a space for developing musical skills. All of this happens in a natural way, in a way that is most beneficial for the child.

The contributions on the study of visual literacy focus on the development of the topic internationally and in the wider context of critical practice in visual culture, visual arts and education. These fields operate through processes of communication and symbolic exchange, operating against a backdrop of economic and political dynamisms of local and global dimensions. Multimedia communication technology and its audio-visual modes have been determining the ways in which contemporary society functions, and the ways of thinking and acting of individuals, cultures and societies since the 1990s, and are linked to the emergence of the Internet and digital technologies in general. We have been involuntarily experiencing the extreme effects of a mechanical organisation of interpersonal communication for more than a year now, during the COVID-19 pandemic. What has changed, what will remain and what do we need to be prepared for in education in the future?

The current social situation demands social distancing from people, which is a radical change in the onto-epistemic domain. At the same time, it requires tremendous flexibility and speed in communication; these are demands on specific literacy skills to create and understand visual messages. The image as a complex meaning-making entity dominates our understanding of the world, our position and our identity or subjectivity. Visual literacy is a new challenge for education and for changing mindsets. How do we currently define visual literacy, its forms and functions, and how can it be taught and learned? Where do art educators find themselves? What is the role of visual art, inter-visual experiments and multimedia interfaces that visual art experiments with, deconstructs and problematises in this situation? Concepts of visual literacy have been emerging in education since the mid-1990s, with the advent of the Internet and political, economic and social changes on a global scale. After a period of ‚educational resistance' and latency, visual literacy became firmly established on the international stage around the turn of the millennium, when new reflection on the so-called society of the spectacle, visual media, the development of new vocabularies and structural models of visual and cultural education began. Czech art education reacted immediately to international developments and did not lag behind in this respect. We will be mapping its territory in a future issue of this journal; however, in this issue we have decided to include contributions by foreign authors with whom we cooperate within the ENViL network - the European Network for Visual Literacy.

Authors Tedi E. Asher, Peter Carpreau, Lode Vermeersch, and Ernst Wagner

form an interdisciplinary art education team consisting of experts in neuroscience, culturology, art history, and art theory. Their conversation 'Conversations on Visual Literacy, Resonance, and a Found Cat' presents, in the form of a tetralogue, a very lively and witty analysis of the issue of visual literacy, its development and its application in the field of art mediation in the authentic environment of museums and galleries, which is now an integral part of the system of general cultural education from the earliest age.

The other four authors, Diederik Schönau, Andrea Kárpáti, Constanze Kirchner and Maria Letsiou, are prominent members of the Working Group for the Development of Visual Literacy in European Education, which is involved in the establishment and development of the European Network for Visual Literacy ENViL. In their article 'A New Structural Model of Visual Competencies in Visual Literacy', they reflect on visual literacy as a dynamic field of multiple competencies and sub-competencies and present a prototype of visual literacy with a new set of process-oriented sub-competencies in the domains of creative production and reception for readers to discuss. The authors believe that this alternative VL prototype will spark further discussion and research in the field of assignment and assessment in visual literacy education, in relation to the so-called skills for the 21st century.

The collection of articles is logically linked by Jaroslav Bláha's study, which represents a highly scholarly contribution to the interdisciplinarity of the visual and musical disciplines, a unique phenomenon in art education and its theory. Its great and main strength is its sophisticated and comprehensible expert language: the author does not leave terms like „interdisciplinary literacy" in abstract ambiguity. The author's treatment of the phenomenon of interdisciplinary literacy, conceived as a „triad" of word, image and sound, draws on an extremely stimulating theoretical background: Gadamerian hermeneutics, Merleau-Ponty's phenomenology, information theory, etc. At the same time, however, it provides a whole series of concrete examples that very clearly enable the author's general reflections to be given a very tangible content. Among the most stimulating moments of the text is the questioning of the „conservative view" in the form of „the division of art into temporal and non-temporal" with a remarkable reference to the „instinctive life" of forms and tones in Kandinsky's painting and in Schoenberg's compositions. Equally pertinent is the concluding emphasis on the fact that the „multimedia environment of communication" in which we currently find ourselves has deep historical roots, which the author traces back to medieval culture. All in all, Bláh's study creates an elegant theoretical framework for both the musical and visual texts, and com-

pletes their synthesis towards a logic of the pedagogical implications of visual literacy.

Again, as so many times before, we must point here to the baffling neglect of the phenomena and specificity of visual communication, the cognitive potential of visual and musical disciplines, the operation of audio-visual modes, and the effects of symbolic cultural and intercultural exchanges of meaning that constitute the synthetic social environment in which we live and will live. Visual and musical literacies are not a kind of sensibility for the elites of the last century and the one before that, but basic, general educational and competence equipment for the present and the near future. Are we and will we be ready? The unprofessional interventions in the framework curricula in the field of Arts and Culture rather show a profound misunderstanding of the issue. That is why we appreciate the opportunity to publish in the pages of this monothematic issue and we hope to interest readers from other disciplines.

On behalf of the editorial team, we wish you good health and strength,

Michal Nedělka and Marie Fulková

Musical Literacy in Primary Education

Michal Nedělka, Zuzana Selčanová

Abstract: Musical literacy is a complex of abilities, skills and knowledge that can be used in practical aspects of life. The abilities are of paramount importance in this context. That is why research in the field of music education already focused on them in the past. The authors aimed to ascertain what the level of music literacy is at present, and they therefore focused on research into musical abilities, too. The research results indicate that the musical abilities are developed adequately and proportionately. They also point out the need to monitor both the development of musicality and knowledge.

Key words: musical abilities, musical skills, knowledge, musical literacy, diagnostics of musical abilities

Introduction

Literacy is a term used especially where the emphasis is placed on the practical use of knowledge, skills and attitudes in various, life-related contexts. The understanding of literacy in the context of music education, which results from the past monitoring of educational practices at various levels of education, refers to the developed musical abilities and knowledge of students. In the context of music education, however, literacy has not been studied that comprehensively yet - though the previous research studies focused on the development of singing, instrumental and auditory activities, which constitute important components of literacy. The definition of musical literacy nevertheless offers space for a deeper understanding of music. That may be significantly intensified by the body of knowledge and experience with music, while the specific musical work provides a solid basis for many activities of the music-educational process. If we reflect on the role of a musical work within the framework of music education, it is quite clear what the musical literacy is to embrace in order to be functional in its entirety.

Starting Points for Musical Literacy Development within the Framework Educational Programme

For the systematic development of musical literacy at various educational levels, it is important to know the educational goals, the student developmental specifics and the acquired key competences. In this respect, the question arises as to whether the *Framework Educational Programme* (FEP) embraces all the attributes of musical literacy. Even though the expected outcomes are formulated only roughly, we can perceive their certain hierarchy reflecting the natural musical development of a child. The extent to which the educational outcomes are fulfilled and the students' musical literacy is developed depends on the specific school. When the children conclude their compulsory schooling, we take it for granted that they have embraced a certain degree of literacy in mathematics, reading and other subjects that we consider necessary for their future lives. It is nevertheless worth reflecting on whether they leave the educational system with musical literacy too. Therefore, we can deservedly ask the following questions. *What level are their musical abilities at now? How have they embraced musical knowledge and skills? How can they apply those in practice, and therefore in different life situations?*

The concept of musical literacy thus clearly combines abilities, skills and knowledge. It definitely is not just a matter of talent. In order for a student to be able to use musical knowledge and skills appropriately, he or she must have learned those. There are various ways how to do this. One of the options is a traditional approach consisting in the explanation of concepts and subsequent verification of the acquired skills and knowledge through music activities. This is a fast path, though substantially obsolete today. It usually does not result in a permanent interiorization or commitment. The approach where the first step on the path towards the acquiring of knowledge is an experience is much more effective. Musical experiences evoke emotions. If we choose the right music, the emotion can be quite strong and may provoke the question, what it was actually triggered by. In other words, we start to look for the cause and we want to figure out how the music "works" if it can have such an effect. This is where the opportunity for clarification, embracing of concepts and comprehension of contexts occurs. The Framework Educational Programme does not set forth this approach specifically, but offers scope for its inclusion. All this all the more so, as there is a wide range of links between various disciplines and that the teacher can choose the music they know well, they listen to or they even perform and have teaching experience with.

The subject of *music education* is present in the primary education (together with *art* and *drama education*) in the thematic area of *Art and Culture*. At the lower-primary school, pupils become acquainted with the means of musical expression and learn how to use them in a creative way. The higher-primary school offers space for studying the broader historical and social context. Searching for links between different types of art encourages interdisciplinary cooperation. We can therefore understand the individual outputs of the FEP as indicators of musical literacy (Framework Educational Programme for Basic Education, 2005).

Development of Literacy from the Perspective of the Czech School Inspectorate

In terms of the musical literacy development, it is necessary to bear in mind what we take for granted in the case of other subjects, namely the teacher's qualification. If *educational strategies for the development of students' literacy* are to be fully exploited, if we are to focus on the practical aspect of teaching, on the students' ability to process information and to solve problem-oriented tasks, then we also need to realize that students can acquire key competences only if their teachers also have those competences embraced. The intentional education (whether of pupils or teachers) is nevertheless not the only aspect to play a role in here. There are other influences too. This is why the *Czech School Inspectorate* (CSI) points out that in defining any specialized literacy it is necessary to take into account other social contexts: the influence of technology and mass media, the impact of non-artificial music, e-learning tools outside classes, etc. These are so-called *non-quantifiable factors of musical literacy*. Neither must we forget that the degree of musical literacy is also shaped by the family environment.

The literacy in various subjects, which is currently considered a priority, resonates with specific artistic disciplines and can be used as a support to the musical literacy. For example, within the development of reading literacy, it is possible to include reading of musical compositions' lyrics. The metro-rhythmic structure of music notations is in turn linked to mathematical literacy. As far as the widely discussed digital literacy is concerned, we can mention tasks such as working with notation programs within the scope of music education. Certain parallels occur even in the area of physical literacy, namely in the music and movement education.

At present, the CSI monitors data on the achieved degree of pupils' literacy in six areas: reading, mathematics, language, natural science, social competence and computer science. The CSI determi-

nes the level of literacy in the individual areas based on various sources, such as observation (CSI, 2018/2019). Additional information was provided by interviews with pupils and teachers as direct actors in the educational process. Last but not least, testing of students' knowledge is an appropriate tool to investigate any literacy. In the case of musical literacy, the tests have so far focused on musical abilities and skills.

Diagnostics of Musical Abilities and Skills

Helfert (one of the pioneers in the study of musicality in the Czech Republic) defines the following features of musicality: musical ear, musical imagination, rhythm perception, musical memory, reproductive and productive musical abilities (Helfert, 1956). Helfert emphasizes the need to address not only the activities but also the receptive aspects of musicality. According to him, music classes should emphasize development in the area of comprehension to music. Equally important, according to Helfert, is the effect of music on the human psyche. He also points out that the older school age is a key period in the development of human musicality. Musicality has been often associated with the mere ability to sing or play a musical instrument. According to Helfert, being an active recipient, listener and perceiver is much more important.

Poledňák draws attention to three basic concepts of musicality. The first concept understands musicality as a set of talents and abilities available to an individual that serve the development of musical activities. The second concept of musicality regards it as the degree to which a person's musical abilities, skills and talent for music production are developed. The third concept defines musicality as a positive attitude of a person to music. In the latter case, musicality is admitted to all individuals and is not associated exclusively with practical musical abilities and skills (Poledňák, 1980). Every student has their own boundary of music literacy and the individual concepts of music blend into each other. The authorities set a minimum expected literacy in the field of music education through the official FEP. It sets an imaginary boundary that students should reach in the field of musical literacy.

Musical Literacy Research

The research is based on the diagnosis of the students' musicality carried out by the author Vachudová (Vachudová, 2012). In her work, Vachudová surveys systematic studies of musical abilities, intelligence and talents carried out since the 1920s by both Czech and foreign authors, such as Sedlák, Poledňák, Holas, Seashore, Kwalwasser, Wing, Bentley, Révész, Holmström, Horbulewicz, Mat-

suyama, Peretz, etc. Her diagnostic tool compares auditory and audiovisual versions of the musicality tests. She points out to the higher success rates of tests using aptly selected images or video to outline the emotional content of music demonstrations.

Since our research of musical literacy did not focus on the issue of music visualization, we chose the auditory version of testing. The first area of testing focused on auditory-perceptual abilities. The second area of interest consisted in the sensation of tones; the third subtest was intended to examine the sensation of harmony. The fourth area of testing investigated the emotional response of students to music. The last, fifth area, examined the students' musical memory through the memorizing of either the rhythmic or the melodic component of a music piece. The author designed the tests of musicality for 35–40 minutes, in order to make them easily feasible under normal conditions at primary schools. The logical breakdown of the test into the subtests allowed the teacher to concentrate on an area posing the biggest problems to students.

The wide range of tests contributes to a comprehensive picture of the current level of music literacy of primary school pupils. Selection of the 6th year pupils for the research was deliberate, because in this age, the turning point in the development of musicality occurs and the children become mentally capable of understanding the tests contents. Vachudová mentions that this is a school year that is "*(...) more intellectually advanced and approaches testing in a disciplined and responsible way*" (Vachudová, 2012). According to Holas, people in this age come to have good understanding of the musical space. They can already comprehend the semantic layer of musical expressions. They can perceive the musically tectonic structures of musical works. As far as musical education is concerned, this age group is the most demanding (rapid growth of the larynx and lengthening of the vocal cords are associated with changes in the voice qualities). The students also become capable of abstract reasoning, which allows working with musical expressions on various levels. Adolescents often express their inner experiences through their own creative work (Holas, 1994).

The research sample included 6th year pupils aged 11–12 who represent a turning point between the younger and older school ages. Schools with extensive music education and primary art schools were intentionally excluded from the research sample. Focusing on these types of schools offers the opportunity to further compare the tests results in the future. The research was carried out at the *Brdičkova Primary School in Prague 13*, which works closely with the *Faculty of Education of Charles University* within the framework of continuous teaching practice program. A total of 68 pupils were

tested: 21 pupils of 6. C class, 21 pupils of 6. D class and 26 pupils of 6. A class. The testing was performed with the help of the class teachers Kolandová and Levé.

Diagnostic Test of Students' Musical Literacy

Vachudová's tests are focused on the investigation of five musical abilities, which are specified in more detail hereinafter (Vachudová, 2012):

I. Auditory-Perceptual Abilities

1) Determination of the direction of the melody's progression and identification of the number of changes in the progression of the melody.
2) Comparison of the pitch of two tones (lower – identical – or higher than the first tone, while the differences include halftones and tones outside the vocal range of the students).
3) Determination of an instrument timbre: identification of an instrument playing a solo in an orchestral piece according to its timbre (selection among 7 instruments).
4) Determination of a voice timbre: distinguishing between the men's, women's, children's and mixed choir.

II. Sensation of Tones

1) Assessment of melody completeness (after setting a tonic triad): completeness at the 1st scale degree, incompleteness at the 4th and 6th scale degrees, with both major and minor key music fragments being demonstrated.
2) Identification of a false note (after setting a tonic triad) and specification of the false note in a well-known children's song (*Kočka leze dírou*).

III. Sensation of Harmony

Identification of the agreement or difference in the second voice part through analysis of a polyphonic melody - recognition of a change in the second voice part of a well-known song.

IV. Emotional Response to Music

Expression of emotions evoked by listening to different types of music: a waltz – a folk song in a minor key – a funeral march – a military march – bipolar seven-point scale.

V. Musical Memory

A) Memory for rhythm

1) Recognition of the concordance and/or difference between 2 rhythmic fragments: the second fragment is identical or different in the extent of 2 bars.
2) Identification of errors in the rhythmic plan of a song: determination of whether a tapped rhythm corresponds to the beginning of a song or whether a rhythmic error has occurred.

Table 1. The test results in all five subtests (expressed in points and as a percentage)

Musical Abilities Subtests (I.–V.)	I. Auditory-Perceptual Abilities	II. Sensation of Tones	III. Sensation of Harmony	IV. Emotional Response to Music	V. Musical Memory	
					A) Rhythm	B) Melody
Maximum score (points)	1088	544	272	272	544	544
Correct answers (in points)	1021	520	258	244	464	494
Correct answers (in %)	94	98	95	90	85	91

B) Memory for melody

1) Recognition of the concordance and/or difference between melodic fragments (within the range of five tones, both major and minor tunes): the second fragment is identical or different.
2) Identification of a song by its melody: distinguishing of a song in major or minor key according to its middle or ending section.

Interpretation of Diagnostic Tests Results

The method of collective testing was chosen for the research, the results of which were recorded in a consolidated report. The results were evaluated in a scoring system, with one point being given for each correct answer. Every student could get a total of 48 points at maximum. The advantage of the diagnostic instrument is the possibility of its division into several subtests providing us with an overview of each area of musical ability separately. At the same time, it is possible to quickly find out the degree of musicality for each pupil, which can be useful, for instance, in the identification of pupils with special educational needs.

For the purposes of this study, the results in the consolidated report were evaluated vertically - ie by individual areas of musical abilities. The results of all subtests are considerably balanced, with the success rates ranging from 72 to 98 % (Table 1).

The number and percentage of correct answers fell the most in the 5th sub-

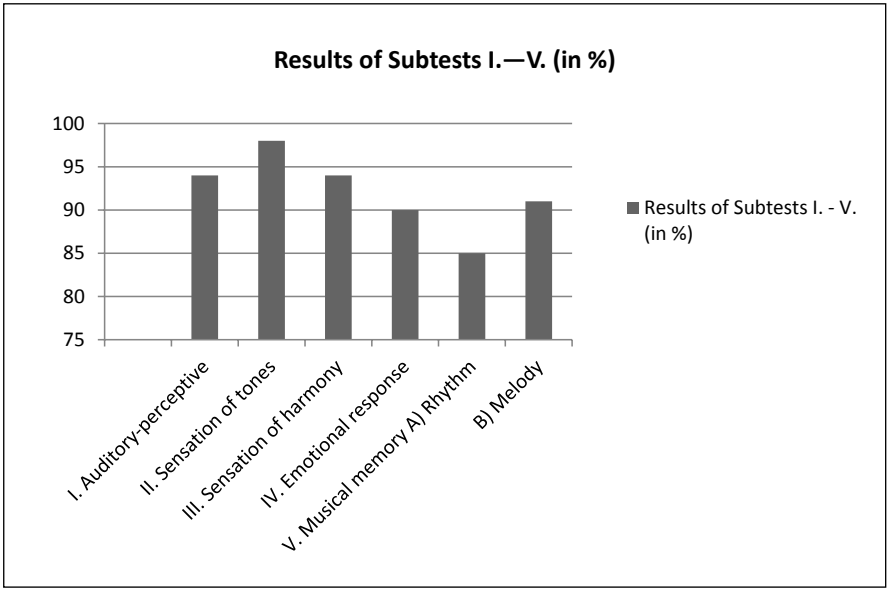

Figure 1. Graphical representation of the results of individual subtests

test, which was examining the musical memory of the students. In part A, which focused on the ability to identify errors in the rhythm of a music fragment, 85 % of the tested children answered correctly (Figure 1). The test subjects also reported greater hesitation in solving of the 4th subtest tasks. In this area focused on the emotional response to music, the success rate nevertheless reached 90 %. According to Vachudová, a much higher success rate can be assumed in this subtest if visualization tools are applied. In spite of that, the pupils scored excellently on the emotional scale.

