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Special issue on
Multimodality in Education

edited by
Maria Papadopoulou and Maria D. Avgerinou

Maria Papadopoulou and Maria D. Avgerinou	Introduction-Multimodality in Education
Arlene Archer	Recognition of diverse students' experiential and multimodal resources for access
Aleksandr Fadeev	Vygotsky's theory of mediation in digital learning environment: Actuality and practice
Sophia Goria	A framework for developing preschoolers' critical viewing of multimodal texts in formal educational settings: The case of commercial videos
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Inesa Sahakyan	The impact of multimodal learning environments on the development of creativity

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INTRODUCTION
Multimodality in Education

Maria Papadopoulou and Maria D. Avgerinou

Since the mid '90s when linguist, semiotician and social theorist Gunther Kress introduced the term Multimodality in the context of the seminal Multiliteracies project, new educational discourses have emerged, evolved and impacted both theory and practice. Multimodality foregrounded the notion that learning is not only a linguistic accomplishment, but is also linked to the dynamic interrelationship among the different semiotic modes of meaning, such as the linguistic, the visual, the gestural, the spatial or the audio mode, which individuals can draw on to derive and produce meaning.

More recently, there has been a strong, ongoing interest in applying multimodality in educational practice. The development of students' multimodal literacy skills has gradually been introduced in the school curricula in the areas of language, history, arts, math and science education, as it encompasses nearly all subject areas. Similarly, it has been used as a framework for the analysis of textbooks, learning resources, and student-created multimodal productions, as well as for the understanding of classroom interactions. However, as learning occurs not only in educational settings but in many other instances of everyday life, exploring the ways people learn multimodally is not restricted to school classrooms. In formal and informal educational contexts, from pre-primary to tertiary education, the attempts to change the dominant linguistic paradigm and adopt a multimodal perspective has produced especially fruitful and even fascinating results.

Nevertheless, the aforementioned impact of multimodality on education is not unanimously embraced, and often not even recognized as a quite different approach to learning. In many cases, multimodality constitutes just an 'extra', a minor component in the learning process, without sufficiently challenging the dominant paradigm. Yet, multimodality could be proven useful for bridging the school and the out-of-school experience, that is, students' informal ways of learning and the formal educational practices, thus providing an authentic, seamless, and well-integrated education, while enhancing students' autonomy and supporting their active engagement in the learning process.

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This special issue of Punctum on 'Multimodality in Education' aims to contribute to the investigation and the understanding of the impact of multimodality on contemporary educational theory and practice and, by implication, to the development of multimodally literate students.

The issue starts out with Arlene Archer's paper who questions the standard assessing practices for not recognizing and acknowledging the resources that students bring with them to school and for overvaluing some resources, such as oral and written competencies, over others. Based on Halliday's (1978) social semiotic theory and, particularly, on the notion of 'metafunctions', she proposes a social semiotic framework for assessing texts across modes. She also outlines a number of principles for recognizing the students' resources aiming at making classrooms more democratic and inclusive.

In the following article, Aleksandr Fadeev uses Vygotsky's theory of mediation to address the challenges of forming a holistic approach in the analysis of digital learning environments. The author discusses whether, and how the simultaneous representation of artistic texts through various digital media shapes the process of learning and teaching. Particularly, he explores the role of inner speech in mediation of the study material in the digital platform 'Education on Screen' that proposes digital ways to engage in literature, history, social and culture studies in terms of school curriculum.

As part of a larger, on-going research, Sofia Goria's study sets out to present and establish a framework for teaching multimodal literacy in early childhood education. For that reason, a proposal for assessing preschoolers' multimodal products such as their own video advertisements was also included. The researcher's view is that skills related to the comprehension of multimodal texts' meaning, structure and effects could be assessed through conventional tools such as grid analysis tools.

In his contribution, Ilias Karasavvidis acknowledges the lack of empirical research examining how novice users utilize color-related effects to communicate meanings when creating digital artifacts. Having analyzed 46 student-created, digital videos, the study concluded that only a small portion of the students utilized effects that adjusted the color of the visual resources, while just three main patterns of color-related effects were utilized: defective, inconsistent, and consistent. As a result, more research is recommended to not only explore students' differential response to color, but also to determine how to best support young people to signify with color.

In the following article, Eleni Katsarou and Konstantinos Sipitanos argue that multimodality, especially its social semiotic approach, can contribute to the social inclusion of all students and to fostering of a democratic culture in educational settings. Moreover, it can offer democratic ways to produce, distribute and disseminate knowledge. Having worked with the Knowledge Democracy initiative (Sousa Santos, 2018) in an Erasmus+ Project called Backpack-ID and developed as a bottom-up innovation in participating schools, the authors attempt to

demonstrate, through specific examples, that the students' drawings and digital storytelling can create prospects for social inclusion for all students in the classroom. More specifically, they attempt to illustrate and discuss in detail and through instances of practice, how a classroom, as a multi-semiotic space, can become a democratic space founded on the inclusion of diverse histories, memories, languages, identities and epistemologies.

Maria Koutsikou and Vasilia Christidou attempt a comparative analysis of two multimodal texts about animals aimed at preschool children, to examine the meanings created visually and verbally at the interpersonal and compositional level. Their analysis indicates that the two texts differ regarding the role gradually assigned to the reader (address) and the nature of the relationship developed between the reader and the represented animals (social distance). Moreover, the interpersonal meanings are affected by the positioning of the elements on the page (information value) and their relative emphasis (salience). Different possible combinations of the visual and the verbal means for communicating interpersonal and compositional meanings, are discussed as regards their pedagogical appropriateness, especially as they may promote science literacy.

In the following paper, Susana Liruso, Ana Cecilia Cad and Hernán Ojeda present research results on integrating Multimodality in teaching foreign languages to young learners. Focusing on interpersonal meaning (social contact, social distance, and subjectivity), the authors present three classroom interventions in 'English as a Foreign Language' contexts. The findings of their research confirm that young learners are able to assign meaning to images that could be articulated in the foreign language at the levels of both comprehension and production. Furthermore, the students showed sustained interest while also being highly participative in the tasks provided. The authors conclude that integrating multimodality in foreign language learning can enhance students' communicative abilities, favor language understanding and engagement, and promote critical thinking.

Innovating education in literature through a digital learning platform is the topic of Alexandra Milyakina's research work. Her research took place in Estonian schools, and focused on evaluating the effectiveness of the learning activities as those were supported by the platform 'Education on Screen'. The author supports that the informal, multimodal practices offered to students through the various tools (i.e. tests, timelines, maps, role-playing and world building games) of the platform, engage students in getting acquainted with literature texts via multiple versions and retellings, starting from adaptations in different media and on to memes, comic strips, and posts on social media.

In their contribution, Francesco Piluso and Pier Mario Demurtas question the dominant reflexive bio-reductionist paradigm in medical education that is characterized by a technical language abstracted from the social materiality of the body and the disease. They claim that this paradigm objectifies the patient, supporting at the same time, relations of power. The authors perceive multimodality as the variety of semiotic relationships amongst social actors

(patients, medical doctors, students) and cultural values (health and disease) within a specific context. They present experimental, alternative multimodal practices of medical education in Italy. In addition, they advocate for an alternative multimodal medical education method that should be based on the adoption of multiple modes of sign relation beyond the hegemonic symbolical one in order to overcome the bio-reductionism paradigm.

Rumico Oyama-Mercer discusses the positive impact of multimodality in the reading of literary texts in English as foreign language environments. Students' visualizations on the Hemingway's novel 'Cat in the rain' are analyzed regarding the interpersonal and textual metafunction. The author supports that visualisations are instigated by the readers and that they indicate students' interpretation of the verbal narrative. Rumico Oyama – Mercer claims that a transmodal approach can enhance awareness towards language use and provide a better and more profound understanding of literature.

Producing multimodal texts in school context is a core target in many school curricula. Marina Rodosthenous-Balafa, Agni Stylianou and Liza Pitri present the difficulties 12 to 15-year-old students encounter while creating multimodal artefacts. The authors discuss findings of their research with students working in groups as they address linguistically and visually various dimensions of meaning for the production of their multimodal texts, and subsequently reflect on the production of their multimodal meaning making. The study emphasizes the need to support students through systematic approaches on how to address the different dimensions of meaning in multimodal text production.

Last but not least, Inesa Sahakyan's work seeks insight into the impact of multimodal learning environments on the development of creativity. Her case study is based on a three-day workshop titled 'Creativity and Innovation', and involved first year Master's students. The goal of the workshop was to assist students, through the use of Creative Problem Solving (CPS) techniques, in finding creative and innovative solutions in a real-life problem-solving task. Drawing on the analyses of the learning environment and learners' multimodal productions, this study advocates the need for revisiting traditional learning practices. Furthermore, it suggests that multimodal learning environments can positively impact learner motivation; develop creativity, and foster multimodal literacy provided that learners' awareness of multimodal meaning-making practices is raised through self-reflective processes. Finally, the study highlights the significance of investigating multimodality practice for the field of multimodality research.

We are humbled, honored and grateful to all contributing authors for trusting Punctum with their outstanding work, and for their continued professionalism throughout the long, and demanding publication process. It was precisely due to their invaluable contributions that several aspects of Multimodality in Education have emerged regarding the development of multimodal pedagogies, the design of multimodal learning environments and also the assessment of students' multimodal productions. Moreover, innovative perspectives have been proposed on multimodality as applied and manifested in educational contexts.

In closing, we would like to dedicate this special issue of Punctum on 'Multimodality in Education' to the late Professor Gunther Kress as a small tribute to his life and legacy. In his long, productive and influential academic career, Gunther worked and published extensively on a wide array of topics including pedagogy, multimodality, discourse, power, genre, ideology, communication, and representation. As his academic niche, the Institute of Education (University College London, UK), recognized and celebrated in their own tribute to Gunther, "his ideas were influential beyond academia, across education as well as advertising and graphic design"[1]. Indeed, he was a great pioneer in the fields of critical linguistics, critical discourse analysis and social semiotics. For us, his particular contribution to multimodality, that is, to the notion that there is more to meaning making than the verbal, became the light that provided the direction, helped us navigate our respective academic paths, and fight our own battles in education. We will also remember him for being a people's person, a modest yet passionate man with a big, warm smile and an eager ear for anything new and innovative.

T.S. Eliot wrote that *'we don't actually fear death- we fear that no one will notice our absence- that we will disappear without a trace'*[2]. This will never be the case for Gunther Kress who inspired and guided us all.

Fare thee well, wind of the soul[3]

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1 IOE, June 21st 2019. In memory of Gunther Kress (1940-2019).
2 T.S. Eliot. 1922. The Waste Land
3 G. Seferis, AYIA NAPA II (translated by Björn Thegeby)

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Recognition of diverse students' experiential and multimodal resources for access

Arlene Archer

Students come to Higher Education with a range of experiential and semiotic resources from their home and educational environments. Experiential resources include rural/urban lifestyles, local knowledges, and 'cultural capital' in the broadest sense (Bourdieu 1991). Semiotic resources include spoken, written, gestural, spatial and visual competencies. Some of these resources are valued in Higher Education, whereas others less so. This has implications for pedagogy, including assessment practices. For instance, some students may be able to perform better in an oral rather than a written exam, or in an assessment conducted in their home language rather than in English. Others may feel alienated from the content or structure of the assessment, as it may not have resonances in their previous experiences. 'Recognition' is about firstly seeing the resources that students bring with them, and secondly about valuing these resources by including them in the curriculum and in formal assessment practices. This recognition of students' resources is key to a transformative agenda in Higher Education. Yet, recognizing students' 'brought along' resources in contexts of high diversity (like South Africa) can be difficult. This paper proposes a social semiotic framework for assessing texts across modes and also outlines a number of principles for recognition of students' resources.

KEYWORDS recognition, assessment, access, social semiotics, student resources

1. Introduction

Students come to Higher Education with a range of experiential and semiotic resources from their home and educational environments. Experiential resources include rural/urban lifestyles, local knowledges, and 'cultural capital' in the broadest sense (Bourdieu 1991). Semiotic resources include multiple languages, spoken, written, gestural, spatial and visual competencies, amongst others (Kress 2010). Some of these resources are valued by the academy,

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whereas others are less so. This has implications for pedagogy, including assessment practices. For instance, some students may be able to perform better in an oral rather than a written exam, or in an assessment conducted in their home language rather than in English. Others may feel alienated from the content or structure of the assessment, as it may not have resonances in their previous experiences. Standardized basic skills testing feeds into a culture of competition and often benefits learners who are good at rote memorization. It produces figures that are comparable and easily interpreted. According to this view, 'standardized testing provides accountability to the system, easily digestible information to parents, and regularly updated knowledge of the progress and relative competencies of individual students' (Kalantzis, Cope and Harvey 2003: 16). However, knowledge today is highly situated and rapidly changing. Successful learners and citizens in the knowledge economy increasingly need to be autonomous and self-directed and to be designers of their own learning experiences (Kalantzis et al 2003). They also need to be flexible, collaborative, and able to work productively with diversity. There is a need for assessment practices that determine what learners know, and also make visible the resources that learners have.

For a few decades now, there have been arguments for the broadening of classroom practices to include multiple modes in order to increase access, equity and opportunities for engagement (Archer and Newfield 2014; New London Group 2000; Godhe 2013; Jewitt 2003; Towndrow, Nelson and Yusuf 2013; Silseth and Gilje 2019). 'Expanded forms of social and material practices associated with multimodal design can … provide a platform for marginalized students to create complex texts' (Anderson, Stewart and Kachorsky 2017: 111) and could be a way of creating equitable opportunities for students to explore their interests and enact layered positionalities (Unsworth 2001). However, leaving these texts at the level of process rather than formally including them into the curriculum could work against access into dominant practices and formal inclusion requires that these texts be assessed and graded. It could be argued that some kinds of assessments that are standard practice in South Africa tend to disadvantage learners from culturally and linguistically diverse backgrounds, because the resources these students bring are not necessarily valued in the classroom context. This paper focuses on the ways in which multimodal assessment can facilitate 'recognition' of a range of student resources, whilst at the same time enable access to dominant academic forms. Formal education often closes down access to varied semiotic resources and well-thought through multimodal assessment practices could potentially recover 'recognition' of these.

2. Educational contexts in South Africa

South Africa is an instance of a multilingual, culturally diverse and recently decolonised country in which access to education remains largely unequal. The medium of instruction remains

predominantly English, although this is not the first language of many of the learners. Differential access to education remains and sometimes there is poor access to resources such as teachers, textbooks and computers. This has contributed to poor achievements on international literacy and numeracy tests, unsatisfactory matriculation results, high drop-out rates and low graduation rates. According to Scott (2017), meaningful transformation in Higher Education lies in 'the effective and equitable distribution of the benefits of higher education across the population. This cannot be achieved by access alone; access must be integrally linked to a successful completion of qualifications'. Given this situation, it is not surprising that there have been mass protests across Higher Education over the past few years calling for free, decolonized education. Disparities in access and a slow and disproportionate throughput of students are part of the reasons for the #Feesmustfall movement in South Africa and the call to decolonize Higher Education.

Students have multiple language systems to draw on, and there is often a fluidity of movement between languages, varieties, genres and discourses. In order to make visible the resources that a diversity of South Africans draw on, assessment practices need to acknowledge the agency of students in designing text. These assessment practices should encourage text-making practices in the classroom that are complex and creative (and may be counter-hegemonic), but must at the same time be supportive of the traditional goals of the curriculum (Newfield 2011). As an example of this, Newfield and Maugedzo (2006) show how a multimodal approach to pedagogy revitalized the poetry curriculum at a High School in Soweto. They report on how shifting the curriculum focus from analysis (the mainstream approach to poetry in South Africa) to composition, enabled the students to 'modalise' poetry in different ways – as a spoken form, as performance, and even as embroidered cloth. Changing the audience, meant the students could write poetry to different people and even produce a published poetry anthology. Here hegemonic language and pedagogic practices were challenged, whilst simultaneously providing access to dominant language practices.

3. Recognition of resources: agency and 'signs of learning'

Assessment deals with "a relation between that which was (expected) to be learned – explicitly as a curriculum or implicitly as 'experience' – and that which has been learned" (Kress 2010: 174). A big question for assessment is what constitutes 'data' for what has been learned. A common means of getting such data has been to ask students what they might have learned or how they felt that they had learned (Kress 2010: 174 – 175). Kress points out that this seems an unsatisfactory approach, both methodologically and in terms of semiotic theory. He proposes the notion of 'signs of learning', claiming that "signs made 'outwardly' ... and are the best evidence that we can get for understanding the 'inner' processes of learning" (Kress 2010: 183).

It is clear that assessment has a powerful effect on what students do and how they do it.

Lederman and Warwick (2019) refer to the 'violence of assessment'. Assessment can undermine or build confidence, and is a major factor contributing to how students view learning within formal educational contexts. It is thus crucial that assessment is an integral part of curriculum design, and that students are fully aware of what to do to succeed. Assessment practices can be seen as falling on a continuum from 'judgement' to 'recognition'. 'Judgement' points to metrics of conformity, whereas recognition is about noticing resources in terms of some existing framework, making these resources visible and integrating them in a range of contexts (Archer 2014). Recognition is thus the positive side of assessment and if it happens multimodally, it may mean more diverse students' resources are drawn on in the process. This non-deficit view of student meaning making, what Kress calls a 'generosity of recognition', vastly expands the scope of what is given attention in the classroom. 'Instead of dismissing signs as 'error' and sign-makers as 'incompetent', assessors will be required to investigate and establish the semiotic principles applied by sign-makers, to describe their resourcefulness' (Bezemer and Kress 2016: 5).

Linked to 'recognition' is the notion of agency and design; a notion of 'learners as agentive, resourceful and creative meaning-makers' (Stein and Newfield 2006: 8). Meaning-making includes complex choices about conjunctions of meaning and form. When creating texts, people bring together and connect the available form that is most apt to express their meaning at a given time. The meaning-maker can choose to re-evaluate resources, assessing their appropriacy for immediate and changing contexts. I argue that assessment practices based on recognition can help to develop the ability to understand the notion of semiotic choice, to select or make judgements according to criteria, context and design. Even if choices are limited (by, for example, the resources available or students' competence in design), these choices still communicate important information about students' identities and learning and therefore are important to recognize when developing assessment practices.

4. Social semiotic framework for assessment across modes

Bezemer and Kress refer to the 'pressing issue of the development of apt forms of assessment for representations in different modes, treated as signs of learning' (2008: 193). Or, put another way, 'How do we or can we recognize learning when it is expressed in the non-dominant mode(s)?' (Kress 2010: 178). Different theorists have thought of varying ways of describing and assessing students' ability to design multimodal texts, rather than a narrow focus on aspects that can be 'conveniently measured'. For instance, Davis and Reed wonder if 'excellence in execution' (2003: 101) should contribute to the grading of students' multimodal projects. Lamb (2018) looks at the way that assessment practices are affected by the societal and pedagogical shift to the digital, for instance, how perceptions and practices around plagiarism

detection software can influence composition. Neal (2011) focuses on composing *processes*, including digital composing processes; Weiss (2017) incorporates students' *reflections* on the process of making, in combination with the final product.

My theoretical approach to assessing students' texts is developed from Halliday's (1978) social semiotic account. Halliday refers to three kinds of semiotic work called metafunctions. The ideational metafunction represents objects and their relations in a world outside the representation system. The interpersonal metafunction locates participants – individual, institutional, abstract – in a system of social relations, social viewpoints, evaluative orientations and affective identifications. The textual metafunction refers to the capacity to form coherent complexes of signs or texts. Textual meaning enables the producers and users of text to make and recognize patterns and relations so that the various elements in the constituting discourses relate to each other. What is important and useful about a Hallidayan view for assessment is that it works across modes, and also provides a way of looking at student meaning-making in terms of socially meaningful tensions and oppositions as instantiated through textual structure. Texts are conceived as being shaped both by students' understanding of the specific socio-discursive context and also by what students bring to the act of representation – their 'habits of meaning' (Halliday 1978), 'stock of knowledge' (Schutz 1970) or representational resources.

I will now look at each metafunction and consider aspects for assessment that work across modes.

4.1. Recognizing the ideational in students' texts

The content of students' texts and how it is configured through discourse constitutes the ideational. Important in terms of assessment is *what* content is selected, possibly the *criteria* for selection and the *discourses* which are drawn on to fulfil the communicative purpose of the text. 'Discourses are socially constructed knowledges of (some aspect of) reality' which give expression to the meanings and values of an institution or social grouping (Kress and Van Leeuwen 2001: 4). They are inextricably linked to value systems in particular contexts. It goes without saying that discourses can be realized through different modes or ensembles of modes. In recognizing students' resources, we can identify the discourses utilized, discourses evoked (provenance) and discourses referred to (intertextuality) in the organization of content. It is important to remember that no discourses exist in isolation, but within larger systems of sometimes different, contradictory or even opposing discourses.

4.2 Recognizing interpersonal aspects

The interpersonal metafunction is concerned with the ways in which relations between authors, audience and topic are constructed. Anderson et al (2017) emphasize 'rhetorical force'

and 'authorial stance'. They use 'rhetorical force' to highlight how students represent relations between themselves as authors, their audience, and their topics. They draw on Vasudevan et al's (2010: 461) concept of authorial stance as 'claiming a presence as an author and narrator of one's own experiences' (in Anderson et al 2017: 112). However, I prefer the concept of 'voice' when thinking about the interpersonal, as the concept of 'voice' can enable student awareness of their own agency within the constraints of academic practices. Although seemingly a mode-specific term, 'voice' comes with a particular history, and with particular theoretical affordances which allow us to look at text in a way that draws on theories of writing and an 'academic literacies' perspective. An academic literacies perspective takes into account issues of identity, institutional relationships of discourse and power, and the contested nature of writing practices (Lea and Street 1998: 159). The field of academic literacies has a long history of theorizing agency that a term like 'stance' may not have. I use the term 'voice' to refer to the way a sign-maker establishes presence in a text through the choice and use of semiotic resources (signifiers of authorial engagement), as well as positioning in relation to other sources (citation) and in relation to the audience. In other words, as I have posited elsewhere, voice can be thought of as being constituted through authorial engagement, modality and citation (Archer 2013). Both modality and citation 'realize and produce social affinity' (Kress and Van Leeuwen 2006: 176) through aligning the viewer/reader with the forms of representation with which text producers align themselves.

Recognizing 'play' or parody is also important in looking at multimodal texts. For instance, Crystal notes that 'language, punctuation, font, typography, layout and presentational techniques' (Crystal in Bearne 2017: 77) can be used in an unusual manner for effect.

Anderson et al (2017) also point to this notion of play but refer to it as 'entertainment', namely the 'humorous manipulation of author-audience relations from an intimate social distance' (2017: 114). This could happen through multimodal divergence, where, for instance, the writing passes critical commentary on the image. According to Buckingham et al (1995), there is almost always an element of parody in students' uses of dominant forms. Parody stresses difference while it 'challenges that which it parodies' (Crapanzano 1991: 431). It can be seen as 'a highly powerful and pleasurable means of developing students' mastery of form, in a similar manner to genre writing in English; and indeed could be considered to have a potentially 'critical' or deconstructive role' (Buckingham et al. 1995: 112).

4.3 Textual metafunction

The textual metafunction is concerned with principles of structure and is realized through composition and cohesion. Of interest here is how the text has been organized according to a specific audience and purpose, and how the text has employed layout, modes and design. In the assessment of multimodal texts, Bearne points to the use of a variety of 'technical aspects and conventions of different kinds of texts, including line, colour, perspective, sound, camera angles,

movement, gesture, facial expression and language' (2017: 77). As an example of mode-specific technical aspects, I will briefly look at what to consider in assessing a three dimensional artefact. Drawing on Kress and van Leeuwen (2006: 216), I posit that recognition of signs of learning in material artefacts include consideration of three aspects, namely choices around the surface of the artefact, the substance of the artefact and the tools used to produce the artefact. Firstly, the *surface* choices include the shape and form of the materialized artefact. Aspects such as the use of colour, surface texture, the use of light and shadow, can be considered here. Colour, for instance, contributes to meaning-making through meanings associated with particular colours and combinations of colours, hues, degrees of contrast, degrees of 'saturation' and 'purity' (see Kress and Van Leeuwen 2002). The second aspect to consider in assessment of a material artefact is the *substance*, namely the physical 'stuff' or material out of which the artefact is made, such as iron, wire, paper. The physical materials could be raw or processed, natural (such as wood, bone, stone, shell) or synthetic (such as plastic or rubber). They could also be durable materials (such as cement) or non-durable materials (such as food). The third aspect to consider is the *tools* and the traces of the tools used in the production of an artefact. The traces can include scraping or marks from hammering or chiselling, pen inscriptions rather than printed ink, or erased pencil marks. In summary, the surface and substance of the artefact, together with the traces of the tools of production are fundamental in recognizing the material realizations of designed artefacts. Each aspect offers different meaning-making potentials and is thus worthy of consideration in the evaluation or assessment of these artefacts.

Related to the above idea of mode-specific technical aspects, is the notion of '*versatility*'. To what extent does the text demonstrate 'versatility' (Beneke 2018) in the employment of mode-specific technical aspects. Versatility here means the range of resources employed and how they are employed (to, for instance, create cohesion, tension, humour, surprise) within the affordances and constraints of the task and genre. Another aspect to consider in terms of the textual metafunction is whether the *composition* of the text has been organized according to a specific audience and purpose, and with attention to design, layout, and use of modes. This includes considerations of directionality, positionality (top/bottom, centre/periphery, left/right), salience (framing, foregrounding/backgrounding). Finally, the *cohesion* of the text is of importance, including cohesion between meaning-making modes, such as visual-linguistic (Martinec and Salway 2005); audio-visual (McKee 2006), gestural-spatial (Martinec 2001) and visual-linguistic-spatial (Kress and Van Leeuwen 2006). Of course, cohesion can sometimes go hand-in-hand with 'tension'– 'semiotic dissimilarity, distance and discontinuity present in texts' (Fajardo 2019: 179). Textual tension has creative potential and can force the reader to 'react, engage, draw conclusions' (Engebretsen in Fajardo 2019: 179). This idea of tension relates to the points made above about contesting discourses and even parody. See table 1 below for a summary of the framework for assessment across modes.

Metafunction	Aspect to recognize in assessment	Details
Ideational What content is selected and discourses drawn on to fulfil the communicative purpose of the text?	Content	Selection and coverage of content (and mode) for a specific audience
	Discourse	Discourses drawn on, evoked and referred to in the representation
Interpersonal How are relations between authors, audience and topic constructed?	Voice	• Authorial engagement • Modality • Citation
	Play and entertainment	• Humorous manipulation of language, punctuation, font, typography, layout • Manipulation of author-audience relations (e.g. through multimodal divergence)
Textual How has the text been organized according to a specific audience and purpose, and how has the text employed design, layout, and use of modes?	Versatility	Range, applications and configurations of resources employed for a particular task and audience.
	Mode-specific technical aspects	• Line, colour, sound, camera angles, gesture, language • Materiality – surface, substance, traces of tools
	Composition	• Directionality • Positionality (top/bottom, centre/periphery, left/right) • Salience (framing, foregrounding/backgrounding)
	Cohesion	Intermodal cohesion and tension

Table 1. Framework for assessment across modes

The framework focuses on recognizing or making visible signs of learning in students' textual *products*. However, it is important to see product in relation to *process*. A 'sign of learning' has process built into it as it 'shows some difference in the capacities of the learner in their making of signs as the result of learning' (Kress 2010: 175). The descriptors for multimodal assessment in the framework can be applied to 'process' texts such as portfolios, drafts and reflections. However, we also need descriptors for assessment which focus on the process of production, with the aim of outlining 'progression in text composition' (Bearne 2017: 77). These descriptors could include looking at students *increasing ability* to: decide on content and mode for specific purposes and audience; organize texts for communicative purposes; use technical features for effect; and reflect and develop. The paper concludes by looking at some of these aspects, but also focuses on broader principles for recognition in assessment practices.

5. Principles for recognition

The functions of assessment practices are 'fundamental to the kind of learning that is recognized' (Kress 2010: 183). Here some underlying principles are outlined which could assist in the design of multimodal assessment practices to facilitate recognition of a range of students' resources, whilst at the same time, enable access to dominant forms.

5.1 Align production and assessment practices

Even though learners are often provided with opportunities to engage with multimodal learning resources, these resources are not always included in the process of assessing students' learning trajectories, resulting in a decoupling of production practices and assessment practices (Silseth and Gilje 2019). For instance, to refer back to Newfield and Maugedzo (2006) mentioned earlier, there would be non-alignment of production and assessment if the students produced and performed poems in class, but then only did critical analysis in the assessment tasks. If learners are provided with opportunities to engage with multimodal learning resources, these resources need to be included in the process of assessing students' learning trajectories, thus aligning production practices and assessment practices.

5.2 Transform rather than use resources

A multimodal approach stresses the making and production of meaning, rather than the acquisition of received knowledge or critique of received knowledge. Fundamental to assessment for recognition is the concept of transformation, that meaning-making does not so much involve *use* of a system, as the *transformation* of available resources. Here human agency and resourcefulness are placed at the centre of meaning-making. Examples of criteria for assessment according to this approach would include the recruitment of 'apt' resources for meaning-making; how connections are made across modes and genres; discernible authorial voice; insightful reflection on the process of making; and taking into account the formative feedback of others in the process.

5.3 Make resources visible

Assessment for recognition makes visible those resources often not noticed or valued in formal educational settings. Kress asks 'what is visible to the "eye of assessment"? What is it possible, actually, to see?' (2010: 178). One way of making resources visible is through the varying of assessment tasks which allow different resources to surface and to be valued, for example, including exhibitions, performances, and a range of genres and audiences. Kalantzis et al (2003: 17) ask: 'what kinds of learning will be durable, and how can we measure these?'

They propose a number of different assessment techniques: *project assessment* that involves planning, collation and presentation of material; *performance assessment* that involves planning, doing and completing a task; *group assessment* of collective work or the collaborative capacities of individual group members; *portfolio assessment* that involves documenting a body of works undertaken by an individual. This broad range of assessment strategies focuses on the 'performance of tasks, the planning and completion of projects, group work and the presentation of portfolio work' (2003: 25).

5.4 Negotiate assessment practices

Assessment can be seen as an ongoing activity in which the meaning and function of the activity are negotiated by teachers and students in and across changing contexts and situations. The ways in which students are assessed has implications for how students are positioned in classroom practice (Silseth and Gilje 2019). Fajardo argues that before teachers begin formal assessment of multimodal compositions, they could 'teach students how to deconstruct their own and one another's digital compositions'. By doing so, 'they will be able to recognize the varied ways of conveying meaning through a combination of semiotic modes and the effect these create' (2019: 191). Quinn (2015: 3) argues that assessment is about developing judgement in students, where peer and self-assessment actively 'promote the development of students' capacity to make judgements about their own and others' work'. Negotiating assessment can be achieved through a number of strategies, such as participatory goal setting; encouraging self-reflection through grade negotiation; negotiating criteria with the learners (Davis and Reed 2003); critiquing and adapting criterion-referenced assessment grids; and interactive peer assessment – what Newfield et al (2003: 78) call creating a 'community of arbiters'.

5.5 See product in relation to process

The idea of process is core to assessment for recognition. By valuing process texts such as portfolios, drafts, reflections, students get to reflect on their 'processes of making in different representational forms' (Newfield et al 2003: 79). Reflection is important as a part of process as it 'examines past experience in the light of other connections and alternatives. It is a reconstruction of actions taken; it is a re-look at meanings made' (Doll in Newfield et al 2003: 76).

5.6 Develop metalanguages for multimodal textual constructions

Recognition of resources can be achieved through developing appropriate metalanguages. Metalanguages of 'reflective generalization that describe the form, content and function of the discourses of practice' (New London Group 2000: 24) are important in achieving conscious awareness of the nature of the resources being used. These metalanguages can then feed into

the language of the criteria for assessment purposes across a range of genres and modes. It is important that metalanguages (as well as criteria for assessment) should be seen as a set of questions; enabling recognition of what is there, not what is not there**.** Davis and Reed (2003) ask 'is it possible to frame criteria that scaffold a multimodal task and at the same time encourage innovative responses?' I would argue that it is, especially if you see a metalanguage as a set of questions rather than something prescriptive. Criteria can be seen as guidelines and assessors should be open to 'the unexpected creative, innovative ways in which students may choose to respond' (Quinn 2015: 3). It is therefore important to include criteria related to 'criticality, creativity and innovation' to signal what is valued in Higher Education.

6. Final comments

This paper has argued for assessment practices that make visible the resources that learners have. It has proposed a social semiotic framework for assessing texts within and across a range of modes. This framework is clearly not exhaustive or in any way prescriptive, but provides a set of potential questions to ask of students' texts, rather than a list of criteria for assessment in any formal sense. I have argued for the importance of aligning production and assessment practices, transforming rather than merely using resources, negotiating assessment practices, seeing product in relation to process, and developing metalanguages. Transforming existing resources and designs involves a certain messiness and sometimes even contradictions. Multimodal assessment involves 'recognising, flagging, recording, layering, interpreting and reflecting' (Newfield et al 2003: 68). It involves taking risks and seeing risk as productive (Thesen 2014). This approach has the potential to make classrooms more democratic and inclusive, enabling marginalized students' histories, identities, languages and discourses to be seen.

REFERENCES

Anderson, Kate, Stewart, Olivia and Kachorsky, Dani 2017.Seeing academically marginalized students' multimodal designs from a position of strength. *Written Communication.* 34 (2): 104 – 134.

Archer, Arlene 2013. Voice as Design: Exploring academic voice in multimodal texts in Higher Education. Margit Bock and Norbert Pachler. (Eds) *Multimodality and Social Semiosis. Communication, Meaning-Making, and Learning in the Work of Gunther Kress.* New York and London: Routledge, 150 – 161.

Archer, Arlene 2014. Power, social justice and multimodal pedagogies. Carey Jewitt (ed.) 2nd edition. *The Routledge Handbook of Multimodal Analysis.* London: Routledge, 189 – 197.

Archer, Arlene and Newfield, Denise 2014. Challenges and opportunities of multimodal approaches to education in South Africa. In Arlene Archer and Denise Newfield (eds) *Multimodal approaches to research and pedagogy: Recognition, resources and access.* Oxon and New York: Routledge, 1 – 18.

Bearne, Eve 2017. Assessing children's written texts: a framework for equity. *Literacy.* 54 (2): 74 – 83.

Beneke, Liesel 2018. From silence to voice: Exploring the affordances of a multimodal approach to creative writing and its assessment for Grade 8 English First Additional Language learners. Unpublished PhD thesis, University of the Witwatersrand.

Bezemer, Jeff and Kress, Gunther 2008. Writing in multimodal texts. A social semiotic account of designs for learning. *Written Communication.* 25 (2): 166 – 195.

Bezemer, Jeff and Kress, Gunther 2016. *Multimodality, learning and communication. A social semiotic frame.* Oxon, New York: Routledge.

Bourdieu, Pierre 1991. *Language and Symbolic Power.* Cambridge, Massachusetts: Harvard University Press.

Buckingham, David, Grahame, Jenny and Sefton Greene, Julian 1995. *Making Media - Practical Production in Media Education*. London: The English and Media Centre.

Crapanzano, Vincent 1991. The Postmodern Crisis: Discourse, Parody, Memory. *Cultural Anthropology.* 6 (4): 431 – 446.

Davis, Harriet and Reed, Yvonne 2003. Assessing multimodal texts in multilingual classrooms. *Perspectives in Education.* 2 (1): 101 – 118.

Fajardo, Margarita Felipe 2019. Cohesion and tension in tertiary students' digital stories: Implications for teaching and assessment of multimodal compositions. In Helen de Silva Joyce and Susan Feez (eds.) *Multimodality across classrooms*. New York and Oxon: Routledge, 178 – 193.

Godhe, Anna-Lena. 2013. Negotiating assessment criteria for multimodal texts. *International Journal of Assessment and Evaluation.* 19: 31 – 43.

Halliday, Michael 1978. *Language as Social Semiotic. The social interpretation of language and meaning.* London: Arnold.

Jewitt, Carey 2003. Re-thinking assessment: multimodality, literacy and computer-mediated learning. *Assessment in Education: Principles, Policy and Practice.* 10: 83 – 102.

Kalantzis, Mary, Cope, Bill and Harvey, Andrew 2003. Assessing multiliteracies and the new basics. *Assessment in Education: Principles, Policy and Practice.* 10: 15 – 26.

Kress, Gunther 2010. *A social semiotic approach to contemporary communication.* Oxon, New York: Routledge.

Kress, Gunther and Van Leeuwen, Theo 2001. *Multimodal Discourse. The Modes and Media of Contemporary Communication.* London: Arnold.

Kress, Gunther and Van Leeuwen, Theo 2002. Colour as a semiotic mode: Notes for a grammar of colour. In *Visual Communication*. 1 (3): 343 – 368.

Kress, Gunther and Van Leeuwen, Theo 2006. *Reading Images. The Grammar of Visual Design* London: Routledge.

Lederman, Josh and Warwick, Nicole 2019. The violence of assessment: writing assessment, social (in)justice, and the role of validation. In Mya Poe, Asoa Inoue and Norbert Elliot (eds.) *Writing Assessment, Social Justice, and the Advancement of Opportunity.* University Press of Colorado, 229 – 255.

Lamb, James 2018. To Boldly Go! Feedback as Digital, Multimodal Dialogue. *Multimodal Technologies and Interaction*. *2*(3), 49. https://doi.org/10.3390/mti2030049

Lea, Mary and Street, Brian 1998. Student Writing and Faculty Feedback in Higher Education: an Academic Literacies Approach. *Studies in Higher Education.* 23 (2): 157–165.

Martinec, Radan 2001. Interpersonal resources in action. *Semiotica.* 135: 117 – 145.

Martinec, Radan and Salway, Andrew 2005. A system for image-text relations in new (and old) media. *Visual Communication* 4 (3): 337 – 371.

McKee, Heidi 2006. Sound matters: Notes toward the analysis and design of sound in multimodal webtexts. *Computers and Composition.* 23 (3): 335 – 354.

Neal, Michael 2011. *Writing assessment and the revolution in digital texts and technologies.* New York: Teachers' College Press.

Newfield, Denise 2011. Multimodality, social justice and becoming a really South African democracy: case studies from language classrooms. In Margaret Hawkins (ed.) *Social Justice Language Teacher Education*. Bristol, UK: Multilingual Matters, 23 – 48.

Newfield, Denise and Maungedzo, Robert 2006. Moblising and Modalising Poetry in a Soweto Classroom. *English Studies in Africa*. 49 (1): 71-93.

Newfield, Denise, Andrew, David, Stein, Pippa and Maungedzo, Robert 2003. 'No number can describe how good it was': assessment issues in the multimodal classroom. *Assessment in Education: Principles, policy and practice.* 10 (1): 61 – 81.

New London Group. 2000. A Pedagogy of Multiliteracies: Designing Social Futures. In Bill Cope and Mary Kalantzis (eds.) *Multiliteracies. Literacy Learning and the Design of Social Futures.* London and New York: Routledge.

Quinn, Lynn 2015. Introduction. In Sherran Clarence, Lumme Quinn and Jo-anne Vorsters (eds.) *Assessment in Higher Education: Reframing traditional understandings and practices.* Grahamstown: Rhodes University, 2 – 5.

Salaam, Safia 2017. Recognition of learning: A social semiotic exploration of signs of learning in jewellery design pedagogy. Unpublished PhD thesis. University of Cape Town.

Scott, Ian 2017. Core issues besides finance and access hinder students' success. *Mail and Guardian*. 20 October 2017. https://mg.co.za/article/2017-10-20-00-core-issues-besides-finance-and-access-hinder-students-success. [Accessed 4 May 2019].

Schutz, Alfred 1970. (R.M. Zaner. ed.) *Reflections on the problem of Relevance*. New Haven and London: Yale University Press.

Silseth, Kenneth and Gilje, Oystein 2019. Multimodal composition and assessment: a sociocultural perspective. *Assessment in Education Principles, Policy and Practice.* 26 (1): 26 – 42.

Stein, Pippa and Newfield, Denise 2006. Multiliteracies and Multimodality in English in Education in Africa: Mapping the Terrain. *English Studies in Africa.* 49 (1): 1 – 22.

Thesen, Lucia 2014. Risk as productive: working with dilemmas in the writing of research. In Lucia Thesen and Linda Cooper (eds.) *Risk in Academic Writing. Postgraduate Students, their Teachers and the Making of Knowledge.* Bristol, Buffalo, Toronto: Multilingual Matters, 1 – 24.

Towndrow, Phillip, Nelson, Mark Evan and Yusuf, Wan Fareed Bin Mohamed 2013. Squaring literacy assessment with multimodal design: An analytic case for semiotic awareness. *Journal of Literacy Research*. 45: 327 – 355.

Unsworth, Len 2001. *Teaching multiliteracies across the curriculum.* Philadelphia, PA: Open University Press.

Weiss, Rachel 2017. Patient-centred communication and patient education: a multimodal social semiotic approach. Unpublished PhD thesis, University of Cape Town.

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Vygotsky's theory of mediation in digital learning environment: Actuality and practice

Aleksandr Fadeev

This paper researches Lev Vygotsky's theory of mediation in order to address the challenges of forming a holistic approach in the analysis of digital learning environments. It attempts to analyse Lev Vygotsky's approach to mediation and sign operation in learning, as well as the role of communication in the Zone of Proximal Development in order to establish the actuality of Vygotskian theory for the analysis of learning and teaching in terms of digital educational environments. To this end, this paper analyses how the simultaneous representation of artistic texts through various digital media, i.e. study material, shapes the process of learning and teaching. The paper explores the role of inner speech in mediation of study material by means of various sign systems, in order to illustrate the educational value of using various forms of media in learning. The theoretical foundations developed in the paper were illustrated by the examples from the digital platform 'Education on Screen'. The platform represents a research project of the Transmedia Research Group at the University of Tartu, Estonia. The platform offers digital solutions for learning literature, history, social and culture studies in terms of school curriculum.

KEYWORDS mediation, digital learning, inner speech, multimodality, zone of proximal development

1. Introduction

The importance of Lev Vygotsky's works for understanding sign operation in the behaviour and development of humans was actualized by V. Ivanov (1962: 4). In his report Ivanov formulated Vygotsky's main theses (1962: 118) on the basis of 'The Psychology of Art' (Vygotsky 1974) and therefore emphasized the importance of Vygotsky's research for the study of semiotics as well as for the foundation of Tartu-Moscow Semiotic School.

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This paper adapts Lev Vygotsky's approach to mediation in learning (Ghassemzadeh, 2005) to digital environments. In doing so, it pursues four objectives: (1) to assess the actuality of Vygotsky's notions of symbolic and human mediation for digital learning; (2) to examine the concept of the Zone of Proximal Development; (3) to analyse the application of this approach in the teaching paradigm of digital learning; and (4) to analyse the role of inner speech in the context of symbolic mediation in digital learning in the context of multimodality.

Digitalization has proven its use in meeting a wide array of educational demands, such as: (a) forming the classroom design itself where instruction and classwork are organized in digital space; (b) organizing classroom management; (c) organizing in the framework of digital activities or applications; and (d) organizing online educational resources, similarly within personal digital devices, and complementary materials. Therefore, I argue for the necessity of building a holistic approach towards analysing the process of learning in digital environments to find solutions to the challenges of using digital technologies in education.

Recent studies (e.g. Peters, 2000) have formulated a number of new approaches that adapt learning paradigms and methods to the digital turn in education by adapting digital environments and media. However, I argue that the question of integrating a semiotic approach into learning that can articulate the way in which digital media influences learning and its role in effectively facilitating learning via digital environments needs thorough research. An analysis of the way mediation happens in a digital learning environment can thus be suggested as a way to build understanding of the influence of digital technologies in the classroom. An analysis of the educational value of digitalization in learning poses a challenge to the theoretical foundation of Lev Vygotsky (1979, 1991, 2015), which combines symbolic, communicative and developmental processes in the context of learning. Some recent studies have examined Vygotskian ideas and principles in semiotic analysis of learning by means of digital technologies (e.g. Semetsky and Stables 2014: 69–86). However, few studies (e.g. Niemi et al. 2014; Ottesen 2006) have attempted to analyse his theory as a foundation for research on mediation in digital learning, as well as in analysing symbolic, communicative and developmental functions of digital environments.

Even though the digitalization of learning can arguably make education more entertaining, arousing more interest from learners through interaction by means of digital media, educators and policy makers should not regard it as merely a conversion of printed materials and classroom realia into forms of digital media. Rather, what I argue for is the importance of building a coherent approach to designing an educational environment that considers the full effect of implementing digital media in learning and teaching. The paper offers new insights into learning, as facilitated by digital mediation, based on Lev S. Vygotsky's pedagogical contribution to semiotics. Considering the number of different media used in contemporary digital education, this approach uses a symbolic form of mediation in digital learning environments. Thus, I draw on Vygotsky's theory of mediated learning and his use of signs in learning and

teaching. Although Vygotsky did not express an interest in semiotics in particular, his research on symbolic mediation and the role of communication in learning has a semiotic dimension (Wertsch 1985; Veer and Valsiner 1994). This aspect of his thinking plays an important role in his educational theory in general.

At the same time, the theoretical argument that I develop is illustrated by practical examples that I observed in the development of the educational platform 'Education on Screen' (Ojamaa et al. 2019), which consists of three educational environments: 'Literature on Screen', 'History on Screen' and 'Identity on Screen'. This platform is a research/educational project of the Transmedia Research group of the Department of Semiotics at the University of Tartu. The rationale of this project is to offer online solutions to issues related to learning culture, history and literature in the framework of school curriculum. The online educational platform 'Education on Screen'[1] ('Haridus Ekraanil', Est.) communicates popular artistic texts from Estonian literature. The platform consists of three learning environments, where each environment is dedicated to a particular artistic text, such as 'Rehepapp' by Andrus Kivirähk in the environment 'Literature on Screen', 'Seltsimees laps' by Leelo Tungal in 'History on Screen' and 'Truth and Justice' by Anton Hansen Tammsaare in 'Identity on Screen'. At the same time, the platform presents the literary texts with their cinematographic versions and their adaptation into other forms of media. Activities on the platform included reading classical Estonian artistic texts, with the help of various multimedia exercises[2]. Thus, the paper reviews the actuality of Vygotsky's theory in analysing digital educational environments using the case of the platform 'Education on Screen'.

2. The role of Vygotsky's symbolic mediation theory

The ability of digital learning environments to represent study material by means of various digital media accentuates the role of mediation as an important semiotic mechanism of learning. The media used in mediation of learning can either complement each other and the study material or develop the story by means of its adaptations into different media (Siegel 1995). Understanding the way mediation works in digital learning environments uncovers new perspectives on the learning process design as well as on teaching and learning paradigms. Lev Vygotsky's theoretical foundation (1979, 1991) has been chosen as a methodology for analysing mediation in digital learning environments in this paper. During his academic career Lev Vygotsky developed a number of concepts, such as using signs as psychological tools or a Zone of Proximal Development, which accentuate the meditative nature of learning, either by means of signs or by means of human mediation. At the same time, Vygotsky's theory is connected with social, cultural and developmental functions. In his analysis of learning and memorizing, Vygotsky (1979: 38–51) accentuates the importance of sign operations occurring

by means of auxiliary signs, 'the use of signs leads humans to a specific structure of behavior that breaks away from biological development and creates new forms of a culturally-based psychological process' (1979: 40). These outer signs act as mediators between the learner and the knowledge to be acquired. Figure 1 illustrates the classical scheme of stimuli-response with the addition of a symbolic mediator (Vygotsky, 1979: 39–40). The scheme represents the sign operation process that is involved in learning and memorizing. The scheme demonstrates the use of an external sign, namely a 'psychological tool' (1979: 52–57), which is characterized by its mediating function (1979: 54) in the structure of a stimulus-response process. This means that in order to learn or memorize, one uses 'indirect (mediated) activity' (1979: 54) by means of symbolic signs, such as schemes or pictures, which means sign operation is involved in such cognitive functions as learning and memorizing.

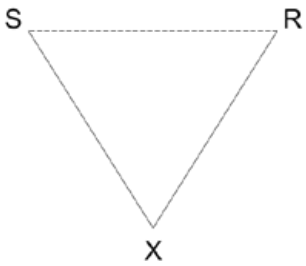

Figure 1. The Vygotskian scheme of stimuli (S), response ® and mediator (X) (Vygotsky 1979)

In terms of digital learning environments, it is necessary to emphasise that the sign that mediates new knowledge can be represented in the form of various media, e.g. video, music, picture or written text. In the context of multimodal representation, each form of media represents a symbolic sign that belongs to a different sign system. Therefore, we can assume that a mediator belongs to a sign system, different from the one used for representing the knowledge itself. This form of representation can be illustrated with the platform 'Education on Screen', where a written artistic text is accompanied by its multimedia representation, and the study material is mediated by means of different digital media.

This form of representation in digital learning environment presupposes the use of several auxiliary mediators, i.e. signs (x) of symbolic sign systems, between the learner and the knowledge. Each of the auxiliary signs belongs to a different sign system (x1, x2, x3, etc.), and therefore we can assume that it is possible to develop the scheme represented in Figure 1 into that of Figure 2. The scheme develops Vygotskian representation of sign operation depicted in Figure 1 and illustrates how mediation proceeds when using several media for the purpose of learning. Such a form of mediation used in digital environments offers the learner the ability,

on the one hand, to communicate with the study material with perspectives of different sign systems, such as film, pictures, collages or scenario, and on the other hand, to familiarize with various signs systems of digital media as such.

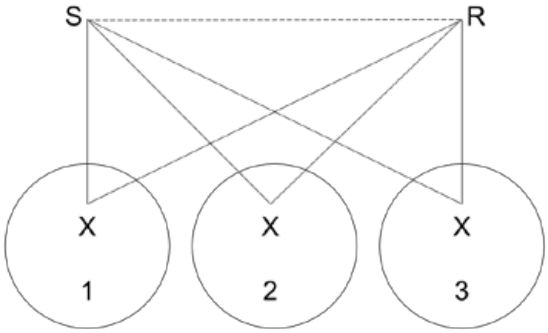

Figure 2. The scheme develops Figure 1 and represents mediation with the help of several media that belong to different sign systems (x1, x2, x3)

This form of representation in learning is widespread in digital education under the concept of transmedia education (Pence 2012; Jenkins 2010), which was considered in the learning design of the platform 'Education on Screen'. The platform offers a means of learning humanities through reading artistic texts in an environment where a mediating sign is represented with a group of texts that belong to different sign systems. Each of these mediatic versions of the text is a part of the initial text's transmedia reality. This ability of digital learning environments to represent study material by means of several forms of media, namely symbolic mediators, possesses an important pedagogical dimension, as it fosters meaning-making (Siegel 1995: 460-461) by communicating a text through different modalities. The meaning is produced by 'moving across sign systems' (Siegel 1995: 461).

This multimodal mediation by means of different media can be illustrated with the educational environment 'Literature on Screen', which is dedicated to an original artistic text by Andrus Kivirähk 'Rehepapp ehk November'. In one of its activities (see Figures 3.1, 3.2, 3.3, 3.4), the digital environment provides the learner with a representation of study material on the mythical creature Kratt from Estonian mythology. The representations include its cinematographic image, ballet and theater images, as well as its representation at a contemporary exhibition and in a board game.

This representation is realized in the platform by means of several digital media, such as pictures, written artistic texts, videos and an interactive game. The representation also includes transmedia adaptations of the character in theatre, opera, art and board games. The digital environments 'History on Screen' and 'Identity on Screen' also represent a similar way of multimodal mediation in learning. For instance, in 'History on Screen' and 'Identity on

Screen' most of the study materials from the map section are represented by means of various multimedia mediators, in an attempt to involve the learner in a multimodal dialogue with the study material.

Figure 3.1. Example of representations of the mythical creature Kratt in the educational environment 'Literature on Screen'. The illustration from the film 'November'

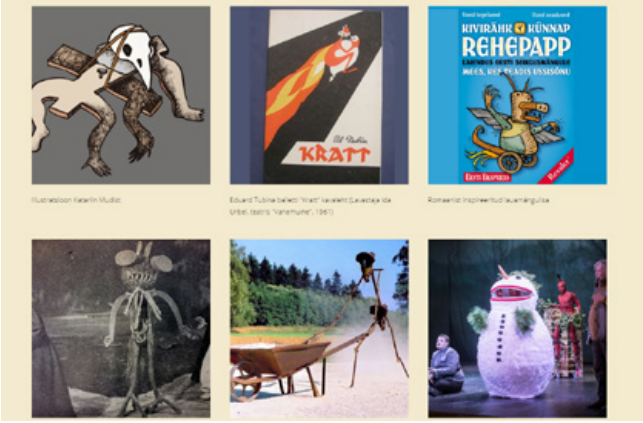

Figure 3.2. Example of representations of the mythical creature Kratt in the educational environment 'Literature on Screen'. The illustrations of the creature in different interpretations of the novel: an illustration by Katariin Mudist, the illustration for the ballet, the game, the decoration for the ballet, the film materials, the opera

It can thus be suggested that multimodality should be considered in learning not as a merely mode of representation. The digital media are related to digital artistic languages and thus can be acquired in learning as psychological tools in terms of meaning-making. The methodology of the learning environment may consider the representation of various modalities of text as artistic texts, that are able to convey meaning. Therefore, multimodality can be represented in learning as a form of mediation in terms of meaning-making.

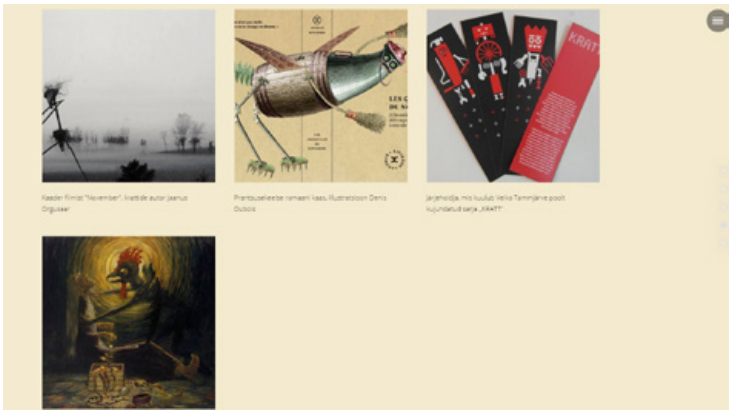

Figure 3.3. Example of representations of the mythical creature Kratt in the educational environment 'Literature on Screen'. The scene from the film 'November', the illustration from the French version of the novel, the illustrations by Veiko Tammjärve, the picture

Figure 3.4. Example of representations of the mythical creature Kratt in the educational environment 'Literature on Screen'. An interactive game of making the creature.Figures 3.1, 3.2, 3.3, 3.4

3. The role of inner speech

The use of such multimodality of mediation allows the platform to establish communication with the learner by means of multiple languages of digital media. This calls attention to an important educational dimension: the multimodal texts of digital media on a platform consider learner's cultural memory, therefore initiating a dialog with the learner's previous cultural and social experience. This dialogue happens by means of a special imaginative and predicative internal code of one's imaginative thinking. This code, which was described by Zhinkin (1998: 146–162), translates the descriptive information received through social and cultural interactions into schematic representations of the external reality. Zhinkin accentuates the unique nature of such representations: 'representations as descriptive components of this code are schematic' (1998: 158). In other words, a significant part of our cultural and social experience, namely the representation of reality, is stored as images or other symbolic forms, and thus "a person's experiences exist "encoded in his inner speech" ' (Emerson 1983: 7).

According to Vygotsky, the way that information is processed by inner speech is imaginative and predicative (Vygotsky 1991; Zhinkin 1998). Vygotsky argues that 'predication is the natural form of inner speech; psychologically it consists of predicates only' (1986: 243). Therefore, we can assume that inner speech follows a special internal code that consists of predicates of internalized texts and sign systems. These fragments of sign systems are joined to each other agglutinatively (Vygotsky 1991; Zhinkin 1998), and thus form a complex imaginative tool that is able to establish translation between texts of different modalities and one's own consciousness. Therefore, inner speech represents 'the sum of all the psychological events aroused in our consciousness by the word' (Vygotsky 1986: 245).

The concept of inner speech plays an important mediative role in meaning-making and interpreting texts of different languages of culture, such as artistic texts or multimedia texts. According to Zhinkin:

> Understanding, that is, the reception of messages, should be viewed as translation from one language into another. Moreover, a language of representation must be one of these languages, since the first, perceived step toward the knowledge of reality is made up of them (1998: 161).

By the language of representation Zhinkin means a language of 'visual messages that get their meaning in the interpretation' (1998: 162) by the viewer. He illustrates the objective-imaginative nature of inner speech with an example of a theatre (1998: 158) that brings associations of what the building looks like and what is around it. Therefore, every time a learner is involved in a dialogue with different cultural texts from a learning environment, he or she translates these texts into the language of inner speech. In the context of digital environments,

we can assume that inner speech plays an important educational function both in terms of understanding and associative thinking. Since the text is translated into the 'objective-imaginative code' (Zhinkin 1998: 159) of inner speech, we can assume that the use of different media allows learners to use different sign systems already internalized by the learner, making them use more complex and diverse code transitions ('кодовые переходы', Zhinkin 1998). It can thus be suggested that these code transitions help the learner see cultural texts from the perspectives of internalized cultural languages of different modalities, thereby bringing more imaginative associations into the learning process. In the context of digital environments, the way cultural texts are organized imitates the fragmentariness and the cohesion of inner speech, therefore attempting to make a more effective dialog with the learner.

As we have observed, inner speech involves both outer and internalized sign systems, and therefore is influenced by the media in which a particular text is represented. The importance of media in the associative and imaginative functions of inner speech in digital environments is accentuated by the special effects of digital media. Kress (2003) accentuates important effects of contemporary digital media, such as 'multiplicity of modes' (2003: 5) where media is able to 'change through their affordances'. He highlights the interactive aspect of media, which allows a learner to create new connections with particular texts by means of 'hypertextuality' (2003: 5). This illustrates an important semiotic dimension of media. Thus, it can be assumed that the hypertextuality of media used in a digital environment allows the translative and associative functions of inner speech to be elevated by establishing more connections with the texts through different modes.

While learning in a digital environment is supposed to frequently initiate a multimodal dialogue with inner speech, it is important to emphasize the limitations of various forms of media in the multimodal dialogue. Any type of text, such as a written text, a painting or a piece of music, has certain limitations. For instance, it is impossible to represent taste or sound by means of visual media or, at the same time, to represent a musical text visually. The digital multimodal representation of study material, by bringing together the abilities of different sign systems, possesses an important developmental dimension, accentuating the important role of social and cultural background in establishing a dialogue with inner speech.

4. The role of creating new texts

The implementation of different media in representation provides the learner with an opportunity to familiarise herself/himself with a particular sign system, such as digital collages, films or comic books. According to Lev Vygotsky '...it's impossible to enter an artistic text completely, in case you are absolutely extraneous to the technique of its language' (1991: 291). Thus, we can assume that the ability of a learning environment to involve the learner in

the process of creating new texts of culture, i.e. texts displayed in different media on a digital platform, possesses an important developmental function in the context of learning through a digital platform. It can thus be suggested that the creation of new texts of culture, while working on a particular task in a digital environment, actively involves inner speech by allowing the learner to represent their learning experience by means of cultural texts. At the same time, it provides the learner with the ability to do a more thorough semiotic analysis of sign systems, namely, languages of representation. Similarly, the practice of creating new cultural texts by means of art illustrates 'a tool of learning to perceive a work of art' (Vygotsky 1991: 291).

Thus, this can be illustrated by the approach used for designing the assessment instructions on the digital environment 'Identity on Screen'. The task 'literature as cinema' communicates to learners the way that literature can be represented in the artistic language of cinema. In other words, the lesson represents the way artistic texts written in one sign system, such as literature, can be translated into another sign system, such as cinema. In a series of consecutive tasks learners familiarize themselves with the elements of the artistic text of cinema, such as a storyboard, music, point of view, montage, scenario and picture style. An important part of the lesson is practical: where learners create new texts of cinematic language, such as a storyboard or a scenario. This process of getting to know the semiotic structure of film brings the interaction with its texts in the lesson to a different dimension. Digital media that are used in learning possess an important pedagogical and developmental function of allowing learners to create texts of culture that are close to the original texts in form and structure. Digital tools allow the learner to create not only a scenario, but also a cinematic video clip. Thus, we can assume a meditative function of digital tools in the semiotic analysis of cultural texts which forms an understanding of the cultural languages, i.e. sign systems, used in a digital learning environment.

5. The role of interaction and the zone of proximal development

The process of mediation of learning has been developing at the nexus of symbolic and human mediation. While symbolic mediation, i.e. mediation by means of signs or texts, operates with the learner's imaginative apparatus, invoking inner speech and a sign operation in the process of learning, human mediation brings learning to the dimension of communication, making interaction itself a source of learning. Human mediation has always played an important role in learning, memorizing and interacting with study material as an essential means of mediation. At the same time, human mediation is a significant part of Vygotskian developmental theory and was described precisely in his concept of the Zone of Proximal Development, which has been explained in a number of his works (1979, see chapter 'Interaction between Learning and Development': 84–91; 1991: 391–410).

The common understanding of the concept represents a model for how human interaction works in the processes of learning and the learner's development, considering several levels of development involved in the learning process. The concept categorizes knowledge into (1) knowledge that can be gained independently at the current level of development, (2) knowledge that can be obtained with the help of a more knowledgeable other, level of proximal development, and (3) knowledge that cannot be achieved at the current level of development, namely the level of potential development. Therefore, according to Vygotsky, learning occurs in 'the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (1979: 86).

Vygotsky considered a more knowledgeable other to be a teacher or a peer who possesses a certain expertise in the object of study. In the process of interaction, the more knowledgeable other leads the learner to proximal knowledge through guidance and scaffolding. The concept emphasizes the importance of analysing and allocating different types of knowledge in relation to the learner's abilities. At the same time, in describing this concept, Vygotsky points out the significance of interaction, namely communication, in learning.

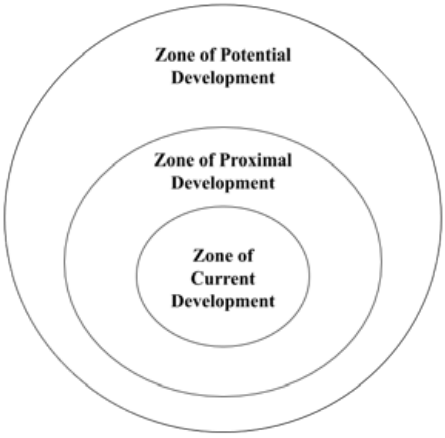

Figure 4. The scheme that represents a common understanding of Vygotsky's concept of the Zone of Proximal Development

In a later analysis of the Vygotskian Zone of Proximal Development, Seth Chaiklin argues for the importance of 'raising doubts' (2003: 43) on this general understanding of the Zone of Proximal Development and argues the importance of considering the concrete meaning of Vygotsky's concept (Chaiklin 2003: 43). Chaiklin gives an overview of the main assumptions that are always involved in the discussion of the Zone of Proximal Development: generality, assistance and potential assumptions (Chaiklin 2003).

In his analysis, Chaiklin pays particular attention to the use of the term 'development' in

the name of the concept, rather than the term 'learning', pointing out that learning and inner developmental processes (2003: 42) are partly united, but mostly separate activities. Thus, we should consider the Zone of Proximal Development to be related to development, rather than merely gaining certain skills (Chaiklin 2003: 43). In the context of digital environment the borders of the Zone of Proximal Development are dynamic and may undergo changes by the correlation of individual learning and the role of a more knowledgeable other. Another important aspect was pointed to by Chaiklin regarding the assistance assumption, where he claims that 'communication in relation to learning' (2003: 43) per se is of a higher importance than the expertise of a more knowledgeable other. This potential assumption emphasizes the importance of the potential development that has to be considered in learning, though there is no convergence with the current developmental level.

6. Digital platform as a more knowledgeable other

The given assumptions emphasize the importance of analysing the role of interaction in learning, attributing developmental functions to communication. Thus, the use of them in the analysis of digital learning environments accentuates the role and the importance of facilitating communication and 'collaboration with more capable peers' (Vygotsky 1979: 86), i.e. the more knowledgeable other, in digital learning in order to concentrate on the developmental side of learning. Human mediation in digital environments is often limited by the number of individual tasks and the use of digital tools as the main form of mediation of study material. This can cause educators to consider digital learning environments to be oriented towards the individual work of the learner. Though recent research (Bockarova 2014) shows that the use of digital tools in the classroom can facilitate the involvement of a more knowledgeable other in one's learning process. Such necessity of communication in learning towards facilitating the pedagogical aspect is illustrated by the introduction of new digital tools and solutions in the classroom. The research (Bockarova 2014) shows that the use of various digital tools in the context of learning offers alternative ways of communication and collaboration between the learner and the teacher, or the learner and her/his peers. That is a consequence of working with digital applications as learning mediators. In fact, when a learner uses an application or other digital medium for learning, it often requires guidance from the teacher or peers. This also illustrates how to use familiar media or tools in a new way. At the same time, increased commenting on the work or self-created tasks of others on the platform exemplifies the growth of interaction in learning.

Another example of the developmental function of assistance using digital tools was presented in the research of edusemiotician Inna Semetsky (Semetsky and Stables 2014: 71) which was based on the case study of a school pupil who was suffering severe generalized

anxiety. As a consequence, the pupil experienced a problem of de-socializing from the classroom. At harder stages of the disease, he was trying to distance himself from his schoolmates. Therefore, he experienced serious problems with communication and interaction with the other students. By looking back at Vygotsky's concept of proximal development (1991: 399–400), it was possible to assume the seriousness of the developmental difficulties in the case of de-socialization. Vygotsky (1991: 26) emphasizes that personal psychological functions first appear on the outer communicative level and then shift to an inner personal level. This correlates to the common juxtaposition of 'material-mental' and 'social-personal' in Vygotskian works (Chaiklin 2003: 47). In the context of Semetsky's experiment, the integration of digital learning practices was used as a type of collaborative work. One of the activities was an 'all about me' online assignment. This technology allows students to choose their online identity by creating an avatar and giving a short introduction of themselves. This helped the learner to avoid the anxiety caused by the symbolic representation of her or his identity. The next activity was focused on collaboration where learners had to create a scenario for a short film that was scaffolded with a special digital programme (Semetsky and Stables 2014: 78). The examples mentioned above give an overview of the value of the digital learning environment in the context of fostering interaction in learning. At the same time, it accentuates the mediational role of digital tools and their ability to scaffold interaction and development in learning. It is especially valuable when the interaction in the classroom is rare or blocked by learners' communication abilities.

The examples above demonstrate the importance of assistance assumption in the Zone of Proximal Development in digital learning. At the same time, the examples vividly illustrate the significance of Vygotskian use of the term 'development' in the represented concept. As was pointed out before, Chaiklin emphasizes that 'zone of proximal development is not concerned with the development of skill of any particular task, but must be related to development' (2003: 43). In relation to a digital learning environment, it is necessary to add that in order to gain pedagogical value, a digital environment has to focus on the use of the assistance assumption of the Zone of Proximal Development towards developmental processes rather than gaining skills in a particular task. Additionally, the assistance assumption can be widened in the context of digital platforms. From the perspective of the Zone of Proximal Development, an important function of digital environments is their ability to let learners collaboratively work on complex tasks (even via digital tools) and initiate interaction by sharing the texts, i.e. the results of their work, among their peers. The given examples underline the ability of a digital learning environment to act as a more knowledgeable other, thereby navigating a learner towards proximal development, rather than merely giving tasks and providing answers. Thus, it can be suggested that the role of a more knowledgeable other on a digital platform will be shared between the teacher, the peers and the platform itself as a mediator of learning (Figure 5).

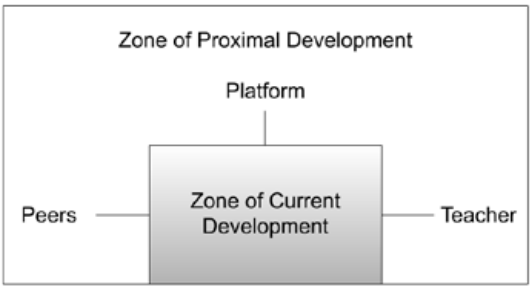

Figure 5. The scheme illustrates the concepts of the Zone of Proximal Development in the context of a digital platform

7. Education on Screen

7.1 Mediation

The methodology of Education on Screen can be analysed in terms of Vygotsky's theory of mediation to accentuate its educational functions. The methodology of the platform presupposes that the multimodal representation of artistic texts in educational environments provides learners with an opportunity to acquire psychological tools. The multimodal artistic texts in the educational environments are represented by means of different digital artistic languages. These artistic languages are not used merely in terms of representation, but also in terms of meaning-making. In the context of educational environments students are offered the tasks that communicate semiotic functions of artistic languages. This is illustrated by means of such tasks as 'Literature as film' (Figure 6). This task offers semiotic analysis of the language of film in terms of its structural as well as semantic features. Thus, it makes multimodality not only a representational feature. In the context of the task the environment offers the learners a possibility of analysing film as a sign system to identify the characteristics that are related to meaning-making. By means of the task learners can practice in making texts in terms of the sign system. Thus, film can be acquired not merely as a form of representation, but also possessing a 'mediational role' (Kozulin 2003: 24) as a cognitive tool. The analysis of the features of mediation is an important part of acquiring such sign systems as a psychological tool (Kozulin 2003: 24). In a similar way, the platform offers the learners to acquire different forms of media as psychological tools in the context of meaning-making. Thus, the methodology of the learning environment considers multimodality in terms of development as a form of mediation in learning.

Figure 6. A part of the task 'Literature as film' in which a film is represented as an artistic languages. In this part learners practice making a storyboard

7.2 Inner speech

The representation of texts in educational environments considers the work and characteristics of inner speech. The predicativity and fragmentariness of texts in the learning environment reminds the similar features of inner speech. This allows the learning environments to form associative connections among various fragments of cultural texts. The multimodality of texts allows learners to use more internalized cultural languages in terms of meaning-making. This is illustrated by means of an interactive map (Figures 7.1, 7.2, 7.3), which communicates various cultural texts in a form of imaginative map[3]. The cultural texts are represented in separate lessons in a discrete form using different modes of representation. However, the interactive map as well as the structure of the learning environment allows to form holistic representation of the text. Thus, the educational environments allows to establish a dialog with inner speech by modeling the features of the language of inner speech in the structure of the learning environment and the representation. Considering the features of inner speech in terms of the methodology of digital learning environments has an important pedagogical function, as inner speech is important in terms of meaning-making, creativity and imaginative thinking.

7.3 The Zone of Proximal Development

The educational platform 'Education on Screen' can illustrate the way a digital educational environment fosters the learner's communication and development in the context of learning, i.e. acting as a more knowledgeable other. The methodology used for the platform 'Education on Screen' (Ojamaa et al. 2019) relies on the generality and the assistance assumptions of the

concept in order to develop literacies necessary for maintaining a dialogue with the cultural texts of the platform. Rather than providing learners with a source of answers, the platform emphasizes the importance of communication and developmental functions.

Figure 7.1. The interactive map of the learning environment 'Literature on Screen'.