The overall result of the diagnostic testing can also be evaluated horizontally, ie according to the scores reached by all 68 pupils. The maximum score that the test subjects could reach was 3264 points. The pupils achieved a 92% success rate of answers, which indicates a high level of musical abilities and skills (Table 2).

The tests comprise tasks that characterize in more detail the individual musical abilities. Within the first area – **the auditory-perceptual abilities** (Table 3 and Figure 2), students identified the number of changes in the progression

Table 2. Overall result of 68 test subjects expressed in points and as percentage

Overall success rate of test subjects	
max. score (points)	3264
points reached	3010
points reached in %	92

Table 3. Results in the area of auditory-perceptual abilities

I. Auditory-Perceptual Abilities	correct answers		wrong answers	
	score	%	score	%
1. Identification of number of changes in melody progression	250	92	22	8
2. Comparison of two tone pitches	248	91	24	9
3. Determination of instrumental tone timber	253	93	19	7
4. Determination of vocal tone timber	270	99	2	1

of a melody, compared the pitches of two tones and determined the timbre of instrumental or vocal tones. Many of the students' answers were correct. In some cases, a misidentification of the number of changes in the progression of the melody within the task no. 1 occurred, mostly where the melody does not rise in steps, but in the form of a decomposed major triad. The progression of the melody in the second interval steps is therefore clearer for the pupils in terms of identifying the number of changes in the melody.

The students were highly successful in determining the timbre of vocal tones (task no. 4). Only 1 % of students gave the wrong answer when identifying a musical demonstration of a mixed choir. They were also relatively certain in determining the timbre of instrumental tones (task no. 3). The most common mistake occurred in the identification of the clarinet (often mistaken for a cello or violin). Errors also occurred in determination of the harpsichord, which some of the students confused with the violin. In retrospect, the students commented that they had not been completely familiar with the harpsichord, which is why they could not recognize its timbre and therefore selected the answer by a simple process of elimination.

The second area of the musicality

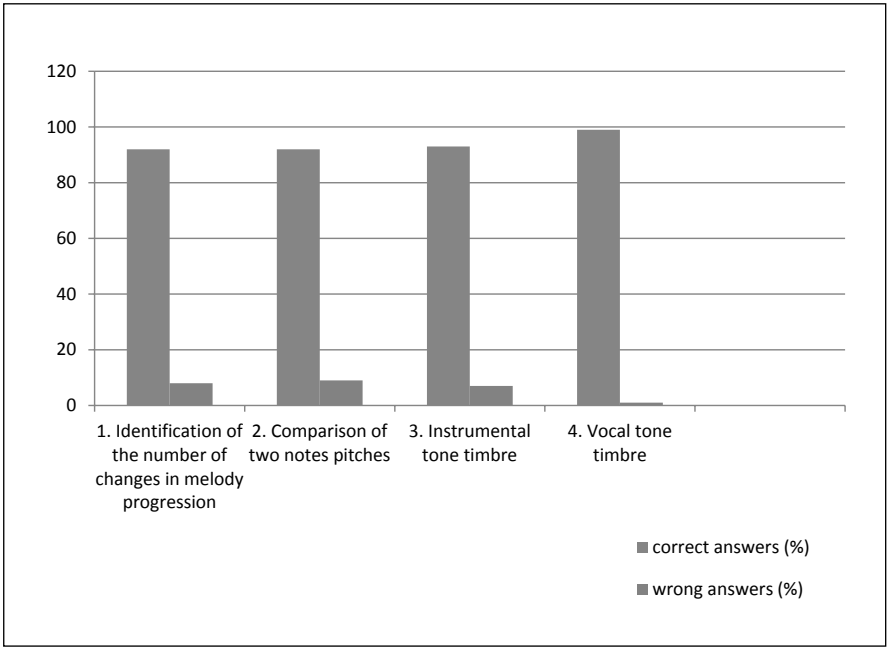

Figure 2. Graphical representation of the results of the subtest no. 1

diagnostics deals with **sensation of tones** (Table 4, Figure 3). In the task no. 5, students were identifying a completed or uncompleted melody. Surprisingly, in several cases where the melody ended on the 1st scale degree, the students answered incorrectly. On the contrary, when a leading-tone (7th scale degree) sounded before the last key tone, the test subjects marked the melody as completed without hesitation.

In the task no. 6, the students were identifying the position of the tone, which did not belong to the well-known song *Kočka leze dírou* (in C major). There was a 7% misidentification: in the case of the identification of the 2nd false note (D flat) and the false 3rd note E flat). In particular, the 3rd flat scale degree evoked minor character of the tune and the students were uncertain – they did not perceive it as a false note.

The third area focused on the **sensation of harmony** and featured the task of identifying the concordance or difference of a melody in a simultaneously

Table 4. Results in the area of the sensation of tones

II. Sensation of Tones	correct answers		wrong answers	
	score	%	score	%
5. Assessment of melody completeness	267	98	5	2
6. Identification of false note	253	93	19	7

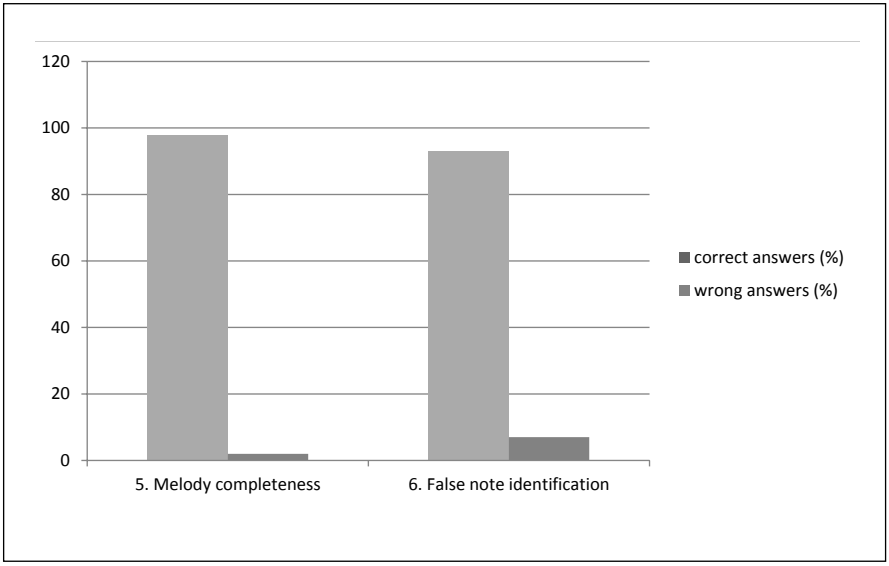

Figure 3. Graphical representation of the results of the subtest no. 2

sounding second voice part. The author of the diagnostic tool deliberately chose one verse of the well-known song *Jsou mlynáři, chlapi, chlapi*, which is at first performed in the third intervals, and then the second voice part either changes or remains unchanged. The students' success rate of correct answers was 95 % (Table 5, Figure 4); the students responded in a positive way when they heard a well-known folk song. Despite the fact that many of the students faced such a task for the first time (were not used to working with polyphony), they could

Table 5. Results of subtest no. 3

III. Sensation of Harmony	correct answers		wrong answers	
	score	**%**	**score**	**%**
7. Identification of concordance and difference in melody of the second voice part	258	95	14	5

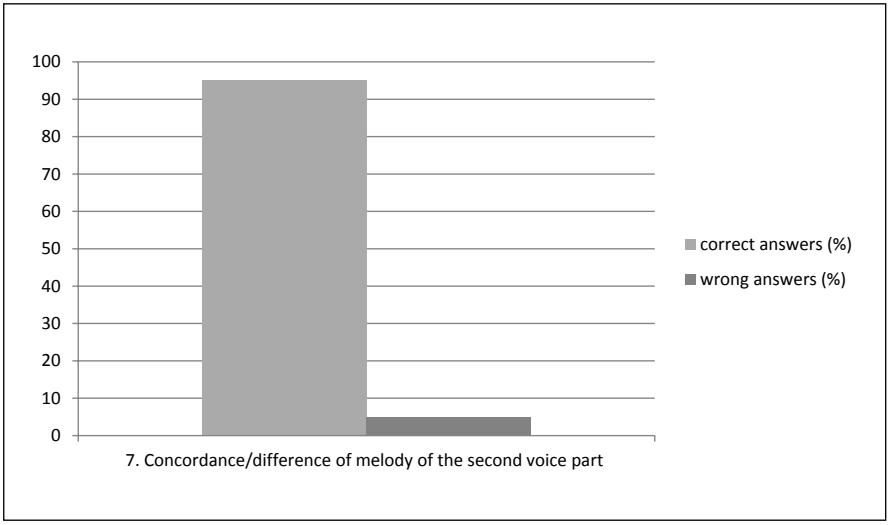

Figure 4. Chart depicting identification of concordance/difference of the second voice part

identify the concordance or difference in the resounding second voice part quite successfully. The success rate achieved in this task was certainly influenced by the fact that the folk song was generally known to the students.

The fourth area of testing – the **emotional response to music** featured a higher percentage of errors. The students were asked to tick the expression of a scale that best expressed their feelings when listening to short music pieces. The test author chose demonstrations from the compositions: *Sen lásky (The Dream of Love)* concert waltz by Vačkář, *Dobrú noc (Good Night)* folk song, the *Funeral*

Table 6. Results of subtest no. 4

IV. Emotional Response to Music	correct answers		wrong answers	
	score	%	score	%
8. Expression of emotions evoked by music	244	90	28	10

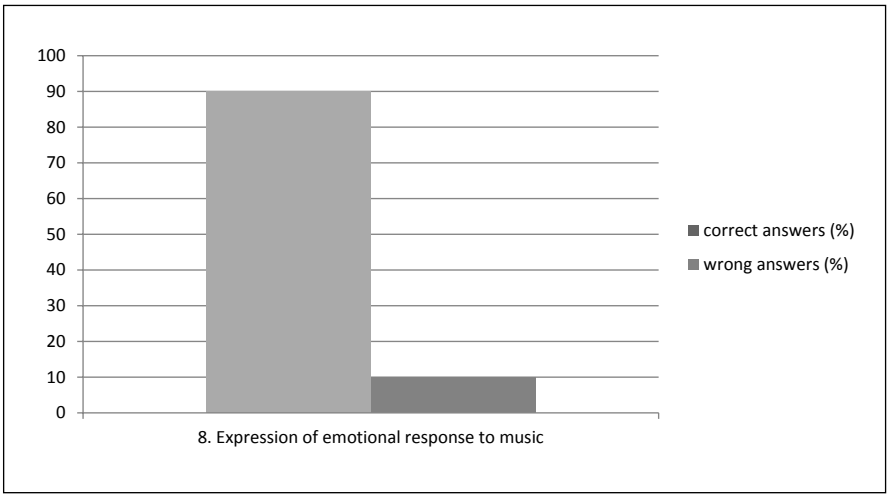

Figure 5. Chart depicting the results in emotional response to music

March of the Russian Revolutionaries and the military march *Kolíne, Kolíne (Kolín, Kolín)* by Kmoch.

The most frequent mistakes occurred where the students were choosing the expression of their response to Vačkář's concert waltz. They were guessing in the range of answers from *very ponderous* to *very animated*. The selected audio sample could have been misleading too. This result indicates the need for the students' deeper involvement in the musical work and for better mastering of the means of musical expression.

The last area of the research is focused on musical memory, distinguishing between the memory for rhythm and the memory for melody Most errors (21 %) occurred in the identification of errors in a rhythmic audio demonstration (Ta-

Table 7. Diagnostic results in the area of musical memory

	V. Musical Memory	correct answers		wrong answers	
		score	%	score	%
A) Rhythm	9. Identification of concordance and difference in rhythm	250	92	22	8
	10. Identification of errors in a rhythmic audio demonstration	214	79	58	21
B) Melody	11. Identification of concordance and difference in melody	257	94	15	6
	12. Identification of errors in a melodic audio demonstration	237	87	35	13

ble 7, Figure 6). Even though the well-known songs' beginnings were selected, the students could not convincingly determine whether the tapped rhythm corresponded to the rhythm of the songs or not. The most distinct were the errors in identification of a rhythmic passage of the song *Pásla ovečky*. Students frequently reasoned their wrong answer by unfamiliarity with the song. Besides that, tapping of rhythms was a rather uncommon activity that they did not regularly pursue in music classes.

Conclusion

The diagnostics of musicality is a key pedagogical measure and the starting point for the diagnosis of students' musical abilities and skills. It constitutes an effective tool for the examining of students' music literacy. The above test results suggest that students have musical abilities in various fields: the auditory-perceptual area, tonal area and the area of the sensation of harmony. Certain shortages were detected in the area of the memory for rhythm. The uncertainty in identifying errors in the rhythmic pattern of a well-known song suggests that more space should be dedicated to rhythmic activities, on a regular basis.

From the tested students' reactions, we may also deduce that they are willing to understand music more deeply. When diagnosing their emotional response to music, students often asked questions about how to choose the right expression within the test scale. They were asking how to recognize whether a music piece was "ponderous", "bright", or "animated". This suggests that it would be advisable to concentrate more on the means of musical expression that the composer used to achieve a certain emotional ef-

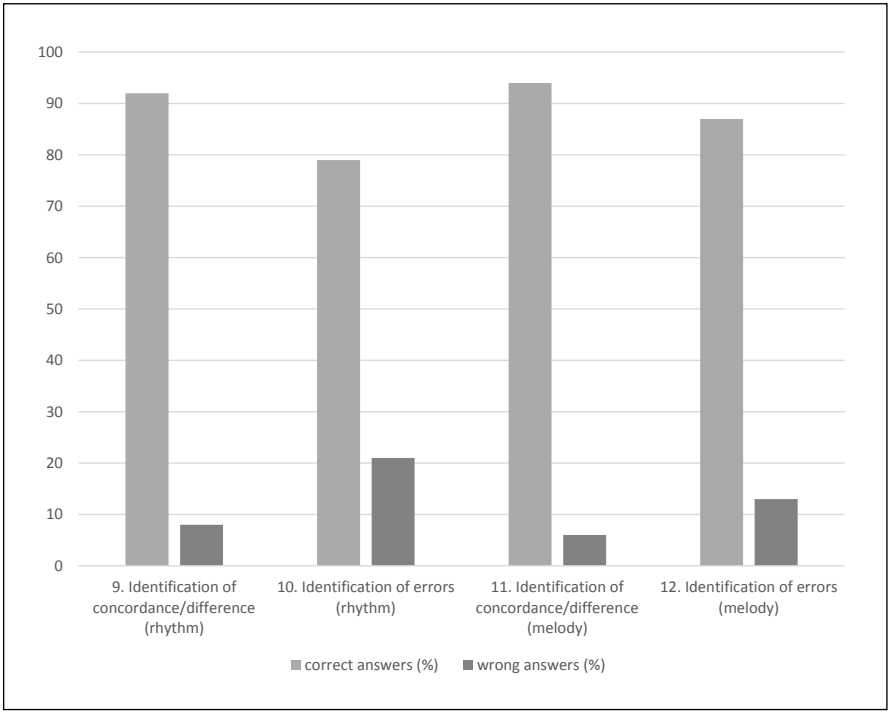

Figure 6. Graphical representation of the results of the subtest no. 5

fect on the listener. And there certainly is room to work more intensely with terminology or vocabulary. The test results also imply the need for more frequent analysis of the timbre of various musical instruments within listening activities.

The finding that the students were keen to participate in the research is a great pro. The merits should be credited to the teachers here. If teachers manage to present the test as sort of a game – as opposed to an exam – the students are looking forward to fulfilling the tasks and are not as stressed as if passing a regular knowledge-based testing. The students largely appreciated information on the test results. This was because they learned that their abilities and skills in the field of music education were at a relatively high level. They now dispose of a tool allowing them to get down to further creative music activities.

The teachers learned from the achieved results that the development of music literacy is conditioned by retreating from transmissive teaching and from a focus on topics out of a broader context. The test also indicates the pupils' musicality and represents a good starting point for determining the further direction of teaching. During the testing we also found out that attention needs to be paid not only to skills development but also to knowledge. Therefore, in order to get the full picture of the level of musical literacy, if similar tests are carried out in future they should focus on the knowledge of students, naturally combined with the examination of their musicality.

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Visualization of Music and its Application in the Process of Education

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Abstract: The visualization of music and its connection with modern technology and media is one of the teaching methods directed towards today's students' interests and demands that shows potential. The main goal of this study is to determine the possibilities of the application of visualization methods during the process of the development of students' musical ability, skills, and experience during music lessons concerned with all types of music education.

Analysis of a review of the Czech and international professional literature provides us with a comprehensive summary of current trends in pedagogy, together with the latest research results in the field of the effective application of visual methods during the process of education. An introductory study provides us with a historical overview of visual arts and their connection with musical and artistic masterpieces. The next part of the text consists of an analysis of the visualization of music from the points of view of musical pedagogy and psychology. The study also examines some basic principles of the implementation of visual elements in music lessons.

During the process of our analysis of the literature, we discovered that the integration of visualization into the process of music education has a positive effect on the development of students' musical ability and skills. The implementation of some visual elements in music education seems to have a positive effect on the students' development. In compliance with the results of the study, we find that the implementation of the visualization of music in the pedagogical process is very suitable for teaching practice.

Key words: visualization of music, music pedagogy, psychology of music, education

Introduction

It is common knowledge that up to 80 % of all the information that people receive is detected visually (Novotný & Hruška, 1998). Thanks to information technology, we are seeing the phenomenon of the continuous and deeply penetrative development of visual culture in all school subjects to an extent that is unprecedented in the history of humankind. The intense impact of visual culture already becomes an integral part of people's lives during their education at school, but it is not

confined merely to academia. Communicating information without proper visual support is certainly suitable in certain cases, and, as far as musical education in particular is concerned, appropriate in many respects. However, in terms of the development of new and innovative teaching methods with an ever-increasing limit of effectiveness, visual support-free education is no longer fully sufficient. The requirements for the gradual development of creativity and an active approach to music education emphasize the mediation of any personal experience with music. Music teachers therefore face new challenges in how to convey this personal experience to students as effectively and as clearly as possible, and thus to encourage and in some cases to stimulate their creativity. Enriching teaching with an activating method of teaching music and the related visualization of information appears to be a good idea, but only if the key pedagogical principles are satisfied. These include, in particular, clarity, which lies at the heart of visualization, and appropriateness in terms of the age of the students and the level of their musical abilities and skills. The literature indicates that the method of information visualization, if used as part of the teaching approach, may develop critical thinking in students and stimulate their creativity (Shatri, 2017, p. 71). This task should be interwoven with all the modern didactic concepts, perhaps even more intensively as far as music education is concerned. The conclusions of one of the latest music pedagogical studies show that the quality of music education can reflect the quality of the whole educational system, especially because music education can better assess the degree of the effect reached by focusing on the development of individuality and all the components of the personality of a child (Artemova et al., 2020, p. 1208–1214).