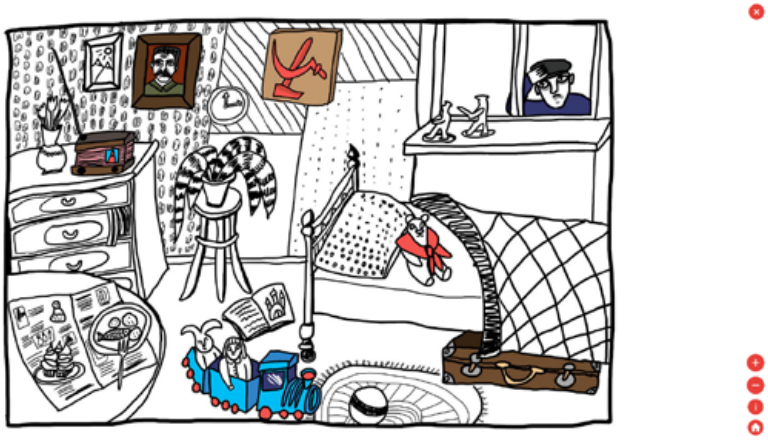

Figure 7.2. The interactive map of the learning environment 'History on Screen'.

The role of assistance assumption in the learning environment design can be illustrated using tasks that require students' collaborative interaction in the process of problem solving. The use of some digital tools on 'Education on Screen' require a certain expertise in various fields of knowledge which initiates peers to act as more knowledgeable others in the completion of the task. This can be illustrated briefly by an exercise from 'History on Screen', 'How do artistic texts mediate the past?'[4]. In this particular activity, the platform initiates collaborative work among students in order to complete the task. In the framework of the Zone of Proximal Development, the task integrates students' diverse experience within the group, providing

the necessary mutual assistance and communication in learning. Such a form of instructional design is actively used on the digital platform for the tasks that communicate complex social, historical or cultural topics. Another example can be observed in the tasks that require certain literacies from the students, such as the lesson 'Literature as cinema' in 'Literature on Screen', where learners collaborate in making a collage of various images of the artistic text. The represented instruction illustrates the important role of previous cultural and social experience in relation to proximal development, when they are used as learning tools.

Figure 7.3. The interactive map of the learning environment 'Identity on Screen'

The given examples show the role of the Zone of Proximal Development and its main assumptions in digital learning environments. They also illustrate the role of human mediation in learning by means of digital tools, where the meditative function is shared between teachers, peers and the digital platform. We can assume that the analysis of the Zone of Proximal Development on a digital platform can create a foundation for analysing the educational value of a platform in the context of communication in learning and, more importantly, in the context of development. Rather than concentrating on the digital component of learning through digital environments, the use of the concept accentuates the importance of verbal interaction and collaboration that can be motivated by the learning environment.

8. Applications in Learning and Teaching practices

The contemporary classroom is a classroom where digital media is a part of learners' everyday environment. Being a part of such a multimedia environment means that information is represented through multiple media. The previous chapters identified the educational value of the diversity of media in representation of study texts in learning environments. It can thus

be suggested that in the context of digital environments, the role of the teacher is to scaffold students towards the desired knowledge by adjusting the forms of multimodal mediation and creating necessary links and connections between the learner and knowledge through digital media. Thus, the implementation of a digital environment in learning practices provides a pedagogical methodology with a paradigm where the educator is supposed to adjust the use of various digital multimedia activities in order to provide a personalized learning experience, foster meaning-making in learning and maintain interaction in the key relationships: student–teacher, student–platform, student–peers. The approbation of the platform 'Education On Screen' in the learning process demonstrates the interest of students in using multimodal representation of classical literature in discussion of culture related subjects. At the same time the representation of various modalities of texts in terms of artistic languages allows students to use them in terms of meaning-making. However, it emphasizes the difficulty of teaching various modes of representation as psychological tools, and not merely as artistic forms.

The use of 'Education On Screen' demonstrates the importance of considering the learners diverse cultural backgrounds. This allows learners to be more involved in learning as well as create meaning. Vygotsky argues (1991: 360) that the pedagogical process where a learner only receives facts and information can of course arouse some interest in the audience, but it does not teach a learner how to use and gain the knowledge. According to Vygotsky (1991: 359–360), a teacher who is 'reading the facts' like 'a gramophone' (1991: 360) that plays the same disc, will never give students that variety of educational experience that they could have obtained through collaboration and active learning. Vygotsky proposes that the role of the teacher should be the creator of a learning environment, stating that teaching involves the process that 'forms the relations of a child to the elements of the environments that influence her/him' (1991: 360). Therefore, teaching occurs as the creation of mediative links with mediators in a learning environment, accentuating the importance of an active role for a learner in the process of gaining knowledge. In terms of digital environments with their variety of symbolic forms of representations and the diversity of media used to illustrate study material, the importance of establishing connections with study material by means of certain mediators accentuates the role of teaching, as described by Vygotsky (1991: 360).

The use of 'Education On Screen' in collaborative tasks emphasizes an important pedagogical function in the changes of more knowledgeable other. This allows learners to share the role of a more knowledgeable other and thus, exchange their cultural background. However, in some tasks learners are not equally involved in learning, for instance when making artistic texts. Thus, the role of a more knowledgeable other is not shared enough among the learners. This emphasizes the necessity of guidance and scaffolding in terms of allowing the learners equally practice the acquisition of psychological tools. The concept of the Zone of Proximal Development emphasizes the importance of taking the diverse background of learners into

account in the context of active cultural memory and the knowledge of cultural sign systems. At the same time, the concept accentuates the important role of the learner in the learning process, as well as the necessity of communication in the Zone of Proximal Development. Vygotsky argues that 'a learner is not just swallowing the ready-made food' (1991: 359), but rather learning practices should involve the 'active energy of a student' (1991: 359). As a digital environment shares the function of a more knowledgeable other, it can be suggested that one important use for a digital environment is to organize instructions in a way that will involve learners in interaction, sharing their experience and collaborating in learning. The educational environment attempts to involve learners in communication while they are working together in solving tasks. This calls attention to an important educational and developmental function, since it allows learners to practice the literacy of independently looking for new knowledge on the basis of their background knowledge, i.e. actual development. In this case, the learner is positioned for decision making and problem solving. That makes the learner (rather than the teacher, study material or digital tools) a key source of learning and producing new knowledge. Therefore, the digital tools form a necessary scaffolding in the context of a digital learning environment. Stables and Semetsky (2015: 29) commented on such an approach, describing it as 'the creation of novel meaning for lived experience rather than transmitting some pre-existing facts from a generic teacher to a generic student'.

9. Conclusions

The implementation of the Vygotskian theory of mediation in the analysis of digital learning environments accentuates the influence of digital media, the involvement of cultural experience and the necessity of interaction in learning by means of a digital environment. The ability of such digital environments as 'Education on Screen' to represent study texts by means of various media makes mediation an even more significant part of learning, emphasizing the necessity to consider it not only at the level of methodology, but also at the level of teaching practices. The analysis of inner speech brought in the article identifies the way one operates with cultural sign systems in the context of multimodality of representation of texts in digital environments. Although the social part of learning in digital context changes its usual forms of classroom interaction, it still goes hand in hand with the theory of psychological development, described by Vygotsky (and later developed in the pedagogical science). The analysis given in this paper identifies the necessity for the methodology used in a digital educational environment, considering whether it: (1) scaffolds a learner towards new knowledge with the activities that are based on the knowledge the learner has already acquired and therefore presupposes a learner-centred approach, due to the platform's adjustable context and structure; (2) fosters interaction with and through the platform as a more knowledgeable other; (3) motivates the

learner towards extensive learning and memorizing through the use of various sign systems of media as mediators of learning. Thus, the paper demonstrates the actuality and the educational value of using the Vygotskian approach to mediation, using sign operation and communication in the analysis of learning and mediation in the framework of a digital environment.

NOTES

1 More information on the content of the platform 'Education on Screen' is presented on the website of the platform: https://haridusekraanil.ee/

2 Methodological foundations of the platform 'Education on Screen' were described in the article by the Transmedia Research Group at the University of Tartu (Ojamaa et al. 2019).

3 You can find the digital maps on the websites of educational environments: http://kirjanduse-kraanil.ee/, https://ajalugu.haridusekraanil.ee/en/, https://identiteet.haridusekraanil.ee/en/

4 The example of the task: https://ajalugu.haridusekraanil.ee/en/theoretical/time-together/how-do-the-written-texts-convey-the-past

REFERENCES

Bockarova, Mariana 2014. On the Implementation of Technology in Education. In: Inna Semetsky and Andrew Stables (eds.) *Pedagogy and Edusemiotics. Educational Futures Rethinking Theory and Practice.* Rotterdam: Sense Publishers, 69-88.

Chaiklin, Seth 2003. The Zone of Proximal Development in Vygotsky's Analysis of Learning and Instruction. In: Alex Kozulin, Boris Gindis, Vladimir S. Ageyev and Suzanne M. Miller (eds.) 2003. *Vygotsky's Educational Theory in Cultural Context*. Cambridge: Cambridge University Press, 39-64.

Emerson, Caryl 1983. The Outer Word and Inner Speech: Bakhtin, Vygotsky, and the Internalization of Language. *Critical Inquiry*. The University of Chicago Press. 10, 245-264

Ghassemzadeh, Habibollah 2005. Vygotsky's mediational psychology: A new conceptualization of culture, signification and metaphor. *Language Sciences* 27, 281–300

Ivanov, Vyacheslav 1962. Симпозиум по структурному изучению знаковых систем. [Symposium on structural study of sign systems.] Theses of lectures. M.: Издательство Академии наук СССР [Publishing house of the Science Academy of the USSR].

Jenkins, Henry 2010. Transmedia Storytelling and Entertainment: An annotated syllabus. *Continuum,* 24 (6): 943-958.

Kozulin, Alex, Vladimir S. Ageyev, Boris Gindis and Suzanne M. Miller (eds.) 2003. *Vygotsky's Educational Theory in Cultural Context*. Cambridge University Press.

Kress, Gunther 2003. *Literacy in the new media age*. London and New York: Routledge.

Niemi, Hannele, Vilhelmiina Harju, Marianna Vivitsou, Kirsi Viitanen, Jari Multisilta and Anne Kuokkanen 2014. Digital Storytelling for 21st-Century Skills in Virtual Learning Environments. *Creative Education* 5 (9): 657-671.

Ojamaa, Maarja, Peeter Torop, Alexandr Fadeev, Alexandra Milyakina, Tatjana Pilipovec and Merit Rickberg, (forthcoming in 2019). Culture as education: from transmediality to transdisciplinary pedagogy. *Sign Systems Studies*.

Ottesen, Eli 2006. Learning to teach with technology: authoring practised identities. *Technology, Pedagogy and Education* 15 (3): 275-290.

Pence, Harry E. 2012. Teaching with transmedia. *Educational technology systems* 40 (2): 131-140.

Peters, Otto 2000. Digital Learning Environments: New Possibilities and Opportunities. *International Review of Research in Open and Distance Learning* 1 (1).

Semetsky, Inna and Andrew Stables 2014. *Pedagogy and edusemiotics*. Rotterdam: Sense Publishers.

Siegel, Marjorie 1995. More than Words: The Generative Power of Transmediation for Learning. *Canadian Journal of Education / Revue canadienne de l'éducation 20* (4): 455-475.

Stables, Andrew and Inna Semetsky 2015. *Edusemiotics. Semiotic philosophy as educational foundation*. New York: Routledge.

Veer Rene van der and Jaan Valsiner (eds) 1994. *The Vygotsky Reader*. Massachusetts: Blackwell

Vygotsky, Lev 1974. *The Psychology of Art.* MIT Press.

Vygotsky, Lev 1979. *Mind in Society*. Cambridge: Harvard University Press.

Vygotsky, Lev 1986. *Thought and language*. Alex Kozulin (ed.), Cambridge, Massachusetts: The MIT Press.

Vygotsky, Lev 1991. Педагогическая психология [Educational psychology]. Ed. by Davydova V. V. Moscow: Педагогика [Pedagogy].

Vygotsky, Lev 2015. Мышление и речь [Thinking and Speech]. M: Directmedia.

Wertsch, James V. 1985. The Semiotic Mediation of Mental Life: L. S. Vygotsky and M. M. Bakhtin. *Semiotic Mediation. Sociocultural and Psychological Perspectives*, 49-71

Zhinkin, Nikolai 1998. Язык. Речь. Творчество [Language. Speech. Creative work]. Исследования по семиотике, психолингвистике, поэтике [Research in semiotics, psycholinguistics, poetics]. M: Лабиринт [Labyrinth].

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A framework for developing preschoolers' critical viewing of multimodal texts in formal educational settings: The case of commercial videos

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Over the last years new communication contexts have reshaped print-based literacy pedagogy into a multimodal one. The changing nature of literacy is also reflected in the new curriculum for early childhood education, however without clearly articulating how this shift will be implemented in educational settings. Consequently, teachers are not familiar with ways to promote students' multimodal competencies and are not trained to develop instructional plans aligned with multimodal pedagogies. The article discusses an on-going exploratory research aimed to provide insight into teaching multimodal literacy in Early Childhood Education. Specifically, it focuses on formulating learning experiences in order to enhance preschoolers' critical viewing competencies concerning the intentions and meaning strategies employed by commercial video producers. The research included a framework of teaching multimodal texts, such as commercial videos, based on previous frameworks found in literature reviews. Specific learning experiences with commercial videos were designed and implemented in a Greek Kindergarten with twelve students. These learning experiences were organized in several units. Each unit included the spontaneous engagement of students with various commercial videos, the guided analysis of the structural features and typical functions of the videos as well as the guided 'reading' of literal and inferential meaning in them based on the explicit teaching of both meaning strategies employed by video resources and a metalanguage for justified interpretations and detailed descriptions of students' responses drawn from textual evidence. In the current article, this particular teaching framework is presented in detail as an integrated part of the research project - which is briefly discussed as well - for the implementation of multimodality in teaching practices in early childhood settings and the enhancement of preschoolers' literacy skills. Also, the constraints and further issues of both the research project and the teaching framework are being discussed.

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KEYWORDS multimodal literacy; teaching intervention; critical viewing; T.V. commercial advertisements; early-childhood education

1. Introduction

Students nowadays are exposed to information presented in various modes (written, language, speech, gesture, movement, music, image, etc.) and media (books, screen etc.) in comparison to the past when printed text was the only semiotic resource for conveying meaning (Kress and van Leeuween 2006). Kress (2003) claims that such changes 'are producing a revolution in the uses and effects of literacy and of associated means for representing and communicating at every level and in every domain' (p. 1). Multimodality refers to meaning making through various modes, including language, such as visual, gestural, spatial or audio modes (Kress and van Leeuwen 2001; Bateman 2008; Cope and Kalantzis 2009; O'Halloran 2009; Kress 2010; Serafini 2011; Jewitt et al. 2016). Each mode produces meaning through a certain medium (video, book etc.). Respectively, each medium has its own affordances for meaning making which vary from one another.

Serious attempts at transforming the multimodal literacy theory into teaching and learning practice have been described in literature research (Van Leeuwen 2005; Kress 2010). Undoubtedly, students should develop different literacy and communication skills in order to understand the meaning of multimodal texts and communicate effectively since meaning in them is produced from the combination of 'several modes in the design of a semiotic product or events' (Kress and van Leeuwen 2001; Adami and Kress 2014; Mills and Unsworth 2017). This kind of 'synergy' of different modes to meaning making (Doczi, 1981 cited in Cope and Kalantzis 2009) observed in multimodal texts indicated a necessity for developing a systematic metalanguage (Unsworth 2006; 2008) for effective literacy teaching (Martin 2008) and particularly for multimodal literacy teaching approaches (Walsh et al. 2007; Geoghegan et al. 2013; Papadimitriou and Makri 2015). Metalanguage, initially developed for describing meaning (New London Group 2000) in written and visual texts, drew on Halliday's Systemic Functional Grammar (1994) and on Grammar of Visual Design (Kress and van Leeuwen 2006) and expanded to multimodal ones. Also, later on, was this metalanguage assumed that would facilitate the assessment of multimodal texts because both teachers and students would share a common language to discuss multimodal texts and to describe multimodal products respectively. Furthermore, the metalanguage used by the teachers or acquired by the students throughout explicit teaching would serve for both of them as a tool for defining appropriate 'indicators of quality in multimodal creativity' (Wyatt-Smith and Kimber 2009: 86) in order for the quality standard of a multimodal text to be determined using certain criteria.

In addition, apart from being equipped with a metalanguage to describe and to assess

their multimodal products, students need to develop critical viewing skills and strategies which are both 'essential to unpacking the layers of meaning (Lim and Yin 2017: 194) in multimodal texts they encounter daily. From a social semiotic perspective, critical viewing of multimodal texts means to 'interrogate human intentions and interests' (Cope and Kalantzis 2015: 20) expressed in them by posing questions to the text and analyzing them so 'as to identity features and patterns' (Lim 2018: 7). Also, Lim (2018) describes critical viewing as 'an inductive process' (p.7) during which students try to fully access meaning in multimodal texts and make elaborate and justified interpretation based on contextual evidence (O'Halloran et al. 2015).

In parallel, there is also a rapid shift from print based pedagogy to a multimodal one (Mills and Unsworth 2017) which is reflected in the new revised curriculum for Early Childhood Education (RCECE). According to RCECE (I.E.P. 2014), preschoolers should learn to recognize the multimodal nature of meaning that texts convey and also to develop a critical approach to them, since texts are claimed to be social constructions and, therefore, culturally and ideologically shaped (Hodge and Kress 1988; Van Leeuwen 2005; Kress 2010). Thus, teachers are confronted with the challenge to promote their student's multimodal literacy towards current 'literacy needs of the day and for the future' (Bazalgette and Buckingham 2013; Lim and Yin 2017; 2018). Multimodal literacy is a requisite, not an option for the new curricula due to the rapid technological advances. Obviously, teaching approaches to literacy should be updated to accommodate current curriculum requirements. Language literacy is expanding to a multimodal one. Thus, students need to be educated to question the text and analyze it in order to reveal hidden messages and make justified interpretations. In order to be able to analyze and derive meaning from multimodal texts such as commercial videos, children have to be explicitly taught multimodal grammar. According to O'Halloran (2009) 'Multimodal analysis involves theorizing functionality and systems which constitute the grammar of semiotic resources' (p.20).

However, different multimodal analysis processes should be followed for different semiotic resources according to their affordances. Commercial videos, which involve digital technology affordances for analysis purposes, 'require analytical techniques which are capable of tracing and analyzing the integrative patterns of inter-semiotic relations' (O'Halloran 2009: 20). Revealing those patterns, children will be able to understand the advertisers' intentions and the various persuasive strategies they deploy (Feng and Wignell 2011), which might lead them consequently to more elaborate and justified interpretations of the commercial's meaning.

During the analysis process, students have to realize the differences in logic with which elements between written and visual modes are organized in order to produce meaning. Readers of both books and videos follow different reading paths, depending on the medium's representational affordances that strongly affect the kind of meaning derived from each one of them separately. Writing follows the logic of the linear arrangement of elements on paper, while image elements are depicted simultaneously in the visual scene (Kress, 2003; Jewitt,

2008). In order to become multimodally literate, students have to learn to arrange the elements that are available from various semiotic resources in ways that best serve their communication goals, and also to be able to recognize, through certain means (color, size etc.), the semantic role of each element and their contribution to the interpretation of meaning (Jewitt et al. 2016). Consequently, multimodal literacy entails understanding of texts through the demanding tasks of analysis and the critical viewing of multimodal texts meaning. The authors of the revised Greek curriculum have recommended indicative ways of teaching multimodality to preschoolers, however teachers should be sufficiently qualified to feel capable of designing appropriate learning activities (Ajayi 2010; Anstey and Bull 2010; Stellakis 2012; Chandler 2017) that 'effectively engage students in thinking critically about text construction – their own and that of others' (Ryan et al. 2010).

There seems to be a need for teachers' further education on the current multimodal research in order to reduce their anxiety of how the research outcomes and curriculum priorities could be applied in educational practice, and also to align their professional development with current pedagogical trends and the new nature of literacy (Ajayi 2010; Anstey and Bull 2010; Walsh 2009; 2010). Students' critical skills related to the elaborate and thorough examination of the information presented in pictures – still or moving – are definitely not developed only because they are exposed to them. It takes time and the explicit teaching of the functions and uses of an image in order for students to develop a critical understanding of them (Bazalgette and Buckingham 2013; Jewitt 2008).

In this light, an intervention of teaching multimodal literacy has been designed during a continuing research project for the implementation of multimodal literacy in teaching practices in early childhood education to serve as a framework for future implementation and to inform multimodal literacy practices. The teaching intervention was designed according to multimodal pedagogy principles and implemented in a Greek kindergarten. A series of lessons were designed to enhance the multimodal literacy of preschoolers, particularly their critical viewing of multimodal texts. Knowledge gathered through these efforts of putting theory into practice wishes to serve as teaching exemplar for future instructional plans for the development of students' multimodal literacy.

Parts of the teaching intervention are being described and discussed in this article. Emphasis is placed on enhancing preschoolers' critical viewing skills concerning a particular genre of multimodal texts, that is commercial videos to which small children are daily exposed.

2. The Research Project

In latest reform efforts within the Greek language curriculum there are suggestions for teaching practices of multimodality which imply 'that the incorporation of visual/multimod-

al literacy practices into the classroom is a matter of policy' (Papadimitriou et al. 2015: 39). However, as Stellakis (2012) mentions, in order to implant current trends in literacy practice, in-service teachers need to attend 'appropriate programmes of continued professional development ... so that they obtain practical guidance and support, based on rigorous research evidence' (p. 70). National policy seems to underestimate teachers' need for updating literacy teaching practices and awareness of current multimodal pedagogy and research. Greek teachers should be provided with teaching exemplars in order to feel more confident to implement multimodality in classrooms. Obviously, the subject of teaching multimodal literacy in early childhood education needs to be addressed. Further research should shed light on how preschoolers will become multimodally literate so as to analyze, understand critically and produce multimodal texts.

Babbie (2011) claims that exploratory research 'occurs typically when a researcher examines a new interest or when the subject of study itself is relatively new' (p. 97) and there is a need for results that can provide insight into a given situation. In this respect, we conducted an exploratory research which aimed to explore the relatively new subject of teaching multimodal literacy in early childhood education that is a requisite for the current curriculum. It is an evolving research project that seeks to establish a framework to support multimodal teaching practices through the design and implementation of a teaching intervention. It was assumed that through explicit teaching of T.V. ads' structure and meaning making strategies, students would realize their interrelations with text purposes and effects on audience interpretation. According to the above assumption, the following research questions were formulated:

- What constitutes a teaching intervention for preschoolers' multimodal literacy skills development?
- What kind of pedagogy promotes critical viewing skills in meaning making processes of multimodal texts such as T.V. ads?

2.1. Participants

The participants in the current exploratory research were twelve preschool students, four boys and eight girls, at the kindergarten during the school year period 2018-2019.

2.2. Initial evaluation

In the first place, an evaluation of students' initial conceptions on the concept of commercial video ads, their purpose, their functions and the persuasive means used by advertisers to convince the intended audience was conducted. These preschoolers' preconceptions on commercial video ads gathered through the initial evaluation process inspired and supported teaching intervention design since students' prior knowledge on the subject of the research was carefully elaborated and incorporated in it in order to facilitate the intervention's effec-

tiveness. A semi-structured questionnaire was designed as well and used by the researcher as a guide to facilitate the discussion during the initial evaluation process. Questions were organized in two main axes for analysis purposes: Concepts of T.V. commercials and functions and semiotic resources of T.V. commercials (Table 1).

Concept of commercial videos
In your opinion what does 'T.V. advertisement' mean?
Do you usually watch T.V. ads?
Which one is your favorite? Why?
What's the story of your favorite T.V. ad?
Functions of T.V. commercial Ads
What is the intended purpose of a T.V. commercial ad?
Do ads always tell the truth?
Do you believe what the ad says? If not, how do you understand that the story isn't true?
Which means do advertisers use to tell a story in an ad and to persuade their audience? Can you give me an example?
How do you manage to find the truth in an ad? In what way? Can you describe it by the use of an example?

Table 1. Interview questionnaire guide developed for evaluating students' initial conceptions on the concept and the functions of commercial video ads.

2.3. Data analysis

Discussion during the initial evaluation process was recorded and transcribed in order to facilitate the subsequent analysis process. Collected data was analyzed according to content analysis methods (Krippendorff 2004). Codes were assigned to the data according to the most frequent appearance of words, concepts or ideas that appeared in the participants' answers, and it was assumed that they would offer an adequate insight into the subject being surveyed. Two main code categories resulted from data analysis that was collected during the initial evaluation process relevant to the aforementioned questionnaire axes (Table 1).

2.4. Results

2.4.1. Concepts of T.V. commercial ads.

The majority of the subjects who took part in the initial evaluation process confused commercial videos with animation videos. According to their justifications of their most favorite T.V. ad, preschoolers defined them as a short interval or announcement for the successive video between animation videos they usually watch. One student said: 'It's a video before the second part of Mickey Mouse animation starts again'. Preschoolers didn't realize the intended purpose of an ad and how their consumer attitudes and behavior were subconsciously affect-

ed. According to the analysis of the preschoolers' answers, their personal health attitudes and beliefs seemed to be constructed by scenes of joy and happiness with family members, while the persuasive power of the medium (that is T.V.) was strong enough so as to literally guide and intervene in the audiences' reasoning thinking process. Specifically, one of the video advertisements shown and elaborated during the teaching intervention claimed that the advertizing product is healthy. Children unquestionably accepted such a statement and when they were asked to explain why they agreed with this statement they easily answered 'because it's on T.V. and I believe her' and another child added '...because the girl and her parents are laughing and feel happy eating it'.

2.4.2. Function and semiotic means of T.V. commercial ads.

The persuasive function of the T.V. ad was only mentioned by one student: 'Videos tell us to go and buy'. Most of the students maintained the idea of T.V. commercial videos as short intervals between video animations and as regards the intended purpose of the ads they mentioned the advertisements' narrative function: 'it tells a story of kids going to the park to play football with a ball'. Preschoolers described exactly what was depicted on the video screen (the representational function of an ad, that is playing football) and not the hidden intention of the video producers to convince the audience to buy the ball to play football. Consequently, since they did not identify any intentionality in advertisers, preschoolers claimed that ads always tell the truth, and justified their claims based on previously gained experience or the unquestioned strength of the T.V. medium itself mentioned above, as we assumed from their answers: 'I believe that the ad tells the truth about the biscuits because I saw them on the market shelves the other day'. Therefore, it seems preschoolers had neither developed critical viewing skills to interpret the latent meaning of T.V. commercial videos nor were they equipped with tools for analyzing ads to the semiotic resources employed by advertisers for meaning making purposes.

The above results were incorporated into the instructional plan and affected the learning goals set in order to alter children's misconceptions concerning ads, in alignment of course with the objectives of the project.

3. Teaching intervention

The teaching intervention to scaffold preschoolers' multimodal literacy and critical skills drew on the multimodal discourse framework developed by Kress and van Leeuwen (2006), Cope and Kalantzis (2009), and later O'Halloran et al. (2015), and Lim and Yin (2018) who tried to apply previous frameworks into instructional strategies for secondary classrooms in Singapore.

The whole research project on multimodal literacy lasted for four weeks. It was implemented in a Greek public kindergarten situated in Volos, in central Greece. The researcher was also the teacher of this school who had been working there for the last five years.

3.1. Teaching materials

Pedagogically appropriate teaching materials that stimulated the students' interest, were relevant to their age and learning style, enhanced their learning experiences and met lessons' objectives as well were chosen and developed (Laborda 2011; Tomlinson 2012). In particular, the whole teaching project referred to a specific genre of multimodal texts, which is T.V. advertisements. Van Leeuwen (2005) refers to the term 'genre' as a 'type of texts which are typical when they have characteristics of content (what the text is about), form (means of expression or media texts use) and function (what texts do i.e. ads sell products, services, ideas) that can also be recognized in other, similar texts' (p. 122-123). The underlying reason for such a choice is mainly the fact that T.V. ads are typical multimodal texts - according to the aforementioned definition of 'genre' - and they also employ various modes (image, text, sound etc.) and semiotic resources in meaning making, and thus facilitate the accomplishment of the learning goals of the research project. In addition, commercial videos are one of the most common multimodal texts to which preschoolers are exposed on a daily basis.

Digital technology, such as movie maker software, recording applications available in smart phones, videotaping equipment, you tube digital repository of videos, films etc. were used to facilitate the teaching procedures of the project. There seemed to be no necessity for platforms or software especially designed for the multimodal analysis of videos by both the preschoolers and the teacher. Digital technology which is available for free, such as windows movie maker software which supports both editing and analyzing videos adequately in a user's friendly environment and at a low cost, was thought to be appropriate. The most profound reasons for this software appropriateness were the facts that it was readily accessible and free to the teachers and the children as well and it also met the needs for instruction at a low cost. In addition, the software's friendly-to-use environment can help less technologically qualified teachers to carry out such a teaching intervention in the future even in poorly technologically equipped kindergartens, which is the most common case in Greek public schools. With regard to software facilities, windows movie maker software could serve as a tool for analyzing digital texts, such as videos, by enabling users to cut clips into individual segments in order to focus on certain visual elements, for example (color, angle etc.), or other modes (acoustic, language etc.) which were essential to meaning making and were also aligned to the intervention's learning objectives. Multimodal analysis conducted by preschoolers was restricted by their developmental skills. For example, there was no prerequisite for the software being used for the analysis by preschoolers to support annotation of the feature characteristics of the video or particular frames or scenes since they were illiterate.

Therefore it's obvious that digital technology was to be used appropriately for didactic purposes by the teacher mainly in order to scaffold preschoolers' knowledge concerning multimodality and ways of meaning making processes employed by multimodal texts.

The commercial videos used in the context of the project were downloaded from you tube website and were available from the following links: https://youtu.be/JBJKqNirmPk and https://youtu.be/cbLn_3xpaYY. Both T.V. ads were chosen according to the following criteria:

- Most of the structural characteristics of the advertisement genre and the semiotic resources intended to be taught should appear in them.
- Duration of the videos, according to literature reviews (Anderson and Levin 1976; Eickhoff and de Vries 2010) on preschoolers' concentration ability to watch a video, should be short.
- The content of the video should be appropriate and relevant to the interests of the intended audience.

3.2. Learning objectives

The educational goals that were set derived from the currently revised curriculum for early childhood education, particularly from the learning subject of language. Specifically, after the completion of the project in multimodal literacy, students should be able to:

- Identify various video text genres (weather forecast video, T.V. commercial advertisement and animation clip).
- Classify video texts genres by their objectives (persuade, entertain, inform).
- Distinguish the structural characteristics of T.V. commercial videos and their typical functions.
- Explain the advertisement's content and purpose.
- Discriminate the various modes in an advertisement and their interrelation in meaning making.
- Examine multimodal texts critically.
- Recall and properly use a metalanguage in order to describe and justify their interpretations of multimodal texts.
- Assess T. V. commercial videos they produce with the use of a grid analysis tool.
- Integrate new learning in their personal designs when advertising a product of their choice.

3.3. Teaching intervention

The instructional approach developed in the current project was organized in individual lessons. Each lesson investigated the children's ideas on identifying intended purposes of T.V. ads, analyzed the structural features of commercial videos and the arrangements of the

semantic elements on the video screen and also the functions of these elements in meaning making. The objective of the meaning making process was for students to extract the literal and inferential meaning of commercial videos and to evaluate the producers' design choices (Kress and Selander 2012) and intentions. In addition, visual grammar and language of multimodal text were discussed in order for students to interpret ads they see in everyday life and gradually acquire a metalanguage to make justified interpretations.

In particular, five lessons were conducted

- Lesson one: T.V. commercial videos text genre and content comprehension.
- Lesson two: Synergy of modes in producing meaning.
- Lesson three: Structural elements of T.V. commercial videos and semiotic resources used for persuasive purposes.
- Lesson four: Producing multimodal texts (Students produce a T.V. commercial video).
- Lesson five: Assessment of the multimodal product.

3.3.1. Lesson one: T.V. commercial videos text genre and content comprehension

During the first lesson, students watched three videos: a weather forecast video, a T.V. commercial advertisement and an animation clip. They had to narrate the story of each video in their own words and to determine the differences in content. During this process, the teacher stimulated the narration with proper comprehension and guiding questions. In addition, students were encouraged to grasp the different objective of each story: informational, persuasive, entertaining and to justify their opinions and classify the videos according to this criterion.

3.3.2. Lesson two: Synergy of modes in producing meaning

Students watched one of the two T.V. commercial videos mentioned above as teaching materials of the project in three different ways: only image with no sound, sound only without image and both image and sound. Each show was followed by the students' narration of their understanding of the advertisement's content, initially based on visual elements and subsequently on auditory elements, and finally on both visual and auditory elements. Students' narrations varied according to which channel for information acquisition and processing was used each time. The teacher supported the comprehension process by asking questions and summarizing the students' statements into a coherent and holistic narration. In addition, the teacher encouraged preschoolers to realize the contribution of each mode separately and in cooperation to the comprehension of the meaning of multimodal texts. The summarizing strategy led to the co-construction of the comprehension of the story concerning T.V. commercial videos. These revised stories derived from the children's gradual exposure to different modes aimed to promote their awareness of the significance of each mode's involvement in

meaning – making and also the mode's synergy for gaining more elaborate and extensive knowledge of the video content.

3.3.3. Lesson three: Structural elements of T.V. commercial videos and semiotic resources used for persuasive purposes

During previous lessons, students ended up to an advertisement story which they thought to best fit the story told by various modes and in relation to each mode affordances. The objective of the third lesson was for the students to reflect on the purpose of this story and how this particular purpose was fulfilled. Students were guided through a grid analysis to identify certain semiotic resources (color, sound, gestures, light, text, size, movement etc.) employed by the advertisers and to relate them to certain meaning making strategies and to their impact on meaning. The semiotic functions and implications of the resources for the meaning that students identified were also examined and defined through a justification process. The teacher asked them for the justification of their arguments on how advertisements produce meaning with the use of textual evidence and recalls of previous personal experience. For example, one student said: 'I felt happy because of the light in the room. When it's a sunny day I feel happy too' and continued 'and parents in the advertisement feel happy. I heard their laughter and I saw them embrace each other'.

The third lesson was completed in two units. The first one was developed with students brainstorming on the intended purpose of ads and the semiotic resources used in attaining this particular purpose. Children were allowed to freely express their knowledge based on intuition of how ads produce meaning. Such intuitive knowledge was formed mainly out of students' past experiences and knowledge of meaning making strategies and resources employed by texts that they encountered in general. At this particular point, the students' opinions were not examined through the lens of correctness or congruence to the multimodal theory. Consequently, during the second unit of the third lesson, they were introduced to explicit teaching of visual grammar with the use of an especially designed grid analysis tool.

The second lesson's unit objective was to guide students to look for more precise elements in video scenes according to the grid analysis and to enrich their vocabulary in order to describe their justifications concerning the semiotic elements and their functions employed by T.V. commercial ads with the use of relative metalanguage of multimodality they would acquire during the lesson.

3.3.3.1. Grid analysis tool

The grid analysis was designed especially for the current instructional purposes (Table 2) and according to the Grammar of Visual Design (Kress and van Leeuwen 2006) and the Systemic Functional Theory (Halliday 1994). In particular, the grid analysis, which was finally used

during the instruction, was mainly based on the framework of multimodal texts' analysis proposed by Lim and Yin (2017) with necessary adjustments to the students' age and the leaning goals.