Visualization of Music in Historical Context

Ancient philosophers, such as Aristotle and Pythagoras, were among the first to mention in their writings the clear connection between the tones of the musical scale and the colours of the rainbow. This idea later fascinated great Renaissance artists, including Leonardo da Vinci, who created elaborate coloured glasses designed for watching court musical performances. Da Vinci was succeeded by the famous painter Giuseppe Arcimboldo, who, in addition to his famous portraits composed of fruit, vegetables, and subtle symbols, designed hydraulic machines for various theatre stages (Moritz, 1997). According to the period records, he built a device depicting music with colours at the exact time when he was performing his tasks for the theatre. The tendencies towards the practical integration of visual and auditory perceptions can be

found further on, not only in the field of fine arts, where with the development of Impressionism and Expressionism various musical works became an inspiration for works of art, but also in the field of musical art, where numerous works saw the light of day thanks to the experiences and inspiration conveyed by artworks. A typical example of the strong ties between music and the fine arts can be seen in Modest Petrovich Mussorgsky's cycle "Pictures at an Exhibition", which was composed as a tribute to Viktor Hartmann's paintings. The painter Wassily Kandinsky had a great talent for combining his visual and auditory imagination. He created a cycle of paintings based on Mussorgsky's "Pictures at an Exhibition" and throughout his life pointed out the strong correspondence between music and images.

The first attempts to construct a musical instrument that could combine musical expression with a visual phenomenon date back to the first half of the 18th century. A French member of the order of the Jesuits, Louis Bertrand Castel, who built a musical instrument called the Ocular Harpsichord, may claim the honour of being the first in these efforts. The instrument contained 60 coloured glass panes and interconnected each tone with a different colour (Moritz, 1997). The invention of electricity opened up new possibilities of the projection of light effects, which resulted in the construction of a new musical instrument by the British painter Alexander W. Rimmington. He built a musical instrument similar to an organ that could project colours in harmony with music. For a modified version of Rimmington's instrument called the clavier ŕ lumičres, Alexander Skriabin composed the synaesthetic symphony "Prometheus: The Poem of Fire", which premiered in 1915 in New York (Moritz, 1997). The visualization of music has reached its greatest boom with the development of information technology and interactive media. Thanks to these technical conveniences, the interconnection of music and image has acquired unlimited possibilities and variants of combinations. In her work, Sládková (2012, p. 79) emphasizes the emergence of visualization programs and software as a major milestone, and from among the commonly available apps names the Windows Media Player, where we can find the following practical forms of visualization instruments: Belts, Fog over the Ocean, Fire Storm, Oscilloscope, Water Flower, and Dandelion.

Visualization of Music and its Application in Music Education

By visualization we mean a graphic output relating to the form and content of a musical work. Visualization elements can have a static or dynamic form; by the static form we mean an interpretation

or description of an image, and by the dynamic form we mean a video presentation, either in interactive or non-interactive form (Váňová, 2008, p. 96). According to Váňová (2008, p. 96), in order for visualization to fulfil its purpose and become a full-fledged teaching method, it is necessary to observe the following principles:

- visualization must not distract the child from the very essence of music;
- visualization must result in a semantic and structural analysis of the musical work;
- visualization is the initial experience triggering the child's creative activity.

There are many ways in which this teaching method of activation may be enriched. Visualization can be used in most activities that are part of music education. Váňová has long been exploring the possibilities of applying visualization in listening activities. Her research relies on the musical-psychological basis of visualization, which classifies it amongst visual associations of musical perception and defines it as a pedagogical-psychological process enabling the synthesis of auditory and visual perceptions to activate the child's attention and participate in the shaping of their musical imagination (Sedlák & Váňová, 2016, p. 270). Váňová mentions pictorial documents related to the perceived composition, film sequences with suggestive performances of the actors, and ultimately the visual expression of the content of the perceived musical composition as specific examples of visualization within listening activities (2016, p. 270).

The application of visualization techniques and their effectiveness as a teaching method have been the subject of many pedagogical-psychological studies. Though this enriching of the teaching approach intuitively seems to be successful at first glance, the degree of its effect ultimately depends on the readiness, will, and technical literacy of the teacher. Thomas Naps even mentions the teacher's willingness to devote time to processing information into a visual and comprehensible form as a key element of the successful introduction of visualization into the educational process (Naps et al., 2003a, p. 131–152). According to the study, the most demanding aspect of the approach is the time spent in searching for suitable examples of the subject and the time required to operate the visualization medium (Naps et al., 2003a, p. 132). Another possible obstacle often consists of the technical condition of the equipment at schools, including modern computer software. In another study of his, Naps mentions one of the possible solutions to the problem of time-consuming preparation for the use of the visualization technique. He suggests that the creation of high-quality visual materials be dealt with by

experts in the publishing of textbooks. If equipped with such enriched and up-to-date teaching materials, teachers could save some time in preparation for their classes. Visualization would therefore more easily become a regular part of teaching classes (Naps et al., 2003b, p. 124–136). As we have already mentioned, the development of visualization teaching methods depends not only on the technical skills and computer literacy of teachers, but also on their ability to access sources of information and ideas. Digital teaching materials are available from the methodological portal of the framework curriculum. Teachers can interactively share and draw from the prepared teaching presentations and worksheets on the website www.jaknahudebku.blogspot.com, and a large quantity of teaching materials is available from foreign language sources on the website www.teacherspayteachers.com for a small fee.

Visualization Coupled with Musical Activities

Visualization, as one of the teaching methods featuring activation, can be used in listening, vocal, and instrumental activities (Folkestad, 2005, p. 284). When rehearsing a new song within the scope of vocal and instrumental activities, the method of visualization of musical scores can be used, using colour-coding of the individual notes of the song that interconnects the visual stimulus with the musical sign, the note. For students who do not yet have the ability to intone and distinguish the pitches of individual tones completely anchored, this technique has proved to be highly effective. Another useful option is to mark individual piano keys, strings, xylophone keys, or recorder holes with coloured symbols. Thanks to this "coloured musical notation" corresponding to the coloured symbols on the instrument, the experience of musical accompaniment can be conveyed even to students who have no musical education at all. Another accessible and effective visualization method is the use of musical films with the aim of linking auditory and visual perception of music,[1] or of musical works the composer of which sought to combine music and image, such as "Peter and the Wolf" by Prokofiev or "The Carnival of the Animals" by Camille Saint-Saëns. The didactic application of the above-mentioned compositions into music education is described in the publications by Ašenbrenerová (2006). Visualization, conceived as an interaction of listening activities and various forms of artistic expression, includes graphic processing of a specific theme, whether through col-

[1] In 2000, the U.S. Walt Disney Film Studio released a DVD called Fantasia 2000, in which eight well-known pieces of artificial music are audio-visually processed.

lages or abstract or concrete artworks created by children. Extensive research on the subject of children painting while listening to classical music was carried out by Elkoshi (2019). Her research sample of 181 primary school pupils were asked to express their feelings graphically while listening to classical music of different periods and styles. The compositions were chosen in such a way that a different means of musical expression was more prominent in each of them, and they were either strictly instrumental or choral musical pieces. The analysis of the drawings showed that the students had been capable of distinguishing each means of musical expression through colours or symbols. Thanks to combining listening with graphic art activities, the students concentrated better on listening to the music and could more rapidly identify the means of musical expression even in compositions that had not been played during the experiment (Elkoshi, 2019, p. 590). Another use of visualization in music education consists of interactive presentations[2] containing hypertext and web links, audio and video demonstrations, accompanying texts, and visual material that can be aptly displayed on interactive whiteboards. The entertaining form of teaching and active participation of students in lessons create the necessary motivation and demonstrably better results in terms of memorizing new information (Serafin et al., 2017, p. 1–4). Of the available forms of visualization in teaching, it is certainly worth mentioning the popularization music series, musical films, and animated films with underlying artificial music (Sládková, 2012). The literature review clearly shows that the subject of pedagogical-psychological studies most often focuses on the visualization method of the graphic representation of notation and creation of elementary graphic musical scores (Barrett, 1997, p. 2–14). Všetičková introduces this method in the musical-creative project Slyšet jinak (Listen Differently). The experience from this project clearly proves that the use of graphic scores for the recording of musical ideas within the process of elementary composing is a suitable means for children's equal and active access to music in which no one is disadvantaged by their knowledge and skills (Všetičková, 2013, p. 11). Všetičková also suggests that the creation of the graphic score itself is the very highlight of the whole creative process. She recommends starting the lesson with introductory games, called starters, in order to bring up a creative atmosphere (2013, p. 12). Gromko (1994, pp. 136–147) claims that the specific form of graphic notation created and recorded by a child after having sung a simple tune

[2] Interactive music presentations available at: http://mustech.pbworks.com/w/page/21952707/FrontPage%20.

indicates the degree of his or her musical skills and abilities. Other findings show that children capable of creating their own graphic notation were quicker at reproducing a tune rhythmically and also singing it by heart compared to a control group of students who were not given the opportunity to depict the song graphically (Gromko, 1994, p. 136–147). Rivka Elkoshi and her team conducted an extensive study presenting a comprehensive system of graphic notation called TMN (Toy-Musical-Notes). TMN facilitates the teaching of music theory and at the same time improves the ability of students to play according to the notation (Elkoshi & Carmon, 2012, p. 74).

Conclusion

Visualization of music may be perceived from various perspectives. In the historical context, visualization was a matter of connecting auditory and visual perceptions, with inspiration drawn from fine art and music. It is documented that artists in every historical period tried to combine music and visual elements into one meaningful ensemble. These attempts culminated in the unlimited possibilities enabled by the technical inventions of the 20th century. If we look at the visualization of music from the point of view of musical psychology, we inevitably touch the areas of musical perceptions and imagination with auditory and visual associations. Visual associations are inseparably linked to musical imagination, especially when listening to programme music. Váňová (Váňová & Sedlák, 2016, p. 271) attributes this growing trend of associations between hearing and sight to the development of multimedia and information technologies.

From the pedagogical point of view, music visualization is one of the effective teaching methods employing activation. It has been demonstrated that enriching the development of a child's musical abilities, skills, and emotional experiences with visualization techniques has a positive effect on the development of his or her musical personality, on his or her understanding of musical speech, and the development of his or her critical thinking. By incorporating into teaching the method of activating multiple senses at the same time, specifically by enabling sight to assist in the development of the musical sense of hearing, we appeal to one of the most important pedagogical principles – demonstration (Váňová & Sedlák, 2016, p. 270). A significant advantage of this teaching method is its diversity. There are many ways of applying the principles of visualization to teaching. This gives us a wide variety of opportunities to use it in most activities of music education. Using a computer and interactive presentations, visualizations of musical scores, animations, mime, dramatization, music films, and special visualization programs and applications may transform the teaching

of music and make it more effective, inspiring, and creative. Interesting experiences for both teachers and students are brought about by the linkage of controlled listening with graphic activities. One of the most frequent problems associated with the preparation and integration of visualization technique into classes is clearly its time-consuming nature. The technical and computer literacy of the teacher may be another limiting aspect, as may the insufficiency or unavailability of the technical equipment of music classrooms. However, once these limitations are overcome, the teaching method can bring indisputable benefits and qualities to music education classes. If, as teachers, we attempt to address the question of "how to motivate children to music activities and how to maintain their focused attention, visualization plays a positive role, even in the growing percentage of children whose concentration and attention disorders are due to mild brain dysfunctions" (Váňová & Sedlák, 2016, p. 270).

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Interdisciplinary Literacy as Complex Communication with Reality

Jaroslav Bláha

Abstract: Nowadays, we are living in a multimedia environment which is a natural synthesis of various forms of communication. A similar situation thus occurs in the field of art, being an equally natural consequence of the gradual disruption and blurring of boundaries between individual art forms and their synthetic fusion in the multimedia expression of contemporary art. Moreover, if such interdisciplinary tendencies are reinforced in the field of artistic production and interpretation, they must be respected in the process of communication as well. Thus, in addition to a wide range of field-specific literacies in the domain of art, such as visual, literary, or music literacy, etc., careful attention must also be paid to a comprehensive view of the current art scene. Such a view is associated with interdisciplinary literacy. This summarizing study is focused mainly on the theoretical basis of interdisciplinary literacy and places the emphasis on interpretive models that are closely related to comparative analysis, especially with applied information theory and hermeneutics.

Keywords: interdisciplinary literacy, method of comparison, hermeneutics, information theory, expectations, visual literacy, music literacy, multimedia creation, collective work (Gesamtkunstwerk), interpretation, communication

Introduction

"Visual Literacy refers to a group of vision-competencies a human being can develop by seeing and **simultaneous integrating other sensory experiences**. The development of these competencies is fundamental to common human learning. When developed, they enable a visually literate person to distinguish and interpret the visible actions, objects, symbols, natural or man-made, that they encounter in their environment. By using these competencies creatively, they can communicate with others. By operating these competencies receptively, they can comprehend and enjoy the masterworks of visual communication."

The above-stated definition of visual literacy, formulated by John Debes, who first used the term in 1969, confirms the

interdisciplinary nature of literacy (the part of the text in bold). Seemingly, it consists mainly in a complex counterpoint of specific literacies of science, the humanities, and general cultural and artistic disciplines – e.g. mathematical, media, science, finance, media, digital, or information literacies, but also cultural, readers', movement, visual, music, etc. Although these field-specific literacies have a common denominator, the specific factors of individual fields predominate significantly. However, interdisciplinary aspects are applied even at the basic level of literacy, that is, "an individual's ability to read, write, and count" (Pedagogický slovník, 2013, p. 85). We are interested in the second, higher, level of literacy, though. That is "the ability to apply specific knowledge and skills such as reading literacy, computer literacy, etc." (Pedagogický slovník, 2013, p. 86).

Word, image, and sound as a rule of three of interdisciplinary literacy

The crux of our interest – at least in the first phase of interdisciplinary relationships – is the connection of visual and verbal communication, i.e. the ability to translate visual information into a verbal form. In his study Visual Literacy or Literary Visualcy, W. J. T. Mitchell confirms the necessity of this essential connection:

"Visual Literacy has been around for some time as a fundamental notion in the study of art history, iconology, and visual culture. This is a strong and seemingly unavoidable metaphor comparing the acquisition of skills, competence, and expertise (quite distinct levels of mastery) to the mastery of language and literature. Seeing, it suggests, is something like reading. But in what way, exactly? And how does seeing differ from reading? What are the limits of this metaphor?" (Mitchell, 2009).

This is a direct quotation of W. J. T. Mitchell's opening paragraph, which closes with a question: "What would happen if we considered our task to be a kind of research in and teaching of reading which is based on models drawn from seeing and the visual system?" (Mitchell, 2009). This reversal of roles is strongly justified on two levels. The basic one is the relationship between vision as a naturally acquired basic skill (called "the universal language of nature" by George Berkeley) and "spoken and written 'natural languages', which are cultural constructions based on arbitrary, symbolic conventions" (Mitchell, 2009). This elementary connection is an essential prerequisite for communication as an opportunity to pass on information about what is seen. We also should mention a term used by Barbara Stafford, who calls this basic skill "visual com-

petence" and considers it "a necessary but far from sufficient condition for the more advanced and specialized skills we might want to call visual literacy – that is connoisseurship: rich, highly cultivated and trained experience and techniques of visual observation." (Mitchell, 2009).

The ability to translate visual information into a verbal form as a reversal of the roles of word and image is also accentuated by Marie Fulková: "The interweaving of the 'visible' and the 'expressible' is the basic cultural interface through which we read the visual text." This mutual interconnectedness of an image and words is clearly demonstrated in phrases such as "read information from an artwork", etc.

Numerous quotations on this elementary level of interdisciplinary aspects of literacy are related to a certain distance, caused by my specific focus on artistic comparison, i.e. on the level of interdisciplinary literacy. In this phase of "two-voice counterpoint", it may be referred to by the pair of terms "word and image", also used by Mitchell. Additionally, this phrase clearly expresses the shift from vision and its verbal expression on the level of basic competencies to visual and verbal literacy.

As an example of reversed roles on the higher level of "applied" interdisciplinary literacy, I will mention the reform of the Constance School.[1] The core of this reform was the reversal of the roles of interpretation and perception – in other words, a turn from works to readers. Thus, what becomes crucial is not the interpretation of the literary text but its perception. After all, the process of perceiving literary texts is also the core of reading literacy. This illustrative example seemingly does not follow the interdisciplinary aspect of applied literacy. However, this is a fundamental misunderstanding. The need for interdisciplinary dialogue led the founding members of the group to host regular (since 1963) interdisciplinary thematic colloquia called Poetik und Hermeneutik. The name of these famous Constance School colloquia provides a bridge leading to the methodological connection of the theories of interdisciplinary literacy and artistic disciplines. As its positive consequence, the interest in interceptive models has been revived. In the polyphonic counterpoint of the methodological rigmarole of the 1970s and 1980s, these models, in my opinion quite unjustly, fell into oblivion. One of these

[1] "The term Constance school – or Constance School of Reception Aesthetics – refers to a group of literary theorists, critics, philosophers and historians who worked at the University of Constance from the second half of the 1960s and promoted a new concept of literary science." Sládek, O. et al., Dictionary of Literary Structural Structuralism, Brno, Host, 2018, ISBN 978-80-7577-479-8, p. 361.

neglected interpretive models is modern hermeneutics, with its progressive variant, Hans Georg Gadamer's hermeneutic concept. One of the typical features of Gadamer's hermeneutics is the turn from interpretation to communication, the essence of which is perception. And communication is one of the crucial aspects of interdisciplinary literacy. However, it is definitely not the only link to hermeneutics, as will be demonstrated in the course of this study. The reversal of the roles of word and image certainly does not rule out the opposite, though. An illustrative example in which the image plays the role of the text is the function of the image in the Christian Middle Ages. The didactic intention of sacral painting was precisely formulated by Pope Gregory the Great in the renowned letter to Serenus, the Bishop of Marseille, at the turn of the fifth and sixth centuries:

"To adore images is one thing; to teach with their help what should be adored is another. What text is to the educated, images are to the illiterate, they read in them what they cannot read in books. Thence, an image is intended for the commonalty to read. If someone would like to paint images, do not prohibit him from doing it but at all costs eschew worshipping them." (Chazelle, 1990, p. 139)

Therefore, mediaeval paintings were not intended for viewing but for reading. A very specific role in this "didactic" reversal of the roles of seeing and reading was played by what were called the "speech scrolls". Painters themselves also realised that paintings served the role of a sacred text, which is confirmed by the statutes of the Sienese painters' guild from 1356:

"Since by the grace of God we are endowed with the ability to reveal to the ignorant and unacquainted with Latin the miraculous deeds achieved by virtue and in the name of the virtue of our sacred faith, (…) let it be said that nothing, however insignificant, can ever be taken into account, let alone resolved, without these three assumptions: first, it is necessary to have the means, second, it is crucial to know how to do it, and finally, third, it is imperative to have the will to do it." (Šmahel, 2017, p. 27).

Although the relationship between image and text in mediaeval sacral painting is a specific problem of interdisciplinary literacy, it plays a significant role in the correct "reading" of mediaeval images by today's viewer.

So far, we have dealt only with the two-voice counterpoint of word and image. As a third voice, a musical object[2] will be added. Its phenomenon is not

[2] Professional terminology distinguishes a musical object, the essence of which is a traditional cultivated sound and a sound object formed by "non-musical sounds" (concrete and electro-acoustic

only a tone as a cultivated sound but also a specific sound or electro-acoustically produced sound (a sound object). In this triad of phenomena of interdisciplinary literacy, the word plays a dominant role as a comparative vantage point, into which the orthogonals[3] of both other phenomena – an image and a musical object – converge. It is no coincidence that the beginnings of the artistic comparative method are connected to fine arts and literature, and literature played the same role in the genesis of comparing music to other artistic disciplines. However, music is also closely related to the grammar, morphology, and syntax of a language, which is often used as a means of illustrative interpretation of musical language. Thus, the motif as a fundamental tectonic unit is associated with a word, a theme with a simple sentence, the theme field (the relationship between the theme and the intermediate sentence) works as a complex sentence, the relationships between themes in a sonata form exposition as a compound sentence, etc. We could continue further. Another common denominator of both languages – literary and musical – is structured time. At the same time, however, it is crucial to be aware of their specificity which arises from their different phenomena and leads to consequent differences.

Space and time and their role in communication with a work of art

An important factor in communication with an artwork is the role of space and time in the dynamic relationships of its overall structure. Lessing's rigid division of art forms into temporal and spatial is a thing of the past. The knowledge that time and space cannot be separated was accepted as early as 1905, when Albert Einstein presented his theory of relativity at the Prussian Academy of Sciences. And it certainly applies not only to physics and natural sciences in general but also to aesthetics and art theory:

"… The evoked aesthetic experience, the artistic image, is, in any case, complete, it shows a unified reality, inseparably existing in space and time. From the aesthetic point of view, every art creates by its own specific means a full-bodied spatial-temporal viewing." (Ujfalussy, 1967, p. 83)

Although we are fully aware of the existence of time in an artwork – in terms of the communicating of perceptive time

music, music for tape). In this study, the term "musical object" will be used as a term covering and combining both options.

[3] "Vantage point" and "orthogonality" are terms referring to a linear or central perspective. The vantage point is the centre (central point) to which lines called orthogonals converge.

as possible potential time – and the similar position of perceptive space in music, it should be emphasized that whilst the relationships between shapes in an artwork are determined by space, the main means of structuring a musical piece is musical time.[4] Nevertheless, the role of perceptive time in the communication with a work of art is important, though subconsciously underestimated by most viewers. Artists themselves acknowledge the importance of perceptive time, which is confirmed by the following consideration by one of the leading contemporary Czech painters, Vladimír Kokolia:

"Vision is as important to me as painting. Sometimes I even feel that almost anyone can paint pictures but almost no one can see them. Not that it would be so difficult, but you need to allow the painting some time to open – albeit just three minutes. In my life, I have seen very few people who would voluntarily stay in front of a painting for such a long time. There are plenty of artists, but there is a lack of spectators. But it is they who transfer pictures to art. Art galleries, places where most artworks gather, are full of runners, not viewers. Not only do these runners miss the main message that these "dumb faces" have to offer, but they also suffer from guilt that they should like something because it is art. A lot of goodwill is wasted; even though it would suit the purpose to choose only one or two paintings and give them the time that would otherwise be wasted by reading the caption – after the initial moment of boredom, the common space of painting and sight would reveal itself." (Výtvarná výchova 2 / 1992-93, p. 36)

The cause of this dismal state, so suggestively described by Vladimír Kokolia, is the passive approach to the work of art, and one of its factors is the misbelief still followed by most of the recipients that an artwork is perceived as a whole, unlike a musical composition, which is associated with gradual development in time. However, an artwork can be statically perceived as a whole in the initial phase of getting acquainted with it. Then it is time for gradual "wandering" in the visual field of the image, and this phase unfolds over time. The importance of this active process of perception of a work of art is emphasized by the French philosopher and aesthetician Maurice Merleau-Ponty:

"If I had to say where the image I am watching actually is, I would feel abashed. For I do not look at it in the way one looks at a thing, I do not direct my gaze upon it where it is, my eye wanders in it, as in the nimbus of Being, I do not so much see the picture, as see *according to* the picture and with it." (Merleau-Ponty, 1964, p. 164).

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[2] For more information see: Bláha, J.: Výtvarné umění a hudba. Tvar, prostor a čas I/1, Prague, TOGGA 2012, pp. 26-28 and 180-193.

Merleau-Ponty's wording "… my gaze wanders inside it, as if it were roaming in the nimbus of being…" evokes a feeling of volatile wandering in the picture in an organic, i.e. spontaneous time course. The perceptual time of wandering in communication with the picture thus contrasts with the structural musical time, which is based on a controlled relationship between the antecedent and the consequence – that is, between the preceding and the subsequent events – which is crucial for the probabilistic relationships of information theory. Information theory shares the fate of hermeneutics. However, it is necessary to realise that its being neglected applies to the theory and history of artistic disciplines, i.e. interpretation. Considering literacy, we are, however, interested in communication with a work of art. Here, an important role is played by the applied information theory – that is, in diverse modifications of specific artistic disciplines, which hide behind names such as the theory of expectations, communication theory, etc. Not surprisingly, it was studied by such renowned researchers as Jakobson, Eco, Piaget, Lévi-Strauss, the Russian semiologists, etc. – that is, mainly structuralists.

Its definite advantage is the ability to capture the basic relationship of the dynamic aspects of processuality. And that is the relationship between the preceding and the following event, in other words, the relationship between the antecedent and the consequent, even in the subtlest details.

This ability is associated primarily with structured time, which is most prominent in music. Applied information theory is thus particularly suitable for the interpretation of tectonic aspects of musical compositions, for the following reasons:

1. musical meaning is qualitatively different from the meaning in fine arts or literature, mainly as a result of its being a markedly specific phenomenon, to which it is difficult to apply interpretive models of these fields;
2. as emphasized above, music is played out in the process of time as a structure based on the relationship between the antecedent and the consequence, and applied information theory is best able to cover the dynamic nature of this relationship on both the micro-tectonic and macro-tectonic levels;
3. applied information theory thoroughly maps the relationship between redundancy and randomization[5] as decisive factors in the relationship between information and entropy – and this is where gestaltic and structural applications differ considerably;

[5] Redundance – predictable regularity; randomization – the opposite of redundance

4. it very systematically and thoroughly covers the constant variability of the relationship between conventions and norms and their disruption by the concept of style as an internal system of probabilities evoking expectations;
5. it affects not only the genesis of meaning but also the process of its formation and the role of deviations and their variants as increasing the amount of information included. The structuring of this process is mainly related to the inherent meaning and its relation to information, associated with the stage of development of the inherent meaning as an articulation of dynamic aspects of the tectonic process;
6. the tectonic process of a musical work can justly be described as a stochastic process, as an application of the Markov chain, in which the probability of an event is dependent on the event that precedes it;
7. in terms of the relationship of tectonics to structure, information theory reveals the dynamic interaction of assimilation schemes and their disruption as a process of adjusted transformations and thus emphasizes the crucial need for modifications as a system of organic functioning.

The structured process of relations between the preceding and the subsequent events – i.e. the antecedent and the consequent – is not connected to the musical-structural time only but also to the process of the formation of musical meaning. Therefore, it will be discussed in more detail in the next part of our study focused on the relationship between form and content.

A necessary prerequisite for applied information theory is a structure with dynamic relationships between individual elements, which are based on the possibilities of the choice of probabilities. There is no doubt about its contribution not only to the interpretation but also to communication with music. And what about fine art? Especially pictures, which are static and, according to the received wisdom, an artwork is perceived as a whole? Such a belief is as conservative as the division of art into temporal and spatial. All works of art are spatiotemporal, and therefore include interactive events, both in the process of creation and in the process of perception and interpretation. There is a good reason why Rudolf Arnheim pays attention to information theory in his study Entropy and Art,[6] especially in connection with Art informel and similar tendencies in the art of the second half of the 20th century, as well as Umberto Eco in his pub-

[6] Arnheim, R.: Entropy and Art: An Essay on Disorder and Order, University of California Press, 1971.

lication Opera Aperta.[7] Procedurality as a relationship of the preceding and the subsequent events is also applied in the perception of an artwork in general – i.e. not only in the specific transformations of the 20th century. Psychological aspects of the perception of reality show the possibilities of probabilities (perceptual possibilities) and the role of experience in shaping perception.

The organism, always forced to "choose" among the unlimited number of possibilities which can be related to a given retinal pattern, calls upon its preceding experiences and "assumes" that what has been most probable in the past is most probable on the immediate occasion. (…) In other words, what we see is apparently a function of some sort of weighted average of our past experiences. It seems that we relate to a stimulus pattern a complex, probability-like integration of our past experience with such patterns. (…) It follows from this that the resulting perceptions are not absolute revelations of "what is out there" but are in the nature of probabilities or predictions based on past experience. (Kilpatrick, 1961, pp. 46–47).

If form psychology follows the mere recognition of the configuration of stimuli at reception, then transactional psychology emphasizes the process of interaction with the dispositions of the perceiver, that is, the cognitive experience carried out in the process. In other words, it observes the interactive relationship between the stimuli and the recipient.

"In general, the interaction between subject and object is not brought about by a form of organisation which is independent of development and which has no genesis. On the contrary, the interaction is due to an endless construction of new schemes by the subject during his development, schemes to which he assimilates the perceived objects and in which there are no definable boundaries between the properties of the assimilated object and the structures of the assimilating subject. As we have already said in the Introduction, it is necessary to oppose geneticism without the structure of empiricism and the structuralism without the genesis of Gestalt phenomenology with genetic structuralism in which each structure is the product of the genesis and each genesis merely the passage from a less evolved structure to a more complex one." (Piaget, 1961, p. 364)

This applies not only to the general level of perception of phenomenal reality but also to the perception and interpretation of a work of art. After all – and we have emphasized this several times – the perception of reality and the

[7] Eco, U.: Opera Aperta, The Open Work, Harvard University Press, Cambridge, Massachusetts, 1989

work of art are communicating vessels. This is understood, of course, from the viewpoint of openness and thus of the range of probabilities in the perception of reality and the artwork.

The basic starting point is probably a structure with dynamically related elements and their grouping into configurations, or, in other words, into figures as cut-outs from the visual field (Francastel, 1984). In order for these dynamic relationships to prevail in the perception of an artwork and not only in the process of its genesis, it is necessary to involve time in the process of perception. However, it should not be astronomical time as a time unit defined by the perception of an artwork, but structured time, with which we are familiar in the perception of a musical work.

Although there is a hierarchy of forms in the picture and we can observe the relationships between them in the determination of the antecedent and the consequence, it would probably not be appropriate to "graft" the process of musical structural time onto the dynamic relationships within the structure of an artwork. Even the articulation of the structured time of image perception must necessarily draw on the controlled process of communication, proceeding from parts to the whole, e.g. from the form and means of expression as its grammar through spatial relations to the composition and overall structure of the work. And for cultivating visual – but also interdisciplinary – literacy based on the process of communication, the perceptual process proceeding from pre-understanding to understanding is important.

These examples of articulation of the structured time of the perception of an artwork and communication with it bring us back to hermeneutics, whose indisputable contribution to interdisciplinary literacy has already been mentioned in connection with the Constance School. The above-described process moving from parts to the whole is the essence of the key concept of Gadamer's philosophical hermeneutics, a "hermeneutic circle". This term "refers to a model of understanding which is based on the thematization of the relationship of the part to the whole and has a circular form" (Sládek, 2018, p. 274). Other hermeneutic terms, "pre-understanding" and "understanding", are closely related to the terms "pre-literacy" and "literacy", not only in their static understanding as a state but also in the dynamic process starting from subjective communication with an artwork and leading to its intersubjective interpretation as a statement of its time.

The relationship between the subjective and intersubjective levels of communication is based on an active approach to a work of art, the essence of which is to ask troubling questions and look for answers (Bláha & Říhová 2019, pp. 66–67) And it is the Gadamer

hermeneutics of the application that is based on the dialectical relationship of a question and an answer as the essence of understanding.

"In this way, the hermeneutics of application belongs, as Gadamer indicates, to the dialectic of question and answer. To understand something means to have related it to ourselves in such a way that we discover in it an answer to our own questions – but 'our own' in a way that these questions, too, are assimilated into a tradition and metamorphosed by it. Every act of understanding, even self-understanding, is motivated, stimulated by questions that determine in advance the sightlines of understanding. A text is given voice only because of the questions that are put to it today. There is no interpretation, no understanding, that does not answer specific questions that prescribe a specific orientation. Unmotivated questions of the kind that positivism desiderates would pertain to no one and consequently be of no cognitive interest. The point is not to exclude the anticipations of meaning implicit in our questions but to foreground them so that the texts that we are trying to understand can answer them all the more clearly. Thus, successful understanding can be described as the effective-historical concretion of the dialectic of question and answer. It is precisely here that we can see the philosophical import of historically effected consciousness." (Grondin, 2011, p. 148)

Grondin's detailed interpretation of the dialectic of question and answer is completed by a brief description from Gadamer: "The dialectic of question and answer… now permits us to state more exactly what kind of consciousness historically effected consciousness is. For the dialectic of question and answer that we demonstrated makes understanding appear to be a reciprocal relationship of the same kind as conversation." (Grondin, 2011, p. 148)

The current analysis of perceptive time with the emphasis on the dialectical relationship of the antecedent and the consequence as an active element of interdisciplinary literacy was universally valid in time. At the same time, however, it can be employed in a closer connection with a specific problem that applies to a certain developmental stage or tendency only, such as the organic principle of the order of abstract expressionism in painting and free atonality in music at the turn of the first and second decades of the 20th century, introduced first by Wassily Kandinsky and Arnold Schönberg, respectively. What unites Kandinsky's abstract expressionistic paintings and Schönberg's compositions of free atonality most strongly is the organic principle of internal order. This means that an abstract image or an atonal composition "grows" like a living organism; they are thus formed in the process of a creative act. The absence of a compositional scheme or a musical

form is replaced by Kandinsky's artistic feeling or Schönberg's musical feeling, to which Adorno refers as the "musical ear". The undeniable advantage of music is that it unfolds over time, which is reflected not only in the spontaneous formation of the musical form and its relationship to other musical forms but especially in the organic flow of musical time. Schönberg aptly formulated this spontaneity of organic musical time as "the instinctual life of sounds in free atonality". Maximum spontaneity is thus associated with simultaneous intellectual control; that is, in the words of Theodor Adorno, "the ear listens live to the material of what has become of it" (Adorno, 1969, p. 34).

This constant control of the "musical ear" is a means of defence against anarchy, chaos, both for the composer and for the musically literate listener. The listeners can also use a score for exact control, in which they can verify the organic spontaneity of musically structural time. A similar "organic life of forms" is promoted in Kandinsky's abstract expressionistic paintings. However, their viewer does not have the same option as the listener of Schönberg's atonal compositions; there is no control mechanism appropriate to the "listening ear" and the musical score. The common feature of abstract expressionism and free atonality is that the organic principle of the internal order is formed in the process of the creative act. However, the image does not capture the process, but its result. Therefore, the organic principle of the composition can only be sensed, not seen, which can lead to short-circuiting moments in communication. On the other hand, music takes place over time. Therefore, the process of the creative act is essentially identical to the resulting composition. It logically follows that we not only sense but also hear the spontaneity of the internal order. Just as the saying "you will not step into the same river twice" applies, so does its modified version "you will not step into the same atonal composition twice". It flows like a river – without stopping. The indisputable benefit of interdisciplinary literacy is especially evident in this specific example.

Form and content

In the list of reasons why the applied information theory is suitable for the interpretation of tectonic aspects of music and fine arts in the previous section of this study, three of the arguments that were given are related to the relationship between form and content. Therefore, at the beginning of this section, we will point them out as a point of departure.

1. Musical meaning is qualitatively different from the meaning in fine arts or literature, mainly because of being

a markedly specific phenomenon, to which it is difficult to apply interpretive models of these fields.

3. Applied information theory thoroughly maps the relationship between redundancy and randomization as decisive factors in the relationship between information and entropy – and this is where gestaltic and structural applications differ considerably.
5. It affects not only the genesis of meaning but also the process of its formation and the role of deviations and their variants as increasing the amount of information included. The structuring of this process is mainly related to the inherent meaning and its relation to information, associated with the stage of development of the inherent meaning as an articulation of dynamic aspects of the tectonic process.

The fundamental difference in the relationship between form and content consists mainly of the qualitative difference in the observed art types phenomena. The difference between fine arts and music in relation to Being was perfectly formulated by the French philosopher and aesthetician Maurice Merleau-Ponty:

"The visible world and the world of my motor projects are both total parts of the same Being. This extraordinary overlapping, which we never give enough thought to, forbids us to conceive of vision as an operation of thought that would set up before the mind a picture or a representation of the world, a world of immanence and ideality. Immersed in the visible by his body, itself visible, the seer does not appropriate what he sees; he merely approaches it by looking, he opens onto the world." (Merleau-Ponty, 1993, p. 124).

"Music, at the other extreme, is too far on the hither side of the world and the designatable to depict anything but certain schemata of Being – its ebb and flow, its growth, its upheavals, its turbulence." (Merleau-Ponty, 1993, p. 123). Only a fool might think it's not enough. The specificity of meaning in music is closely related – as has been emphasized several times – to its phenomenon. It is certainly no coincidence that music has become a catalyst for the emancipation of a work of art. Not only in fine arts but also literature at the turn of the 19th and 20th centuries, since it was through music that artists got rid of their dependence not only on the specific (or "mimetic" in the visual arts, respectively) appearance of phenomenal reality in terms of form but also in terms of content and narrative. This difference, as well as certain common features, is very perceptively covered by information theory.

Concerning typology, applied information theory distinguishes two types of meaning: referential and inherent. The referential meaning refers to the physi-

cal and metaphysical reality, that is, to the world of phenomena, but also to the world of ideas, feelings, and visions. Therefore, the referential meaning relates primarily to the mimetic artistic expression and, to a certain extent, to programme music. Thus, it is connected with fine arts or literature. This is also indicated by the use of structuralist (semiotic) terminology, especially by terms such as "denoting" and "denoted", etc.

The inherent meaning is far more important, even crucial, for the tectonic parameters of musical meaning. This inherent meaning is based on the already-mentioned relationship of the antecedent and the consequence, i.e. on the interactive relationship of events – a preceding event evokes expectations of the event to come. An important term related to both the genesis and especially the further course of the process of the formation of meaning is deviation. Without deviation, the meaning is neutral and the information load is thus minimal. The role of deviation is to disrupt the expected (assumed) course of events, the ground plan of which is determined by the scheme of the musical form. The possibilities of applying deviation are thoroughly developed in information theory, the decisive factor being the position of deviation in the relationship of the preceding and the upcoming event.

An important role in the "strategy" of the process of structuring the stream of music is played by the relationship between the inherent meaning and information. This relationship is established by the offer of possible options in the given situation. With an emphasis on redundancy as a predictable regularity and therefore a limited choice of options, the level of information is minimal, which leads to low entropy. The exact opposite is the absence of redundancy, and thus a high degree of randomization as a measure of uncertainty. On the one hand, randomization is the source of the maximum load of information, but on the other hand, it is associated with the maximum degree of entropy, which leads to cultural noise, i.e. it interferes in the process of communication between the work of art and the consumer. The limit degree of randomization occurs in modern music, especially when a fundamental change in system occurs, for example, in the transition from tonal to atonal music.

The expectations, which serve as a ground for musical meaning, are distinguished into latent and active. Latent expectations are associated with a system of norms and conventions and are therefore determined by probabilistic relationships and modes of mental behaviour. On the contrary, active expectations arise when standards are violated. However, it is clearly corrected by assimilation systems. Eco refers to cultural models as a "system of preferences and conventions" which are a source of pro-

tection against reckless change. What Eco calls the "system of organic functioning" is actually the dynamic interaction of assimilation schemes and their disruption as a process of corrected changes. In tonal music, the polarity of tonality thus functions as the limit within which the process of changes in assimilation schemes takes place in a controlled manner.