The grid was intended for the teacher's use only and served as the teacher's guide in order to design her questions for the students in alignment with the learning objectives of multimodal project. Our instructional proposal content expands further than the typical approach that mainly teachers used and which basically referred to strategies of asking students comprehension questions concerning multimodal texts being taught (Lim and Yin 2018). The questions included in the grid analysis corresponded to particular frames of the video that the teacher had previously divided into short clips with the use of the movie maker software and included tools. Due to the division of the ad into smaller units, the students had the ability to focus on one semiotic resource at a time and examine thoroughly the resource's relation with the intended meaning. This examination of semiotic elements in isolation provided students with chances of deep understanding of new knowledge and acquisition and retention of visual vocabulary. For example, when the children were asked to investigate the advertisers' different choices of expressing 'love' in the advertisement, they pointed out, among others: hugs, laughter, song words, warm shades of light in the room or on actors' faces and camera's close ups as well and they used proper language to justify their answers such as music, mode, gaze, zoom, light, mood and gesture accordingly.

The students were allowed to make assumptions about the functions of the semiotic resources they observed and their meaning and to describe their interpretations with the use of appropriate vocabulary they became acquainted with during the lesson.

The role of the teacher was to reflect on the students' assumptions and to elicit a fruitful discussion about the T.V. commercial videos' literal and inferential meaning with the use of gained metalanguage, too. For example, one students said that "'Miranta' (biscuit brand) like Mama' means that biscuits are sweet as mother is" and someone else mentioned that 'ads convince us to buy meat products by getting the actor to look his audience straight in the eyes and say that they are good'.

The teacher also kept notes of the students' observations. The notes were organized in separate columns under headings similar to those included in the grid analysis. The notes were to be used both by the teacher and the students for future reference during the evaluation process of the learning outcomes and implementation task, correspondingly.

As an extension to this unit lesson, certain frames of the video were printed. The teacher had also transcribed the lyrics of the advertisement song or sentences of the scenario and cut them into small strips. The students had to match printed frames with word strips and to assign them to a certain meaning that they had previously found in the video (Figure 1).

	Metalanguage	Indicative questions
NARRATION	Content-message	What is the main story of the ad about?
	Context, location, time, participants, relations	Where does the story take place? When? (time of day) Support your claim with evidence from the text Who are the participants in the story? Can you tell their age? Which do you think is their relation?
GENRE	Structural features Call to action	What kind of texts are they? (animation, film, documentary etc.) How does it end? Does it inluence you in the end for doing something in particular? What? How is it done?
	Purpose, intentions	What is the aim of the advertiser? What do you think is the purpose of the narration? (entertainment, education etc.). Support your claim with evidence from the text
MEANING	Semiotic resources Mode/s: visual, oral, audio, gestural Affordances Synergy symbols	In what way/s the story is being told? (oral, written etc.) How many modes did you recognize? Which mode helped you more to comprehend the story? In what way/s are we told about the product offer? (image, symbol, text, etc.) What does the symbol of addition (+) between the image of the two meat products mean?
	Sound mode	Did you hear a sound/ voice/ music? Can you describe each of them? Where did they come from? What kind of music etc. was that? Has music etc. anything to do with the advertised product? How did music etc. make you feel? What did you think when you heard that music etc.?
	Oral mode	Who talks in the ad? How does she/he talk? How does she/he talk? What is she/he talking about? Who is she/he talking to? Why? What might be her/his interest?
	ENGAGEMENT: Gaze (direct, indirect), interaction Power, angle Location, background, foreground, arrangement Shot, zoom, intimacy Salience Light (sharpness, contrast)	How does the actor/s look at you? (straight in the eyes, indirectly, avoiding you etc.). Has this particular look any effect on you? How do you feel? Why? Which is the actor's eye-level in relation to yours? (lower etc.). How this impacts you? In what way? Which is the actor's eye-level in relation to the other actor/s in the scene? What can you assume from that about their relationship? Where is the actor placed in the scene in relation to the background (room)? Does he/she look very small (long shot)? Does the entire body or half of the body appear (medium shot) in the scene? Does a particular body part e.g. finger is being shown on screen (close up)? How this affects you? How does it make you feel? Does it affect the way you feel about him/her in a different way in each case? Has this particular shot of the camera an impact on you? Can you tell the difference? Would it be the same if the camera was positioned above the actor? Would it have affected your decision of buying the product? In what way? Which of the actors look bigger in size than the others? Is the camera closer to him/her? What will happen if a camera gets closer to someone or something? Does it help you to realize which of the actors is the protagonist and therefore the most important? In what way? How is the light in the scene? How makes you feel? How is your feelings related to the product?
	MESSAGE Literal, inferential Persuasive purpose mood	The actor says that the advertised product apart from being healthy makes children become obedient too. Do you agree? Why do you think you are told so? Does this statement affect you emotionally? In what way? Are you convinced that the advertised product is good? How? Which are the arguments of buying the advertised product?

Table 2. Grid analysis tool for helping students to reveal and describe the meaning making strategies and the semiotic resources employed by the T.V. ads.

Figure 1. Students discovered similar meanings expressed through different modes

In addition, further experiments with movie maker software tools allowed the teacher to change the color of the whole video (e.g. sepia or black and white color) or to apply certain effects (e.g. blurred effect). Alternatively, different music from the original background was added (e.g. sad music). Such interventions in the original video aimed at the students' deeper comprehension of the decisive role of semiotic resources and modes in the meaning process.

3.3.4. Lesson four: Producing multimodal texts (Students produce a T.V. commercial video)

Students had to produce their own T.V. commercial advertisement from the available semiotic resources. Also, they had to incorporate into them learning gained from previous lessons. In the beginning, they revised knowledge of how an ad is constructed, how various modes interact in multimodal texts and produce meaning, how arguments about the product advertised are presented in order to persuade consumers and what kind of semiotic resources are employed by multimodal texts to produce meaning. Furthermore, students applied new learning to a commercial advertisement they produced for a product of their choice. It was significant to be a product relevant to their interests because they had to find

and develop strong arguments in order to successfully pursue the advertisement's objective to convince intended audience, and to present them according to the visual grammar they learnt (Pardi et al. 2018). Interest was assumed to be an incentive that would reinforce the students' efforts towards the accomplishment of the objectives of the task that was assigned to them.

After defining the product advertised, the students were separated in small groups while certain tasks were assigned to them. During the fifth lesson, under a cross-thematic learning approach, students in groups:

- Constructed a T.V. screen made of a cardboard (Figure 2)
- Sketched and colored the advertisements' background
- Designed the logo of the advertised product
- Defined the possible audience of the advertisement
- Explained the reasons for buying this particular product
- Discussed and defined the arguments for the product and dictated them to the teacher in order to write them down (Figure 3)
- Wrote the script for the advertisement incorporating the arguments they had agreed on
- Searched on you tube for the proper music background that could be used for the advertisement, downloaded it and saved it in a file with the teacher's assistance
- Created a song for the advertisement (lyrics and melody)
- Made the invitation for the audience to buy the product
- Organized and arranged all the semiotic elements according to the place and time of appearance in the ad
- Rehearsed the advertisement several times and videotaped it after making necessary alterations and adjustments

Figure 2. Students collaborated on both designing the background of the T.V. ad and deciding the content of the advertisement's script

Figure 3. Students worked on a T.V. screen craft and they also used the available semiotic resources in order to produce their own advertisement video

3.3.5. Lesson five: Assessment of the multimodal product

During this lesson, the students watched the videotaped advertisement they had produced during the previous lesson on a P.C. screen and commented on it. Their comments were based on certain criteria (quality indicators) (Wyatt-Smith and Kimber 2009). As quality indicators of their production served notes of their observation that the teacher had kept while students dictated to her, and the answers to guiding questions posed by the teacher. The video served as documentation of the students' multimodal literacy both for the student and the teacher and as a data source for the researcher (Wessel-Powell et al. 2016). It provided the teacher with insight into the students' learning process, complementary to his observations while students worked on creating their advertisement and the grid analysis that had been transformed into a rubric for assessment purposes. Students presented their work to others. During this presentation, students assessed themselves (self-assessment), were assessed by the others (peer-feedback) and also reflected on their work as they explained to others how they had reached the learning outcome, how they had used the available semiotic modes and resources, how they felt and cooperated, what might change in case of future repetition of a similar task, which elements of visual design were included in their product, etc.

4. Discussion

According to research aims, it was indicated that multimodal literacy could be explicitly taught in Early Childhood Educational settings. T.V. commercial advertisements could serve as an appropriate teaching material – according to the aforementioned criteria of teaching materials appropriateness (p. 10) for teaching multimodality and promoting the critical skills of small children as well, which stimulates their interest to deal with them. So they become willing to participate in tasks that entail T.V. ads in order to reach learning outcomes concerning multimodal literacy.

The present article provides an insight into how multimodal literacy could be applied in educational settings in order to promote preschoolers' critical viewing of multimodal texts and particularly T.V. commercial video texts.

A benefit of the intervention in teaching multimodality described in this article is that teachers are provided with a paradigm of how curriculum demands on teaching multimodal literacy could be transformed into teaching practice. Teachers could draw from this paradigm to develop their own instructional plans in order to expand their students' literacy competencies. In addition, teachers are thought to feel confident to deal with curriculum demands and to overcome their anxiety stemming from negative feelings of inadequacy because of their lack of familiarization with the multimodal theory and practice as this is thought of as a 'domain in which they have little expertise' (Liu 2014: 4). In the long run, this could help teachers to increase their professional development and to reduce 'the implementation gap' that was previously mentioned between theory, curriculum requirements and teaching practice (Lim and Yin 2017).

Preschoolers who participated in the project were enthusiastic about being involved in a task that included T.V. commercial advertisements and also they were fascinated by the option of being actively engaged in creating their own T.V. commercial ad. It was found that, apart from the inclusion of challenging teaching material in an instructional plan, the key to the further engagement of the students and the maintenance of their interest in the task was the active role assigned to them during the project. In turn, the whole project was student- centered as it was designed upon previous knowledge of students on multimodal texts which derived from data resources collected during the initial evaluation process that was conducted.

It is held that both students' and teachers' role are redefined in a multimodal approach. During the project, students were encouraged to problem solve and investigative learning methods were adopted so that they could explore the topic with the use of text evidence-based reasoning and creative problem-solving to reach a conclusion concerning meaning making in multimodal texts. The teacher's role, according to multimodal pedagogy principles, was to scaffold the students' viewing process (Sofkova Hashemi 2018). Therefore, carefully selected questions were posed by the teacher to guide the students' approach to the structure and the elements in the video, while students were challenged to make justified assumptions about different affordances of modes and advertisers' choices concerning arrangements of the elements on video screen, the semiotic use of color, actors' gestures, written text and other semiotic resources. Along with an explicit teaching of the visual grammar and relevant vocabulary, students were encouraged to explain their assumptions on how multimodal texts make meaning. Explanations were given with the use of particular metalanguage which was gained through explicit and systematic teaching. Gradually, students managed to provide interpretations of the video content based on elaborate reasoning.

It is claimed that this approach can raise students' awareness of the complexity of com-

munication process (Chan et al. 2017) and that they can gain a deeper appreciation of how meaning is produced in multimodal texts. As long as guiding questions prompt students' thoughtful arguments based on evidence cited in text and students are engaged in tasks to explore meaning construction in T.V. commercial ads and demonstrate their appreciation of how modes make meaning individually and in combination, it is maintained that students' critical thinking is challenged and reasoning skills are developed. In conclusion, students become more discerning and evaluative of media messages and less intuitive interpretations are made. So there is a potential for change in literacy practice concerning students' systematic, active engagement with multimodal texts.

The purpose of this article was to establish a framework for teaching multimodal literacy in early childhood education. For that reason, a proposal for assessing preschoolers' multimodal products such as their own video ads was also included. We maintain that skills related to the comprehension of multimodal texts' meaning, structure and effects could be assessed through conventional tools such as grid analysis tools. However, critical literacy skills require more updated and open multimodal forms of assessment (Jewitt 2003; Wyatt-Smith and Kimber 2009) along with long-term instructional plans. Students should be provided with adequate time to encounter a wide range of authentic multimodal texts constantly (Chan et al. 2017) in order to understand and evaluate meaning critically.

In this article, as already mentioned, a multimodal teaching framework and the preliminary outcomes of an on-going exploratory research are described and presented. Therefore, both the framework and the outcomes are subject to improvement since instructional implementation was indicative of alterations that need to be made. It is believed that in future more elaborate instructional plans will be generated from knowledge gained from current implementations that provide researchers with a valid strong feedback for improvement.

Overall, despite the rather short implementation and the continuing nature of the research, it was made clear by the current article that preschoolers' multimodal literacy could be enhanced through systematic teaching plans and explicit instruction of multimodal language and design of multimodal texts (Sofkova Hashemi 2018). Critical literacy is the result of understanding the grammar of multimodal texts and meaning making strategies employed by them. It could be claimed that students initially became acquainted with the structure of multimodal texts and visual analysis tools and the proper vocabulary for describing the strategies of meaning making employed by them. Subsequently, students became quite capable of making elaborate remarks on the inferred meaning in multimodal texts based on previous analysis approach to the semiotic resources in the text. In addition, new knowledge on semiotic function of elements in the text that students gained by instruction and metalanguage allowed students to successfully unfold the layers of meaning in text and incorporate new knowledge into their own productions.

REFERENCES

Adami, Elisabetta and Gunther Kress 2014. Introduction: Multimodality, meaning making, and the issue of "text". *Text & Talk* 34 (3): 231-237.

Ajayi, Lasisi 2010. Preservice teachers' knowledge, attitudes, and perception of their preparation to teach multiliteracies/multimodality. *The Teacher Educator* 46 (1): 6–31.

Anderson, Daniel R. and Stephen R. Levin 1976. Young children's attention to "Sesame Street." *Child Development* 47 (3): 806-811.

Anstey, Michele and Geoff Bull 2010. Helping teachers to explore multimodal Texts. *Curriculum Leadership Journal* 8 (16). Available from: http://www.curriculum.edu.au/leader/helping_teachers_to_explore_multimodal_texts,31522.html?%20issue%20ID=12141 [accessed April 14, 2019].

Babbie, Earle. R. (ed.) 2011. *The basics of social research*. USA: Thomson Wadsworth.

Bateman, John (ed.) 2008. *Multimodality and genre: A foundation for the systematic analysis of multimodal documents.* London: Palgrave Macmillan.

Bazalgette, Cary and David Buckingham 2013. Literacy, media and multimodality: a critical response. *Literacy* 47 (2): 95-102.

Chan, Caroline, Alexius Chia and Suzanne Choo 2017. Understanding multiliteracies and assessing multimodal texts in the English curriculum. *The English Teacher* 46 (2): 73-87.

Chandler, Paul D. 2017. To what extent are teachers well prepared to teach multimodal authoring? *Cogent Education* 4 (1): 1266820. Available from: https://doi.org/10.1080/2331186X.2016.1266820 [accessed March 15, 2019].

Cope, Bill and Mary Kalantzis (eds) 2009. A Grammar of Multimodality. *International Journal of Learning* 16 (2): 361-425.

Cope, Bill and Mary Kalantzis (eds) 2015. *A pedagogy of multiliteracies: Learning by design*. London: Palgrave Macmillan.

Eickhoff, Carsten and Arjen P. de Vries 2010. *Identifying suitable YouTube videos for children*. Paper presented in 3rd Networked and electronic media summit (NEM). Barcelona, Spain. Available from: https://brown.edu/Research/AI/files/pubs/nem10.pdf. [accessed May 11, 2019].

Feng, Dezheng and Peter Wignell 2011. Intertextual voices and engagement in TV advertisements. *Visual Communication* 10 (4): 565–588.

Geoghegan, Deborah, Shirley O'Neill and Shauna Petersen 2013. Metalanguage: The 'teacher talk' of explicit literacy teaching in practice. *Improving Schools* 16 (2): 119–129.

Halliday, M.A.K. (ed.) 1994. *An introduction to functional grammar*. 2nd edn. London: Edward Arnold.

Hodge, Robert and Gunther Kress (eds.) 1988. *Social semiotics*. Cambridge: Polity.

Institute of Educational Policy (I.E.P.) 2014. Anatheorimeno Programma Spoudon gia to Nipiagogio (MEROS II) – Mathisiakes perioxes [*Revised Curriculum for Early Childhood Education (PART II) – Learning subjects (RCECE)*]. Athens: Institute of Educational Policy. Available from: http://iep.edu.gr/images/IEP/EPISTIMONIKI_YPIRESIA/Epist_Monades/A_Kyklos/Proshol_Agogi_nea/2019/meros_2_paidagogiko_plaisio.pdf. [accessed April 2, 2019].

Jewitt, Carey 2003. Re-thinking assessment: Multimodality, literacy and computer-mediated learning. *Assessment in education: Principles, policy & practice* 10 (1): 83-102.

Jewitt, Carey 2008. Multimodality and literacy in school classrooms. *Review of Research in Education* 32 (1): 241-267.

Jewitt, Carey, Jeff Bezemer and Kay O' Halloran (eds.) 2016. *Introducing multimodality*. London: Routledge.

Kress, Gunther (ed.) 2003. *Literacy in the new media age*. London: Routledge.

Kress, Gunther 2010 (ed.). *Multimodality: A social semiotic approach to contemporary communication*. London: Routledge.

Kress, Gunther and Staffan Selander 2012. Multimodal design, learning and cultures of recognition. *The internet and higher education* 15 (4): 265-268.

Kress, Gunther and Theo van Leeuwen (eds.) 2001. *Multimodal discourse: The modes and media of contemporary communication*. London: Arnold.

Kress, Gunther and Theo van Leeuwen (eds.) 2006. *Reading images: The grammar of visual design*. London: Routledge.

Krippendorff, Klaus (ed.) 2004. *Content Analysis: An Introduction to Its Methodology*. California: Sage Publications, Inc.

Laborda, Jesús García 2011. Revisiting materials for teaching languages for specific purposes. *3L: The Southeast Asian Journal of English Language Studies* 17 (1): 102-112.

Lim, Victor Fei 2018. Developing a systemic functional approach to teach multimodal literacy. *Functional Linguistics* 5 (1): 1-17.

Lim, Victor Fei and Serene Tan Kok Yin 2017. Multimodal translational research: Teaching visual texts. In: Janina Wildfeuer and Ognyan Seizov (eds.) *New Studies in Multimodality Conceptual and Methodological Elaborations*. London: Bloomsbury Publishing, 175-199.

Lim, Victor Fei and Serene Tan Kok Yin 2018. Developing multimodal literacy through teaching the critical viewing of films in Singapore. *Journal of Adolescent & Adult Literacy* 62 (3): 291-300.

Liu, Richard (Jianxin) 2014. Multimodal educational assessment: From transmissive learning to creative production. *Journal of Educational Policies and Current Practices* (JEPCP) 1(1): 1-11.

Martin, James R. 2008. Intermodal reconciliation: Mates in arms. In: Len Unsworth (ed.) *New Literacies and the English Curriculum*. London/New York: Continuum, 112–148.

Mills, Kathy A. and Len Unsworth 2017. Multimodal Literacy. In: Oxford Research Encyclopedia of

Education. Available from https://dx.doi.org/10.1093/acrefore/9780190264093.013.232. [accessed February 23, 2019].

New London Group 2000. A Pedagogy of Multiliteracies: Designing Social Futures. In: Bill Cope and Mary Kalantzis (eds.) *Multiliteracies: Literacy Learning and the Design of Social Futures*. Melbourne: Macmillan, 9–38.

O' Halloran, Kay L. 2009. Multimodal analysis and digital technology. In: Anthony Bauldry and Elena Montagna (eds.) *Interdisciplinary Perspectives on Multimodality: Theory and Practice*. Palladino: Campobasso.

O' Halloran, Kay L., Sabine Tan and K. L. E. Marissa 2015. *Multimodal analysis for critical thinking. Learning, Media and Technology* 42 (2): 147–170.

Papadimitriou, Efi and Demetra Makri 2015. The metalanguage of "visual design" into the classroom for the construction of intermodal meanings. *International Journal of Education and Literacy Studies* 3 (2): 32–43.

Papadimitriou, Efi, Maria Emmanouilidou and Artemis Katsiaflaka 2015. Critical Multimodal Literacy in Classroom Practice: Comics as Mediating Tools for the Interpretation and Construction of Cross-modal Representations of Social Reality. *The International Journal of Literacies* 22 (4): 27-43.

Pardi, Asnani, Asnani Siregar and Safitri Hariani 2018. Multimodal in Audiovisual Advertisement. *KnE Social Sciences* 3 (4): 659–668.

Ryan, Josephine, Anne Scott and Maureen Walsh 2010. Pedagogy in the multimodal classroom: an analysis of the challenges and opportunities for teachers. *Teachers and Teaching* 16 (4): 477-489.

Serafini, Frank 2011. Expanding perspectives for comprehending visual images in multimodal texts. *Journal of Adolescent & Adult Literacy* 54 (5): 342-350.

Sofkova Hashemi, Sylvana 2018. 'You're meant to read the writing? ': Young pupils negotiating meaning from digitally mediated multimodal texts. In: Silwa Claesson, Åke Ingerman and Christina Osbeck (eds) *Didactic classroom studies - A potential research direction.* Lund, Sweden: Nordic Academic Press, 86-111.

Stellakis, Nektarios 2012. Greek kindergarten teachers' beliefs and practices in early literacy. *Literacy* 46 (2): 67-72.

Tomlinson, Brian 2012. Materials development for language learning and teaching. *Language Teaching* 54 (2): 143-179.

Unsworth, Len 2006. Towards a metalanguage for multiliteracies education: Describing the meaning-making resources of language-image interaction. E*nglish Teaching: Practice and Critique* 5 (1): 55-76.

Unsworth, Len 2008. Negotiating new literacies in English teaching. In: Len Unsworth (ed.) *New literacies and the English curriculum*. London: Continuum, 3-19.

Van Leeuwen, Theo (ed.) 2005. *Introducing social semiotics: An introductory textbook*. London: Routledge.

Walsh, Maureen 2009. Pedagogic Potentials of Multimodal Literacy. In: Leo,Tan Wee Hin and Ramanathan Subramanian (eds.) *Handbook of Research on New Media Literacy at the K-12 Level: Issues and Challenges* (Vol. I and II). U.S.: IGI Global, 32–47.

Walsh, Maureen 2010. Multimodal literacy : what does it mean for classroom practice? *Australian Journal of Language and Literacy* 33 (3): 211-239.

Walsh, Maureen, Jennifer Asha and Nicole Sprainger 2007. Reading digital texts. *Australian Journal of Language & Literacy* 30 (1): 40–53.

Wessel-Powell, Christy, Tolga Kargin and Karen E. Wohlwend 2016. Enriching and Assessing Young Children's Multimodal Storytelling. *The Reading Teacher* 70 (2): 167-178.

Wyatt-Smith, Claire and Kay Kimber 2009. Working multimodally: Challenges for assessment. *English teaching: Practice and critique* 8 (3): 70-90.

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Color signification in digital multimodal compositions: A descriptive analysis of undergraduates' digital videos

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Modern digital technology allows users to compose multimodal ensembles that combine aural and visual modes. Video editors allow users to manipulate the color of visual imagery through effects. While effects unlock an extra layer of semiotic potential, empirical research has not examined how novice users utilize color-related effects to communicate meanings when creating digital artifacts. The present study analyzed 46 digital videos created by a cohort of undergraduates who attended a digital media course. The examination of the digital videos showed that only one in three video projects involved the use of effects for changing the color of the original image and video resources. A closer analysis of these video projects indicated three main patterns of color-related effects: defective, inconsistent, and consistent. Two video projects from each category are analyzed in detail, examining how the students utilized the semiotic potential of effects for manipulating color. The study is concluded with a discussion of the main findings and directions of future research.

KEYWORDS digital video, video effects, color, multimodal composing

1. Introduction: New Literacy Requirements

The digital revolution of the second part of the 20th century led to the emergence of new media that, in turn, led to the creation of new communicative practices (Manovich, 2001; Ito et al., 2010). On the one hand, current communicative practices are inherently multimodal. Digital technologies allow the combination of different modes such as static and moving images, and sounds. Consequently, multimodal communication has become the new de facto standard in the new textual landscapes. On the other hand, as contemporary communicative practices are screen-based, they rely heavily on visual elements (Kress, 2003; Kress and van

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Leeuwen, 2006). Hence, the overwhelming majority of the multimodal texts that students get to create are to be viewed on screens (e.g. Instagram stories).

There are two main requirements for participation in these new communicative practices. First, students need to master the semiotic potential of modes and resources hitherto unexplored in traditional educational settings. This entails familiarizing with new modes (such as image, video, and audio) as well as appropriating new ways of combining these modes to communicate meanings. To create multimodal compositions students need to understand the semiotic potential of the aforementioned modes. As it has been pointed out, digital media offer new semiotic resources as well as new ways of using these resources, thereby expanding the meaning-making potential (Kress, 2003; Hull and Nelson, 2005; Ranker, 2008). Considering the dominance of the visual imagery in these new multimodal practices, an essential component of multimodality is familiarization with the visual mode. After all, educational practice is largely monomodal, being primarily concerned with written speech. The students will need to learn a new language, vocabulary, and grammar, which are not typically taught at school. This involves telling a story visually using devices such as frame, lens, light, color, and movement. Cinematography is the field that provides a visual language and the devices for visual storytelling (e.g. Keating, 2014; Brown, 2016).

Second, students need to familiarize themselves with the tools that enable the creation of multimodal messages. As Manovich (2011; 2013) points out, to understand contemporary media, we basically need to understand the software through which media is created, edited, mixed, viewed, and shared. Creating multimodal messages requires mastering the requisite hardware and software tools. Hardware tools, such as image and video cameras, allow the creation and capture of all types of media (images, videos, sounds). Software tools enable students to view, manipulate, mix, and share media. Digital technology is what enables students to craft multimodal enambles the most common form of which is digital video (DV). Nowadays, DV has become the dominant text as it allows media creators to freely combine various modes: speech (written language), visual (static images, moving images), and aural (spoken language, ambient sounds, and music). While there is a broad range of software applications that are of potential interest, in this study we will focus on the most expedient software program for creating multimodal compositions, the video editor.

1.1. Video Editing Software

Video editing software applications, commonly referred to as Non-Linear Editors (NLE) (Jackson, 2016; Smith and AGI Creative Team, 2014; Hughes, 2012; Wohl, Van Hurkman and Spencer, 2012) provide two main layers of functionality. First, a NLE allows users to combine different modalities to compose a message. This is accomplished by assembling the various visual and aural semiotic resources in a sequence (i.e. montage). In school settings students

typically learn to compose written texts using paper and pencil. Comparatively less attention is given to the visual or aural modes and message composing through word processing or presentation software applications. With the aid of a NLE users can employ new semiotic resources to compose messages and communicate meanings.

Second, a NLE allows users to sculpt the original semiotic resources, polishing them to reach the desired form. Effects, commonly known as video filters, are tools that implement algorithms for modifying the source visuals (Manovich, 2013). As it has been argued (author, 2019), the significance of effects lies in that, by changing the form of a shot, essentially they facilitate the changing of the meaning of the shot content itself. Using effects affords the luxury of starting out with a specific shot and molding it into something else (e.g. desaturate the shot and apply old film effects such as flicker, scratches etc to give the impression of archival footage). Therefore, the same shot can take on different meanings depending on the effect (or combination of effects) that are applied to it (for a brief overview of effects and their semiotic properties see author, 2019). Thus, in addition to allowing the mixing of different modes, NLEs also unlock an additional layer of semiotic potential through effects. One sub-set of effects that are typically provided by NLEs are related to modifications to luminance and chrominance.

1.2. Digital Alchemy

A print advertisement by Mosanto Chemical Company that featured in Fortune magazine in 1946 posed the following question: "*Can chemists sell dresses?".* It went on to provide the answer: *"...yes and no. Few chemists would be any great shakes behind the counter of a retail store. But when it comes to adding such sales appeal to a fabric that it almost sells itself...then our chemists may soon be rated by the textile industry as rattling good salesmen*" (Blaszczyk, 2012, p. 17). The advertisement made clear that - while Chemists might obviously not be the best salesmen - they possess knowledge that can be used to make fabrics that are so colorful that, essentially, no selling skill is required. This type of color chemistry has many parallels with digital color, as NLEs enable media creators to act as "digital chemists", altering the colors of the visual elements at will.

Digital technology has pushed the envelop in terms of color use. In particular, the advent of Digital Intermediate (DI) circa 2000 (Belton, 2008) revolutionized color manipulation to such an extent that it practically enabled painting with digital light (Prince, 2011). For instance, Jean-Pierre Jeunet and Bruno Delbonnel (director and cinematographer respectively) relied on digital technology to render the fantasy world of *Amélie* (2001). They used an explosion of color to create a 'fake Paris', a bright and colorful city, striped off all bad things (Vanderschelden,2007).

The possibilities of manipulating color in the process of post-production are unlimited. For about a century, if something was to appear green when projected to a screen, it had to appear

green before the camera lens. Digital technology has drastically transformed this, empowering media creators to change an image after it has been captured and stored. In fact, many color-related decisions are now made entirely in post-production. For example, the color of *300* (2006) was completely determined in post-production by the director Zack Snyder and cinematographer Larry Fong (Misek, 2010b), that is after principal photography.

Using video editing software users can adjust the chrominance of visual elements to an unprecedented extent. The user is no longer bound to the color properties of the raw source materials at the time of capturing. Color has simply become another independent variable that can be freely changed. NLE tools provide great affordances for manipulating color, such as the balancing of the primary colors, the isolation of specific colors and their adjustment, the isolation of specific areas of the frame and subsequent color adjustments exclusively to this area, and changes within the frame in the course of time. Effects facilitate continuity grading, color retouching (e.g. when parts of a shot are not properly exposed), day for night changes, relighting (portions of a shot), enhancement (digital make up such as brightening the eyes), color suppression (desaturation), lab process emulation, and colorization (adding color to black and white imagery) (for more details see James, 2014). Overall, color-correction (aka color grading) constitutes an essential part of post-production (Jackson, 2016; Smith and Team, 2014; Hughes, 2012; Wohl, Van Hurkman and Spencer, 2012; Hullfish, 2008; Hullfish and Fowler, 2009; van Hurkman, 2014).

2. On the Semiotic uses of color effects

As digital color and its semiotic properties in the context of multimodal composing is a largely uncharted area, we draw mainly on what we see as the two most pertinent traditions, multiliteracies and cinematography.

As far as multiliteracies are concerned, Kress and van Leeuwen (2002) provided an overview of the grammar of color in communicative processes. They described color in terms of Halliday's metafunctions (ideational, interpersonal, and textual), noting that it fulfills all three simultaneously. They introduced two semiotic affordances of color, *association* (i.e. where color originates) and *distinctive features* (e.g. scales running from light to dark color, saturated color to desaturated color). The authors addressed certain such features of color in detail (value, saturation, purity hue, modulation, differentiation, and hue), outlining their main semiotic uses.

On the other hand, cinematography is the field that has primarily defined visual storytelling in the 20th century. Color is one of the essential devices for telling a story through visual imagery (Brown, 2016; Keating, 2014). Block (2008) provides a thorough treatment of color, outlining its major properties and semiotic functions for communicating meanings. In addition

to Block, (2008), researchers such as Bellantoni (2005) and Misek (2010a) provide comprehensive accounts of color as a signifier in film. Based on the aforementioned sources, we provide the following rough categorization of the primary semiotic functions of color.

2.1. Visual coherence | Affinity

The main function is chromatic consistency whereby the visual resources (still and moving images) are homogenized. If the shots do not match in terms of luminance and chrominance, the resulting video will be visually incoherent and the viewer will be distracted – even if only at a subliminal level. Color allows visual consistency across frames and shots (Block, 2008). For example, to portray a sequence of six shots as a nostalgic flashback, the message composer might first desaturate the shots (to denote that old memories are vague, hence somewhat faded), then slightly blur them (memories are distant and fuzzy, hence unclear), and finally colorize them using a warm color hue such as red (redness suggests warmth). The viewer will be able to interpret these shots as a flashback only if they all share the same visual properties, namely faded colors, blur, and reddish tint. It is the visual affinity of this six shot sequence that will enable the viewers to understand the intended meanings.

2.2. Visual distinction | Contrast

Color's main function is to differentiate between events, times, places, subjects, states etc. A common convention is to use black and white to represent the past and color to represent the present (Block, 2008; Misek, 2010). This requires to subject large sequences of image and video clips to a similar color treatment (e.g. tinting and colorization). Different tints are commonly used to signify different worlds. For instance, in the *Wizard of Oz* (1939) Kansas is in black and white while the Land of Oz is in color (Bellantoni, 2005). Similarly, green is used in *The Matrix* (1999) to denote the computer simulated world while blue is used to signify the 'real' world (Misek, 2010).

2.3. Visual punctuation

In this case color is used to make elements stand out within the frame, namely drawing attention to a point of interest. Color properties (hue, saturation, and value) can be manipulated so as to emphasize a particular element relative to the other elements present on the frame. Although the final visual outcome is always the result of synergy (e.g. composition and framing play fundamental roles), the contribution of color can also be very decisive for emphasizing an element in the frame (Block, 2008).

3. Sculpting Visuals Through Effects

The bulk of former research on how students compose multimodal messages has mainly focused on the combination of the various modes to communicate meanings (see e.g. Hull and Nelson, 2005; Ranker, 2008; Bruce, 2009; 2015; Bruce and Chiu, 2015; DePalma and Alexander, 2015; Fulwiler and Middleton, 2012; Miller, 2013).

However, in recent years some researchers have explored how participants have employed video and audio effects in crafting multimodal messages (Doerr-Stevens, 2016; Smith, 2016; Burn, 2003; Hafner and Miller, 2011; Adsanatham, 2012; Hafner, 2014; Öman and Sofkova Hashemi, 2015; Yeh, 2018; author, 2019). While these studies do report the use of effects, the interest is emergent and largely tangential: the authors examine effects only because the participants who were crafting the digital messages used them. Even though the effects the participants used in the projects are listed, there is no detailed analysis of the semiotic properties of effects. The discussion is typically limited to the contribution effects made to the digital message. Thus, in this body of research a systematic, in-depth exploration of the semiotic function of effects is missing.

A comprehensive literature search located only a small sub-set of studies that had explicitly focused on effects targeting color adjustments. In the remainder of this section we will take a closer look at these studies.

Bruce (2009) reports findings from a longitudinal classroom-based study in which he followed three groups of high school students. He explored both the processes of multimodal production and the digital artifacts that the students made. The author relied on ethnographic methods to analyze various sources of data such as student protocols, interviews, teacher journal, and video recordings of the groups when they were editing their digital videos. Bruce (2009) details how the student groups experimented with different effects until they reached the specific visual or aural goals set. Of particular interest is the removal of color from a shot by one of the student groups. This group desaturated a shot fully, converting it to black and white. As the author explains, the reason behind this choice was mostly aesthetic: the scene was improperly lit during shooting the footage, which resulted in poor exposure. The student group took all the color away from the shot so as to cosmetically improve its appearance.

Baepler and Reynolds (2014) incorporated a video assignment in two writing courses. The students were asked to write an essay and then create the corresponding video so as to render the written essay in visual language. To convey the meaning of a negative influence of computer technology, one of the participants reported using many color effects. However, given the focus of the study, the authors did not explore further the semiotic dimensions of using such color-related effects.

Ranker (2017) conducted a study in which an 8th grader composed a digital video. The study was a longitudinal one spanning 10 weeks and involved participant observation by the

author. The digital artifact the student produced involved the application of effects to some of the shots. While the student utilized several different video effects (such as distortion and outlines), of particular interest for our purposes in this study was the use of effects that changed the image colors. Ranker (2017) described how the modality of the source video was altered due to the combined application of effects. As he pointed out, the use of color effects (in conjunction with the other effects used) allowed the student to create a very bizarre video, casting her message in a specific form.

In an exploratory study involving how undergraduates used effects in composing multimodal messages in the form of digital videos, author (2019) concluded that the majority of effects used pertained to transitions between shots. Only about 20% of the effects used were related to luminance and chrominance changes of the original image and video resources. The study indicated massive differences in terms of how effects were used in high and low rated DV projects. In the case of highly rated projects, the effects that were used had substantially changed the underlying visuals. Color-related effects were amongst the ones that made significant contributions to the subtle meanings that were communicated.