The positive contribution to information theory for tectonic analysis of a musical composition unfolding in structured time is the stages of development of the inherent meaning influencing the process – not only in terms of the relationship between the antecedent and the consequence that we have observed so far but also in terms of qualitative changes in relationships. The impulse of expectation is the basic element upon which hypothetical significance is built. As its name suggests, the nature of the antecedent as the initial event puts forward the hypothesis of the form of the consequence as the following event. The less the consequence corresponds to the hypothetical idea, the more information (but also entropy) it brings. The degree of probability of the expected consequence is corrected by the assimilation systems of the respective cultural model.

The following obvious meaning is associated with the feedback re-evaluating the antecedent and its relation to the consequence. It therefore has a retrospective character, but at the same time establishes a higher quality of the relationship and thus readiness for future expectations. The most relationally challenging are the determined meanings, which are formed after the word has faded as a timeless memory. They result from the relationship of the form and content, gradual clarification of relational relationships, on which a more detailed process of relational bonds between hypothetical and evident meanings participates. And this process, evolving from the systemic uncertainty at the beginning of the musical composition to the gradual clarification of probabilistic relations, corresponds exactly to what we call a stochastic process.

The choice of probabilities in tonal music is greatly limited by assimilation systems and, in addition, flows in the opposite direction. In the beginning, there are strict "redundancy rules" of a specific musical form as a paradigmatic pattern. In the process of development, this pattern is disrupted by syntagmatic deviations in order to strengthen information and thus revive the interest of the audience. At the same time, however, it is essential to respect the structured process from the stimulus through the crisis to the expectations associated with satisfaction and the re-establishment of order.

We believe that our foregoing analysis of the tectonic relationships of a musical work has demonstrated the indisputable

advantages of applied information theory to other interpretive models.

In the analysis of the relationship between form and content, increased attention was paid to music for the specificity of the processes of statement formation based not only on the relationship between the preceding and the subsequent events but also on the important role of deviation and different types of meanings. Even though these interactive processes also occur in the active communication with the work of art, they do so in a different preference of individual types of meanings and in connection with narrative art as a second voice in the counterpoint with the iconographic content. It was this second voice, in which the form bears the message, that was undervalued by Erwin Panofsky when he isolated the meaning as a fixed voice detached from the form as a second voice associated with the form.

Whilst in music – especially in connection with its abstract phenomenon – the inherent meaning significantly predominates as a dynamic interaction of two different events, in figurative artistic expression, on the contrary, what is dominant is the referential meaning in direct relation to the phenomenal reality. However, this does not rule out a certain degree of proportion of inherent meaning based on the interactive relationship of interrelated "visual events".

The degree of employment of the inherent meaning increases with the advent of modern art and is promoted both in figurative art (cubism) and, especially, in the transition from figurative to non-figurative painting. Primarily here, in his abstract expressionistic paintings, Kandinsky promotes organic bonds between open shapes in their relation to the inner space of the painting. And it is precisely in the communication with these paintings by Kandinsky that musical literacy plays a very important role – namely the perceptual experience with Schönberg's atonal music – as a catalyst accelerating and improving perception by intuitively revealing the interactive variability of the relationships among open shapes. The close "family" relationships between music and painting are strengthened here as a means of developing interdisciplinary literacy. The gradual change in the relationship between the referential and inherent meaning brings about a change in the role of deviation as a disruption of the expected relationship between the individual elements of the image. The change occurs especially in an expressive artistic expression, manifested not only in deformations of shape or extreme contrasts between colours and discrepancies of spatial relationships in expressive figurative art but also, to a much greater extent, in the organic spontaneity of abstract expressionism, as was demonstrated in the preceding tectonic analysis of Wassily Kandinsky's paintings.

The essence of the above-mentioned process of qualitative transformation of the relationship between form and content in modern painting is the implantation of elements of musical thinking into the specifics of artistic thinking. One of the prerequisites is the gradual elimination of iconological content, the other being the interactive process of pushing back the boundaries between art forms and their gradual intertwining. Concerning the focus of this study, we are interested in the process of the gradual interweaving of artistic and musical thinking. The genesis of this process is related to what has been called the musical phase of painting, whose prophets and pioneers were Paul Gauguin and, to some extent, also Georges Seurat. Underestimating the importance of this developmental vicissitude is caused by the distorted understanding of the role of music as a catalyst for the emancipation of image at the turn of the 19th and 20th centuries, as was demonstrated by Paul Gauguin's Pont Aven and Tahiti paintings. Nevertheless, Gaugin himself expressed this essence perfectly in his essays as "music of the image" or "magical chords of colours". Moreover, he emphasizes:

"By the combination of lines and colours, under the pretext of some motif taken from nature, I create symphonies and harmonies that represent nothing absolutely real in the ordinary sense of the word, nothing expressing an idea directly, but are intended to give rise to thoughts as music does, without the contribution of specific thoughts or images, simply by the mysterious affinity of our brain with the mentioned combination of lines and colours." Gauguin was the first to understand the essence of the connection between painting and music, and he also managed to use it to liberate the means of expression of painting from their direct dependence on reality. He realised that painting – similarly to music – can only be expressed by its own means – i.e. the "combination of lines and colours". Therefore, it is not about external similarities, but about the very essence of the relationship. And the relationship is based on colour as a clearly dominant means of expression in Gauguin's painting. He works with colours in a similar way to a composer with chords of tones while creating a harmonic component of his musical work.

Topping off the "musical phase of painting" are Wassily Kandinsky's abstract paintings from the years 1910-1914. The role of music as a catalyst that accelerated the transition from figurative expressionism to non-figurative abstract painting is confirmed by Kandinsky's words: "The deep relationship between the arts, and especially between music and painting, is the foundation (…) of the road by which painting will, according to its own possibilities, make art an abstraction of thought and arrive finally at

purely artistic composition." (Kandinsky, 1977, p. 27)

Whilst Gauguin considered the theme "just a pretext for a combination of lines and colours", Kandinsky managed to get rid of any connection to the material form of reality. In his paintings of the first half of the 1920s, lines and colours become autonomous values, become themselves, and thus take on the role that melodies and harmonies – and other means of expression – play in music.

František Kupka enriches the musical qualities of the painterly means of expression with another of the key tectonic principles of music. The gradual process of crystallization of his paintings from a series of studies to the final work is built on the principle of musical variations – that is, on colour, shape, or linear or rhythmic variations of the initial idea. What differs fundamentally from musical variations is the starting point. The starting point of musical variations is a clearly formed theme as a solid basis for the following variations, which change the theme harmonically melodically, rhythmically, dynamically, etc, whilst the starting point of Kupka's variations is the basic idea and only the final product of the variation process is the final image.

The richness and variability of the musical aspects of Kandinsky's and Kupka's abstract paintings show the deeper roots of this qualitative transformation. It is not just music as a catalyst for the transition from figurative painting to non-figurative or abstract art, as this was just an impulse that "started" the qualitative process of transformations that resulted in a fundamental change of artistic thinking. By depriving the abstract painting of a direct link to the material reality, the original dominant role of referential meaning is translated into inherent meaning, which is based on the dynamic interaction of the antecedent and consequence and the associated process of deviation as the principle of the organic pulse of an image. This pulse is the core of the spontaneous structural time, not only of the creative process of its "materialization" but also of the active communication in the course of its perception. We consider this to be a fundamental argument justifying our belief that someone who lacks musical thinking cannot fully understand and, above all, intensely experience not only the abstract paintings of Kandinsky and Kupka but also other representatives of abstract expressionism of the generation emerging during World War II, from Pollock to Rothko.

But that is not all! The integration of different ways of thinking of different disciplines leads to interdisciplinary, i.e. more complex literacy.

A fundamental change that occurs in the understanding of meaning as the message of an artwork is closely related to the transformation of the relationship between form and content in abstract expressionism, since the meaning is

not given in advance and the role of an artwork is neither to interpret this predetermined meaning, nor to transform it artistically. The purpose of an artwork is created in the process of the creative act, as well as its internal order. In other words, the iconological content and its visual representation are cancelled. The same also applies to the meaning as a message of Arnold Schönberg's atonal music. A more detailed analysis of this problem is offered by Theodor Adorno:

"No metaphysical meaning is predetermined, and none may be imitated by art. (…) The meaning of a work of art is something that must be created, not displayed; is what it is only because it is created (...) Art as a spiritual fact is neither the last bastion of faded spiritual history nor a breeding ground for ad hoc artistic metaphysics. What Kandinsky called the spiritual in art is not an extension, but – paradoxically – a state of affairs. What is unreal about it is its own reality. This evolved in Schönberg's as well as Kandinsky's works from something taking place secretly to an obvious fact." (Adorno 1969, p. 33)

Kandinsky describes this change in the understanding of meaning as the statement of a work of art as "the inner wording of things" or "inner view" and Schönberg as "inner necessity" or "inner urge".

Conclusion

Nowadays, more than ever, we live in a multimedia environment as a natural synthesis of various forms of communication. Thus, a similar process in art is an equally natural consequence. It is seen as the completion of the process of gradual disruption and blurring of boundaries between individual art forms up to their synthetic fusion in the multimedia expression of contemporary art. However, the indivisible unity of interconnected art forms as a total work of art (Gesamtkunstwerk) has deep roots that in European art go back to the early Middle Ages. They are related mainly to Christian temples, where the unity of word, image, and sound was strictly applied, especially in the interior of churches. Suffice it to compare the monumental morphology of the interior of a fifth-century basilica with static monumental mosaics of additively arranged figures of saints. This ostinato (repetitive) rhythm of their arrangement is inextricably linked to liturgical one-voice singing. In this phase of the Christian Gesamtkunstwerk, the key role is played by the word, which is superior to both the artistic component aimed at providing elementary information about the stories of the Old and New Testaments and the declamatory essence of liturgical recitative and other forms of a syllabic type of melody.

The abstract geometric order of

Gothic cathedrals, evoking the impression of unrestrained fantasy, a captivating attack of sculpture transforming the exterior of the church into a stone bible, draws attention to the artistic component of interdisciplinary relations. It directly demands an appropriate transformation of the musical forms of horizontal counterpoint with melodically, harmonically, and rhythmically complex interwoven voices. The rational order of the Renaissance church is dominated by the compositional balance of spatial units intensified by the mathematical principle of linear perspective. Moreover, the artistic purity of the material shell of the building corresponds to a well-elaborated, technically perfectly conducted vocal guidance in Renaissance vocal polyphony. The dominant role is undoubtedly played by architecture. The completion of the Christian Gesamtkunstwerk is associated with radical Baroque, in which art and music joined forces in a total symbiosis of visual and sonic expressive urgency and carried out an attack on the senses and feelings of the faithful. The boundless possibilities of advanced audio-visual technology allow us to make virtual returns to the past, including the interdisciplinary experiences outlined above. However, despite all the technical conveniences, they cannot be fulfilled without advanced interdisciplinary literacy.

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A New Structural Model of Visual Competencies in Visual Literacy: The Revised Common European Framework of Reference for Visual Competency

European Network for Visual Literacy (ENViL)

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Abstract: The Common European Framework of Reference for Visual Literacy is work in progress. The Framework was published as a prototype and as the project itself was also limited in terms of time and resources, it is left to colleagues in the field to elaborate on what was presented. In this contribution the sixteen sub-competencies that constitute the core of the model are discussed. In the prototype these sub-competencies were presented as a cloud of concepts without any internal structure. This leaves much to be interpreted by researchers, curriculum developers, and educators. In order to arrive at a more practical and transparent model, a working group of ENViL here presents a new version of these sub-competencies. It is hoped for that this version pays credit to the dynamic, process-oriented character of these competencies – and the subject in general – and will also make it easier to apply them in the domains of both production and reception, as distinguished in the prototype. It is also hoped that this alternative will generate further discussion and research on, for example, the consequences for assignments and assessment, the relationship with what are called 21st-century skills, and the validation of competency levels.

Key words: visual competency, competency model, framework of reference, production of art, reception of art, CEFR-VC

Introduction

Describing educational goals is always a balancing act between clarity and conciseness. To be practical, specified descriptions are needed, but too much text can easily confuse or even discourage readers. In practice many words and concepts used to describe educational goals and curricula are not clearly defined. Their meaning is taken for granted as they are also part of general linguistic usage, but in a discussion among professionals it may turn out that individual teachers use different working definitions for these concepts. Things may become problematic when words are used that are essential for the subject but can have different meanings, depending on their context. Many words have more than one meaning, and some meanings can be covered by different words in more or less the same way. 'Ability' may mean 'proficiency' as well as 'capacity', while 'ability' can also be described as 'skill', or 'capability'. But not all these words refer to exactly the same phenomenon. This problem is not unique to English. For example, 'ability' can be translated into German in many different ways, each one with a slightly different meaning. In reverse, a German equivalent (e.g. 'Fähigkeit') can be retranslated in English as 'aptitude', 'faculty', 'skill', or 'proficiency'. So, when one describes mental or physical activities for educational purposes, one has to be as clear as possible in one's vocabulary in order to avoid the words or concepts used being open to multiple, and thus incorrect, incomplete, or misleading interpretations.

In this article we address these issues by introducing a description of competencies in the domain of Visual Literacy. The concept of Visual Literacy was introduced by ENViL to refer with one concept to the great variety of names used in Europe for school subjects in the visual domain, and also broaden this domain by including all kinds of images and not limit it to 'art' objects only. This new description of competencies will, it is hoped, diminish the lack of clarity of the concepts used – including the concept of 'competency' itself – and can make it easier to use in the context of education. To this purpose the prototype of the Common European Framework of Reference for Visual Literacy (CEFR-VL) as developed by the European Network for Visual Literacy (ENViL) in 2016 has been reformulated. The cloud of competencies as presented in the original model is restructured into more generic, process-based descriptions of competencies that better reflect common understanding and practice in this domain. It is hoped that this new model is more fit for daily use in schools.

Competency

One of the most complicated 'sloppy concepts' used in contemporary educational theory and policy is 'competency'

(or 'competence'), which can mean 'ability', 'capacity', 'capability', 'proficiency', or 'skill'. Why introduce a new concept when its distinctiveness with regard to other concepts in use is unclear and even confusing?

The concept of 'competency' entered educational theory some forty years ago, but it has been given prominence more recently thanks to international discussions on the comparability of educational results. A well-known example of the introduction of the concept of competency in European education is the Common European Framework of Reference for Languages, developed to arrive at comparable level descriptions of 'linguistic competence' (Council of Europe, 2020). Another one is the project of the Organisation for Economic Co-operation and Development (OECD) to arrive at the definition and selection of competencies to provide "a framework that can guide the longer-term extension of assessments into new competency domains." (OECD, 2003: 3). This framework was developed to "inform the identification of key competencies, to strengthen international assessments, and to help to define overarching goals for education systems and lifelong learning" (id.: 4). This project is part of the Programme for International Student Assessment (PISA), which was launched in 1997 by the OECD with the objective of developing regular, reliable, and policy-relevant indicators on student achievement (OECD, n.d.). We also find the concept 'competency' in many curricula, including curricula for art subjects.

In response to these international developments, which were seen as a political threat that might lead to a (further) marginalisation of Visual Literacy, in 2012 the European Network for Visual Literacy (ENViL) decided to initiate a research project on the concept of 'competency' in Visual Literacy. The results were published as a prototype of the Common European Framework of Reference for Visual Literacy (Wagner & Schönau, 2016). The researchers of ENViL "believed that the lack of clearly defined competencies was the reason why there were no connections between current empirical educational research and curriculum development in school subjects such as art (….) and design." (id.: 11). ENViL decided to adopt the definition of competency as formulated by the German educational scientist Franz Weinert (2001).

- "A competency always addresses the combined use of learnable knowledge, skills, and attitudes;
- A competency is demonstrated in specific (professional) situations: one is competent with regard to a domain and in situations that are relevant for the domain (or: in situations in which this domain is addressed or made use of);
- A competency is described and presented as an outcome or demonstrab-

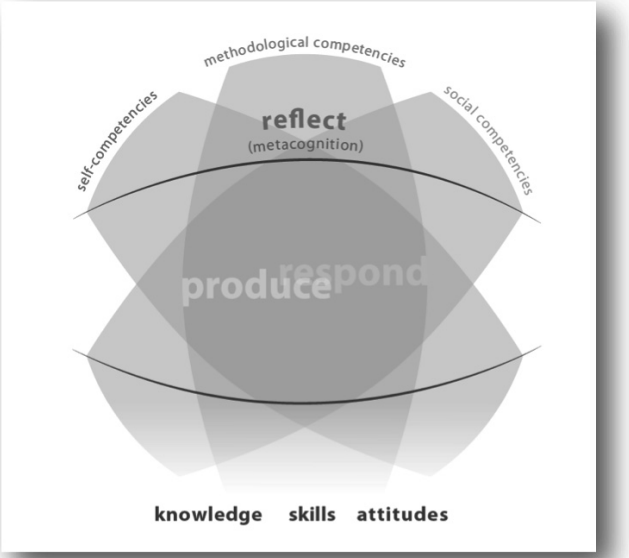

Figure 1. The ENViL competency model: basic elements and relationships (Wagner & Schönau 2016: 67)

le behaviour, not in terms of input;
- Competencies can also be thought of as dispositions: '*The student is able to...*' " (Wagner & Zapp, 2016: 98).

The added value of the concept of 'competency' lies in the *combined* use of knowledge, skills, and attitudes in (subject-) *specific* situations. Knowledge, skills, and attitude are not addressed in isolation, but learned and applied in situations that are specific to the domain at hand, in this case the domain of Visual Literacy.

Common European Framework of Reference for Visual Literacy

In the search for the competencies as described in the school subject covered by the name of Visual Literacy, 37 curricula for the visual arts in primary and secondary education from 22 different European countries (including Turkey) were analysed, focusing on the use of the concept of 'competency' and related descriptions of intended learning in this

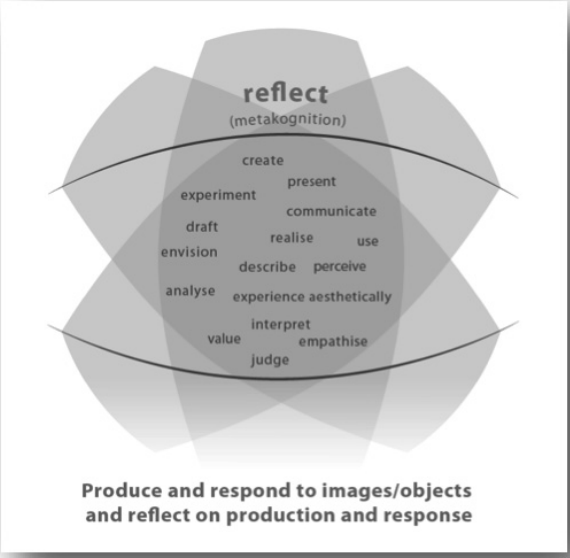

Figure 2. The ENViL competency model: differentiation of sub-competencies (Wagner & Schönau, 2016: 68)

domain (Kirchner & Haanstra, 2016; Kirchner, Gotta-Leger, & Nockmann, 2016). On the basis of this analysis and after extensive discussions it was decided by the research group to select sixteen sub-competencies that together cover the subject-specific content of learning in Visual Literacy (Wagner & Schönau, 2016: 64–108). Figures 1 and 2 give a visual summary of what the resulting prototype of the Framework looks like.