The sample is too small to allow drawing any conclusions as to the semiotic dimensions of color-related effects use. In the study by Baepler and Reynolds (2014) the issue is practically not taken up. The students in the study reported by Bruce (2009) utilized color effects to perform *cosmetic changes* to visuals, which amounts to fixing a shot in post-production. The color modifications reported by Ranker (2017) were clearly aimed at *changing* the source visuals., that is they served specific communicative purposes. It should be noted, however, that none of these studies was primarily targeting the use of effects and their semiotic properties. On the other hand, the findings reported by author (2019) were based on an examination of effects at large and showed that in certain DV projects the effects used *modified* the original visual elements, helping to get the message across with color.

3.1. Focus of the study

Considering that a systematic examination of color-related effects is missing, there is hardly any knowledge of how students appropriate the semiotic functions of color and apply them through effects in their digital multimodal compositions. While the semiotic potential that the effects make available to message creators in multimodal composing is significant, there is a knowledge gap concerning how novices use color-related effects in crafting multimodal messages. To address this, the present study attempts to map out how color-related effects are applied in multimodal compositions. In this paper we examine the DV projects made by a cohort of undergraduates who attended a semester-long course on digital media. The participants were introduced to the semiotic functions of color and were taught how to use a video editing program to compose multimodal messages. The main task involved the

creation of a multimodal message in the form of DV. The study focuses on these digital artifacts and addresses the following research questions:

RQ1: *What is the rate of use of color effects in the DV projects?*

RQ2: *How do the students apply the color effects in composing their DV projects?*

4. Method

4.1. Context of the Study

Seventy-six female students from a pre-school education department in Greece participated in the study. The participants enrolled in a compulsory, first-semester course on Digital Media. This 13-week course involved both lectures (3 hrs per week) and lab sessions (2 hrs per week). While most students reported some familiarity with media editing using popular social media services and tools (e.g. applying filters to images on Instagram), they reported that they had received no previous formal training in digital media processing.

The objective of the course was to introduce students to digital media concepts and processes, particularly image, audio, and video editing for educational purposes. More specifically, the course constituted a lightweight introduction to digital media creation and editing and included the following modules: (a) the *grammar of static and moving images* (Bordwell and Thompson, 2008; Thomson and Bowen, 2009a; 2009b; Dancyger, 2011), (b) *light and color* (Block, 2008; Bellantoni, 2005; Brown, 2016; Bordwell and Thompson, 2008; Kress and Van Leeuwen, 2002), (c) *effects* (Jackson, 2016; Smith and Team, 2014; Hughes, 2012; Wohl, Van Hurkman and Spencer, 2012; Bordwell and Thompson, 2008; Block, 2008; Brown, 2016; Thomson and Bowen, 2009b), and (d) *color grading* (Hullfish, 2008; Hullfish and Fowler, 2009; van Hurkman, 2014). The first two modules aimed to familiarize the students with the semiotic functions of devices such as framing (e.g. how the shot type influences viewer identification or distancing) and light (e.g. how boosting the contrast increases the visual tension in a shot). In the last two modules the students were instructed in how to use effects to modify the original visual and aural resources (e.g. to tell part of the narrative in flashback one might combine several effects such as desaturation, glow, blur, and a warm color tint).

In addition to the lectures, the students also attended weekly lab sessions in which they were introduced to software tools for media processing, specifically image (GNU Image Manipulation Program), audio (Audacity) and video (Kdenlive) editing. As part of the lab sessions, the students had to complete several small-scale assignments related to image audio and video processing. Of particular interest for this work is the video assignment that involved the creation of a short video from start to finish. This assignment aimed to familiarize students with with technical pipeline, namely the video editing software, the general video editing workflow,

and the procedures of applying effects. As the students had virtually no prior experience in creating digital videos, this lab assignment constituted a playground in which they could safely experiment with the software and advance their knowledge and skills in video editing. The completion of this assignment ensured that the students had the minimally required technical knowledge and skill for creating digital videos. All lab assignments (including the short video one) were required: the students could not submit the main course deliverable (more information below) unless they had already submitted all lab assignments.

4.2. Task

A short (1-5 minutes) DV project was the main course deliverable. Students' main task was to compose a digital multimodal message on a topic they deemed important using any content they wished in any form they saw fit. As there were no restrictions, the actual message content could be about anything that the students cared about.

As far as material sources are concerned, the students had two main options. First, they could use content off of the internet (images, videos, sounds etc). Considering the quantity and quality of media that is easily available on the internet, this was the recommended method of obtaining resources. Second, if locating resources using the aforementioned method was deemed impractical or inconvenient, the students could shoot footage. In addition to using their own devices for recording (cell phones, tablets, video cameras etc), they were also given access to high-end still and video cameras. While the DV project was an individual assignment, in case the students opted for shooting footage on their own, they were allowed to collaborate in groups of two. The underlying reasoning was that there is a lot more work involved when capturing images and videos (e.g. planning the shots, finding locations and subjects, enlisting help from fellow students and friends to act on the video, shooting the footage etc) compared to searching the internet for resources.

The projects were evaluated using two major criteria: (a) content, and (b) form. The former represents the resources (image, video, audio) that the students assembled to communicate their message as well as their sequencing. The latter represents how these resources were modified so as to meet the particular message requirements (e.g. video and audio effects). The contribution of content and form to the DV project grade was balanced (50% each). To facilitate student's planning and general orientation, this grading scheme was communicated to the students in the beginning of the semester.

4.3. Materials

4.3.1. Software

The video editing application used in this study was Kdenlive (Kdenlive, 2016), which is a free and open source NLE available for all major operating systems. Compared to other video editors that come bundled with an operating system (such as MovieMaker for Microsoft Windows or iMovie for MacOS), Kdenlive is a more sophisticated application that supports standard editing workflows through a rich tool-set (e.g. effects, scopes).

4.3.2. Instructional Materials

Considering that (a) there were no book manuals covering the functionality of Kdenlive in Greek and (b) the only online documentation was available in English, the students were provided with two sets of supporting materials. The first included concise electronic manuals (in PDF format) that covered the main program operations. These included screenshots, shortcuts, and the sequencing of steps to perform common functions. The second set included a large number of videotutorials that covered the whole post-production workflow in minute detail (editing, effects, and rendering).

4.4. Data Collection

The course deliverable, i.e. the final DV project, was the main source of data used for this paper. The assignment requested the students to submit (a) the *final video project* (which was rendered in a common delivery file format such as MP4, MKV or WEBM), (b) the *edit of the DV project* (Kdenlive file in XML format that stores all edit-related information), and (c) the *original resources* (namely all the source files that were imported into Kdenlive and were used to create the video). What is unique about Kdenlive is portability: access to the source files and the edit decision list (Kdenlive XML file) allows one to fully reconstruct a video project on a different computer system. This means that one has the opportunity to study each individual clip used in the project, examine each and every edit choice made, consider whether any effects are applied to a clip and how these effects are configured.

4.5 Analysis

We used artifact analysis (Willig, 2013) to examine the DV projects in order to determine whether color-related effects were used and how. Following Smith, Kiili and Kauppinen (2016) we treated each shot as the unit of analysis. All visual assets in the Kdenlive timeline were treated as shots. Considering the study focus on color, this excluded audio clips, title clips, and a special category of effect clips (that take as input two other image or video clips). There-

fore, we focused only on image and video clips as these were the primary carriers of visual information that could be modified through color effects. For every shot in each DV project we identified the effects that were applied to modify the chrominance. Then, the outcome of each effect was determined by comparing the corresponding shot before and after the effect had been applied.

Using this comparative analysis method, we attempted to determine the semiotic function of each effect, examining it in context. In semiotic terms, this interpretation was based on the three main color function outlined above: affinity, contrast, and punctuation.

5. Results

Sixty-one students out of the 76 who initially enrolled successfully completed all required course work and were eligible to participate in the final exam. Ten failed to comply fully with the specific submission requirements set (i.e. submitted only the DV projects without the edits or the source files) so their DV projects were removed from the data corpus because they could not be comparatively evaluated using the method described above. Of the 51 remaining students ten had collaborated in dyads, as they had decided to shoot footage rather than locate resources on the internet. Thus, the final data set upon which this study is based is 46 DV projects. While the unit of analysis used in the present study is the DV project, due to the fact that the students could either locate resources on the internet or shoot footage on their own, 41 DV projects were crafted by individual students and 5 were created by student dyads.

A rough overview of the topics that the DV projects covered is given in table 1. It should be noted that this categorization is not the systematic outcome of thematic content analysis, it merely represents a clustering of videos in broad topic sets.

Topic	N	%	Sample Video Project Titles
Places	13	28,26	Beauties Of Greece; New York; Christmas In Volos; Pertouli Village; Trip To Aigina
Education	12	26,09	Wildefires; Child Development; Volcanos; North Selas; Sexual Reproduction; Child Cancer
Social issues	11	23,91	Bullying; Terrorism; Stray Aminals; Family Violence; Stop Child Abuse; Fairy Tale For Grown-Ups;
People	3	6,52	Leo Messi; Zoe Laskari; Jenny Karezi
Pets	3	6,52	Man's Best Friends; Growing Up With A Pet; We All Love Puppies
Various	4	8,70	Life On An Island: Reality Vs. Expectations; Fairy Tale: The Giving Tree

Table 1. Topic Categorization

It should be noted that the categories are not mutually exclusive. For instance, the categories 'People' and 'Pets' could also be seen as sub-categories of 'Social Issues'.

As can be seen from table 1, about one quarter of the videos pertained to presentations. The main objective of this category of videos was to introduce a specific place and it usually involved a tour of some sort. Another quarter of all projects had an educational purpose. The idea behind these video projects was to present a topic of interest. Approximately one fifth of the videos were centered on social issues. The videos in this category aimed to sensitize the viewers to a particular topic (e.g. bullying). Overall, three out of four videos were related to these three genres.

RQ1: **What is the rate of use of color effects in the video projects?**

As table 2 shows, 32 out of the overall 46 DV projects (69,57%) featured no color-related effects. Thus, about two thirds of the students did not utilize effects to manipulate the color of the source visuals. On the other hand, effects that pertained to color changes were applied in 14 DV projects (30,43%). Consequently, only about one third of the DV projects involved changes in the visuals that are color-related. Considering that it is precisely these projects that are of interest, we will focus on them exclusively for the remainder of this section.

RQ2: How do the students use the color effects?

The analysis of how effects were utilized indicated three main patterns of use that are outlined in table 2.

Category	N	Description
None	32	No color effects are applied
Defective	4	Color effects are applied but without changing the visuals
Inconsistent	4	Color effects are applied but not in a systematic way
Consistent	6	Color effects are applied in a principled way

Table 2. An overview of color-related effects use per projects

5.1. Defective

The defective use of color effects indicates that, while color effects are applied in the DV project, they are not functional, i.e. do not actually change the color of the image or video clips to which they are applied. Four DV projects were found to be of this type and are illustrated below using two cases.

SEXUAL REPRODUCTION was an education-type video project that aimed to provide an overview of the process from conception to birth. The student used color to signify transitions from one clip to another. Although she could have easily resorted to using more standard transitions (such as fades), eventually she used color-based transitions. However, due to the

improper configuration of the effects, there was no impact on the corresponding image or video clips. The fact that she used several color-related effects for transitions indicates that the student has put quite some effort in changing the visuals. Regardless of this effort, however, the outcomes of the effects applied are negligible as the final images are identical to the source ones.

The FAIRY TALE: THE GIVING TREE DV project was a visualization of a well known story. Even though the student applied three color effects to three clips, the resulting visuals were indistinguishable from the source ones. This indicates that the effects might have been added but were not functional, namely failed to change the underlying visuals. This pattern suggests that the student experimented with color effects but did not get anywhere. Similarly to the aforementioned case, the setup of the three color effects was incorrect and the application of effects did not result in any change of the visual elements.

5.2 Inconsistent

In this category color effects are configured correctly, clearly changing the color of the image or video clips onto which they are applied. However, the problem is that their scope is limited. The students might apply a color effect correctly but this is a local change that does not necessarily extend to other clips in the project – even though that might have been called for. It can be said that the changes have mostly a local character. Four DV projects fell into this category and we take a closer look at two representative cases.

The ZOE LASKARI DV project details the life and times of a famous Greek actress. Most of the image and video clips used are fully desaturated. In the first part of the DV project the student added an image clip to a sequence of image and video clips that were black and white. As the particular image clip was in color, the student applied a desaturation effect to convert it to black and white. At a later point in the timeline, the student also removed all color from two sepia-toned image clips. Considering that the neighboring shots were in black and white, such color choices indicate that the student deliberately removed the color of the specific image clips to make them fit in with the local color scheme (monochrome). While such color tweaking choices are spot on, their application is not consistent throughout the project. A typical convention would be to render the past of the late actress in black and white and her more recent years in color. However, this is not the case: several clips that refer to her past are completely desaturated but other image and video clips that also refer to her earlier years are in color. What this particular DV project suggests is an appropriate but partial application of color effects. There appears to be a clear reasoning behind some of the choices related to the removal of color in some of the clips, i.e. make them fit the overall color scheme that represents the past. However, one would expect the student to apply the same reasoning to all the clips in the DV project but this did not happen.

The BULLYING DV was a social issue project that portrayed bullying amongst youngsters. In

the first part of the project the student had desaturated most of the image and video clips used. This was very effective as the student managed to craft a touching message, conveying a dark, depressing mood that is associated with bullying behaviors. The consistent use of black and white imagery helped create a moody message that sensitized the viewer. However, most of the clips in the second part of the DV are in color. Had the image or video clips of the second part been anti-bullying, this would have made sense. However, this was not the case: several image clips in the second half of the project depicting children in agony, fear, and despair – similar to the ones featured in the first part of the video – are very bright and colorful. Much like the ZOE LASKARI video analyzed above, the lack of systematicity is notable: the student appears to make the right decisions when it comes to color for one part of the DV but these do not generalize to the whole project. Not only that but the very existence of uplifting and vivid images depicting children that are subjected to bullying stands in stark contrast to the black and white imagery that came before. While it is rather difficult to account for such a discrepancy, this DV project illustrates the fact that the color changes to the source visuals were highly selective.

5.3 Consistent

This category represents the most sophisticated color adjustments made in the DV projects. It has four main manifestations: continuity, color scheme, tinting/colorization, and selective coloring. These manifestations are outlined in table 3. It should be noted that these are not necessarily mutually exclusive, so e.g. a color image clip can be both desaturated, so as to fit in a sequence of clips denoting the past, and also tinted in red, in order to convey feelings of tension or anger. Considering the color focus in this study, two of the six projects that fell into this category are closely analyzed.

Function	Description	Example	Effect(s)
Continuity	adapting a clip to the local context that defines shared color properties	a color clip is desaturated when inserted in a sequence of clips representing the past in black and white	Saturation; RGB Curves
Color Scheme	distinguishing between two states	representing different or opposing states (such as good vs. bad, sad vs. happy, past vs. present) using different colors	RGB Curves
Tinting / Colorization	coloring a clip in a particular hue	a clip is re-colored in a particular hue	Saturation; RGB Curves
Selective Coloring	masks are used to define areas of the frame that are to be affected by specific hues	a point of interest in the frame is masked and its saturation is increased; at the same time, the inverse mask is used to suppress the saturation of all other areas so that the element stands out	Masks; RGB Curves, Saturation

Table 3. Main color manipulations

The FAIRY TALE FOR GROWN UPS DV project is the second best example of principled color use. In this two-part message, the student touches on the social issue of child labor in an original, allegorical way. The first part of the DV introduces a young girl who is obviously forced to sell various items on the street. In the second part, a benevolent old lady, who is taking her own granddaughter to the playground, invites the street girl to join them. The two children play together and end up having a lot of fun. For the first time, the street child realizes what life could have been like had she not been forced to child labor. The DV is concluded with a direct call to end all child labor so as to allow all children to enjoy the joys of childhood.

What this DV project illustrates is an overall color design: the first part is rendered in black and white while the second part is rendered in color. Even though most of the image clips that the student uses for the first part of the DV were originally in color, she used effects to remove all color. This results in desaturated, lifeless images. Figure 1 presents a screenshot of the video project edit featuring the initial, colorful image used. As the vectorscope on the top right window indicates, the image is over-saturated.

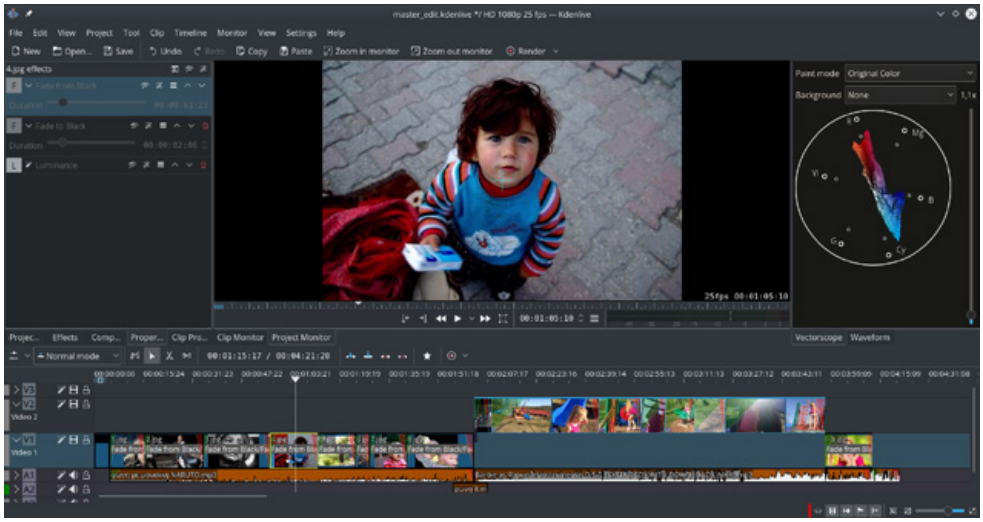

Figure 1. DV project screenshot of the original image in color

The same image is shown in Figure 2 where the student had applied the Luminance effect. The result of this operation is a fully desaturated image.

On a semiotic level, this choice portrays the current state: the world *as is*, i.e. the bleak world the street child experiences. On the other hand, all image and video clips of the second part of this fairy tale are in bright, saturated colors. Semiotically, this represents the ideal state, i.e. the world *as it should be* for the street child.

The FAMILY VIOLENCE DV project is the best example of color manipulation. It touches

on the social issue of domestic violence involving the abuse of women. It uses a combination of image and video clips to create a powerful message that sensitizes the viewer to the problem. As opposed to the FAIRY TALE FOR GROWN UPS DV project analyzed above, this project does not rely on a specific color scheme to differentiate between states. On the contrary, this DV project utilizes many different effects to change the color of the underlying visuals.

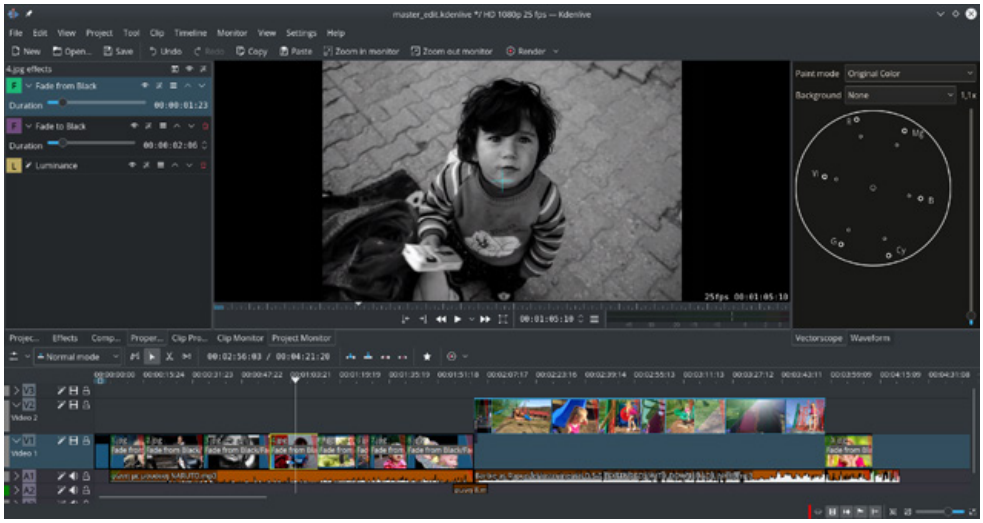

Figure 2. DV project screenshot of the final, fully desaturated image

Desaturation. The student removed the color from several clips. On a semiotic level (and in conjunction with the heightened contrast), this resulted in conveying a feeling of utter depression and despair.

Tinting. Following the complete color desaturation, tinting was often applied to certain clips. The student used a red hue to tint an entire image clip. In terms of semiotic function, red is used to represent the amplified tension between the couple, either an argument that escalates to abuse or the physical abuse phase itself.

Saturation. This effect builds on the top of the former ones: the student has fully desaturated the clip and then used a reddish tint to colorize the image. In some clips, the student intervention was not limited to subtle tinting; she proceeded to boost the saturation of red – in a couple of instances bordering oversaturation. Semiotically, this increase in color saturation intensifies the tension of the scene depicted in the frame.

Selective colorization | saturation | desaturation. What sets this particular DV project apart from all others is the systematic use of masks. Technically, masks are black and white images that are typically used to define the transparency level of a group of pixels (ranging from fully transparent to fully opaque). The student created several masks to isolate certain elements (e.g. subjects) in the frame so as to proceed to further changes.

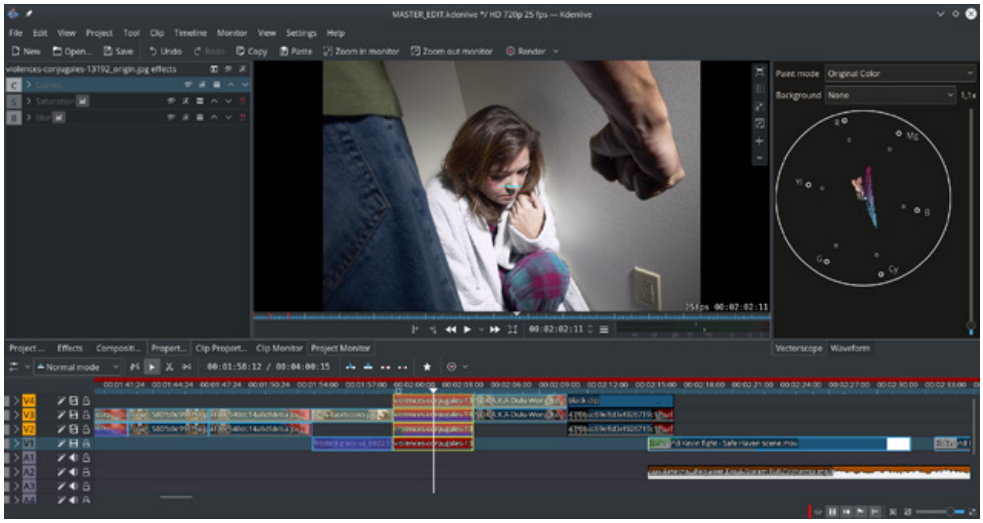

Figure 3. DV project screenshot of the original colorful image

For example, figure 3 depicts a project screenshot with the initial image used for this shot. The whole image is in color with medium saturation (see vectorscope on the top right window). Figure 4 shows the final image, which resulted from the application of several effects (Curves, Saturation, Contrast, Blur) and masks (Rotoscoping).

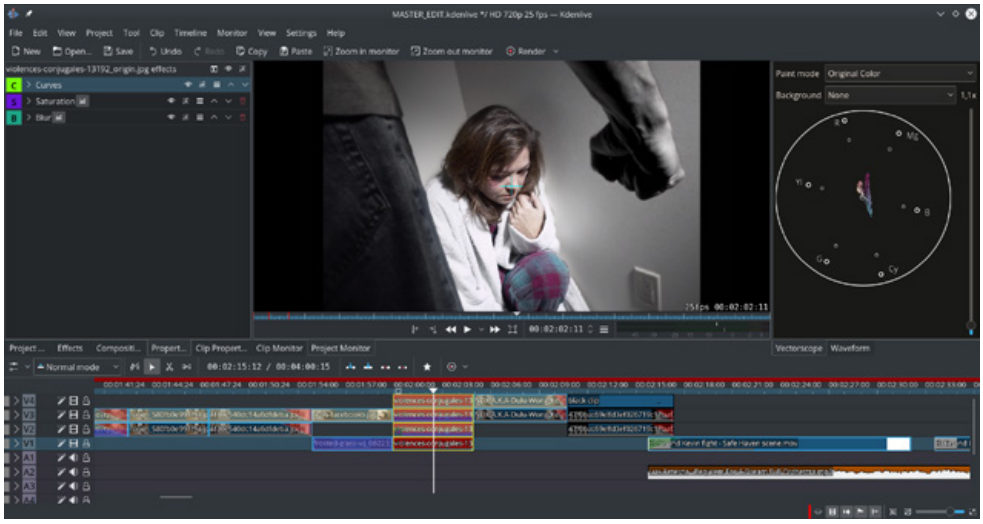

Figure 4. DV project screenshot of the final, selectively desaturated image

As can be seen from the frame, the student had completely desaturated certain image areas, leaving only the female subject in color. To achieve this she combined the clip four times

(see the stack of four clips in the timeline in the bottom window): each clip involved a separate mask and applied several color operations on different parts of the image. Figures 5a, 5b, and 5c cumulatively illustrate the respective masks that the student used.

Figure 5a. 1st mask detail: the female subject is separated from the rest of the image (black indicates full transparency)

Figure 5b. 2nd mask detail: the desaturation and tonality adjustments are limited to a portion of the male figure (black indicates full transparency)

Figure 5a indicates the use of a first mask to isolate the female subject in the center of the frame. This mask allowed the student to exclude this image portion from all color and tonality manipulations that were applied to other image areas. Figure 5b shows how a second mask enabled the student to limit the desaturation and tonality adjustments made only to the left side of the shot featuring part of a male figure. As can be seen from the frame in figure 5b, the student removed all color and reduced the tonality of this image part. Finally, figure 5c shows

how a third mask helped confine desaturation and brightness reduction only to the male arm on the top right of the frame. The black color in these last three figures represents the alpha channel, which indicates full transparency. This transparency data allows the combination of all four clips to produce the combined result featured in figure 4.

Figure 5c. 3rd mask detail: the desaturation and tonality modifications are only applied to the portion of the male arm visible on the frame (black indicates full transparency)

This represents the most advanced application of masks as the student was able to (a) isolate parts of the frame and (b) manipulate the chrominance of these parts further. In semiotic terms, this type of use amounts to visual punctuation: the student applies different hue values and saturation levels to different areas of the image.

In this particular DV project, the original visuals were completely transformed through effects: the student repurposed pretty much all source visuals, transformed them extensively, and recombined them so as to to craft a message of outstanding quality. It is important to stress the fact that the student has paid attention to minute details.

6. Discussion

To participate in contemporary literacy practices that are inherently multimodal, young people would need to familiarize both with color as a semiotic resource and the digital tools that can be used to adjust color. Currently, there is a knowledge gap regarding how students of all ages use color to communicate meanings in their digital multimodal compositions. While a handful of former studies have reported the use of color-related effects, the study of effects was either emergent (e.g. Bruce, 2009; Baepler and Reynolds, 2014; Ranker, 2017) or much broader in scope involving all types of effects (e.g. author, 2019). To address these limitations,

the present study examined whether and how 46 undergraduates applied color in creating short digital videos.

The study findings indicate that all participants utilized several different effects in crafting their DV projects. However, the majority of students (about two thirds) did not use effects that manipulated the color of visual imagery whatsoever. Only about one third of the students employed color-related effects in composing their projects.

While this might seem promising, the systematic application of effects adjusting color characterized only about 20% of those projects. Overall, a little more than one in ten DV projects involved consistent color modifications, which is not satisfactory.

Only five DV projects involved shooting footage and taking photographs. This means that only a small number of projects allowed students some control over light and color during shooting. The majority of the DV projects involved the regular use of image and video resources off the internet. Considering the heterogeneity of such resources (e.g. different cameras, lenses, framing, exposure, lighting and color conditions etc), the probability that these were matched in terms of chrominance or luminance was practically zero. Consequently, shot matching in terms of light and color was the bare minimum. In addition to this low-level adjustment, color needed also to be manipulated on a higher level, such as for contrast and punctuation.

As the data analysis indicated, many opportunities for color manipulations arose but were largely missed. The majority of students simply ignored color-related effects when composing their DV projects. Although all the students were exposed to the same color-related concepts, software tools, and workflows, there was a markedly differential response: only one in eight students employed effects in a systematic manner. This finding suggests that the semiotic potential of effects for changing the original visual imagery was largely untapped. Essentially, this finding replicates a former study with participants from the same demographic (author, 2019). More particularly, a different student cohort had attended the same course and were tasked to make a similar digital artifact. The findings revealed that the rate of color-related effects was about 20% which roughly corresponds to the ratio of effects identified in this study (author, 2019).

As far as the small set of DV projects that involved the systematic use of color are concerned, the findings suggest that was also high variation amongst the students who did use effects to modify the color of the source visual elements. At the one extreme, color-related effects were applied in four DV projects but failed to change the visuals in any substantial way due to improper configuration. At the other extreme, six DV projects included many sophisticated uses of color-related effects. As a result, the color of the source visuals was fundamentally transformed, serving the narrative functions of each respective video project. In between, four DV projects were characterized by the inconsistent application of color effects to the visual elements. The analysis of the projects with consistent application of color indicated four

main patterns of color modifications: continuity, color scheme, tinting/colorization, and selective coloring. These color uses are indicative of all three primary semiotic functions of color outlined in the introduction (visual coherence, visual distinction, and visual punctuation). The two projects that were presented in detail reveal that, at the one extreme, a small sub-set of students used color in sophisticated ways, fundamentally transforming the original visuals to communicate meanings in subtle forms.

Digital artifacts that combine static and moving images with sounds and text form the core of what Manovich (2013) has termed as the new "*hybrid language*". Although his account of the hybrid language encompasses more than DV (e.g. 3D compositing), DV can approximately been seen as the core of this hybrid language of new media. Considering that the young generation creates multimodal messages at an increasing rate, exploring how they utilize effects in general and color-related effects in particular is of importance. Young people will need to become familiar with color and its semiotic affordances for communicating meaning. While the present study is a first step in this direction, more systematic empirical research is required to determine how to optimally induce students to "writing" with color in composing multimodal artifacts.

On the other hand, recent technological developments have practically rendered color as just another independent variable in multimodal composing (Belton, 2008; Prince, 2011; James, 2014). While color might not be a mode on its own (Kress and Van Leeuwen, 2002), it has had a deep and lasting impact on contemporary consumer culture (Blaszczyk, 2012). Considering how malleable digital technology makes color, a systematic account of digital color semiosis as it is realized through effects has yet to be developed. This is particularly important because most research to date has principally focused on composing by combining different modes (e.g. Hull and Nelson, 2005; Ranker, 2008; Bruce, 2009; 2015; Bruce and Chiu, 2015; DePalma and Alexander, 2015; Fulwiler and Middleton, 2012; Miller, 2013) rather than on how effects are used to sculpt visuals in order to communicate meanings. Given the novelty of multimodal composing, this initial emphasis is understandable. However, based on the fact that effects expand the meaning-making potential (author, 2019), it is imperative to develop a framework for describing the semiotic properties of color.

6.1 Limitations

This work has three main limitations. First, the sample is gender-biased, due to the fact that all participants were female. Therefore, the study findings are expected to apply mostly to female populations of similar demographics.

Second, this work is interpretative in nature: the author observed an effect that had been applied in a project and deduced the intentions behind its use. In most cases, this is very straightforward. For example, if a desaturation effect is applied to an image clip that is in color,

the intention is clear: the student wishes to remove (all or part of) color from the clip. On the other hand, if a student removes all traces of color through a desaturation effect and then tints the clip in a mildly saturated red tone, the interpretation is less straightforward. Why does the user select the particular color (say red) and the particular tone and saturation? Does this represent a random choice? A simple stylistic preference? Could it have been possible for the student to pick a different color, such as green or blue? Or does this choice of particular hue, saturation, and value represent a deliberate intention that is influenced by typical conventions. Tracing the reasoning behind each color effect choice would be ideal. This can be accomplished in two main ways: (a) think-out loud protocols or (b) group interaction. While in theory such options are ideal, the logistics of capturing such thought processes are very demanding. This is why most published studies on this topic involve a very small number of participants. Future research on DV effects will need to turn to such data collection methods so as to provide a thorough account of the reasoning behind each choice.

Third, the communicative context of the study was not authentic. More specifically, the sole addressee of the DV projects was the course instructor, there was no real audience to view the videos and appreciate the value of the respective messages. The students might have had a relatively high motive to craft fine videos (i.e. earn up to 30% of the total course grade) and yet the messages created served no real communicative purpose. It could be the case that such artificial conditions impact the quality of multimodal messages because a real audience gives students additional incentives for making even finer videos. Future research will need to systematically explore whether the conditions of multimodal message creation influence the rate and quality of color manipulations.

7. Conclusion

Becoming literate in contemporary multiscreen societies necessitates an understanding of the semiotic potential of color as well as mastery of digital tools through which color can be applied to craft messages of high modality. This study examined how novice students utilized color-related effects in composing multimodal messages. The analysis of 46 video artifacts indicated that only a small portion of the students utilized effects that adjusted the color of the visual resources.

Overall, the extent to which the study participants utilized color effects is far from satisfactory. Consequently, there were many missed opportunities as the semiotic potential of effects with respect to color was not tapped. On the other hand, the six DV projects that involved the systematic application of color-related effects suggested a very promising picture in terms of color uptake and use. More research is needed to explore students' differential response to color and determine how to best support young people to signify with color.

REFERENCES

Adsanatham, Chanon 2012. Integrating assessment and instruction: Using student-generated grading criteria to evaluate multimodal digital projects. *Computers and Composition* 29(2): 152-174.

Baepler Paul and Thomas Reynolds 2014. The digital manifesto: Engaging student writers with digital video assignments. *Computers and Composition* 34: 122-136.

Bellantoni, Patti 2005. *If it's purple, someone's gonna die: The power of color in visual storytelling*. Oxford, UK: Focal Press.

Belton, John 2008. Painting by the numbers: The digital intermediate. *Film Quarterly* 61(3): 58-65.

Blaszczyk, Regina Lee 2012. *The color revolution*. Cambridge, Massachusetts: MIT Press.

Block, Bruce 2008. *The visual story: creating the visual structure of film, TV and digital media* (2nd.ed.). Oxford, UK: Focal Press.

Bordwell, David and Kristin Thompson 2008. *Film art: an introduction* (8th.ed.). NY: McGraw-Hill.

Brown, Blain 2016. *Cinematography: theory and practice: image making for cinematographers and directors*. London: Routledge.

Bruce, David 2009. Writing with visual images: Examining the video composition processes of high school students. *Research in the Teaching of English*, 43(4): 426-450.

Bruce, David 2015. Multimedia production as composition. In James Flood, Shirley Brice-Heath & Diane Lapp (eds). *Handbook of Research on Teaching Literacy Through the Communicative and Visual Arts, Volume II: A Project of the International Reading Association*. New York: Routledge, 11-18.

Bruce, David and Ming Ming Chiu 2015. Composing with new technology: Teacher reflections on learning digital video. *Journal of Teacher Education* 66(3): 272-287.

Burn, Andrew 2003. Poets, skaters and avatars: performance, identity and new media. *English Teaching: Practice and Critique* 2(2): 6-21.

Dancyger, Ken 2011. *The technique of film and video editing* (5th ed). Amsterdam: Elsevier.

DePalma, Michael-John and Kara Poe Alexander 2015. A bag full of snakes: Negotiating the challenges of multimodal composition. *Computers and Composition* 37: 182-200.

Deschamps, Jean-Mark and Claudie Ossard (Producers), and Jean-Pierre Jeunet (Director). (2001). *Amélie* [Motion Picture]. France, Germany: Canal+, France 3 Cinéma, UGC & UGC Fox Distribution.

Doerr-Stevens, Candance 2016. Drawing near and pushing away: critical positioning in multimodal composition. *Pedagogies: An International Journal* 11(4): 335-353.

Fulwiler, Megan and Kim Middleton 2012. After digital storytelling: Video composing in the new media age. *Computers and Composition* 29(1): 39-50.

Nunnari, Gianni, Mark Canton, Bernie Goldmann, and Jeffrey Silver (Producers) and Zack Snyder 2006. *300* [Motion Picture]. United States, Canada: Warner Bros. Pictures.

Hafner, Christoph 2014. Embedding digital literacies in English language teaching: Students' digital video projects as multimodal ensembles. *TESOL Quarterly* 48(4): 655-685.

Hafner, Christoph A. and Lindsay Miller 2011. Fostering learner autonomy in English for science: A collaborative digital video project in a technological learning environment. *Language Learning & Technology* 15(3): 68–86.

Hughes, Michael K. 2012. *Digital Filmmaking for Beginners: A Practical Guide to Video Production*. NY: McGraw-Hill.

Hull, Glynda A. and Nelson, Mark Evan 2005. Locating the Semiotic Power of Multimodality. *Written Communication* 22(2): 224-261.

Hullfish, Steve 2008. *The art and technique of digital color* correction. Oxford, UK: Focal Press.

Hullfish, Steve and Jaime Fowler 2009. *Color correction for video. Using desktop tools to perfect your image* (2nd ed.). Amsterdam: Elsevier.

Ito, Mizuko, Sonja Baumer, Matteo Bittanti, Danah Boyd, Rachel Cody, Becky Herr-Stephenson, Heather A. Horst, Patricia G. Lange, Dilan Mahendran, Katynka Z Martínez, C.J. Pascoe, Dan Perkel, Laura Robinson, Christo Sims and Lisa Tripp (eds.) 2010. *Hanging Out, Messing Around, and Geeking Out: Kids Living and Learning with New Media*. Cambridge, Massachusetts: The MIT Press.

Jackson, Wallace 2016. *Digital Video Editing Fundamentals*. NY: Apress.

James, Jack 2014. *Digital intermediates for film and video*. Burlington, MA: Focal Press.

Karasavvidis, Ilias 2019. Students' use of digital video effects in multimodal compositions: an exploratory study. Journal of Visual Literacy 38(3): 221- 244, DOI: 10.1080/1051144X.2019.1611697

Kdenlive. [Computer Software]. 2016. Retrieved from https://kdenlive.org/

Keating, Patric (ed.) 2014. *Cinematography*. New Brunswick, New Jersey: Rutgers University Press.

Kress, Gunther R. 2003. *Literacy in the New Media Age*. London: Routledge.

Kress, Gunther R. and Theo Van Leeuven 2006. *Reading Images. The Grammar of Visual Design* (2nd ed.) London: Routledge.

Kress, Gunther R. and Theo Van Leeuwen 2002. Colour as a semiotic mode: Notes for a grammar of colour. *Visual Communication*, 1(3): 343-368.

Manovich, Lev 2011. Inside Photoshop. *Computational Culture*, 1(1): 1-12.

Manovich, Lev 2013. *Software takes command* (Vol. 5). A&C Black.

Manovich, Lev 2001.*The language of new media*. Cambridge Massachusetts: MIT press.

Miller, Suzanne M. 2013. A research metasynthesis on digital video composing in classrooms: An evidence-based framework toward a pedagogy for embodied learning. *Journal of Literacy Research* 45(4): 386-430.

Misek, Richard 2010a. *Chromatic cinema: a history of screen color*. John Wiley & Sons.

Misek, Richard 2010b. The 'look'and how to keep it: Cinematography, postproduction and digital colour. *Screen* 51(4): 404-409.

Öman, Anne and Hashemi, Sylvana Sofkova 2015. Design and redesign of a multimodal classroom task – Implications for teaching and learning. *Journal of Information Technology Education: Research* 14: 139-159.

Prince, Stephen. 2011. *Digital visual effects in cinema: The seduction of reality*. Rutgers University Press.

Ranker, Jason 2008. Composing Across Multiple Media: A Case Study of Digital Video Production in a Fifth Grade Classroom. *Written Communication* 25(2): 196-234.

Ranker, Jason 2017. The role of signifier differences, associations, and combinations in creative digital video composing: making meaning with gestures, objects, actions, and speech. *Pedagogies: An International Journal* 12(2): 196-218.

Smith, Blaine E. 2016. Composing across modes: A comparative analysis of adolescents' multimodal composing processes. *Learning, Media and Technology* 42(3): 259-278.

Smith, Blaine E., Carita Kiili and Merja Kauppinen 2016. Transmediating argumentation: Students composing across written essays and digital videos in higher education. *Computers & Education* 102: 138-151.

Smith, Jennifer and AGI Creative Team 2014. *Adobe Creative Cloud Design Tools Digital Classroom*. NJ: John Wiley & Sons.

Thomson, Roy and Christopher Bowen 2009a. *Grammar of the shot* (2nd ed.). Oxford, UK: Focal Press.

Thomson, Roy and Christopher Bowen 2009b. *Grammar of the edit* (2nd ed.). Oxford, UK: Focal Press.

Van Hurkman, Alexis 2014. *Color Correction Handbook: Professional Techniques for Video and Cinema* (2nd ed.). Berkeley, CA: Peachpit Press.

Vanderschelden, Isabelle 2007. Digital painting: colour treatment in the cinema of Jean Pierre Jeunet. In Wendy Everett (ed.). *Questions of colour in cinema: from paintbrush to pixel*. NY: Peter Lang, 67-84

Willig, Carla 2013. *Introducing qualitative research in psychology*. McGraw-Hill Education (UK).

Wohl, Michael, Van Hurkman, Alexis and Spencer, Mark 2012. *Final Cut Pro X Advanced Editing. Apple Pro Training Series*. Peachpit Press: Berkeley, CA.

Yeh, Hui-Chin 2018. Exploring the perceived benefits of the process of multimodal video making in developing multiliteracies. *Language Learning & Technology* 22(2): 28–37.

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Producing and disseminating marginalized knowledge through students' drawings, videos and crafts

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Can multimodality contribute to the social inclusion of all students and to fostering of a democratic culture in educational settings characterized by major population movements and relevant social changes that usually promote racism and exclusion? In this paper, we argue that multimodality, especially its social semiotic approach (Kress, 1995, 2009; Kress & van Leeuwen, 2001; van Leeuwen, 2005), is not just another necessary addendum to the curriculum for "new learning" (adjusted to the needs of contemporary societies and new technologies). More importantly, it can offer democratic ways to produce, distribute and disseminate knowledge. Having worked with the Knowledge Democracy initiative (Sousa Santos, 2018) in an Erasmus+ Project called Backpack-ID, developed as a bottom-up innovation in participating schools, we demonstrate, through specific examples, that the students' drawings and digital storytelling can create prospects for social inclusion for all students in the classroom. More specifically, we try to show, in detail and through instances of practice, how a classroom, as a multi-semiotic space, can become a democratic space founded on the inclusion of diverse histories, memories, languages, identities and epistemologies.

KEYWORDS multimodality, multimodal literacy, multiliteracies, knowledge democracy, students' social inclusion, narratives, digital storytelling.

1. Introduction

In this paper, we argue that multimodality can offer a democratic way to produce, distribute and disseminate knowledge in educational settings. Through the combination of multimodal literacies (Kress 2003; Jewitt & Kress 2003; Cope & Kalantzis 2000) with the Knowledge Democracy initiative (Sousa Santos 2018) and the politicization of the concept of multimodal-

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ity we propose, new perspectives for this venture can emerge. Our basic aim is - drawing on theories in the field of multimodal communication from a social semiotic perspective and using relevant conceptualizations of communication and representation- to democratize knowledge production and dissemination processes in school. Besides, through specific examples from educational practice, we try to show that the students' drawings and digital storytelling can constitute inclusive and democratic ways of producing and disseminating knowledge. We focus on how a multimodal semiotic approach can be applied to educational practice to allow inclusion of all voices in contemporary classrooms, contexts of diversity and difference. So the paper is about the politics of representation, the politics of knowledge and the politics of difference in multicultural and multilingual classrooms.

We consider such a study and discussion important as it is in the core of democratic pedagogy. It can propose practices that give voice and opportunity for participation to all students, even marginalized ones, which are muted due to language restrictions, racism, or exclusion. Mapping how teachers and students actively work with modes and multimodality in their classrooms is usually conducted aiming at offering a better understanding of the relationship between modes, pedagogy and learning, and examining what multimodality has to offer to improve learning (Stein 2008; Kalantzis & Cope 2008; de Silva Joyce & Feez 2018). Yet this kind of research does not appear to illustrate multimodality as a pedagogic resource for social inclusion in school, which is the basic aim of this study.

The basic principles of the proposed combination of multimodal literacies with knowledge democracy, were applied to "Backpack-ID'', an Erasmus+ Project where teachers and students from four European countries facing the refugee crisis (Greece, Italy, Germany and Sweden) collected the students' family and personal stories as these were expressed through videos, drawings and crafts in their heritage languages and/or in the language of the reception country. These stories were converted to digital format, e-book and video, and translated in five languages (the languages of the four participating countries, plus English). The students' voices, expressed through drawings, crafts (e.g. identity maps) and videos, their choice of colors, photos, special fonts, diagrams, and all their choices in general, shaped the entire project and defined the interventions conducted in participating schools. Working together, teachers and academic researchers helped students to disseminate knowledge produced in various communities (their families, friends, etc.) and provided support throughout the procedure, aware of the power issues raised by this project, whereby not all participants shared the same goals and aspirations.

In the sections below, we propose the combination of multimodal literacy and knowledge democracy, after outlining how we perceive these two frameworks. We believe that this combination can lead teaching to adopting inclusive and democratic practices. To support this claim, we present examples of teaching activities implemented during the Backpack-ID project, accompanied by students' and teachers' comments that provided constant feedback.

Our discussion on these examples highlights the potential value of the proposed combination, while also stressing possible risks.

2. Multimodal approaches to representation and multimodal literacy in education

Multimodality is a concept that has been perceived and utilized in various ways and in different disciplines. Here, following the work of Kress (1995, 2009), Kress & van Leeuwen (2006, 2001) and van Leeuwen (2005), we adopt *a social semiotic approach* to multimodality. This means extending the social interpretation of language and its meanings to the whole range of modes of representation and communication employed in a culture. Bezemer and Jewitt (2010) highlight three theoretical assumptions as central to this approach:

a. representation and communication always draw on a multiplicity of modes, all of which contribute to meaning. Social semiotics focuses on describing the full repertoire of meaning-making resources which people use in different contexts (e.g. actional, visual, spoken, gestural, written, three-dimensional, and others), and on developing means that show how these are organized to make meaning.

b. all forms of communication (modes) have been shaped through their cultural, historical and social uses to realize social functions. All communicational acts are socially constructed and meaningful to the social environments in which they were created.

c. the meanings realized by any mode are always interwoven with the meanings made with those other modes co-presenting and co-operating in the communicative event. This interaction produces meaning. Multimodality focuses on people's processes of meaning making, a process in which people make choices from a network of alternatives.

Communication –as a multimodal act- is rather fluid and complicated, as it is based on signs socially produced and socially read. What signs stand for and how they are read is not static, pre-given or pre-determined, but affected by how people regulate semiotic resources in their social context of use. The sign-maker engages in acts of sign-making expressing his/her "interested action". This term refers to the fact that signs are never neutral but infused with the sign-maker's interests that are affected by the interests of the social groups the sign-maker is part of. Social semiotics acts are determined by the sign-maker's interests, capacities of creativity and constraints and possibilities offered by the formative role of structures in the context in which the meaning-making occurs. Sign-makers produce and read designs (NLG 1996; Cope & Kalantzis 2000), through a dynamic process of (re)designing signs in response to other signs. This view implies that signs do not have fixed meanings but acquire meaning relationally within "webs of signification" and are constantly transformed (Pahl & Rowsell 2006: 8).

A multimodal approach to teaching and learning characterizes communication in the classroom beyond linguistic communication: language is only one mode of communication among many. Other modes can include image, drawing, space, gesture, sound, movement, etc. All these modes function to communicate meaning in an integrated, multilayered way. In such an approach, all modes of communication drawn on in the making of meaning are given equally serious attention in school (Stein 2008:1). This basic assumption of social semiotic approach is not self-evident, since history, culture and ideology have assigned particular values to specific modes, for example the superiority of writing over speech in the Western world. In the classroom, social semiotics acts can be highly constrained by current political choices and institutional structures.

In contemporary times, characterized by constant mobility of populations, the pervasiveness of new technologies, communicative fluidity and diversity in terms of (re)sources and modes, as well as their combinations used in communication, new literacies are needed. The new, complex communicative landscape highlights the need for multiple competences, skills and knowledge, reorienting school goals and practices towards developing multi-literacies, understanding how different communicative modes complement each other and work together to make or add meaning (Unsworth & Thomas 2014). The concept of multiliteracies is not formulaic; it involves "a different set of perceptual systems of reading, where separate communicative modes are employed and separate literacies are enacted" (Duncum 2004: 253). In this context, literacy teaching aims at nurturing the students' abilities and skills necessary for understanding and producing various text forms associated with information and multimedia technologies (NLG 1996), generally combining different semiotic modes to make meaning. Possessing a range of literacies (e.g. visual literacy, techno-literacy, etc.), today's "multiliterate" subject reads multimodal texts in an integrated fashion, noting the relationship between different semiotic modes used, and produces multimodal texts, "designs", managing various resources (Kress 1995).

Both frameworks (multimodality and multiliteracies) are founded on notions of justice, democracy and equity in society and in education (Newfield 2011a,b). They tackle the question of linguistic hegemony (of language per se) and argue for a literacy education that is plural in terms of both culture and representational practices, premised upon the existence of local and global literacies and their interconnectedness in today's world. The skill of "negotiating difference" (cultural, social, linguistic, semiotic) is a major educational goal for multiliteracies. Multimodal social semiotics approaches issues of diversity and democracy through a semiotic route: it holds that a socially just education should take account of the range of meaning-making possibilities and scenarios that exist in the current communicational landscape and in the communities of learners, in local and indigenous contexts, including classrooms.

Multimodality and multiliteracies propose pedagogies, multimodal pedagogies (Stein 2008: 121-22) that recognize that the use of modes in classrooms is always the effect of the

work of culture, history and power in shaping materials into resources for meaning-making. Pedagogic processes (e.g. designing of texts) are understood as the selection and configuration of the semiotic resources available in the classroom. Textual practice is placed within a human rights framework: democratic education should neither outlaw nor ignore the resources of students and their communities for learning and representation. Semiotic freedom is a human right. Multimodal pedagogies acknowledge learners as active participants in domestic and community life, as human beings who have rights, resources, creativity, opinions, judgment and agency (Stein 2008: 42, 31). Learners engage with different modes differently: they have different relationships, histories and competences in relation to modes. Multimodality gives students the opportunity to make a range of representations constructing a multi-perspectival view of the world that gives emphasis on the insider perspective, from "real people who experience it". These representations can crush the boundaries between spaces "inside" school, like official school culture or dominant discourses, and those "outside", like local community culture. The conscious use of multimodality frees up the creative space for students: a. to explore a range of different voices in different modalities, b. to use elements from their local communities (languages, memories, culture, etc.) to produce knowledge in the classroom expressed in various modes, and c. to disseminate knowledge produced through different modes which can reach a range of audiences and contexts. In other words, multimodal pedagogies encourage complex, creative and varied practices of design and meaning-making in classroom that are counter-hegemonic.

Here we draw on conceptualizations of multimodality that strongly connect it with multiliteracies in a socio-political way, focusing on the acceptance of differences, the expression of multiple voices (Garcia et al. 2018) and fostering critical learning and democracy in the classroom. This socio-political view of multimodality highlights the need to equip students, not only with technical skills for dealing with new technologies, but also with the abilities and knowledge necessary for analyzing and critically evaluating different views, as well as for voicing diverse and divergent perspectives to large audiences (Gainer 2012). In such a context, "literacy is about more than reading and writing – it is about how we communicate in society. It is about social practices and relationships, about knowledge, language and culture... Literacy takes many forms: on paper, on the computer screen, on TV, on posters and signs. Those who use literacy take it for granted – but those who cannot use it are excluded from much communication in today's world. Indeed, it is the excluded who can best appreciate the notion of *literacy as freedom"* (UNESCO Statement for the United Nations Literacy Decade, 2003-20). And this freedom refers to rights such as access to knowledge, the right to be different and the power to bring social transformations.

3. What is knowledge democracy?

As mentioned above, without a clear socio-political orientation, multimodality can lead to technocratic teaching activities. We argue that such an orientation can be provided through Knowledge democracy (henceforth KD), an initiative that is not only compatible with, but also complementary to multimodality, as we attempt to demonstrate below.

KD focuses on producing, disseminating and utilizing knowledge, both in society in general and in education in particular (Rowell & Hong 2017). It criticizes strictly controlled environments and systems that legitimize a certain form of knowledge (particularly academic knowledge produced and disseminated at a distance from real people and their everyday lives) and only promote specific forms of its representation. Contrary to dominant perception, the society envisioned by KD attributes a central role to social actors, who produce, evaluate and criticize knowledge (Feldman & Bradley 2019), so as to utilize it in their decision making, whether personal or public (in 't Veld 2010).

As KD actually constitutes a struggle for social and cognitive justice (Sousa Santos 2007), it involves diverse communities of problem solving, democratic imagination in a non-market, non-competitive world, including a collaboration of memories, legacies, heritages, a manifold heuristics of problem solving, where a citizen takes both power and knowledge into his [or her] own hands" (Visvanathan 2009). The concept of the "pluriverse" (Escobar 2015), comprising a multiplicity of mutually entangled and co-constituting but distinct worlds, is also strongly connected with KD and epistemological diversity. It involves more than simply tolerating difference; it implies actually understanding that reality consists of many worlds, and in fact many kinds of worlds, many ontologies, many ways of being, many ways of perceiving reality and experimenting with these worlds in practice (Querejazu 2016). It is not sufficient to identify epistemological and ontological diversity; they should also influence everyday practices, perceptions and discourse. In the KD framework, the pluriverse concept changes the catastrophic, Eurocentric notion of one world metaphysics (Law 2015), bringing together elements from many worlds in order to unite them (Escobar 2015).

Moreover, KD criticizes the usual role of institutionalized education (school and university), challenging the mono-ontological approach it proposes, whereby experts promote knowledge through sophisticated techniques (Hall 1992) and determine what knowledge is and how it is produced. According to KD, university experts need to transform their perceptions of research and their rigorous methodology, in order to achieve adequate communication with the participants in the social situation under study, gain a better understanding of the local context (Bourke, 2013; Jordan, 2009) and empower participants to undertake social action. Universities need not treat participants as objects of research, but as subjects who participate equally (Katsarou & Sipitanos 2019). Such a reorientation of research would affect the definition of knowledge and the procedures of producing and disseminating knowledge in school.

In school, KD refers to (Rowell & Hong, 2017):

1. How the world is presented (forms of legitimized knowledge, types of available and accessible knowledge),
2. Activities involving teachers and students, with regard to learning about the world (research and teaching methodologies),
3. Procedures of creating knowledge in the school,
4. Procedures of disseminating knowledge (in the classroom, local communities, groups of interest, etc.),
5. How teachers and students get involved in social and transformative action.

First of all, KD in school entails legitimizing knowledge that comes to the school or classroom from various sources, including the students' communities, creating a pluriverse with multiple realities, not just the one validated by the curricula or the Ministry textbooks. Therefore, KD relates to knowledge characterized by hybrid and plural possible "truths".

Regarding the second point, KD promotes teaching and learning methods that are based on the students' experiences and their reflections on these experiences (Suarez 2017). For instance, it involves narratives representing experiences, reflection and dialogue on these narratives, which can shed light on the students' implicit assumptions and help them problematize their current understandings. Inquiry-based activities, use of ethnography and sociolinguistics as teaching tools (Egan-Robertson & Bloome 2000) and written or multimodal accounts, auto-biographical or metaphorical, can also be used (Burchell & Dyson 2000). In fact, every opportunity to highlight and honor the students' out-of-school literacies could be used in such a context.

Whatever kind of knowledge is produced in school, whether content or procedural or knowledge about teaching and learning, the quality of interaction and communication among participants (e.g. teachers, students, parents, university researchers) is crucial for the knowledge production process, as knowledge is produced through cooperating and collaborating with others. Therefore, equal participation, horizontal relations and democratic decision-making among participants are essential. Regarding knowledge dissemination, and taking into account today's information and communication technologies, issues of audience and criteria for publication are very important and have to be debated at every stage. Teachers and students make decisions on how and with whom to share their work (Katsarou & Sipitanos 2019).

4. Connecting multimodality to KD: potential implications for teaching

Our main argument here is that teaching multimodality in text reading and production,

and encouraging the use of various modes for the expression of various and pluralistic views, experiences, heritages, memories, etc., can foster democracy both in and out of the classroom, through the dissemination of knowledge produced in school. This means that multimodality can create an environment where diverse voices can be heard (apart from the voices dominant in the present educational system); various experiences can be expressed in multiple ways and through various modes (including personal, family and community experiences usually excluded from school); interaction and cooperation between stakeholders can be improved in the classroom; and, teachers and students can show initiative to take action (educational, social, etc.), as informed citizens. The underlying vision is that of citizens who think critically, take a stance on complicated social issues, have a strong sense of community, are deeply committed to work for the civic good and collaborate to solve problems in an increasingly globally connected world.

The combination of multimodality with the principles of KD can lead to specific educational practices. According to Stein (2008), in order to create a democratic and versatile classroom, educators must encourage expression through various modes, building on the vast range of resources brought by the students. Moreover, they can encourage dissemination of the text created. Multimodal texts can easily reach worldwide audiences through the internet and technological applications (Lankshear & Knobel, 2006). When used appropriately in school, these technological tools can be empowering, as they allow ordinary, often marginalized, people (students) to become producers and disseminators of culture (Kellner & Share 2009). This means that teachers utilize multimodality in productive, expressive and creative ways that undermine the student deficit model, drawing on the students' everyday experiences and their existing, though suppressed, capacities and genres of representation. Multimodality can turn into an opportunity for students to engage in activities that involve drawing on local forms of knowledge and semiotic practices, in order to explore and share aspects of their everyday experiences. If these experiences and activities are integrated into curricular topics, the classroom can become a forum for exchanging ideas, experiences, knowledge and cultures, providing students with mutual stimulation (Newfield 2011a).

Teaching multimodality is a real political choice, as it fosters participatory and democratic educational processes that build respect, dignity and excitement in the context of the classroom, while also developing and reinforcing the students' representational and communicative repertoires.

The fact that innovations promoting multimodality and KD in school are based on bottom-up processes, also attests to this. Processes that relate to changing educational aims, learning goals, teaching, assessment and evaluation to embrace multimodality, have to be developed at school or classroom level by teachers and students. Behind every educational change there is a hidden struggle, regarding what is chosen, how, by whom, why and to what purpose. These conflicts originate from the aims of education and, in a way, reflect divergent

answers to the question, 'whose knowledge is more valuable, that of teachers, students, parents or the educational authorities?' In educational innovation, the bottom-up model seems particularly democratic, as it is characterized by a focus on the school and the local conditions affecting the change, the belief that the school is the right venue for change, a keen interest in meeting local needs, the collaboration in and across schools, and systematic monitoring and review of the project itself.

In the following sections, we attempt to show how the project implements this in practice, combining multimodality with KD.

5. The Backpack-ID Erasmus+ Project: combining multimodality with KD in educational practice

The Backpack-ID Erasmus+ project titled "Never leave your backpack behind" is a three-year project, funded by the European Union, which started on September 2017. Its intellectual outputs include an e-book and videos from the four participating countries: Greece, Italy, Germany and Sweden[4]. These outputs are educational materials that can be used in various ways in every classroom. The e-book and related videos are based on narratives collected from refugee, immigrant and native students, uploaded in digital form on the site of the project: http://backpackid.eu. The material is translated in the languages of the participating countries, as well as English. The project is still in progress, while an anthology from the implementation of the materials in practice, and the teacher's toolkit will be produced next year and uploaded on the site in 2020.

Backpack-ID is an innovative educational intervention for promoting the inclusion of refugee children at school in European countries (Greece, Italy, Germany and Sweden), which face acute and very diverse challenges regarding the ongoing refugee crisis (eurostat 2019). The project views the social inclusion of refugee children as a means for addressing the needs and perspectives of those children and their families, as well as of local communities and stakeholders, while affirming common European values. This multidisciplinary project is based on social and developmental psychology, linguistics, and educational theory and practice. At the same time, it brings together academic expertise and valuable experience and know-how from educational organizations, international educational networks and NGOs.

The project focuses mainly on multiple collective belongings, memberships, backgrounds and identities of secondary school students. Addressing both refugee and non-refugee students, it seeks to empower all students and help them discern and experience aspects of "otherness" in themselves. The students' families, their immediate social background, and/or their communi-

4 The initial partner from Germany left at the beginning of the Project and was recently replaced by another organization. Although the new partner has already produced all necessary multimodal material, this material is not yet published, which is why we have not included any example from Germany in this paper.

ties will be their main resources to this end. "Never leave your backpack behind" refers to trivial belongings of great emotional and symbolic value that refugees may carry in their backpacks; it serves as common ground in the quest for "pathways" and "bridges" across group memberships and identities. The backpack metaphor is used, as the project is based on the general idea of transition. This transition is not only from one place to another, but also from one phase of life to another, for instance from primary to secondary education, from student life to marriage, from the village to the city. It is a common idea, an experience shared by all humans. Importantly, the reflective work on identities further seeks to advance the literacy development of refugee students in the new language. This integrative approach to multiple identities, empowerment and literacy development is the core innovative contribution of Backpack-ID.

Regarding teaching practices, teachers are free to develop their own practices during the project, tailored to their students' profiles and needs. They are also encouraged to discuss, change and even challenge part of the project theory. Through weekly skype meetings, the teachers started discussing how they perceived the basic theoretical concept of the project, "multiple identities", how it can be implemented in educational practice, which problems they faced in the classroom, related challenges and possible solutions. The academic researchers provided the teachers with space to reflect, posing reflective questions to help them understand the main idea of the project, enhancing the students' multiple identities, and attribute the meaning that is important to them at local level.

As mentioned above, the project has a solid theoretical base (fluid and multiple identities and how they intersect), predetermined basic goals and specific outcomes. But its structure was also designed for bottom-up development. Instead of viewing the basic project concepts (e.g. multiple identities, common European values, etc.) and/or activities (collection of family stories or personal narratives) as an imposed set of restrictive regulations, participants have the opportunity to address project characteristics in a creative way, attributing meanings that have value for them and addressing the needs and perspectives of refugee and non-refugee students, local communities and stakeholders, in a common account of social inclusion challenges.

In the following section we present some examples, developed and implemented by project participants, showing the diversity of created practices. In all cases, the practices brought together the teachers' educational practices, the students' needs and the local context.

6. Connecting multimodal narratives of Backpack-ID with Knowledge Democracy: instances of practice

As per its educational and research design, the project was conducted in two phases. In the first phase, teachers and students collected educational material (crafts, narratives, images etc.) from their local communities, both inside and outside their schools. Their mul-

timodal narratives reflected their lives, their experiences, and the memories and languages of their communities. Fifty multimodal "stories" were collected from each country. Some of them (ten from each country) were also turned into videos. Then all these materials, "stories" and videos were uploaded on the site of the project (http://backpackid.eu/). In the second phase, teachers and students used the material in the classroom, developing relevant activities. The site offers a platform where the teachers from the four countries exchanged ideas. In this phase, 2-5 teachers with their students (approximately 180 in total) participated from each country, producing 10 lesson plans and 3 students' artifacts (30 per country, 90 in total, see footnote 1).

All these educational procedures were constantly monitored through various means (participants' diaries, interviews, etc.). In the second phase, research data was collected through questionnaires answered by teachers and students that used the multimodal material in practice. In the questionnaires, teachers described and evaluated their practices (e.g. Q1: *What issues emerged during the process (for instance similarities, differences, sense of belonging in a group, multiple selves)?* Q2*: What other issues emerged and were discussed? Could you mention some of these issues?*). They also explained which of the educational material they used and why (narratives, crafts etc.). The students answered questions concerning their attitudes. They also explained by which educational material they were impressed and why (e.g. *Which activity did you find more interesting? Why? What thoughts or feelings did the scenario cause to you?*). Then the data collected was analyzed with focus on: a. the ways in which the multimodal material was perceived and used in the classroom by teachers and students, b. the prospects it created for social inclusion of all students and c. the difficulties/obstacles it created at any level.

6.1. Students as auto-ethnographers: taking photos and narrating stories

Photostories constitute an empowering learning approach, since the students engage in research activities within their own community. Culture and local or family history become the resources for meaning making, for exploring and sharing aspects of life in the school context. For instance, in the junior high school (JHS) of Perama Mylopotamou, in a rural semi-mountainous area near Rethymno in central Crete, Greece, the students collected data by taking photos of their communities. Specifically, they collected photos from their villages or towns and also took photos from their daily routines (one shot per hour). In photostories, the photos taken by the students' personal mobile phones were accompanied by the respective written descriptions and narratives (on notebooks or digital presentations. For instance, the photo of Figure 1 below was taken by a student, who connected it with the area, linking the school to its environment ("trees", "mountain") in the short accompanying comment. The photo was taken from the student's point of view, so it contributes to a more personal meaning-making

procedure. Photography traits, like the angle, zoom and filters, are some of the traits that contribute to meaning making. The photo is also connected with the family story (Excerpt 1) ("my grandfather", "my grandmother").

Figure 1. Maria's grandparents' school

(Excerpt 1) *The other picture shows the school. It has many trees around it and there is a big mountain behind it. This school was an elementary school in the past too. [...]. This is where my grandfather and my grandmother used to go to school.*

(Maria, GR, ST3, 12 years old[5]).

These photostories also proved productive in the classroom, leading to new conversational circles. All photostories created were presented in the classroom, where the students, the people who had actually experienced them, gained a deeper understanding by comparing their personal, family and community stories with those of their classmates. Through these stories, the students realized that their lives are connected to nature and that all people love their homeland, no matter how small or insignificant it might seem to others.

The multimodal reading of the photos was conducted in the classroom, noting the position of certain objects in the center of the picture (tree and school) as the main information, the role of colors (e.g. green) (Kress & van Leeuwen 1996). Thus, the interpretation of the photostories took place in the community that produced them. In this way, students formulated their own meanings, instead of reproducing dominant discourses, as the school norm dictates. Subsequently, different family stories were connected with local factors, such as memories

5 The student names are changed to protect their identity. The data can be identified as concerns the country (GR for Greece, SW for Swede and IT for Italy) and the participant's status (ST for Student and T for Teacher).

from the homeland, familiar landscapes, local environment, etc., bringing multiple representations into the classroom and avoiding the appearance of dominant perceptions. This connection reveals the bottom-up approach of the project, whereby teachers encouraged students to bring their family and personal stories into the classroom and then turned these multimodal stories into educational material that was studied and analyzed in class.

In these teaching activities, multimodality was connected with the students' knowledge, memories and languages, leading to a stronger connection with the local social and natural context, promoting social semiotics in educational settings. Furthermore, the students disseminated their stories, values and heritages to the other members of the school community. In this way, the students had the opportunity to engage in activities that included learning from each other, building knowledge in a more multidirectional way, where the scaffolding (Wood, Bruner & Ross 1976) is provided not only by the teachers, but also by all the students, due to their different sociocultural backgrounds (Mercer 2000).

According to the teachers' questionnaire answers (e.g. ''Generation Vs Generation'' or ''I miss'') photostories constituted educational material that was widely used. As it concerns the pedagogical processes, through this complex meaning making procedure the students started to change the way they conceived reality. A student from Italy stated: "I understood that people might be foreigners in their country or feel well everywhere" (It.St.5), discovering subsequent realities, beyond monomodal and mono-ontological conceptions.

6.2. Students as auto-ethnographers: taking interviews and transcribing family stories - Drawing transition stories

Backpack-ID also promoted oral storytelling, which was combined by drawing. For instance a student in Sweden, after taking interviews and asking information from his family members, produced the following story as a final result

(Excerpt 2). The story was accompanied by his drawing (Figure 2).

(Excerpt 2). *My name is Ninos and I come from Iran. My parents chose my name. I wanted the name Mohammad because it's a prophet's name that I like. There are not so many called. Me, my brother and my mother moved to Sweden with the help of the UN. I am 12 years old and went to school in Iran. There were always a lot of conflicts occurred in Iran. The pupils roared, the teacher and the principal were not good at school. I had my fruit with me at school on my school bench. Moving from Iran was tough because my mother missed her mother. There are differences between me and my classmates here in Sweden. Some are happy and happy and some miss their dad in their lives. My brother worked as a mechanic. We moved because the UN moved us. I was worried about my mom. It was really hard to say goodbye to my grandmother. I missed my uncle.*

Mom has memories of grandmother and my dad who passed away. In Iran, I used to go to the gym and at home I practiced boxing.

(Ninos, SW, ST4, Linköping's Kommun, 12 years old)

Figure 2. Ninos' drawing - Personal transition from Iran to Sweden

The stories collected helped students gain a deeper understanding of the historical factors that shaped the lives of their family members. In the classroom, further questions were posed and discussed, for instance the reasons why Ninos left Iran, why he insisted on that name, what is happening in Iran. The discussion raised further issues and the voices of the families created a chain of dialogue across generations, enhancing polyphony[6] (Bakhtin 1981). In these stories, reality was presented by several participants that communicated and cooperated in knowledge production and dissemination. Heritages, stories and traditions were negotiated through the dialogic practices that took place.

Furthermore, the student Ninos was not held back by linguistic features, taking into account that, as a newcomer, his access to Swedish is limited. Through his picture, he combined different semiotic resources to promote his story. In Figure 2, emoticons and the feelings they express are a powerful resource, due to the powerful communicative tools such as Instagram and Facebook. The teachers did not reject this resource and this semiotic freedom gave Ninos' story the opportunity to be heard.

Identity maps also became a powerful multimodal activity, as various forms of communication co-exist in them (Bezemer & Jewitt 2010). The students started to compare their identities, identifying similarities and differences, based on the different semiotic resources they used. For instance, even though they used different symbols for religion, they discovered that religion can be equally important for students from different socio-cultural backgrounds. These

6 Polyphony: a plurality of independent and unmerged voices and consciousnesses (Bakthin 1981: 6-7).

identity maps and the subsequent discussion on semiotic resources connected their lives in and out of school, as seen above. Thus the students' multiliteracies competency was enhanced, since they realized that the "same" meaning (e.g. religion) can be constructed through different signs, depending on differences in culture, history and ideology.

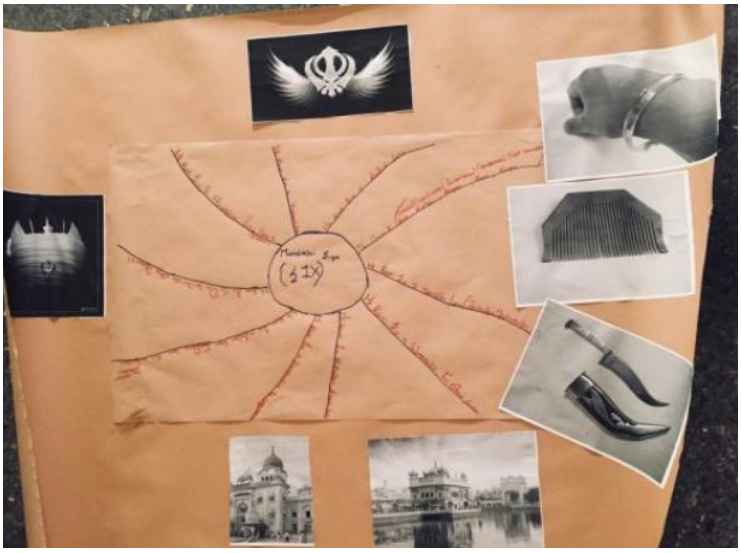

Figure 3. Identity map. Each ray of the sun depicted here ends in a symbol that reflects the student's home country, India and his religion, Sikh.