In the centre of the model (Figure 1) we find the two sub-domains of Visual Literacy: 'producing' work oneself and 'responding' to work made by others. The competencies of Visual Literacy in these two sub-domains function along with more generic personal, methodological, and social competencies. These latter represent basic types of competencies that play a role in any action or (learning) situation and that are relevant to all school subjects. At the bottom of Figure 1 we see 'knowledge', 'skills', and 'attitudes'. The interactive use of these

three elements, together with the 'situation' in which they are applied, defines the concept of competency. Above the centre, 'metacognition' (or reflection) is hovering, thus indicating its central role as a 'monitoring' competency that is active and relevant at any moment in life and learning.

In Figure 2 the sixteen 'sub-competencies' are presented: analyse, communicate, create, describe, draft, empathise, envision, experience aesthetically, experiment, interpret, judge, perceive, present, realise, use, and value. Some of these sub-competencies are typical for the production of images, others for responding to visual images, and many competencies can be applied to both sub-domains, sometimes with a different meaning (e.g. 'analyse', 'interpret'). In the ENViL publication each sub-competency is extensively described, to make sure that its meaning is clear and transparent (Wagner & Schönau, 2016: 66-79). For eleven sub-competencies it was also possible to give descriptions of three levels: elementary, intermediate, and competent (ibid.: 80-90). For the remaining sub-competencies (empathise, envision, experience aesthetically, perceive, and value) a usable and meaningful differentiation between levels remained elusive.

At this point of detailing the framework with extensive (level) descriptions, the EU-funded research project ended. As the Framework is presented as a prototype, it includes an invitation to elaborate on its results (Schönau & Kárpáti, 2019). As can be seen in Figure 2, the sixteen sub-competencies are presented as a cloud of concepts, with little internal structure and hierarchy. They are also formulated as a single verb, while their meaning and what they refer to in practice are much more complex than these verbs suggest.

In recent years a working group of ENViL has investigated the possibility of making this cloud of concepts more insightful in order to generate a more practical version for use in classrooms and in curriculum development.

Basic considerations for reorganising the sub-competencies in the Framework

To arrive at a better and more insightful model, the working group based its activities on the following considerations.

Firstly, it was agreed that the sub-competencies could be reformulated better by including 'competency to …' in the description, and not by using one verb only. It should be clear in any description of a competency that it is more than one verb, which normally refers to a specific mental or physical skill or activity (e.g. 'envision', 'make'). A competency, by definition, does not consist only of skills, but of knowledge and attitudes

as well, and is related to specific (types of) situations.

Secondly, it is more logical and helpful to formulate sub-competencies in terms that are relevant to, and typical for, learning in Visual Literacy, to distinguish them from those used in other school subjects or domains of learning (e.g. 'interpret', 'use').

Thirdly, the working group looked for ways to present these competencies not as an amorphous cloud, but in a structure that reflects the complex, dynamic, and yet coherent character of the domain (and its sub-domains) as well as the (potential) interrelatedness of the different sub-competencies. The first step was to clarify the distinction between the 'producing' and 'responding' sub-domains. It was decided to develop two different models, one for each sub-domain. This meant that only those sub-competencies relevant for each sub-domain were included in each model. This division does not mean that producing and responding should be seen and taught as separate domains in education; quite the contrary. Examples of works made by others can be very relevant in one's own artistic activities, and experience with producing can be of help to understand works made by others. However, in some education systems the domain of responding is addressed in a separate school subject such as art history, cultural and artistic education, or critical studies. In museum education, too, the domain of 'responding' is central. By developing two separate models the dynamics and characteristics of each sub-domain can be presented in a more cohesive way.

Finally, the Framework is renamed as the Common European Framework of Reference for Visual Competency' (CEFR-VC), as the concept of 'visual literacy' has several meanings, as 'literacy' is also seen as related to socio-economic or linguistic-philosophical approaches in education rather than what the Framework actually intends to cover: visual competency (Errazuriz, 2019; Fulkova, 2019; Schönau & Kárpáti, 2019).

The sub-domain of 'producing'

Following this approach, it makes sense to group the sub-competencies for the sub-domain of 'producing' into five more generic competencies related to different phases in the production process. These new sub-competencies not only fulfil the considerations above, but also represent a logic that is recognisable to both learners and professionals in the domain. These five new generic sub-competencies in the sub-domain of 'producing' are:

- the competency to generate visual ideas;
- the competency to do visual research;
- the competency to make visual images;

- the competency to present one's own images;
- the competency to evaluate one's own images and image-making processes.

The concept 'visual' also refers to the haptic, motor, and kinaesthetic aspects of objects and processes in Visual Literacy, as, for instance, in making and experiencing three-dimensional objects or architecture. The order of the sub-competencies is not prescriptive but reflects the most common ways of producing works of art, design, architecture, and the like. Some stages can be skipped and other stages can be repeated, as the task requires, for instance, when a work does not fit the expectations of its maker and she or he must go through the earlier stages again.

The first new generic sub-competency – to generate visual ideas – covers what a maker in Visual Literacy normally does before embarking on the actual production process. Just starting to make an image without any preliminary thinking or research is rather uncommon. In most cases there will be an idea, an experience, an emotion, or a practical or ideational purpose or request. The starting point can be an observation, but it can also be a product of the mind: an idea, a fantasy, a mental image, an experience, or a feeling. It can also be an interest in investigating the expressive materials and techniques, or the desire to make an image or object with a specific practical function. Although in many cases the purpose of the image to be made may not be clear at the beginning, in the end the maker will start to produce a work that fits a 'situation', be this artistic, commercial, educational, recreational, social, or otherwise. In this phase the following sub-competencies, as originally presented in the prototype of the Framework, can play a role: analyse, communicate, describe, empathise, envision, experience aesthetically, interpret, perceive. Which of these sub-competencies actually play a role will depend on where, when, and how a maker is inspired or requested to make an image. Each of these original sub-competencies can play a role in this phase, depending on the starting point or the moment in the process.

The second generic sub-competency – to do visual research – relates to all the practical and material activities a maker can undertake before the actual work is produced: making drafts, experimenting with elements and principles, materials, and/or techniques, looking for available images and ideas that might fit into the work, analysing how things work out visually, and interpreting the results of sketches. In this phase the original sub-competencies analyse, communicate, create, draft, experiment, interpret, and use can play a role.

In the third phase – making a visual image – the ideas are realised and the

work is produced. Of course, a work can be created from scratch, without any intentional generation of visual ideas or preliminary research, but more often the final work is based on a preceding process of investigation and trials, or the research is included in the final work, like in a painting that 'generates' on the canvas. In this phase, the original sub-competencies communicate, create, realise, and use play the major role. It is important to keep in mind that especially in this phase the competency of reflection is crucial: what appears in the process of creation will be judged and corrected by the maker with regard to its visual characteristics and expressiveness. With good reasons one may say that this is the moment in which the act of creation is at its peak.

The fourth phase – presenting one's own images – will start when the maker has decided that the work is 'finished' and the assignment is completed. Depending on the social situation and the purpose of the assignment, the maker will present the result in a specific way. This presentation can be limited to the final work itself, but the presentation can also include preliminary studies, experiments, and research that led to the final work. Because of the complexity of the production process and the visual character of the work made, presenting can be regarded as a productive and even creative activity in its own right. The activities related to the phase of presenting can be addressed by the original sub-competencies communicate, describe, judge, present, realise, and value.

The fifth new generic sub-competency – to evaluate one's own images and image-making processes – can be seen as a phase of (self-) reflection which is typical for a learning situation, but it also applies to any other situation in which a maker looks back at what (s)he has done and made. Reflection may lead to a reappraisal of the working process and even to a decision to start all over again when the result is not in line with the intention or the expectation. In an educational context, the competency to evaluate is crucial in the communication between student and teacher, as it informs both parties about what has been learned and how to move forward. It is the phase in which the original sub-competencies analyse, communicate, describe, judge, and value can be applied.

The sub-domain of 'responding'

With regard to the sub-domain of 'responding', not all sixteen sub-competencies are equally relevant. For example, the sub-competencies create, draft, envision, experiment, and realise are typical for the production of a work. The other sub-competencies can be used in both domains. So eleven sub-competencies are relevant in the sub-domain of 'responding': analyse, communicate, describe, empathise,

experience aesthetically, interpret, judge, perceive, present, use, and value.

As in the domain of 'producing', in the domain of 'responding' too we can see a temporal order of activities, from the first encounter with an image or object,[1] through scrutiny of what can be seen and be known about this image, up to the drawing of conclusions in an informed way and sometimes ending with a presentation of the results, either orally, in written form, or in another visual format. This process is not arbitrary as it follows a 'natural' order in which the observer tries to make sense of the image at hand. This process can be made more sophisticated and systematic by following specific rules for (visual) research in order to arrive at insights and conclusions that can be understood by and shared with others.

The eleven sub-competencies related to the domain of 'responding' are connected to four distinct temporal phases: visual scrutiny, research on relevant contextual information, evaluation, and communication. On the basis of this division four more generic competencies were formulated that not only fulfil the basic considerations as outlined above, but also represent a logic that is recognisable to both learners and professionals in the domain.

The four (new) generic competencies in the sub-domain of 'responding' are:

- the competency to look at images with an open mind;
- the competency to research images;
- the competency to evaluate images;
- the competency to report about images.

In contrast to the structure in the domain of 'producing', the activities related to these four new competencies will normally be executed in a more strict order. Research without looking carefully at the image first, judging without research, and reporting about an image without any of these preceding activities cannot produce good results and can even be seen as a demonstration of incompetence. Naturally, it is always possible to return to an earlier phase to adjust or improve one's observations, insights, or conclusions, but in the end the process of responding will always start with observation, then address the issues of research and evaluation, and end with reporting.

The first new generic sub-competency – to look at images with an open mind – relates to the multifaceted character of visual perception in Visual Literacy: looking carefully and taking one's time, experiencing the visual (aesthetic)

[1] Image in the context of the ENViL model refers to all types of two- or three-dimensional images, objects, and processes that are relevant for the domain of visual learning. See also Wagner & Schönau 2016: 395.

qualities that make this image 'powerful' in a visual and/or artistic way, and connecting oneself emotionally and intellectually with what is there to be seen. This first new competency relates to the phase in which a new visual sensation is seen as an image, before any additional information is intentionally looked for in order to arrive at a deeper understanding of the image. It is the moment in which the original sub-competencies of perceiving, aesthetically perceiving, and empathising play a central role.

The next phase – to research images – is needed in order to arrive at a deeper and more complete understanding of an image. Research with regard to an image can be understood in the same way as research in science: a systematic exploration. Here the object of study is the meaning(s) of and in the image, its purpose, the way this meaning is expressed by the visual characteristics of the image, and the contextual information that supports a better understanding about the reasons why the image was made and why it was made in this specific way. Contextual information can be found in comments by the maker or by critics, in historical sources, and in social, political, psychological, philosophical, and other texts and theories that might be applicable to the image. Research with regard to the unique visual qualities of the image can help generate an informed understanding of the image. This can relate to its content and purpose, as well as to its form and unique visual qualities. The sub-competency of researching images is related to the sub-competencies analyse, describe, and interpret. These three sub-competencies cover the dynamic steps taken in researching an image. Describing is a very helpful and fundamental sub-competency as it helps to find words for what is seen, at different levels of detail. Analysis and interpretation are two sides of the same coin: making sense of what is found, and combining what can be seen in the image with what is known or understood about the image.

The third new sub-competency – evaluating an image – plays an important role in Visual Literacy. Evaluating addresses the issue of quality. In Visual Literacy quality plays a fundamental role. It refers to what makes an image relevant, successful, and powerful. This is an essential characteristic of learning in the visual domain that distinguishes it from the scientific disciplines in which quantification is the essential approach to arrive at understanding, proof, prediction, and even 'universal truth', as laws in nature are valid in the whole universe. In Visual Literacy the 'truth' of an image relates to that image only. It is possible to do scientific research on visual phenomena, like in the psychology of perception, but that is neither the content nor the ambition of Visual Literacy in the educational domain. To evaluate means to assign a value to an image. The

sub-competency of evaluating images includes the original sub-competencies of judging and valuing. Judging refers to the use of criteria, be they aesthetic, ethic, political, legal, economic, etc., to arrive at a systematic appreciation or valuation of an image in a comprehensible and intersubjective way. Valuing is a more subjective appreciation in which the image is appreciated for its uniqueness and its expressive qualities, as well as for its contribution to one's own life or to the life of others or society at large. The sub-competency to evaluate an image is used to appreciate an image as a contribution to one's own understanding and enrichment, or as a contribution to other individuals, groups, or society. It is particularly significant in intercultural or transcultural contexts.

The fourth new sub-competency – to report about images – relates to the presentation of the results of the other three sub-competencies. It involves the original sub-competencies communicate, present, and use. The final stage in the sub-domain of responding specifically refers to this notion of sharing with an audience what has been observed, researched, and evaluated. This sharing ('reporting') is normally in (written) language, but it can also be done by means of images, gestures, or other signs ('use'). As in the revision of the competencies in the productive domain the final stage is reformulated as 'the competency to present', it seems more in place to use the verb 'report' in its technical sense here: to share conclusions or to exchange information (in writing or orally). Being competent in sharing the results of one's observations, research, and evaluation can therefore be perfectly subsumed under the new sub-competency to report about images in an informed way. However, we should note that 'reporting' may also take the form of an internal act of arriving at an insight about an image, without sharing it with others. This act of formulating an informed opinion is equally valuable as a result of learning in Visual Literacy. Reporting is useful for social knowledge distribution, but an informed opinion that guides future actions (such as frequenting art shows or safeguarding monuments) is equally important.

Finally, in the sub-domain of responding special attention should be paid to the fact that responding to existing images can be approached from a historical and from a contemporary angle. When an image is approached as a historical artefact one needs to make use of historical sources to arrive at a 'correct' or at least data-driven understanding of the origin, goal, content, and design of the image. However, when an image is approached as an artefact that is relevant today, other sources will be needed that include the physical context as well as its social, emotional, ideological, spiritual, or political relevance or actuality. This is especially the case when a selecti-

on of existing images is being conceived by a museum curator for a presentation to a contemporary public. Here, the perspectives of the museum, the curator, or the scholars involved determine what is presented and in what way. Contemporary theories and practices will influence how images are presented (curated) as part of the actual public discourse or research debates. Curating an exhibition can be seen as an activity in the final phase of the responsive domain of Visual Literacy (use images, etc.). Writing the accompanying catalogue of an exhibition can be considered as the final reporting phase in the responsive domain.

It should be kept in mind that in most countries Visual Literacy in primary and secondary education is part of *general* education, and not presented and organised as a preparation for professional development. Being competent at a professional level surpasses what is covered and presented in the CEFR-VC. When these competencies are demonstrated by professionals in the visual domain, they can also be seen as examples of a fourth level of competency: the professional level. Whether the model will also be helpful and effective in professional training in the academic domain was not investigated by the researchers of ENViL and needs further exploration. So far it is hoped that the revised model presented here will be supportive in curriculum reforms and in daily school practice.

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Conversations on Visual Literacy, Resonance, and a Found Cat

Tedi E. Asher; Peter Carpreau; Lode Vermeersch; Ernst Wagner

Abstract: In this paper four experts, all involved in art education but with different backgrounds, analyse, apply, and challenge the concept of visual literacy when it comes to museum education. They do so in four conversations based on four different pieces of the visual world. Those are the starting points of the conversations because the authors are convinced that visual literacy offers specific tools that invite people to use their competencies and at the same time helps them to question the act of seeing. In the series of 'tetralogues' some often overlooked elements of visual literacy are articulated and discussed, such as immersion, attention, metacognition, metaperception, embodiment, initiation, and resonance. The ultimate aim of the paper is to spark the readers' interest and invite them to join this philosophical reflection process on how to turn the act of seeing of an image into a meaningful experience. Thus, the tetralogue becomes a polylogue.

Key words: visual literacy, perception, resonance, museum education, art mediation

Introduction

Visual literacy: a new journey into a known territory

When we hear the word 'literacy' we usually think of verbal or text-based literacy. It is not often that people use the notion of 'literacy' when referring to visual information. There is, however, a clear analogy between the act of reading or writing a text and the way we handle images. In both cases we focus on something that was created by man, a specific form of information that can be passed from one person to another, often detached from place and time, information that needs interpretation in order to be understood. All of these essential steps of a literacy process (the creation of visually perceptible information, the distribution, and the interpretation) are abilities that are

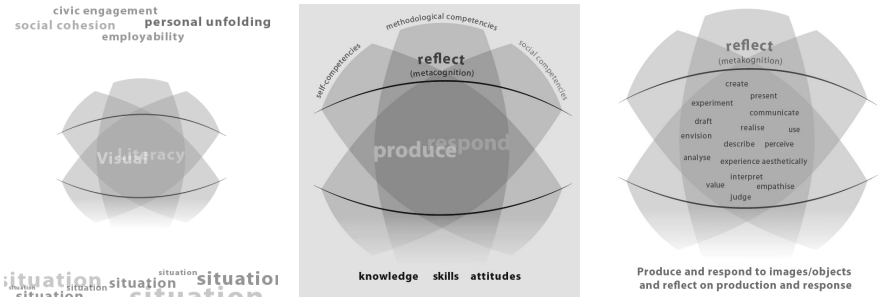
not innate. And even though we are confronted with an array of images from an early age, learning to handle them skilfully is not a process of mere spontaneous development (Vermeersch & Wagner, 2019). Visual skills are learnable and teachable (Avgerinou, 2003) and in fact they should be taught and learned; if not, people – young or old – might misunderstand the meaning of a certain image. To a large extent, this literacy learning process happens in an informal way. We simply pick it up intuitively by living our lives. We teach ourselves or we copy others. However, in some cases, we also need help to fully understand what visual information can mean. Even though, as a population, we can see, we still need training in how we see and how to see (Kennedy & Deetsch, 2019).

Since the late '60s, 'visual literacy' has evolved into a specific domain of research and a related body of knowledge. As early as 2002, the first attempt was made to make visual literacy fruitful for art education (Fulkova, 2002). The exact definition of 'visual literacy' is, however, still rather fluid, and the question of how this visual literacy should be taught or learned is still a topic of debate. Some scholars focus on the analysis of the underlying rules of visual language (i.e. the vocabulary, grammar, syntax, and semantics of visual data) while others examine the function of images in society today and how information is visualized in a specific cultural context.

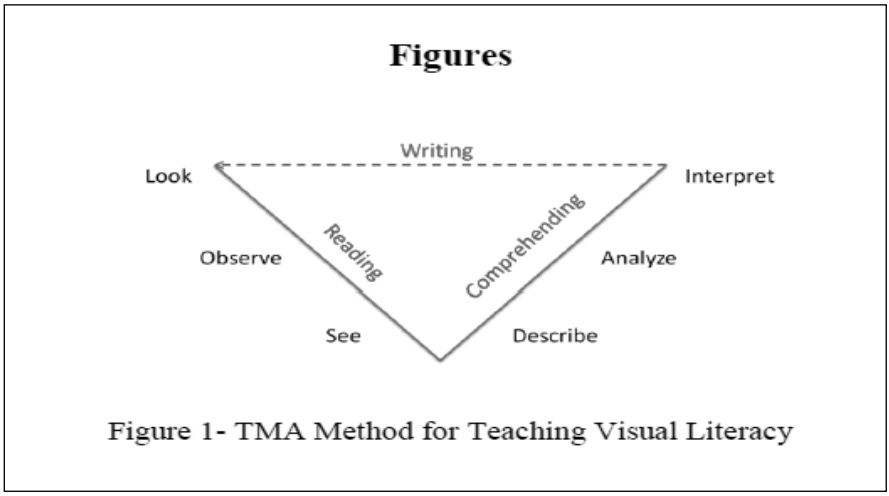
In this article we will not go into great detail about the range of different approaches to visual literacy, but rather will talk about the subject in a less academic and more direct and spontaneous way. In a series of conversations, we will highlight some (but certainly not all) aspects of visual literacy. We will show that art is a specific tool that not only invites us to use our visual literacy competencies but at the same time helps us to question and analyse the very act of seeing. Through these conversations, we will also question how a specific context can support the development of visual competencies; the place where art is shown as that specific locus with a strong emphasis on the visual – and, as we will illustrate in this paper, this can be a museum but also a chapel or metro station.

The art museum: a place for leveraging the visual literacy curriculum?

It is only recently that museums have started to use the notion of visual literacy and started to build a pedagogy around it. Especially since the turn of the millennium, various museums and academics have started to think about what the goal of educational efforts in art mediation at museums or art education at schools could be. Triggered by the initiative of Museum M in Leuven (Belgium), the Toledo Museum of Art (USA), KU Leuven (Belgium), and ENViL (the



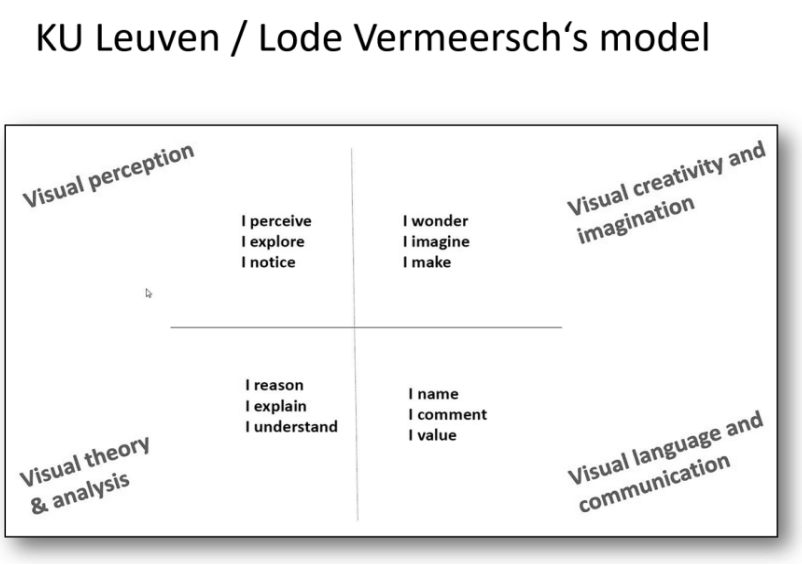
Picture 1. ENViL (Wagner & Schönau 2016)



Picture 2. Toledo Museum of Art

European Network for Visual literacy) came together to start a joint reflection on this topic. Each group brought their own basic theoretical model covering the elements of visual literacy.

Invited by Museum M and Pinakothek der Moderne Munich, workshops and conferences were held to work with these models in order to gain a better understanding of what art education at



Picture 3. Museum M/KU Leuven (based on Vermeersch & Vandenbroucke, 2015)

a museum could mean and to develop ideas for how the concept of visual literacy could be adapted to the specific context of a museum, taking into account the design/curation of the display, the concepts of the educators, and the interests and abilities of the visitors.

Four conversations on visual literacy and art

The rest of this article contains transcribed excerpts of four stand-alone conversations among four people who are strongly involved in this ongoing process. Tedi Asher is an art museum neuroscientist at the Peabody Essex Museum (USA), Peter Carpreau is director of the Old Masters Department at the M Museum (Belgium), Lode Vermeersch is a senior research fellow on arts and cultural education at the University of Leuven (HIVA-KU Leuven, Belgium), and Ernst Wagner is a lecturer and senior researcher at the Academy of Fine Arts in Munich (Germany); he also co-founded the European Network for Visual Literacy. Inspired by four different images of artworks (three of them personally photographed by three of the participants), these four scholars share their personal ideas, observations, and questions on

Picture 4. Charles Sandison, Figurehead 2.0, 2020, Boston, installation view (Photo: Brian Kennedy)

how to handle artistic imagery today. The aim of these conversations is not to answer one specific research question or to build a framework for visual literacy, but to invite the reader to join this dialogue on how to turn the act of seeing an artistic image into a meaningful experience.

Lode: We only see things because of the light that is reflected off the objects around us and subsequently bumps into receptors in the back of our eyeballs. Without any light we see nothing. Being visually literate starts with that contextual condition, a condition we usually only think of when there is not enough light to see what we want to see. Most museums, however, are well aware of the huge impact of the illumination of a room or the lighting of a specific artwork. In the case of this artwork, the artwork *is* the light as the work involves a number of projectors projecting data onto the museum walls, floor and ceiling. They create a starry nebula of codes, words, and images. The fact that the projections are oriented in different

directions forces the visitors to look at the artwork in a very specific way. The visitors step into the work of art and are inevitably also lit by the rays of light. This makes them part of the work, but it also shows that not only are they looking at the piece, but the artwork also seems to be looking at them. For this experience the word 'immersion' is often used. In terms of visual literacy, immersion occurs when people say: "I don't know what to look at first!" However, to me, this is an important element in becoming visually literate: deciding what you want to see. In his seminal work 'Ways of seeing' John Berger describes it this way: "We only see what we look at. To look is an act of choice." (Berger, 1972) In a work like Charles Sandison's, it is hard to make that choice because so many things happen at the same time. Fortunately, our eyes and brains are fast. And they have to be, because they have to do more than absorb and interpret the light that is caught by our eyes. In the act of seeing, we also "situate ourselves in relation to what we see", Berger claims. So not only do we perceive the light, we also connect it to one or more narratives (based on our knowledge, our stories, our intuition, our memories, etc.). In other words, the artwork surrounds us with bundles of light as much as we surround the artwork with bundles of narratives.

Peter: The idea that we choose what we look at is a very interesting element in the concept of visual literacy. And, indeed, we link what we see with other elements in order to be able to give an interpretation. However, we should be aware of the powerful unconscious dynamics in this process. The act of seeing is in large part directed by one's interests and other elements, some of which one may not be aware of. Eye-tracking research demonstrates that both viewer interest and the context of the visual experience can inform our perceptions without our awareness.

The same can be said of meaning-making processes. It is accepted that people make meaning of something in the form of a narrative. Yet the construction of a narrative implies a kind of conscious awareness. However, images, and certainly art, actually appeal in large part to our intuitive mind. Research indeed shows that we have one part of our mind that navigates us though the world in an automatic way, and a second part that works in a more conscious and rational way. I do believe that a large part of our visual processing through which we make meaning is done in an automated way.

Close to the left wall of the room we can see four sculptures. We can also see the architecture of the room. But all these real and material elements are covered by the digital images of the installation. The two spectators in the lower left corner of the picture are looking at both the material and the intangible images in the

room. We can see that the woman is holding a smartphone and is about to take a photograph of the room. In doing so, she reduces a spatial and sensorial experience of material and projected visuals to a mere photograph that certainly cannot capture the embodied experience of the installation. It is not unthinkable that she is aware of the fact that her photograph is a very flawed and reduced copy of the reality, but she's recording this moment so that she might remember it later. Upon viewing the picture later, she may have not only a visual experience, but a multisensorial one, because the picture will unlock the memory of the multisensorial and spatial experience that she had in the museum. This is a real-life illustration of the ideas of the French phenomenologist Maurice Merleau-Ponty: the importance of the body in the act of perception (Merleau-Ponty 1945).

Ernst: If I see it right, Lode and Peter propose different 'literacies', the ability to be immersed (Lode) and the ability to stay out (Peter). Lode's concept of immersion refers to the experience of a work as a poetic space enveloping the visitor, allowing them to dream in space rather than discursively pinning the art work down. Only then can the poetry of a "night sky full of stars" come into its own. The movement of the (dematerialized) space around the visitor makes the body light. His perception changes to a diffuse blur, there is no sense in selecting discrete points of focus. In order to experience the work in this way, the visitor must surrender. He must be able to open himself to the sensual experience.

Peter, on the other hand, emphasizes interest-led attention which sets mental activity in motion. With Sandison this may actually make sense here and there, for example when one discovers an interesting detail that one wants to follow, but which one cannot follow because it disappears, again as we see in PEM's video (PEM 2020). This transience in the artwork highlights the critical importance of the viewer's own receptivity to dynamic engagement. The literacy needed here is thus the ability not to fixate, but rather to be immersed, to be touched, to consciously give up cognitive control.

However, the viewer needs to know a great deal in order to understand the complexity, the depth of the work beyond this immersion: the history of the museum building, the history of Salem, the mechanisms of the computer codes, the origin of the pictures and writings, the allusions of the title. Knowledge, however, is first of all the control of cognition over the senses. But even here, no meaningful focusing can take place. The iconographic, decodable meanings do not meet in one interpretation, one thesis, but rather generate an associative shimmering in an iconographic decentralized network.

Perhaps the literacy we are looking for is the ability to switch between the two modes, the mode of sensual immersion emphasized by Lode and the mode of focusing cognitive penetration emphasized by Peter.

Tedi: This conversation articulates the multiple facets that underlie "an experience". Lode addresses a visual experience as a product of the individual and the external context influencing one another. Peter addresses the multiple processes *within* an individual (cognitive, emotional, embodied) that cumulatively constitute their contribution to the engagement. Ernst highlights this latter juxtaposition between the contributions of an individual's cognitive knowledge and embodied knowledge, and the ability to "switch" between them, as central to the notion of visual literacy.

This discussion leaves me wondering about the centrality of this *multiplicity* (lack of a singular cohesion) as core to the concept of visual literacy – what it is, how to practise it, and why. Perhaps there is a parallel between one's experience of the Sandison piece and one's experience of visual literacy. As Ernst wrote of the former, "the iconographic, decodable meanings do not meet in one interpretation, one thesis, but rather generate an associative shimmering in an iconographic decentralized network." Perhaps it is an awareness, willingness, and know-how to loosen our grip on the expectation that there is *a* (one) representation of visual literacy that is key to formulating a functional and relevant framework for it. The metacognitive factors and dynamics expounded upon in this conversation may be useful strategies for how to go about engaging visual literacy in this way, but might not themselves equate to the notion of "visual literacy".

Tedi: This image captures the perspective of someone (presumably the wearer of the shoe) whose view of the gallery below is obscured by opaque white spots on the intervening glass floor, which effectively filter out bits of the observed scene. By contrast, the people in the gallery are depicted as unhampered by any such perceptual obstructions. In fact, the interaction among multiple perceptual "filters" shapes the nature of any given perception, giving rise to the vast variability among human perspectives. These filters take many forms: the kinds of information relayed by the engaged senses (e.g. light, sound, texture); the allocation of attention; thoughts, feelings, and behaviours; the perceiver's background and past experiences.

Given the immersive fast-paced way that we move through the world, we often experience our idiosyncratic perceptions as "reality", without consideration of the implicit subjectivity or the perceptual processes that shape it. To account for the relative nature of any reality requires a metacognition of sorts – a de-

Picture 5. Riga, Latvian National Museum of Art (Photo: Ernst Wagner)

liberate attempt to *perceive perception* (a "metaperception", so to speak).

This image leaves me pondering the significance of the apparent contrast in awareness between the wearer of the shoe and the people he observes in the gallery. What role might such "metaperception" play in shaping the way we engage with the world around us – works of art, one another, the environment – and with our own fundamental understanding of "reality"?

Lode: I agree, Tedi. Reflecting on our own perception and the perception of others is without a doubt an important component of visual literacy. It allows us to place our perception in perspective – perhaps the way we see the world is not the way someone else sees it? It also implies that we have to understand that looking is not just a matter of objective perception, but of personal creation. We may think the shoes in the picture are the shoes of the photographer, but are

we really sure? We continuously recreate the image we have of the world, or, on a smaller scale, the image we have of a museum or a work of art. In other words, there is something fundamentally subjective about visual perception (and all other forms of perception), and it is important to reflect on that from time to time. "You can never step into the same book twice, because you are different each time you read it," John Barton famously said, and perhaps we could say the same thing about the visual arts.

That being said, this meta-perception is clearly not easy. It is like trying to bite your own teeth. How can we create enough critical distance to scrutinize our own process of perception? How can we assess the knowledge yielded by perception? And what can museums do to help that process?

Peter: I have the impression that a few of the most fundamental questions of epistemology are raised here. What can we know and how can we know it? It might be interesting to tackle that question from a visual perspective. Let's say there are different stages through which we achieve knowledge through visual experience. First you have the pre-critical stage: you see the picture and you give it a meaning without being aware of how this meaning is constructed through your own filters. In this stage you are at the mercy of the rhetoric of the image. In this image that would mean that you see the foot, an element that is very present in the image, and immediately assume you are looking through the eyes of the photographer. You don't immediately pay attention to the reflection of the person in the glass floor because the first thing you do is try to see what you think the photographer is looking at. That's why, as Tedi already stated, you filter out the white dots on the glass and immediately focus on the room underneath. You immediately believe that it is a museum room under the glass, yet you probably did not notice the labels next to the paintings. And so on.

The second stage is metacognition. In this stage you are aware of the way meaning is created. You have a trained brain and you understand that your own circumstances determine what you see and understand in this picture. Like Lode, you question if we are standing in the shoes of the photographer. You consider all the possible options. You also take into account your own preferences that made you think the photographer was male (for you identify the shoe as such) and consider all the other logical options (maybe the shoe was worn by a woman). Ultimately, you will have scrutinized the picture and your response to the picture so extensively that you probably end up with more questions than answers. You question whether you have gained knowledge and what knowledge that would be. The knowledge you have gained will be the result of a rational

and reasonable process of your logical consciousness. Congratulations, you are fully visually literate.

However, …

I think that metacognition is not the final stage in getting knowledge from a visual source. All experiences are embodied experiences, so this visual image also gives me knowledge of other things, like the hard smooth surface of the glass or the smell of a museum room. So, this must also be taken into account. Yet this is all still a result of the personal experiences you have as an individual. I think an even more intense form of perception exists when one can get past the use of one's past experiences to make meaning of the image. Those experiences are very rare. Sometimes they are described as 'sublime'. It is what Wassily Kandinsky tried to explain in 'Über das Geistige in der Kunst' (Kandinsky, 1911). I believe (and I intentionally use the word believe) that this takes us to a level where words and language are not sufficient any more, for their structure is logical and therefore falls short of grasping the full potential of that experience.

Ernst: Sometimes I stop on the street because I see someone looking at something, spellbound. It remains a mystery to me what he is looking at, but I imagine what he is seeing. I have this experience again and again in museums. In the early 1990s, the artist Thomas Struth created a wonderful series on the subject of "looking in museums" (his cycle 'Museum Photographs'). On the first level, as articulated by Peter above, this picture shows such a situation – albeit disturbed: a photographer is photographing a gallery space below him. Some museum visitors are gathering; presumably a guided tour is about to start.

In exhibitions, I especially like visitors who often change their distance from the object, exploring different spaces. Their body tone changes in the process. Their gaze is visibly curious, open, discovering. When I observe such visitors, I perceive the 'encounter between' the work and the viewer, the tension that exists between them. This is often much more interesting than the work alone. The person and the work are in resonance (Rosa, 2019). Seeing becomes the creation of the work, as Lode writes, and the work arouses the viewer.

This 'encounter between' is perhaps also what Tedi says about the photo, addressing what lies between the photographer and the observed situation: it "captures the perspective". A view, a dynamic relationship, something immaterial is grasped. This addresses the level of meta-perception (Peter's second level).

An unrealistic proposal for the further development of the concept of visual literacy: the highest form of visual literacy is when I see attentive observers in a museum looking at a work and I can guess what kind of work they are looking at. Imagination, i.e. the 'creation'

Picture 6. London Underground, Henry Moore and 'found cat' (Photo: Lode Vermeersch)

of the work from the observation of the 'encounter between'. In the observed observer (who becomes a 'medium' that intertwines me and the art work) the difference between the work and me is cancelled out.

This is perhaps what Peter means by a "more intense form of perception". The multiplication of perspectives and at the same time the understanding of seeing as creation, as Lode called it. The photo shows that there is still a long way to go – like a metaphor: "The view of [the people in] the gallery below is obscured by opaque white spots on the intervening glass floor (…)" (Tedi).

Peter: Although it does not seem like it at first glance, this is a very complex image. We see a photograph of a painting of a sculpture by Henri Moore (Recumbent figure, 1938) on a wall in the London Tube, which implies three different media. Another complexity is the pictu-

red space. The initial image is a sculpture. This was transposed onto a 2D surface by the painting. Yet the railing in front of the painting or the lightboxes unintentionally act as a *repoussoir*. Finally, it is all flattened again by the photograph. So, we have a 2D photograph of a 3D wall on which we see a 2D painting of a 3D sculpture. A last fascinating aspect of this picture is the 'Found Cat' sign.

These different visual layers highlight different layers of meaning. The sculpture and the painting refer to a 'classic' artistic tradition. The elements that identify the layer of the tube station wall, like the 'Found Cat' sign or the railing, inspire a more popular image approach. The 'Found Cat' sign extracts itself out of a cultural meaning and infuses the picture with a more prosaic meaning (someone found a cat). The composition as a whole tells us something about the intention of the photographer. We see the sculpture/painting as the most striking part of the image, but the 'Found Cat' sign is almost in the middle of the 'composition', standing out in part thanks to its very striking colour. The photographer was clearly triggered by this opposition between 'high' art, 'popular' culture, and the prosaic. Therefore, his picture leaves us little choice but to also question the photographer's juxtapositions.

Ernst: What Peter did in his text is the celebration of a highly reflective approach to visual phenomena. He alienates an amateur's photo by declaring it a work of art. This allows him to analyse its composition, mediality, motifs, and references. (It is interesting those aspects that he omits in the process, such as the iconography of the elements in the picture, e.g. the recumbent female figure.) Then he superimposes an intention of the photographer, to avert something that turned him on. Very sophisticated, indeed.

I am tempted to undermine this strategy. After all, the photo is documentary – and not a work of art. We see a typical Underground exit, probably near a museum. On the tiles an image of a Moore art piece: presumably advertising for the nearby museum and at the same time embellishing the exit. The workmen probably screwed the railing into it later, disrespectful and ignorant of art. This breach of taboo makes it possible to make Moore a cat-finder. Graffiti would then be expected.