Through this teaching activity, the students used different modes to express, for the same subject, multiple worlds and multiple ontologies about the world (Escobar 2015), in the context of the current refugee crisis. All these multiple modes produced multiple knowledges through the development of relationships. In other words, through this relational ontology, where the students' drawings were produced, multimodality facilitated their engagement and equal participation in the educational and social context. Such activities enhanced knowledge democratization, because students focused on the multiple processes of meaning making. A student stated: "I put myself in someone else's shoes and I understood what it means to feel a stranger. In this way achieved new experiences" (IT. ST.9).

There were also stories without drawings or photos from the students. For these stories, a teacher from Greece, who worked with both refugees and non-refugees stated: "There was a difficulty that had to do with their lack of adequacy in Greek (some of them had only been in Greece for a few months), and some kids with immigrant background seemed negative in connecting themselves with a difficult transition story". From this statement, it is clear that having the full repertoire and all forms of communication (Bezemer & Jewitt 2010) in our contemporary societies is not just a matter of educational adequacy; it is a political issue, because mono-ontological and monolingual approaches are a barrier in communication fluidity, raising equality issues.

6.3. Connecting the multimodal material produced with the official school curricula

In all participating countries, connecting the Backpack-ID educational material with the official curricula was a challenge for the teachers. Various teaching activities took place, connecting the project multimodal material with different school subjects (First/Second Language, Geography, Music etc.)[7]. Due to space limitations, only one example will be presented here, taken from a class in Ancient Greek History.

In the 1st grade of a JHS in Rethymno, students were asked to collect transition family stories like the ones mentioned above and design these transitions on a map. The official curriculum of the same class in History includes the Iron Age Migrations. During these migrations, which took place in the 12th century BC, the inhabitants of Greece traveled from the mainland to Asia Minor. Greek Colonization, from mainland Greece to the Mediterranean and Black Sea, took place from the 8th to 6th century BC. All these transitions where also tracked on the map.

Furthermore, due to the current financial crisis, Greece faces a "brain drain". Highly educated men and women, aged 25-45, travel abroad to find employment that reflects their qualifications. Relevant articles, stories and hypertexts (e.g. YouTube videos, Instagram posts) were also collected from the internet by the students of the same class, while all these transitions were also tracked on maps.

Iron Age migrations (12^{th} century BC)	Greek Colonization (9^{th}-6^{th} century BC)	20^{th} - 21^{st} century	21^{st} century
Ancient Greece	Ancient Greece	From various countries and areas immigrants come to Greece	Brain drain - highly educated people leave Greece

Table 1. Transitions in history

With the help of maps, the intertextual reading (Table 1) connected these historical events, despite their temporal distance. By identifying the similarities and differences between these different time periods, students gained a deeper understanding of the social factors that shape our lives over time. Through such educational activities, facts that are distant to the students, as they occurred more than 3,000 years ago, become meaningful to them, as they relate to similar behaviors that occur today. This teaching activity began a second round of discussion, where the students started sharing related family stories. Immigrants and non-immigrants started sharing their mobility maps, realizing that mobility and not stability is the rule in human history and everyday family and personal stories.

Similar curricular interventions took place in several countries and the Backpack's edu-

7 For relevant ideas see: http://backpackid.eu/el/e-book/instructions-for-teachers

cational material was integrated in everyday school life. Music was one of the favorite subjects that helped students promote their meaning making. Favorite lyrics, sound, pitch, rhythm and familiar practices like contests or challenges became the multimodal common ground where connection between the different cultures was forged (e.g. http://backpackid.eu/en/videos-multimedia/students-videos/849-guess-the-song). In all countries, similar activities took place and students stated: "it was very interesting because this is how I feel about music. I like expressing myself, my point of view and my feeling through music" (SW. ST. 13). In Italy, music activities were combined with acting and teachers embraced these activities: "I tried to involve more music and acting in our lessons!"

6.4. From new literacies and video production to social justice

The students' drawings and collages mentioned above were combined with their oral narratives. Their voices were transcribed and combined with their artifacts. This approach implements the "students' voice" concept in praxis, since their voice transfers their own personal and family stories in the educational context.

Some of these oral narratives were collected and transformed into videos. In some cases, different stories were connected through creative writing and video editing. These mixed stories became another, more complex, multimodal literacy activity for the students. For instance, in the school region of Collecchio Emilia-Romagna in Italy, these multimodal practices enhanced communication through poly-semiotic approaches like videos[8]. Music, sound, body language and voice intonation form part of the language of the young, helping them express themselves in their way. Meaning was created through visual, gestural, spatial and audio modes. On the other hand, this intertextual mix of stories created new, hybrid texts, through which the students reconstructed meaning. In this case, the students acted as producers of meaning, while, in the classroom, the teachers had the opportunity to enhance the students' understanding of intertextuality and hybridity, through the multiple forms of knowledge brought to the school and combined by the students. In this teaching practice, students become producers of culture, realizing that the world can be presented in different ways and modes. Comparing the videos among countries in the second phase, the students realized easily that each sign-maker made different choices from a network of alternatives based on different sociocultural factors.

In cooperation with SERN (project partner from Italy), students from associated schools of Italy even created short movies and music challenges, using another practice familiar to the young. These approaches were adopted through a political lens, since an engaging, inclusive and socially just environment was created this way, where students felt equal and free to express their stories.

Video making proved a powerful multiliteracies practice, taking into account that video making has become a powerful mode of communication, where difference is negotiable. In a

8 see: http://backpackid.eu/el/videos-multimedia/students-videos/989-ragazze-ribelli-2-short-stories

question to students concerning what would they suggest to improve the project, a student proposed to ''collect more videos from each child talking about the place he/she lives now'' (GR. ST. 16). In addition, all teachers from all countries recognized that the videos made the fluidity of communication and the "webs of significance" more plausible ("videos, texts and the scenarios were helpful", SW. T. 2). Video making was also a teaching aim in many scenarios following the demand of digital literacies (e.g. ''Teaching aim: Talking about ourselves in a variety of ways (drawings, texts, videos)'', IT. T. 1).

All videos produced by the project partners were uploaded on YouTube, while participants from different countries started a dialogue through these stories. This dialogue gave participants the opportunity to understand a plethora of discourses from diverse discourse communities. Multimodalities created a pluriverse of ideas and approaches, avoiding monolithic knowledge monopoly, where the official school curriculum restricts the students' knowledge to a one world-world.

7. Conclusions

Working with refugee and non-refugee students, we realized that it is not only a matter of creating good readers of signs. Crafts, drawings, video, intonation, and pitches brought in the classroom a plethora of different voices, stories, memories and legacies. Participating teachers recognized that the dynamic of these web-associations of signs enhanced communication beyond linguistic barriers and simultaneously connected meaning with sociocultural factors. Furthermore, students discovered that our world is not a one world-world. Map identities, vlogs, and photo stories created an alternative space where music, personal interests and family stories created a polyphonic canvas where a Pluriverse of ideas, feelings and thoughts were shared, in an environment of tolerance and acceptance.

Through the Backpack-ID project, we realized that the educational material produced, the analysis made in local contexts and the critical teaching activities implemented in the participating schools enhanced the students' participation, creating a bridge between student experiences and the school context. No longer was school a monolingual and monolithic place; it became a third space (Li Wei 2011), where trans-languaging through multimodalities, such as images, drawings, charts, voices and sounds, promoted a more equal world. Multimodality empowered students, overcoming the student deficit model, since all students, whether refugees or not, whether eloquent in the host language or not, felt free to express themselves and disseminate their transition stories across their school community. Students shared their personal and family stories with their teachers, who commented on them and turned them into educational material. Through such activities, multimodality created strong connections between students, teachers, families and local communities. It became a 'common' language that facilitated the recognition of multiple worlds and knowledge. The content of the students'

stories and the related educational reflective activities, based on the concept of identifying the differences and similarities that connect all humans, helped students understand that our world consists of multiple worlds. For instance, by describing their everyday life, the students realized that, despite being local residents, they might have similarities with a newcomer from faraway places. The monolithic classroom became a pluriverse of images, voices, drawings and sounds, challenging the ways students conceive the world.

Multimodality theory offered the means to promote a more democratic knowledge production in the classrooms. The main difficulty faced by teachers in contemporary multicultural and conventional classrooms is the students' diverse linguistic and sociocultural background. Multimodality not only offered the tools to overcome these barriers, but also empowered students and provided them with equitable opportunities, enhancing their participation in the learning activities organized in the classroom. The project's political choice of using multimodality in a specific sociocultural and historical context was further enhanced by assigning students the researching role of (auto) ethnographers. This role was accompanied by the students' active participation, through the navigation, design, interpretation and analysis of texts in a more interactive way (Serafini 2010), a condition that led them to democratic knowledge production and dissemination.

One of the dilemmas often faced in such educational activities is whether it is necessary to use metalanguage. On one hand, it seems that metalanguage has a positive impact on teaching multimodal texts (Papadopoulou et al. 2019). But on the other hand, metalanguage is connected with a systematic and technical language (Unsworth 2006), which can in fact exclude populations. This difficulty can be overcome through educational critical activities. Refugee and non-refugee students can compare their stories, identifying similarities and differences without implementing a top-down metalanguage of exclusion.

Multimodality is neither another school subject nor part of a top-down curriculum. It is rather a common language, where different semiotic modes are utilized and analyzed simultaneously, together with and inside their local context and specific socio-cultural backgrounds. The proposed approach enhances the critical element that multiliteracies can offer to contemporary classrooms worldwide, particularly when combined with the basic principles of knowledge democracy.

REFERENCES

Bakhtin, Mikhail 1981. *The Dialogic Imagination.* Trans. C. Emerson and H. Holquist. Austin: University of Texas Press.

Bezemer, Jeff and Carey Jewitt 2010. Multimodal Analysis: Key Issues. In: Lia Litosseliti (ed.) *Research methods in linguistics*. London & New York: continuum, 180-197.

Bourke, Alan 2013. Universities, civil society, and the global agenda of community-engaged research. *Globalization, Societies & Education* 11(4): 498 - 519.

Burchell, Helen and Janet Dyson 2000. Just a little story: The use of stories to aid reflection on teaching in higher education. *Educational Action Research Journal* 8 (3): 435-450.

Cope, Bill and Mary Kalantzis 2000. *Multiliteracies. Literacy Learning and the Design of Social Futures.* London: Routledge.

Duncum, Paul 2004. Visual Culture Isn't Just Visual: Multiliteracy, Multimodality and Meaning. *Studies in Art Education* 45 (3): 252-264.

de Silva Joyce, Helen and Susan Feez 2018. *Multimodality Across Classrooms. Learning About and Through Different Modalities.* New York: Routledge.

Egan Robertson, Ann and David Bloome 2003. *Students as researchers of Culture and Language in their Own Communities [IN GREEK].* Athens: Metechmio.

Escobar, Arturo 2015. *Thinking - feeling with the Earth: Territorial Struggles and the Ontological Dimension of the Epistemologies of the South.* Available from: http://www.aibr.org/antropologia/netesp/numeros/1101/110102e.pdf [accessed January 3, 2018]

Fairclough, Norman 1992. *Discourse and Social Change.* Cambridge: Polity Press.

Feldman, Allan and Fred Bradley 2019. Interrogating ourselves to promote the democratic production, distribution, and use of knowledge through action research. *Educational Action Research* 27(1): 91-107.

Fine, Michelle 2018. *Just Research in Contentious Time. Widening the Methodological Imagination.* New York and London: Teachers College Press Columbia University.

Gainer, Jesse 2012. Critical Thinking: Foundational for Digital Literacies and Democracy. *Journal of Adolescent and Adult Literacy* 56 (1): 14-17.

Garcia, Antero, Allan Luke and Robyn Seglem 2018. Looking at the Next 20 Years of Multiliteracies: A Discussion with Allan Luke. *Theory Into Practice* 57(1): 72-78.

Hall, Budd 1992. From margins to center? The development and purpose of participatory research. *The American Sociologist* 23 (4): 15-28.

in 't Veld, Roel 2010. Towards Knowledge Democracy. In: Roel in ,t Veld (ed) *Knowledge Democracy: Consequences for Science, Politics, and Media.* New York: Springer, 1-11.

Jewitt, Carey and Gunther Kress (eds.) 2003. *Multimodal Literacy*. New York: Peter Lang.

Jordan, Steven 2009. From a methodology of the margins to neoliberal appropriation and beyond: The lineages of PAR. In: Dip Kapoorand Steven Jordan (eds) *Education, participatory action research, and social change: International perspectives*. New York: Palgrave Macmillan, 15-27.

Kalantzis, Mary and Bill Cope 2008. *New Learning*. Cambridge: Cambridge University Press.

Katsarou, Eleni and Konstantinos Sipitanos 2019. Contemporary school knowledge democracy: possible meanings, promising perspectives and necessary prerequisites. *Educational Action Research* 27 (1): 108-124.

Kellner, Douglas and Jeff Share 2009. Critical Media Education and Radical Democracy. In: Michael W. Apple, Wayne Au and Luis Armando Gandin (eds.) *The Routledge International Handbook of Critical Education.* New York: Routledge, 281-295.

Kress, Gunther 1995. *Writing the future: English and the making of a culture of innovation.* Sheffield: National Association for the Teaching of English.

Kress, Gunther 2003. *Literacy in the New Media Age*. London and New York: Routledge.

Kress, Gunther 2009. What is a mode? In: Carey Jewitt (ed.) *The Routledge handbook of multimodal analysis.* Abingdon, UK: Routledge, 54-67.

Kress, Gunther 2010. *Multimodality: A Social Semiotic Approach to Contemporary Communication.* London: Routledge.

Kress, Gunther and Theo van Leeuwen 1996; 2nd edn 2006. *Reading Images: The Grammar of Visual Design.* London: Routledge.

Kress, Gunther and Theo van Leeuwen 2001. *Multimodal Discourse: the Modes and Media of Contemporary Communication*. London: Edward Arnold.

Lankshear, Colin and Michele Knobel 2006. *New Literacies: Everyday Practices and Classroom Learning.* New York: Open University Press.

Law, John 2015. What's wrong with a one-world world? *Distinktion: Journal of Social Theory* 16 (1): 126-129.

Mercer, Neil 2000. *The Guided Construction of Knowledge*, [IN GREEK], Athens: Metaixmio.

New London Group 1996. A Pedagogy of Multiliteracies: Designing Social Futures. *Harvard Educational Review* 66 (1): 60-92.

Newfield, Denise 2011a. Multimodality and children's participation in classrooms: Instances of research. *Perspectives in Education* 29 (1): 27-35.

Newfield, Denise 2011b. Multimodality, Social Justice and Becoming a "Really South African" Democracy: Case Studies from Language Classrooms. In: Margaret Hawkins (ed.) *Social Justice Language Teacher Education.* Bristol, Buffalo & Toronto: Multilingual Matters, 23-48.

Pahl, Kate and Jeniffer Rowsell (eds) 2006. *Travel Notes from the New Literacy Studies: Instances of Practice.* Clevedon: Multilingual Matters.

Papadopoulou, Maria, Sofia Goria, Polyxeni Manoli and Evgenia Pagkourelia 2019. Developing multimodal literacy in tertiary education. *Journal of Visual Literacy* 37(4): 317-329.

Querejazu, Amaya 2016. *Encountering the Pluriverse: Looking for Alternatives in Other Worlds.* Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-73292016000200206 [accessed: July 29, 2019]

Rowell, Lonnie and Eunsook Hong, E. 2017. Knowledge Democracy and Action Research: Pathways for the Twenty First Century. In: Lonnie Rowell, Catherine Bruce, Joseph Shosh and Margaret Riel (eds.) *The Palgrave Handbook of International Action Research*. New York: Palgrave Macmillan US, 63-83.

Serafini, Frank 2010. Reading multimodal texts: Perceptual, structural and ideological perspectives. *Children's Literature in Education* 41 (2): 85-104.

Sousa Santos, Boaventura de 2007. *Cognitive Justice in a Global World: Prudent Knowledge for a Decent Life.* Lanham, MD: Lexington.

Sousa Santos, Boaventura de 2018. *The end of Cognitive Empire. The Coming of Age of Epistemologies of the South*. Durkham and London: Duke University Press.

Suarez, Daniel Hugo 2017. The Narrative Documentation of Pedagogical Experiences and the Democratization of Professional Development and Schooling in Argentina. *International Journal of Qualitative Studies in Education,* 30 (5): 474–487

Stein, Pipa 2008. *Multimodal Pedagogies in Diverse Classrooms: Representation, Rights and Resources*. London: Routledge.

United Nations 2003. *United Nations Literacy decade (2003-2012) Launched at New York Headquarters.* Available from: https://www.un.org/press/en/2003/obv322.doc.htm?fbclid=IwAR0prnSJ0_PqJynRBXqPtW_iJJGxXrXJ16rAs8E8dOCqrliYt9T83b0a6SQ [accessed July 25, 2019].

Unsworth, Len 2006. Towards a metalanguage for multiliteracies education: Describing the meaning-making resources of language-image interaction. *English Teaching: Practice and Critique* 5 (1): 55-76.

Unsworth, Len and Angela Thomas (eds.) 2014. En*glish Teaching and New Literacies Pedagogy: Interpreting and Authoring Digital Multimedia Narratives*. New York: Peter Lang Publishing Group.

van Leeuwen, Theo 2005. *Introducing Social Semiotics.* London and New York: Routledge.

Visvanathan, Shiv 2009. *The search of cognitive justice*. Available from: http://www.india-seminar.com/2009/597/597_shiv_visvanathan.htm [accessed, January 30, 2018]

Wei Li 2011. Moment Analysis and Translanguaging Space: discursive Construction of Identities by Multilingual Chinese Youth in Britain. *Journal of Pragmatics* 43 (5): 1222-1235.

Wood, David, Jerome Bruner and Gail Ross 1976. The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry* 17: 89-100.

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The interplay between interpersonal and compositional meanings in multimodal texts about animals for young children

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Contemporary science books for preschool children are multimodal texts since they combine different semiotic systems in meaning production. Along with their representational meaning (presentation of processes and participants), image and language in these books realize equally important levels of meaning: the interpersonal (nature of the relationship between writer-reader and reader–represented participants) and the compositional (composition of elements on the page). The study attempts a comparative analysis of two multimodal texts about animals for preschool children, to examine the meanings created visually and verbally at the interpersonal (address, social distance) and compositional (information value, salience) level. The analysis indicates that the two texts differ regarding the role gradually assigned to the reader (address) and the nature of the relationship developed between the reader and the represented animals (social distance). Additionally, these interpersonal meanings are reinforced or weakened through the positioning of the elements on the page (information value) and their relative emphasis (salience). The different possibilities of combining visual and verbal means for communicating interpersonal and compositional meanings that emerged through the analysis, are discussed with regard to their pedagogical appropriateness and may support teachers in the selection, design, and use of multimodal science texts to promote science literacy.

KEYWORDS compositional meaning; interpersonal meaning; multimodal science texts; preschool children

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1. Introduction

1.1. Multimodality and contemporary children science books

Contemporary science books for preschool children are multimodal texts since they combine different semiotic systems, mainly the verbal and the visual, in meaning production (Kress et al. 2001; Royce 2002; Unsworth 2006). understanding of these texts presupposes the ability to decode the semiotic systems integrated into their design. This view is consistent with the pedagogy of multiliteracies, according to which the reader needs to develop the ability to analyze and interpret the different semiotic codes, which, independently and interactively, contribute in the presentation and communication of meanings (Avgerinou and Pettersson 2011; Cope and Kalantzis 2009; New London Group 2000). Additionally, the reader should be able to think critically of the intentions of the writer of the text who purposively chooses to present information in particular ways according to the messages (s)he wishes to communicate. Lastly, readers are expected to be able to transform meanings and transfer their knowledge to new contexts to produce their own texts (Kress 2000; New London Group 2000). The aforementioned abilities are expected to be developed from the preschool age when children start to interact with multimodal educational material about science (Coleman and Dantzler 2016; Hall 1998; Gonitsioti et al. 2013; Papadopoulou and Christidou 2004).

According to the Grammar of Visual Design (Kress and Van Leeuwen 2006), which was based on the three metafunctions of language as proposed by the Systemic Functional Grammar (Halliday and Matthiessen 2004), a multimodal text realizes simultaneously three kinds of meaning: representational, interpersonal and compositional. Representational meaning refers to the processes constructed verbally and visually, the participants involved in them and the circumstances in which they occur. Interpersonal meaning refers to the verbal and visual choices determining the nature of relationships between writer-reader and reader-represented participants. Compositional meaning is concerned with the composition of verbal and visual elements on the page. Consequently, a multimodal text performs a variety of functions and its meaning is not restricted to its representational content, but incorporates the construction of additional and equally important levels of meaning concerning the reader's interaction with the text and the way the elements are composed in order to form a coherent whole (Eco 1984; Halliday and Matthiesen 2004; Lemke 2000).

A large part of science books addressed to preschool children concern biological concepts, especially topics on the characteristics, structure, and behavior of animals and are widely used during instruction by preschool teachers (Ford 2006; Kelly 2018; Yopp and Yopp 2012). Along with their representational content, these books utilize a variety of techniques serving the communication of interpersonal and compositional meaning. These two kinds of meaning in science books have pedagogical implications on children's learning as they concern the

role assigned to the young readers in relation to the represented elements, and the extent to which they become associated with what is represented, the information value of certain elements and the attraction of readers' attention on them (Guo 2004; Mantzicopoulos and Patrick 2011; Wignel 2011).

While few studies have focused on the dimensions of interpersonal and compositional meaning in multimodal science texts (Christidou et al. 2005; Hatzinikita et al. 2008; Koulaidis et al. 2002; Unsworth 2004), these meanings are of particular importance, as they relate to the pedagogical appropriateness of the material in question, the nature and the content of the represented knowledge (Matsagouras and Helmis 2003). According to contemporary pedagogical principles, from a young age, children "build" their understanding of science concepts, processes, and phenomena based on their personal experiences and abilities. Knowledge is closely associated with children's lives and knowledge construction presupposes their active engagement (Driver et al. 1994). Therefore, at the interpersonal level, to meet contemporary pedagogical principles, science educational material should directly address the readers recognizing them as active knowledge constructors and closely connecting them with the represented knowledge to be acquired, building a relationship of intimacy between readers and represented elements (Matsagouras 2009; Matsagouras and Helmis, 2003; Oliver 2000). Likewise, at the compositional level, the above interpersonal meanings are reinforced when the corresponding visual or verbal elements producing them are presented in a position of great information value and when they receive a high degree of salience attracting readers' attention (Guijarro and Pinar 2008; Painter et al. 2013). The basic dimensions of the two levels of meaning -interpersonal and compositional- and the means of their verbal and visual realization are analyzed below.

1.2. Interpersonal meaning

Address

Address concerns the way the writer addresses the reader and is verbally realized by the type of sentence and the person of the verb (Halliday and Matthiesen 2004; Kress and Van Leeuwen 2006). When imperative sentences and second person are used, something is demanded from the reader (high address), interrogative sentences and first-person denote medium address, while by indicative sentences information is offered (low address) (Halliday and Matthiesen 2004). Address is visually realized by the represented participant's gaze. When the participant looks directly at the reader, something is demanded from her/him, while when the participant's gaze is directed elsewhere, information is simply offered to the reader (Kress and Van Leeuwen 2006).

Social distance

Social distance refers to the nature of the relationship constructed between reader – represented participants and is verbally realized by the use of nominalizations, the voice of the verb and the type of relationship between clauses. The use of nominalization, namely the use of nouns instead of verbs to convey processes, the use of passive voice and hypotaxis correspond to an elaborated linguistic code and suggest a remote relationship, while the absence of nominalization, the use of active voice and parataxis of clauses are used in informal writing and indicate a relationship of intimacy. Balance of use of verbs and nouns, namely the use of the same number of verbs and nouns, for the description of processes, balance of parataxis – hypotaxis, namely the use of the same number of paratactic and hypotactic relationships between clauses and balance of active–passive voice, namely the use of the same number of verbs in active and passive voice or the use of middle/neutral voice of verb indicate a neutral relationship between reader – represented participants (Halliday and Matthiesen 2004; Koulaidis et al. 2002). Social distance is visually realized by the size of the frame, in other words, the distance of the shot, which determines the extent of the depiction of a participant's body. A long shot, namely when the full body is depicted, establishes a sense of remoteness, a medium shot, that is when most of the body is depicted, suggests a neutral relationship and a close shot, namely when only part of the body is depicted, an intimate relationship is indicated (Christidou et al. 2005; Kress and Van Leeuwen 2006).

1.3. Compositional meaning

Information value

Information value refers to the placement of the elements –verbal and visual- in specific positions of the page (Kress and Van Leeuwen 2006). There are three organizational structures regarding information value: the horizontal, the vertical and the center - margins structure. On the horizontal structure the elements -verbal or visual- placed on the right are presented as the New, unknown information, or the information at issue (high information value) and the elements positioned on the left are presented as the Given, as information assumed to be already familiar to the reader (low information value). When elements are structured on the vertical axis, those placed at the top of the page are presented as the Ideal, the idealized essence of information (high information value), while elements placed at the bottom of the page are presented as the Real, providing more specific or practical information (i.e. consequences, directions for action) (low information value). On the center - margins structure, the elements appearing at the center are presented as the nucleus of information (high information value), while the marginal elements are presented as independent or subservient to the center (low information value) (Clark and Lyons 2011; Jewitt and Oyama 2001; Kress and Van

Leeuwen 2006). In a multimodal composition, however, different organization structures are usually combined –i.e. horizontal with vertical. Therefore, the total information value of an element results from the combination of the information value it receives in relation to each of the combined structures (Veel 1998).

Salience

Salience concerns the creation of a hierarchy of importance between the represented elements which defines some of them as more important and worthy of attention than others (Kress and Van Leeuwen 2006). In both language and image, salience is realized through a combination of a variety of techniques that attract the reader's attention. Such techniques include the size of the verbal and visual elements, that is the amount of space they occupy on the page and the presence or absence of distinctive textures (namely manipulative features, e.g. the use of a different material at some points on the page that the child is invited to touch) (Cope and Kalantzis 2009; Kress et al. 2001; Unsworth 2014; Wignel 2011). The large size of an element –verbal or visual- and the presence of distinctive texture in it contribute to its high salience, while the small size and the absence of distinctive texture attribute low salience to it. Balance in the options related to these two features indicates moderate salience of an element (Guijarro 2011; Kress and Van Leeuwen 2006; Kress et al. 2001; Wignel 2011). Besides, salience is verbally realized by distinctive writing characteristics (such as the size or type of font used), which attribute high salience to the verbal text (Kress and Van Leeuwen 2006; Serafini and Clausen 2012; Van Leeuwen 2005).

1.4. Aim of the study

The most relevant studies concerning the analysis of children's science books have focused on the representational meaning which carries the most "evident" content of a text (e.g. Royce 2002; Unsworth 2006; Chan 2011). However, picture books addressed to preschool age readers, are characterized by very short and simple plots, pertinent to their cognitive development. Therefore, attention to the representational meaning is not a primary focus of the particular books (Wignel 2011). Instead, the writers of picture books addressed to preschool children tend to focus mainly on the interpersonal and compositional level of meaning of a text using various verbal and visual techniques, as their primary objective –determined by the readers' early age- is the attraction of the children's attention, the children's engagement with the text, the retention of children's interest and their ease of understanding of the plot (Guijarro 2011; Wignel 2011). Despite the importance of interpersonal and compositional meaning in multimodal science texts for young children, though, the studies that have focused on the relevant dimensions, are limited (Christidou et al. 2005; Hatzinikita et al. 2008; Koulaidis et al. 2002; Unsworth 2004) and concern books addressed to primary or secondary school children.

This study attempts a comparative analysis of two multimodal texts about animals for preschool children, to answer the following questions:

- What are the meanings created visually and verbally at the interpersonal level concerning the dimensions of address and social distance?
- What are the meanings created visually and verbally at the compositional level concerning the dimensions of information value and salience?

Based on contemporary pedagogical perceptions, the reader is not considered as a passive receiver of information but has an active role in the learning process and learning is not seen as an accumulation of objective events, but as a personal construction process (Duit, 1996). Therefore, in order to actively involve the reader in knowledge construction, the educational material, through its verbal and visual choices, is expected to promote high address, that is to encourage the reader to act in some way in relation to the information to be acquired. Furthermore, on the basis of modern pedagogical principles, knowledge is not seen as independent of human existence, but closely related to the individual so the concepts, processes, and phenomena are expected to be presented in the educational material as something accessible and closely related to the reader (Elliot et al. 2000; Halliday and Martin 1996; Veel 1998). Consequently, through its verbal and visual choices, the educational material is expected to establish a small social distance between the reader and the represented elements, building a personal and intimate relationship between them. In addition, the way the verbal and visual elements are positioned on the page (compositional meaning), is expected to reinforce the aforementioned desirable interpersonal meanings by endowing with high information value and high salience those elements that create high address and small social distance.

2. Method

2.1. Sample

This study is part of an extensive research concerning the analysis of a large number of multimodal texts from children's picture books about science, available in the Greek market and originally written or translated in Greek from other languages. Two books about animals addressed to preschool children were selected. On the one hand, the specific books were selected because they meet the criterion of the presence of animate beings in the image, which is a prerequisite for the examination of the dimension of address (Kress and Van Leeuwen, 2006). On the other hand, biological concepts especially topics about animals constitute a large part of science books for preschool children and are particularly popular to the young readers (Ford 2006; Kelly 2018; Yopp and Yopp 2012). The sample of this study consisted of two multimodal texts (double spreads), one from each of the aforementioned books for

preschool children titled *Lampera kai apala Agria Zoakia* [Touch and Sparkle – Wild Animals] (Collective work 2016) and *Gializei! Ta zoa* [Baby Sparkle, Animals] (Sirett 2015). The former will be referred to as Text A and the latter as Text B. These two texts are excerpts from books originally written in English and translated in Greek. The two texts constituting the sample are extracted from the Greek editions of the books and they were analyzed in the Greek language[1]. As far as the verbal mode is concerned, a sentence was defined as the unit of analysis. As far as the visual mode is concerned, the unit of analysis consisted of an image. Overall, the sample consisted of four verbal units (two for each text) and three visual units (two for Text A and one for Text B). The selection of one double-spread from each book derives from the nature of the current study and the particular characteristics of the material. Specifically, on the one hand, this study focuses on an in-depth, multidimensional analysis that attempts through the comparison of different multimodal texts to reveal the complexities and diverse possibilities of combining visual and verbal means for communicating interpersonal and compositional meanings. On the other hand, both books have two common characteristics of the books addressed to young children: they are very short and repetitive (Guijarro 2011). More particularly, the two books consist of very few pages and are organized in a small number of double-spreads (the book *Lampera kai apala Agria Zoakia* consists of 5 double-spreads and the book *Gializei! Ta zoa* consists of 6 double-spreads), each of them presenting a different animal. The double-spreads in each book do not substantially differ from each other regarding the interpersonal and compositional dimensions of meaning, as each book consistently follows the same pattern of information presentation visually and verbally across the double-spreads.

2.2. Procedure

Analysis of each verbal and visual unit was conducted based on the Systemic Functional Grammar (Halliday and Matthiesen 2004) and the Grammar of Visual Design (Kress and Van Leeuwen 2006), respectively. In particular, the content of each sentence and each image was classified at the interpersonal level as regards the dimensions of address and social distance and at the compositional level with regard to the dimensions of information value and salience. The analysis process according to these dimensions is described in the following paragraphs.

Interpersonal meaning

Categorization of address in verbal text and images

Regarding the verbal mode, address was assessed on the basis of a combination of sentence type and person of the verb and was evaluated as high when an imperative sentence and second person were combined, as moderate when an interrogative sentence and first-person were combined and as low when there was a combination of an indicative sentence and third person. Visually, address was determined by the participant's gaze and was characterized as

high when the depicted animal looked toward the reader and as low when the animal did not look at the reader (see Figure 1).

Categorization of social distance in verbal text and images

Regarding the verbal mode, social distance was estimated based on the combination of the use of nominalization, the voice of the verb and the type of relationship between clauses. More particularly, social distance was characterized as large when these three features denoted a remote relationship (combination of nominalization, passive voice, and hypotaxis) or two of them indicated remoteness and the third a neutral relationship (e.g. prevalence of nominalization and passive voice and balance between parataxis and hypotaxis of clauses).

Alternatively, social distance was estimated as moderate when these three features denoted a neutral relationship (i.e. balance of use of verbs and nouns for the description of processes, middle/neutral voice and balance of parataxis – hypotaxis), or when the three features signified a combination of remoteness and intimacy (e.g. prevalence of nominalization, active voice, and parataxis).

Otherwise, social distance was characterized as small when the three features denoted an intimate social relationship with the reader (i.e. absence of nominalization, verbs in active voice and parataxis/absence of dependent clauses), or when two of them indicated intimacy and the third signified a neutral relationship (e.g. combination of absence of nominalization, middle/neutral voice and parataxis).

Regarding the visual mode, social distance was determined by the distance of the shot and was estimated as large when there was a long shot (the whole body of the animal was represented), as moderate when there was a medium shot (most of the body of the animal was depicted) and as small when there was a close shot (only part of the animal's body was depicted) (see Figure 1).

Compositional meaning

Categorization of information value in verbal text and images

In both verbal text and images, information value was estimated based on the positioning of each element (unit of analysis) on the double spread. Information value of an element was characterized as high when it was placed at the top, or the right, or the center, or combined some of these positions on the double spread (e.g. top and right), as moderate when it combined a position of high and low information value (e.g. was placed on the top and left or at the center and left) and low when the element was placed at the bottom or the left, or the margins of the page, or it combined at least two of these positions on the double spread (e.g. bottom and left) (see Figure 2).

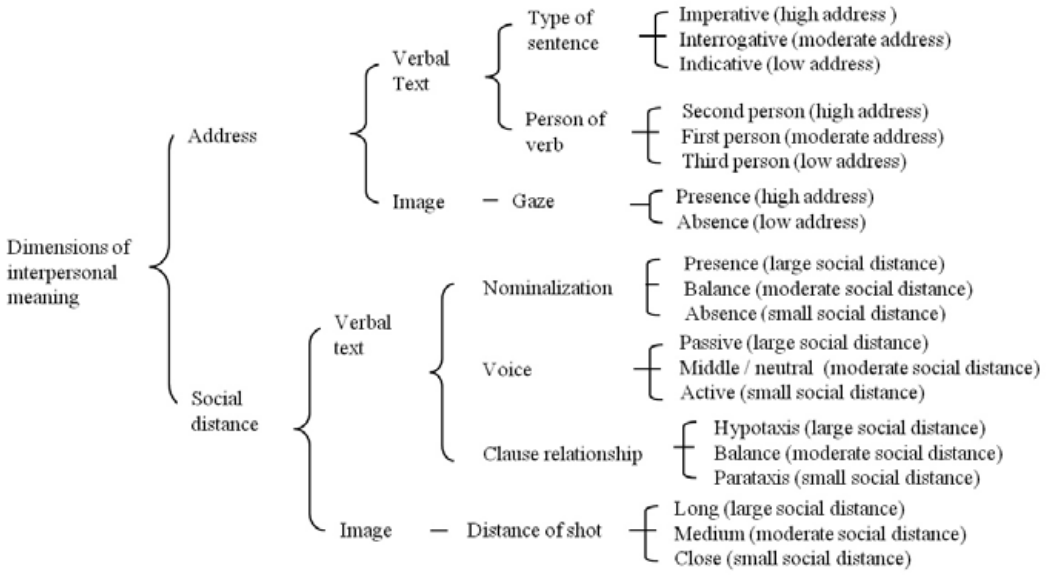

Figure 1. Categories and realization means of interpersonal meaning dimensions

Categorization of salience in verbal text and images

Both verbally and visually, the first feature determining salience involved the size of an element, namely the space it occupied on the page. The size was estimated as large when the element occupied more than half of the page, as moderate when it occupied between one-third and half of the page and as small when it occupied less than one third of the page. Additionally, the salience of the verbal text was estimated based on the presence or absence of distinctive texture and presence or absence of distinctive font in terms of size or type. Therefore, the salience of an element was regarded as high when it combined a large or moderate size, presence of distinctive texture and presence of distinctive font. Otherwise, salience was estimated as moderate when the three features in an element signified a combination of high and low salience (e.g. combination of small size, absence of distinctive texture, presence of distinctive font). Last, salience was assessed as low when there was a combination of small or moderate size, absence of distinctive texture and absence of distinctive font (see Figure 2).