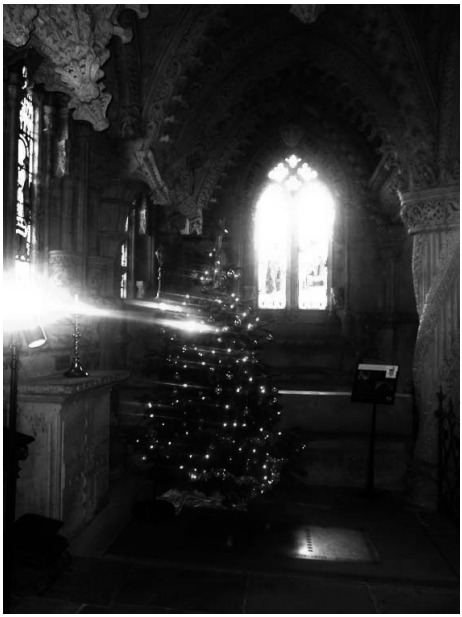
This context for the painting reveals the simple banality and at the same time the tristesse of art representation in public spaces. What makes the picture interesting nevertheless is that the way Moore's work is perceived by passers-by hurrying to the Underground is probably very similar to the way originals are perceived in a museum. The inscription "Henry Moore" in the upper right-hand corner reinforces this effect: as we know from visitor research, visitors look at the sign next to the work longer than at the picture itself.

Tedi: Looking at this image for the first time involved my own process of distinguishing the 2D from the 3D, and establishing confidence in my conclusion. Brief though it was, there was a split second in which I perceived the Moore as volumetric. I think part of this impression came from an early glance at the bottom left corner of the photo, where the black paint designating the side of the sculpture's platform was indistinguishable from the black band running along the bottom of the wall. So, initially, I saw an actual platform sticking out from the wall. My understanding changed as I looked to the right and observed the spatial relationship between the grey platform front and the black strip. The linear alignment of the wall tiles and grouting supported this latter observation; they wouldn't appear so linear were they part of the sculpture's curvy surface. I subsequently noticed the overhead lights and their glimmer on the black rail, corroborating my growing suspicion that there was in fact no sculpture.

This experience, at most a couple of seconds, tickled me. I caught myself in the process of perceiving my own perceiving process; a humorous and eye-opening experience. Who knows what commuters see as they walk this corridor? But, isn't there something meaningful in offering Tube-goers a chance to experience their own experience, to smile and laugh to or at themselves and/or to ponder *how they know* what they are *certain they know* for the next couple of blocks?

Lode: Thank you for your reactions to my photo, Peter, Ernst, and Tedi. Your responses cover a lot of possible perspectives on one and the same image, and also offer three different ways to look at this one image. Inspired by what is depicted here, it is interesting to peel back the different layers of the image, an image that mixes 2D and 3D in such a way that it might even function as a trompe l'oeil painting for just a moment. At the same time the image is also clearly part of the big city life in London. It is a painting on the wall of an Underground station, where people rush by every hour of the day on their way to work, to the shop or, perhaps, to the museum. The difference between the uneven and rough surface on which this painting is executed and the clean museum room where the real work by Moore can be seen (Tate Britain, just a few blocks away from where this picture was taken) could not be any bigger. With the fluorescent light fixture above it, at the top of the picture, the scene can probably best be described, as Ernst does, with the word 'tristesse'. Only the fact that a lost cat has been found and that someone made the effort to put up a poster to find the owner might brighten up this dreary scene.

But that is not the reason why I took this photo on an early January morning in 2020. I took the photo because I was



Picture 7. Rosslyn Chapel, Midlothian, Scotland (Photo: Peter Carpreau)

surprised by the fact that, like cats, references to art can be found anywhere, also in places where one would not expect them. So, I was indeed triggered, as Peter suggests, by some kind of opposition or strange juxtaposition that grabbed my attention (art/tube, sculpture/cat). Although quickly glancing at this painting is in no way to be compared with a real museum experience, it nevertheless might, as Tedi says, open the eyes of the commuters, reminding them that the next thing of beauty might be just around the corner.

Ernst: Not a good photo. The backlight. Clearly the worst photo of Peter's suggestions. And yet I chose it. The light dazzles: A spotlight on the left, daylight through the window. It is unpleasant to look at, repellent. Against this light a room bathed in darkness – like a cave. A room on a human scale. Hardly noticeable that it is fantastically and exuberantly decorated. The candles on the Christmas tree glow gently, the stone loses its hardness. In the room, no human being; I can enter even if the light dazzles me. Kitschy memories: Christmas,

childhood, family, magic spaces of the imagination in a dark night.

But why did I choose this photo for a text on visual literacy? For me, the picture is more than an individual memory, it symbolizes rather a collective experience: the often painful crossing of a border, the entering into another space, into which I can immerse myself, after overcoming the glare. This reminds me of initiation; thus I chose this photo. I understand initiation is a 'rite of passage' marking a process of transformation in which the initiate is 'reborn' into a new role or state of consciousness.

Is the approach to a work of art not quite similar? As a 'visually literate person' I have to overcome the border, the blinding, the rejecting, the threshold, in order to immerse myself in the work. This is a physical experience where visual literacy has a place, but it is not enough.

Tedi: The room in the image is 'like a cave', conjuring Plato's Cave and the inherent linkage between idiosyncrasies of perception and reality. For me, Ernst's reference to a "rite of passage" that transforms an individual "into a new role or state of consciousness" points to the process of incorporating another's perceptions/reality into one's own. To broaden one's perspectives in this way, one must "overcome the border, the blinding, the rejecting, the threshold, in order to immerse [oneself] in the work".

When broadening perspectives, one might conceive of a "border" separating one's own and another's reality, creating an antagonistic divide that may catalyse a protective "blindness" to the latter. This blindness hinders consideration of the alternate perception/reality, leading to the "rejecting" of it. Overcoming these obstacles requires a certain magnitude of effort to facilitate the "painful crossing" of the border ("threshold") into that "new role or state of consciousness".

Ernst concludes that "visual literacy has a place" in this endergonic (energy-absorbing) process, "but it is not enough". The term "literacy" references *abilities*, which are often based on (context-specific) knowledge/understanding. He characterizes this process as a "physical experience", positing the insufficiency of knowledge/understanding derived solely from cognition without corporeal processing to carry any individual across the transformative threshold.

I wonder about the merits of (visual/perceptual) literacy education that is grounded in cultivation of *self-literacy* – an understanding of how we as humans and individuals process our experiences into knowledge/understanding. Might self-literacy enable navigation across thresholds that separate our own reality and that of *any* other?

Lode: In my opinion, the answer to your last question is yes, Tedi. One must have insight into the perception process in

order to experience that one's own reality is not equal to another person's reality. Visual literacy is therefore certainly more than a physical activity, it is also a cognitive process that is influenced by both personal memories (kitschy or not) and broader processes of enculturation. So, when we see a Christmas tree, we inadvertently take a dive into our own childhood memories, but the meaning also depends on what our Western society has made of that holiday (a celebration of consumer capitalism). In other words, a Christmas tree is never just a Christmas tree. And through attributing meaning to the image, we also develop a sense of self. This self-literacy is, to me, an important aspect of visual literacy. It refers to the moment when a personal preference or culturally shaped taste or habit turns into an educated understanding of what we see and why we see what we see. This moment of questioning yourself is sometimes painful, of course, like staring into a bright light. And like all moments of initiation, it might be preceded by some hesitation, it does after all take some courage to step into a cave like this. But the result is worth the effort: a new form of seeing that is more detached and contemplative, or as Alva Noë calls it, 'aesthetic seeing' (2015).

Peter: When I took this picture at Rosslyn Chapel, my first concern was the contrast between the marvellous architecture of the chapel and the banality of the Christmas tree. Or how an almost mythical place can be demystified by something as vulgar as a Christmas tree and all the commercial and kitsch connotations that come with it. One must also admit that the mystique of the chapel is also enhanced by popular culture. So, that created an interesting tension.

In the discussion above, other elements are associated with this picture. A first and very important distinction is the fact that I, as the photographer, was physically present in the room, whereas Lode, Ernst, and Tedi are seeing it through a dreadful photograph. Curiously enough, it is exactly this horrid image that sparks the discussion about the physical aspect of visual literacy. Ernst talks about overcoming a boundary in order to be able to get immersed in the image. Ernst describes this as a 'physical experience'. Tedi turns this idea towards the intersubjective space. Or the elegant idea that one must understand one's personal perceptual experience in order to understand the reality of the other. Lode links this understanding of a personal perceptual experience to the understanding of the construction of the self, partly from memories, partly from broader processes of enculturation. And it is always difficult to scrutinize one's self honestly.

The most remarkable feature of the discussion, for me that is, is the element of 'pain'. 'Pain' is used in different ways, from emotional unease to physical pain.

It brings a notion of embodiment to the table. The ideas of Merleau-Ponty are still very relevant today. The mention of Alva Noë by Lode is a good example. Noë takes a stand against the approach that only focuses on the brain and not on the rest of the body.

Conclusion

The previous models of visual literacy, addressed in the introduction, assume too much that there is the visitor (as a subject) who has to become "literate", and that the works of art (as objects) provide the occasion for this. However, this view does not do justice to a more complex interaction between work and viewer. We propose this latter resonant relationship here as the primary goal of education in a museum.

In educational processes (thinking of e.g. an inattentive school class full of pubescent kids) this is, of course, difficult to achieve. To convince those kids requires metacognition, which could be achieved by observing others in the museum. The students will relate themselves to these others automatically. In this way the perspectives multiply and seeing becomes creation.

To come back to the concept of visual literacy, we understand it as one channel through which we pursue "resonant relationships" – with people, objects, art works, our environment. All agents in such relationships reciprocally impact on one another, such that each leaves in some way changed relative to when they entered the encounter. Fundamental to this notion of resonance is that it cannot be forced. An *unwillingness* or *hesitancy* (conscious or not) to engage in an encounter with an art work in a productive way is not the same as a *lack of ability* to do so or a lack of visual literacy.

Therefore, in our own quests for such resonance, and in our efforts as educators and museums to facilitate experiences of such resonance for students/visitors, we cannot convey specific recipes or protocols with which to reliably and universally reproduce it; we must instead explore, identify, and create conditions favourable to the emergence of resonance. The main condition is that curators and educators know (explicitly) what kind of interaction they want and thus which model they apply. With this in mind, the objective of this article was *not* to articulate a newly formulated model of visual literacy, but rather to articulate elements of visual literacy unaccounted for by existing models (introduced in the beginning) that may be critical to cultivating resonant experiences with art, as long as our educational goal is to instigate this experience of resonance.

The fundamental question at hand is how to deal with the uncertainty that often arises during encounters with art, and how museums can support visitors in productive engagement with these

experiences. Our approach to addressing this question offers an understanding of what visual literacy (in museums) could be: an exploration of perspectives and understandings the nature of which is dependent upon both the *context* in which it occurs and the *characteristic features* of those participating.

Retrospective analysis of the four image-inspired conversations found above reveals (at least) four elements critical to the concept of visual literacy that remain to date largely unaddressed. These elements consider visual literacy as…

(1) … a product of the constructive/creative act of seeing;
(2) … informed by embodied experience;
(3) … reflected through metacognition;
(4) … acknowledging an encounter between two active agencies (that of the art work and that of the observer).

As reflected in the conversations presented here, each of these elements can be examined and understood from the perspective of different disciplines that, when interwoven, have the potential to provide composite views of visual literacy that offer unprecedented insights into *what* it can be, *how* to practise it, and *why*.

As researchers, educators, and practitioners continue to push at the edges of the visual literacy field, expanding into a multidimensional frontier, we propose consideration of a broader view of visual literacy. Rather than a concept defined by a static set of elements articulated in a single model or theoretical framework, might there be merit to the notion of visual literacy as an instance of Wittgenstein's resemblance family (Wittgenstein, 1953), with any given manifestation of visual literacy reflecting some, but never the same set of, elements characteristic of the concept itself? Embracing such a fluid and dynamic conception of visual literacy may imbue it with enhanced resilience, allowing it to evolve continuously and iteratively. Thus, it would possess adaptive capacities that may endow it with sustained relevance and utility within and across dynamic contexts and practitioners.

We invite readers to engage their duty to carry on the conversation(s) initiated here – in classrooms, universities, and museums; to explore, identify, and develop new elements and perspectives of visual literacy that will collectively drive its continued evolution. These contributions will, on the one hand, enrich our understanding of engagements with art works (e.g. what happens in a gallery) and will, on the other hand, advance the educational goal of making the experience of resonance accessible for as many people as possible.

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Kmentová, Milena. *Musical and Speech Expressions of Preschool Children and their Mutual Influencing.* Prague: Charles University – Faculty of Education, 2015. 80 pages. ISBN 978-80-7290-869-1

Sound expressions and speech communication are the most immanent manifestations of human beings. However, if we consider the sound expressions of humans in their entirety, we cannot include only speech but also musical expressions. Speech and music are extremely closely linked, as they are both used as means of communication. This is despite the fact that each of these systems features primarily communicative and aesthetic roles to different degrees. Speech and music accompany people from their birth, though once again to different degrees in their different roles – from perception to the production of sound expressions. It is therefore logical that Milena Kmentová dedicated her publication to the presence of both these phenomena in preschool children. The publication is the result of a three-year scientific project focused on research on the interconnection of speech and music while they are being acquired. The research was aimed at proving the potential of this process and its effectiveness.

The author devotes the first half of the book to theoretical aspects of the issue under research. She builds on the current knowledge of the relevant phenomena and specifies which knowledge related more closely to the needs of her research. First, the author focuses on definition of the key concepts: the central concept constitutes a human with their sound expressions. The parameters of sound expressions can be revealed in both speech and music. This is why Kmentová deals with the characteristics of these relationships in the following part of the publication, claiming that unlike musical notation, these means in the form of what is called the paralinguistic component of speech are difficult to detect or are unrecordable. And yet their role in the first stages of life is the most important thing a child can perceive in communication. Related to this is the

classification of hearing as a sense for phonemes and timbre, the properties of which show that they develop to a large extent separately, and therefore do not imply a direct effect between speech and the recognition of music.

The theoretical background of the publication further includes a chapter devoted to the neurophysiology of musical and speech expressions. The definition and characteristics of auditory attention refer to a phenomenon encountered both by teachers and parents or even those who come into contact with adults in various situations. It is basically a matter of concentration and response to sound stimuli, factors that are indispensable for upbringing and education. The treatise on the neurophysiology of musicality refers to the research that has demonstrated that musical activities are not exclusively a matter of one cerebral hemisphere. Musical activities thus contribute to the overall development of perception and thinking, as well as to the correction of neurophysiological defects. This complexity, which is due to the interaction of both hemispheres (with the author referring to the latest research), is reflected, amongst other things, in the perception of speech. Languages based on intonation, i.e. on the principle in which melody is the carrier of verbal meaning, create particularly favourable conditions for the perception of music and especially of pitch.

Further on, the author examines the ontogenesis of children in terms of the development of musicality and speech and deals with disorders in both these areas. She refers to the statement of Ivan Poledňák on the relationship between amusia and problems with speech comprehension. Kmentová nevertheless distinguishes between permanent amusia and developmental delay. She focuses on the issue of language comprehension by children from bilingual families and from environments with a different mother tongue and emphasizes the stress caused by being present in a different language environment. The stress provokes a wide range of reactions and may become a serious obstacle to upbringing and education.

The author devotes a special chapter to the role of music therapy in the correction of speech disorders. Referring to proven sources, Kmentová reminds us of the role of the subject area in the relief of speech imperfections, as well as specific learning difficulties. These disorders are caused by numerous psychomotor factors, and music therapy provides opportunities to find a positive relationship with one's own self, one's own body, and one's surroundings, and to reconcile these factors. This is one of the reasons why, according to the author, inspiring with music therapy can be used in upbringing and preschool education. However, the author considers similar inspiration to lie in the linkage of music education with the speech the-

rapy – specifically music activities with graphomotor exercises. Here, however, she realises that the originally Polish version of the method requires a qualified adaptation to the Czech environment. (In this context, there is a parallel with the transformation of another system, namely the system of music education. The original "Schulwerk" methodology by Carl Orff could not be applied in the context of Czech music education and had to be adapted by the leading Czech composers and pedagogues Petr Eben, Ilja Hurník, and Vladimír Poš.)

The second half of the publication presents experimental and basic research focused on music as a means of cultivating speech in preschool children with atypical speech development. The author used a methodology based on musical expressions featuring the means of expression that correspond naturally with the means of speech. In improvised or imitative musical expressions, the pupils, especially those with a different mother tongue, were strengthening grammatical categories, phonemic norms, and the meanings of words (short tunes, for instance, explained what is good to eat and what is not). The author researched these linguistic musical plays. She focused on the diagnosis of musicality and speech skills on a rating scale from zero to four. She monitored traditional musical skills while involving children in musical activities and their speech skills alike. The music test involved tasks examining comprehension of linguistic expressions (colours, body parts) and monitored the child's sensitivity to pulsation and rhythm, adherence to the key, and singing expression. In the speech test, the ability to form sentences, activate vocabulary, express oneself, engage in a conversation, express oneself fluently, and distinguish vowels and the meanings of words conditioned by the differences between them (e.g. gum – game) were monitored. The results of the tests confirmed the interconnection of singing and speech skills. It turned out that children with speech problems faced difficulties in singing too. Children with speech problems also start to sing spontaneously relatively rarely. On the other hand, these children often resort to playing on their body or on musical instruments if they want to express themselves through music. The tests proved the importance of training too. The musical games learned by the children later led to their elementary independent manifestations. The conclusions of past musical-psychological studies have also been confirmed, specifically that there are generally very few truly non-musical individuals.

The author drew conclusions and recommendations for educational practice from the findings of the basic research. Restricting musical activities to mere singing does not meet children's abilities or needs and hinders the development of their musicality. However,

singing education with an emphasis on speech and linguistic expression remains irreplaceable.

In her experimental research carried out in a special nursery school for one year, the author monitored the effect of her methodology on the development of speech and musical skills. The results confirmed the progress of the children's musical and speech skills, as well as improvements in the field of phonemic differentiation. It turned out that music can play an important role in the cultivation of speech skills, though the path to such cultivation leads through listening and instrumental activities. These have the potential to prepare the mental and motor skills for what is the most characteristic (and sometimes also the most difficult) feature of humans, namely verbal expression.

The publication surveys a research study carried out in the age category where personal development begins. It focuses on skills that have a far-reaching impact on a person's inclusion in society. Though this aim is primary and indisputable, it also takes into account other, broader contexts of the issues under study. Each chapter is introduced by a statement made by an eminent personality – a psychologist, philosopher, writer, or actor – or by a popular saying. All these statements relate to music, but above all to humanity. They confirm that exploring the preconditions for verbal expression and music represents a significant help in the journey through life.

Michal Nedělka

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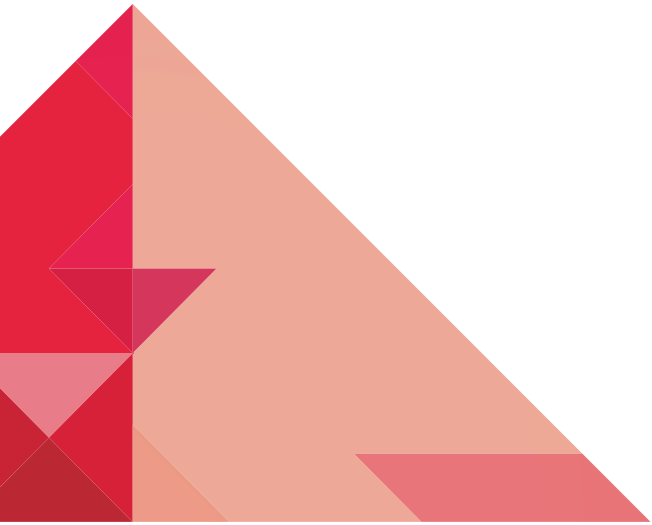

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