Visually, salience was determined by a combination of the size and the presence or absence of distinctive texture. Thus, for the visual mode, salience was estimated as high when an image combined large or moderate size and presence of distinctive texture, as moderate when it combined a large size and absence of distinctive texture, or a small size and presence of distinctive texture and low when the element combined small or moderate size and absence of distinctive texture.

3. Results

In the following paragraphs, the analysis of Text A and Text B concerning interpersonal and compositional meaning is presented.

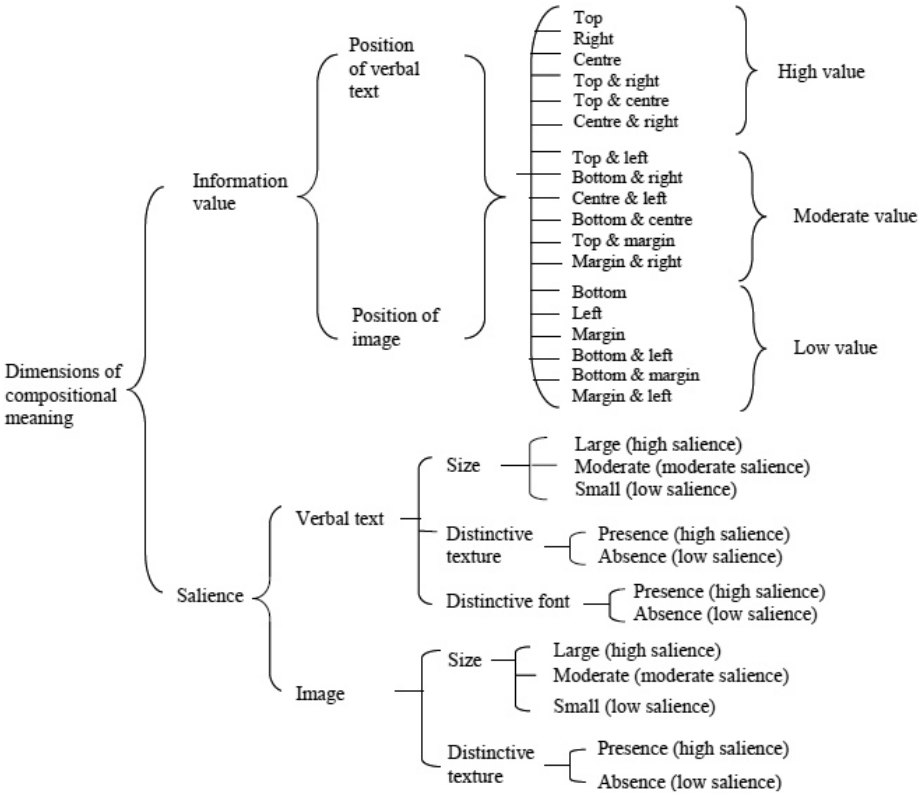

Figure 2. Categories and realization means of compositional meaning dimensions

3.1. Analysis of Text A

Text A is illustrated in Figure 3, followed by a description of the values granted to the dimensions of address and social distance (interpersonal meaning) and the dimensions of information value and salience (compositional meaning).

Interpersonal meaning in Text A

Address in verbal text and images in Text A

With regard to the interpersonal meaning of Text A (see Figure 3), in terms of the dimension of address, the verbal text in the first sentence (*"The tiger is black and orange"*) (Collective

work 2016, p. 5-6) denotes low address as it combines an indicative sentence with a verb in the third person. Therefore, through the first sentence, the verbal text serves a simple offer of information and specifically attempts to inform the reader about the characteristic color of the represented animal. In the second sentence *("Feel its soft fur!")* (Collective work 2016, p. 5-6) the verbal text indicates high address resulting from the combination of an imperative sentence with a verb in the second person. That is, in the second sentence the verbal text is used to demand from the reader to act, to touch the depicted animal and specifically the fabric on its nose in the right-hand image.

Figure 3. The double spread of Text A. From Lampera kai apala agria zoakia (pp. 5-6), Collective work, 2016, Athens, Greece: Susaeta. Copyright 2016 by Suzaeta. Reprinted with permission.

As far as the visual mode is concerned, both the first image (at the left) and the second (at the right) indicate a high address, as the animal looks toward the reader. That is, both images address the reader directly asking her/him to perform an action in relation to the illustrated animal (see Table 1).

Social distance in verbal text and images in Text A

In terms of social distance, as far as the verbal mode is concerned, both sentences indicate an absence of nominalization, use of active voice and absence of dependent clauses. These three characteristics signify a small social distance between the reader and the represented animal, therefore promoting an intimate relationship between them.

Visually, the first image (on the left) is a long shot, as the full body of the animal is de-

picted. This way the animal is presented away from the child-reader denoting large social distance, thus a relationship of remoteness and alienation between the child-reader and the represented animal is promoted. On the other hand, the second image (on the right) is a close shot, since only the head of the animal is visible. Thus, through the second image, the animal is presented close to the child as connected with her/him, indicating a small social distance between them and therefore a personal and intimate relationship between them is promoted.

Dimension	Category	Text A				Text B		
		1st sentence	2nd sentence	1st image	2nd image	1st sentence	2nd sentence	Image
Address	High		√	√	√	√	√	
	Low	√						√
Social distance	Large			√				√
	Small	√	√		√	√	√	
Information value	High				√			√
	Moderate	√		√		√		
	Low		√				√	
Salience	High				√	√	√	
	Moderate	√		√				
	Low		√					√

Table 1[2]. Address, social distance, information value and salience in the units of analysis of Text A and Text B

Compositional meaning in Text A

Information value in verbal text and images in Text A

Concerning the compositional meaning of Text A text in terms of information value, the arrangement of verbal and visual elements on the double spread combines three structures: the vertical and the center-margins structures within the left page and the horizontal structure (left-right page). Specifically, as far as the verbal mode is concerned, the first sentence is presented as the Ideal but at the same time as the Given, since it is placed at the top and on the left of the double spread and consequently receives moderate information value. The second sentence, through its positioning at the bottom and on the left of the double spread is presented as the Real but also as the Given, thus receiving low information value. Concerning the visual mode, moderate information value is attributed to the first image (left page), since it is placed at the center and on the left, thus it is presented as the central but also already known information. The second image (right page) constitutes the only element in the double spread receiving high information value since it is placed on the right and is therefore presented as the New and the information at issue.

Salience in verbal text and images in Text A

Regarding salience in the verbal text, the two sentences occupy less than one-third of the page and distinctive texture is absent. On the other hand, larger font size is used for the words indicating the name and color of the animal in the first sentence, while the word "soft" characterizing the fur of the animal in the second sentence is written in a different type of font. The two sentences, then, combine small size, the absence of distinctive texture and presence of distinctive font, thus both receiving moderate salience.

With regard to the visual mode, the first image (left page) receives low salience since it combines moderate size (it occupies between one third and half of the page) and absence of distinctive texture. The second image (right page) is the only element of the double spread with high salience, presented as the most prominent: apart from its large size (it extends across the full width of the page), it also includes the fabric of distinctive texture on the animal's nose.

3.2. Analysis of Text B

The analysis of Text B (Figure 4), appears in the paragraphs that follow, comprising a presentation of the values granted to address and social distance (interpersonal meaning) as well as to information value and salience (compositional meaning).

Figure 4. The double spread of Text B. From Gializei! Ta zoa (pp. 3-4), Sirett, 2015, Athens, Greece: Patakis. Copyright 2015 by Patakis/Dorling Kindersley LTD. Reprinted with permission.

Interpersonal meaning in Text B

Address in verbal text and images in Text B

With regard to the interpersonal meaning of Text B, in terms of the dimension of address both in the first (*"Be a big elephant!"*) and the second sentence (*"Wave your long trunk!"*) (Sirett

2015, p. 3-4) the verbal text denotes high address by means of imperative sentences and second person of verbs. Therefore, through the verbal text, an action is demanded from the reader and specifically to imitate the represented animal.

Visually, though, low address is denoted, due to the lack of gaze of the depicted animal toward the reader, thus the image merely serves to present information.

Social distance in verbal text and images in Text B

With regard to social distance, in both sentences of Text B nominalization is absent, an active verb is used and there are no dependent clauses, therefore low social distance is indicated. Consequently, the animal is verbally represented as being connected to the reader and a sense of intimacy between them is promoted.

Visually, however, a long shot is used, since the full body of the animal is depicted and thus high social distance is created, so the visual mode establishes a relationship of remoteness between the reader and the animal depicted.

Compositional meaning in Text B

Information value in verbal text and images in Text B

As far as the compositional meaning is concerned, in terms of information value, the arrangement of visual and verbal elements on the Text B double spread combines the horizontal (left-right page) with the vertical structure (within the left page). Regarding the verbal text, the first sentence through its positioning at the top (as the Ideal) and on the left (as the Given) of the double spread receives moderate information value. The second sentence is placed at the bottom and on the left, so it is presented as Real but also as Given, therefore low information value is overall attributed to it. The image of the animal is placed on the right page, a position of high information value and is thus presented as the New information.

Salience in verbal text and images in Text B

Concerning the dimension of salience in the verbal text, each of the two sentences occupies almost half of the available space on the page. In addition, the circular patterns framing the two sentences are made of a glittering material, the texture of which is different from the rest of the page. Besides, the word referring to the name of the animal in the first sentence and the word that refers to its characteristic trunk in the second sentence are written with a font size larger than the rest of the words. Therefore, both sentences are granted high salience as they combine moderate overall size on the one hand and the presence of distinctive texture and distinctive font on the other. Visually, though, the animal receives low salience as it combines moderate size (it occupies between one-third and half of the page) and the absence of distinctive texture.

4. Discussion and conclusion

At the level of interpersonal meaning, in Text A the verbal mode is used initially to simply present information to the reader (first sentence). Subsequently (second sentence) it is used to directly address the reader asking her/him to act towards the illustrated animal. Likewise, both images in the text also achieve high address.

In terms of social distance, the visual mode creates a relationship of remoteness between the reader and the represented animal through the image on the left page, which subsequently develops into a relationship of intimacy through the image on the right page. An intimate relationship is also promoted by the two sentences of the verbal text (Guijarro 2011). Figure 5 represents the level of address and social distance promoted by each verbal and visual unit, indicating the development of interpersonal meanings throughout Text A.

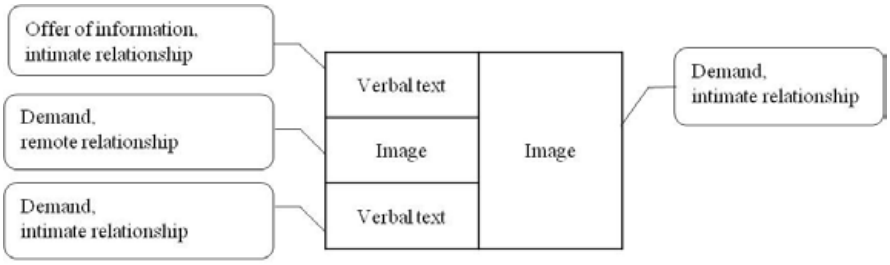

Figure 5. Representation of address and social distance of the verbal and visual elements of Text A.

In contrast, the second multimodal text (Text B), follows a reverse direction in the development of interpersonal meaning both in terms of address and social distance. In particular, concerning address, on the left page, the text verbally requests the reader to act (both sentences), while the image on the right page is merely used to offer information to the reader.

As far as social distance is concerned, while the verbal text creates a relationship of intimacy between the reader and the animal presented, the image which follows creates a sense of remoteness and alienation between them. Figure 6 represents the level of address and social distance promoted by each verbal and visual unit, indicating the development of interpersonal meanings throughout Text B.

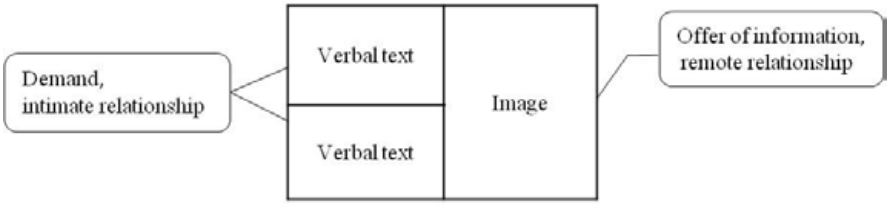

Figure 6. Representation of address and social distance of the verbal and visual elements of Text B.

With regard to the compositional meaning of Text A, in terms of the dimension of information value, the combination of the three organizational structures (horizontal, vertical and center - margins) promotes a transition from Ideal (top) to Real (down) and from Given (left) to New (right) (Kress and Van Leeuwen 2006; Painter et al. 2013), as illustrated in Figure 7. More specifically, on the left page, at the top, the most idealized essence of information is presented in the first sentence, describing the colors of the animal. The image of the animal is presented as the central element and is followed by the most practical verbal information at the bottom of the page, directing the reader to touch the distinctive texture of the animal's nose. At the same time, all the elements on the left page -both visual and verbal- are presented as already known to the reader, contrary to the image on the right page, which introduces the new, highly valued information (Guijarro and Pinar 2008).

This visual element is also presented as the most prominent, by occupying the full space of the right page and by involving the fabric with a distinctive texture on the animal's nose. With these characteristics, the specific image becomes the only element receiving high salience, in contrast with the rest of the elements –visual and verbal- receiving moderate or low salience. That is, both through its special positioning on the double spread and its distinctive features (size and texture), this image functions as the element with the highest value as information but also as the most salient, to which the reader's attention is directed (Wignel 2011).

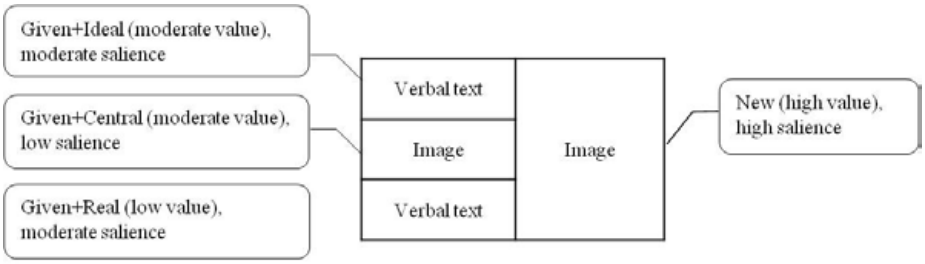

Figure 7. Representation of information value and salience of the verbal and visual elements of Text A.

Regarding the compositional meaning of Text B, in terms of information value, the organization of the elements combines the vertical structure (top–down) across the left page and the horizontal structure (left-right page), following a transition from Ideal to Real and from Given to New (see Figure 8). More specifically, on the left page, the most idealized piece of information related to the child's imagination is presented at the top through the first sentence. Conversely, at the bottom of the page –through the second sentence- the most practical information is presented, referring to the elephant's movement that the child is asked to imitate. At the same time, the two sentences through their placement on the left page are presented as the information the reader already knows, while the image of the animal through its positioning on the right page is presented as the new information to be acquired.

Regarding the dimension of salience, though, this image receives low salience, in contrast to the two sentences of the verbal text, which, both through their relative size to the size of the page and through the presence of distinctive texture and font, receive high salience. Therefore, contrary to Text A, where the image positioned at the right besides its high information value is also presented as the most salient element of the double spread, in Text B the verbal elements, although placed in a position of low or moderate information value, are those presented as the most prominent ones, to which the reader's attention is directed.

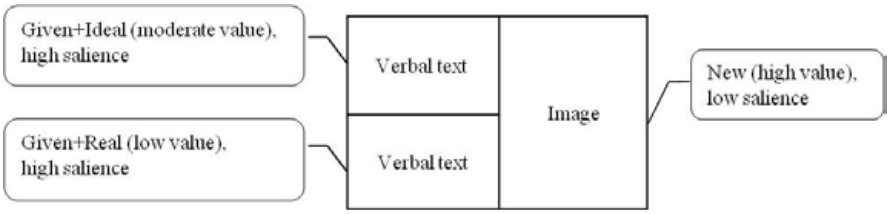

Figure 8. Representation of information value and salience of the verbal and visual elements of Text B.

Therefore, as far as Text A is concerned, the organization of the elements on the double spread not only serves the high information value and salience of the image on the right page but also serves the development of the interpersonal interaction between writer-reader and reader-represented animal through the increase of address verbally and the decrease of social distance visually (Harrison 2003; Unsworth 1997). In other words, the compositional meaning, and more particularly the information value in Text A supports the gradual change in address through the verbal text and therefore the change of the child's role from a simple observer and receiver of information to an active participant being asked to act in relation to the represented animal. At the same time, the compositional meaning –both in terms of information value and salience- serves the gradual decrease of social distance between child and represented animal through the visual mode, by means of transition from alienation and remoteness (image on the left page) to intimacy (image on the right page) (Royce 2007). It is therefore observed that the composition of the elements in Text A serves the development of interpersonal meanings in the pedagogically desirable direction, ending up with a high address and small social distance. This gradual reinforcement of interpersonal meanings is realized through the high information value and salience of the image on the right page (Halliday and Martin 1996; Oliver 2000). This specific semiotic selection regarding the interplay of interpersonal and compositional meanings through the visual mode is in accordance with the early age of the children the text addresses, who mainly rely on images in their attempt to "read" multimodal texts (Papadopoulou and Christidou 2004).

In contrast, in the second multimodal text (Text B), compositional meaning does not serve the development of pedagogically appropriate interpersonal meanings, as the text ends up with a low address and large social distance (Duit 1996; Veel 1998). The organization of elements

on the double spread, through which the information value of the elements increases from the left (verbal text) to the right (image), is not consistent with the development of interpersonal meanings, which follow the opposite direction. That is, the child is initially given an active role and is asked to act like the represented animal through the verbal mode on the left page, while the image on the right page assigns the role of a simple observer and receiver of information to the reader. The relationship between the reader and the represented animal also evolves in the same direction, with the animal being verbally presented as accessible and intimate (left page) and ending up visually represented as remote from the reader (right page). Furthermore, the verbal text which interpersonally indicates a high address and small social distance compositionally receives increased salience, but it is presented in a position of moderate and low information value. Therefore, although the interpersonal meanings promoted by the verbal text are strengthened through their high salience, they are at the same time weakened due to their positioning as trivial information. On the contrary, although the image indicates a low address and large social distance, it is presented in a position of high information value. Therefore, the pedagogically inappropriate interpersonal meanings the image produces, namely the passive role attributed to the reader and her/his distant relationship with the represented animal, are reinforced due to their positioning as highly valued information. Finally, despite the fact that preschool children are expected to rely mainly on the visual mode in order to decode the meaning of a multimodal text, in Text B it is the verbal mode that undertakes the representation of the pedagogically expected meanings at the interpersonal level and receives high salience, contrary to the image, which promotes the opposite interpersonal meanings and receives low salience (Painter et al. 2013; Papadopoulou and Christidou 2004).

The preceding analysis reveals the different possibilities of combining visual and verbal means for communicating interpersonal and compositional meanings, namely the kind of relationship between writer-reader and reader-represented participants and the composition of the elements in contemporary science texts for young children. The use of such texts in kindergarten science activities is suggested, in order for young children to develop the ability to decode and manage not only their representational content, but also their interpersonal and compositional meanings produced through the different semiotic systems (Guo 2004; Hall 1998; Lemke 1998; O'Halloran et al. 2017; Unsworth 1997, 2004). Preschool teachers are expected to systematically guide children towards decoding the verbal and visual semiotic selections made by the authors of such multimodal texts. These selections have to do with how texts address their readers, the relationships established between children and represented elements, the positioning of each element on the page and the emphasis it acquires in relation to other elements (Babalioutas and Papadopoulou 2007; Hassett and Curwood 2009). Furthermore, teachers can encourage children to compare the semiotic selections in the verbal and visual mode in different texts, both in terms of interpersonal and compositional meaning. This familiarization would be expected to subsequently enhance their ability to introduce

relevant verbal and visual conventions in their own multimodal productions (Christidou et al. 2009; Papademetriou and Makri 2015; Papadopoulou and Christidou 2004; Unsworth 1997). The adoption of appropriate teaching practices, could support children in developing those competencies that will allow them to think critically about specific semiotic selections and use them to communicate consciously and intentionally different levels of meaning to the readers of their texts (Avgerinou and Pettersson 2011; Bezemer and Kress 2008; Cope and Kalantzis 2009; Hall 1998; Papadopoulou 2005).

In conclusion, teachers need to be prepared so that they can choose, evaluate and design multimodal texts that support learning, as well as to prepare their pupils in processing and managing such texts effectively (Christidou 2018; Coleman et al. 2011; Royce 2002). The analysis of visual and verbal communication focused on the basic dimensions of interpersonal and compositional meaning presented in this study attempts to contribute to this direction. On the one hand, this analysis, as well as the framework on which it was based, although not exhausting all the dimensions of interpersonal and compositional meaning a multimodal text incorporates, may support teachers in the analysis, interpretation, and production of science multimodal texts (Kress et al. 2001; O'Halloran et al. 2017; Unsworth 2001). On the other, the proposed analysis may provide teachers with valuable tools for using multimodal texts in science teaching. These tools take into account the different semiotic systems, the multiple levels of meaning multimodal texts incorporate and their interplay, thus facilitating the integration of the pedagogy of multiliteracies (Avgerinou and Pettersson 2011; Cope and Kalantzis 2009; New London Group 2000) in science teaching. At the same time, they are expected to support young children in developing multimodal communication competencies that are critical components of their emerging science literacy (Anagnostopoulou et al. 2013; Hatzinikita et al. 2008; Royce 2002).

Last, it should be noted that even though each level of meaning and each particular dimension conveys specific messages to the reader, their combination and interaction may produce new, different meanings (Unsworth, 2006). The current study focused on particular dimensions of interpersonal and compositional meanings in excerpts from two children's science books and has only covered a small part of this complicated area of research on multimodal semiotic analysis of children's science books.

NOTES

1 As Systemic Functional Grammar has originally been developed for the English language, its application to other languages may vary according to their syntax and grammar and the dimensions involved in the analysis (Halliday and Matthiesen 2004). The verbal part of the materials forming the sample of this study, though, includes a small number of short and simple

clauses regarding their syntax and grammar. Furthermore, these clauses have been translated word for word and representing the precise meaning of the original text. Therefore, if the same analysis had been applied to the original, English version of the books, no differences would be expected in the results, at least concerning the dimensions involved in the current analysis.
2 Units of analysis indicating a moderate address and social distance were not detected in the two texts, hence these categories do not appear in Table 1.

REFERENCES

Anagnostopoulou, Kyriaki, Vassilia Hatzinikita, Vasilia Christidou and Kostantinos Dimopoulos 2013. PISA test items and school-based examinations in Greece: Exploring the relationship between global and local assessment discourses. *International Journal of Science Education* 35 (4): 636-662.

Avgerinou, Maria D. and Rune Pettersson 2011. Toward a cohesive theory of visual literacy. *Journal of Visual Literacy* 30 (2): 1-19.

Babalioutas, Dimitrios and Maria Papadopoulou 2007. Teaching critical literacy through print advertisements: An intervention with 6th grade students (Ages 11-12). *The International Journal of Learning* 14 (7): 119-127.

https://www.degruyter.com/view/j/mc.2016.5.issue-2/mc-2016-0025/mc-2016-0025.xmlBezemer, Jeff and Gunther Kress 2008. Writing in multimodal texts: A social semiotic

account of designs for learning. *Written Communication* 25 (2): 166–195.

Chan, Evelin 2011. Integrating visual and verbal meaning in multiodal text comprehension: Towards a model of intermodal relations. In: Shoshana Dreyfus, Susan Hood and Maree Stenglin (eds), *Semiotic Margins. Meaning in multimodalities*. London, New York: Continuum, 144-167.

Christidou, Vasilia 2018. Eikona kai ekpaideysi stis fisikes epistimes: To stoixima tou epistimonikou optikou grammatismou [Image and science education: The challenge of science visual literacy]. In: Chrysanthi Skoumbourdi and Michail Skoumios (eds) *Proceedings of the 3rd Panhellenic Conference with international participation "Educational material in mathematics and science: different practices, intersecting learning paths"*. Rhodes, Greece: University of the Aegean, 92-116. Retrieved from http://ltee.aegean.gr/sekpy.3d

Christidou, Vasilia, Vassilia Hatzinikita and Anastasia Dimitriou 2009. Children's drawings about environmental phenomena: the use of visual codes. *International Journal of Science in Society* 1 (1): 107-117.

Christidou, Vasilia, Vassilia Hatzinikita and Spiridoula Sklaveniti 2005. Oi eikonikes anaparastaseis sta pedika exosholika vivlia gia tis fisikes epistimes: Periexomeno, kodikes kai inonikes allilepidraseis [Visual representations in science childrens' books: Content, codes

and social interactions]. In: Ourania Semoglou (ed) *Eikona kai paidi* [Image and the child]. Thessaloniki, Greece: Cannot not design Publications, 609-620.

Clark, Ruth C. and Chopeta Lyons 2011). *Graphics for learning: Proven guidelines for planning, designing, and evaluating visuals in training materials*. San Francisco, USA: John Wiley and Sons, Pfeiffer.

Coleman, Julianne M. and John A. Dantzler 2016. The frequency and type of graphical representations in science trade books for children. *Journal of Visual Literacy* 35 (1): 24-41.

Coleman, Julianne, M. Erin M. McTigue and Laura B. Smolkin 2011. Elementary teachers' use of graphical representations in science teaching. *Journal of Science Teacher Education* 22 (7): 613-643.

Cope, Bill and Mary Kalantzis 2009. A Grammar of multimodality. The International Journal of Learning, 16 (2): 361-425.

Driver, Rosalind, Ann Squires, Peter Rushworth and Valerie Wood-Robinson 1994. *Making sense of secondary science: Research into children's ideas*. London: Routledge.

Duit, Reinders 1996. The constructivist view in science education - what it has to offer and what should not be expected from it. *Investigaçôes em Ensino de Ciências* 1 (1): 40-75.

Eco, Umberto 1984. *The role of the reader: Explorations in the semiotics of texts* (Vol. 318). Bloomington, USA: Indiana University Press.

Elliot, Stephen N., Thomas R. Kratochwill, Joan L. Cook and John F. Travers 2000. *Educational psychology: Effective teaching, effective learning*. Boston: McGraw Hill.

Ford, Danielle J. 2006. Representations of science within children's trade books. *Journal of Research in Science Teaching* 43 (2): 214–235.

Gonitsioti, Hara, Vasilia Christidou and Vassilia Hatzinikita 2013. Enhancing scientific visual literacy in kindergarten: Young children 'read' and produce representations of classification. *International Journal of Science, Mathematics, and Technology Learning* 20 (1): 1-15.

Guijarro, Arsenio J. M. 2011. Engaging readers through language and pictures. A case study. *Journal of Pragmatics* 43: 2982–2991.

Guijarro, Arsenio J. M. and Maria Jesus Pinar 2008. Compositional, interpersonal and representational meanings in a children's narrative: A multimodal discourse analysis. *Journal of Pragmatics* 40: 1601–1619.

Guo, Libo 2004. Multimodality in a biology textbook. In: Kay O' Halloran (eds), *Multimodal discourse analysis. Systemic-Functional perspectives*. New York: Continuum, 196-219.

Hall, Kathy 1998. Critical literacy and the case for it in the early years of school. *Language Culture and Curriculum* 11 (2): 183-194.

Halliday, Michael A. K., and Christian M. I. M. Matthiessen 2004. *An introduction to functional grammar* (3rd ed.). London: Arnold.

Halliday, Michael A. K. and James R. Martin 1996. *Writing Science: Literacy and discursive power.* London: The Falmer Press.

Harrison, Claire 2003. Visual social semiotics: Understanding how still images make meaning. *Technical Communication* 50 (1): 46-60.

Hassett, Dawnene D. and Jen Scott Curwood 2009. Theories and practices of multimodal education: The instructional dynamics of picture books and primary classrooms. *The Reading Teacher* 63 (4): 270–282.

Hatzinikita, Vassilia, Konstantinos Dimopoulos and Vasilia Christidou 2008. PISA test items and school textbooks related to science: A textual comparison. *Science Education* 92 (4): 664-687.

Jewitt, Carey and Rumiko Oyama. 2001. Visual meaning: A social semiotic approach. In: Theo Van Leeuwen and Carey Jewitt (eds) *Handbook of visual analysis*. London: Sage Publications, 134-156.

Kelly, Laura B. 2018. An analysis of award-winning science trade books for children: Who are the scientists, and what is science? *Journal of Research in Science Teaching* 55 (8): 1188-1210.

Koulaidis, Vasilis, Kostas Dimopoulos, Spiridoula Sklaveniti and Vasilia Christidou 2002. Ta keimena tis techno-epistimis sto dimosio choro [The texts of techno-science in the public domain]. Athens: Metaixmio.

Kress, Gunther and Theo Van Leeuwen 2006. *Reading images. The grammar of visual design.* London: Routledge.

Kress, Gunther 2000. Multimodality. In: Mary Kalantzis and Bill Cope (eds), *Multiliteracies: Literacy learning and the design of social futures*. London and New York: Routledge, 182-202.

Kress, Gunther, Carey Jewitt, Jon Ogborn and Charalampos Tsatsarelis 2001. *Multimodal teaching and learning. The rhetorics of the science classroom.* London and New York: Continuum.

Lemke, Jay L. 1998. Multiplying meaning: Visual and verbal semiotics in scientific text, In: James R. Martin and Robert Veel (eds) *Reading science*. London and New York: Routledge, 87-113.

Lemke, Jay 2000. Multimedia literacy demands of the Scientific Curriculum. *Linguistics and Education* 10 (3): 247-271.

Mantzicopoulos, Panayota and Helen Patrick 2011. Reading picture books and learning science: Engaging young children with informational text. *Theory Into Practice* 50 (4): 269-276.

Matsagouras, Elias 2009. *Eisagogi stis epistimes tis paidagogikis. Enallaktikes proseggiseis, didaktikes proektaseis*. [Introduction in pedagogical science. Alternative approaches, educational implications]. Athens: Gutenberg.

Matsagouras, Elias and Sarantis Helmis 2003. Paragogi ekpaideytikou ilikou stin ekpaideysi: Theoritikes paradoxes kai technikes prodiagrafes. [Production of educational material: Theoretical principles and technical specifications]. In: *Schediasmos kai paragogi paida-*

gogikou ilikou gia tin perivallontiki ekpaideysi. [Panhellenic Symposium Proceedings - Design and production of educational material in environmental education]. Athens: Livani, 1-40.

New London Group 2000. A pedagogy of Multiliteracies: Designing social futures. In: Mary Kalantzis and Bill Cope (eds) *Multiliteracies: Literacy learning and the design of social futures*. London and New York: Routledge, 9-37.

O'Halloran, Kay L. Sabine Tan and K. L. E. Marissa 2017. Multimodal analysis for critical thinking. *Learning, Media and Technology* 42 (2): 147-170.

Oliver, Ron 2000. When teaching meets learning: design principles and strategies for web-based learning environments that support knowledge construction. In: Rod Sims, Meg O'Reilly and Sue Sawkins (eds) *Learning to choose: Choosing to learn. Proceedings of the 17th Annual ASCILITE Conference*. Lismore NSW: Southern Cross University Press, 17-28.

Painter, Clare, James R. Martin and Len Unsworth 2013. *Reading visual narratives: Image analysis of children's picture books*. London: Equinox.

Papademetriou, Efi and Demetra Makri 2015. The metalanguage of "visual design" into the classroom for the construction of intermodal meanings. *International Journal of Education and Literacy Studies* 3 (2): 32-43.

Papadopoulou, Maria and Vasilia Christidou 2004. Multimodal text comprehension and production by preschool children: An interdisciplinary approach of water conservation. *International Journal of Learning* 11: 917-927.

Papadopoulou, Maria 2005. Ta politropika keimena os meson proseggisis tis grafis apo paidia prosxolikis ilikias [Multimodal texts as a means for approaching writing for preschool children]. *Ereynontas ton Kosmo tou Paidiou* 6: 120-130.

Royce, Terry D. 2007. Intersemiotic complementarity: A framework for multimodal discourse analysis. In: Terry Royce and Wendy L. Bowcher (eds) *New directions in the analysis of multimodal discourse*. Mahwah, NJ: Erlbaum, 63–109.

Royce, Terry D. 2002. Multimodality in the TESOL classroom: Exploring visual-verbal synergy. *TESOL Quarterly* 36 (2): 191–205.

Serafini, Frank and Jeniffer Clausen 2012. Typography as semiotic resource. *Journal of Visual Literacy* 31 (2): 22-38.

Collective work 2016. *Lampera kai apala Agria Zoakia* [Touch and Sparkle – Wild Animals]. Athens, Greece: Susaeta.

Sirett, Dawn 2015. *Gializei! Ta zoa.* [Baby Sparkle, Animals] (Illustration: C. Battuz, Translation: V. Nika). Athens, Greece: Patakis.

Unsworth, Len 2008. Multiliteracies and metalanguage: Describing image/text relations as a resource for negotiating multimodal texts. In: Jullie Corio, Michelle Knobel, Colin Lankshear and Donald J. Leu (eds) *Handbook of research on new literacies.* NewJersey: Lawrence Erlbaum, 379-409.

Unsworth, Len 2006. Image/text relations and intersemiosis: Towards multimodal text description for multiliteracies education *Plenary Paper for the International Systemic Functional Linguistics Congress.* San Paulo, Brazil, 1165-1205.

Unsworth, Len 2004. Comparing school science explanations in books and computer-based formats: The role of images, image/text relations and hyperlinks. *International Journal of Instructional Media* 31 (3): 283-301.

Unsworth, Len 2001. *Teaching multiliteracies across the curriculum: Changing contexts of text and image in classroom practice.* Buckingham, UK: Open University Press.

Unsworth, Len 1997. Scaffolding reading of science explanations: Accessing the grammatical and visual forms of specialized knowledge. *Reading* 31: 30-42.

Van Leeuwen, Theo 2005. Typographic meaning. *Visual Communication* 4 (2): 137–143.

Unsworth, Len 2014. Interfacing visual and verbal narrative art in paper and digital media: Recontextualising literature and literacies. In: Georgina Barton (ed) *Literacy in the arts*. Switzerland: Springer, Cham, 55-76.

Veel, Robert 1998. The greening of school science: Ecogenesis in secondary classrooms. In: James R. Martin and Robert Veel (eds) *Reading Science. Critical and functional perspectives on discourses of science.* London and New York: Routledge, 115-151.

Wignel, Peter 2011. Picture books for young children of different ages: The changing relationships between images and words. In: Kay O' Halloran and Bradley Smith (eds) *Multimodal studies: Exploring issues and domains*. New York: Routledge, 202-219.

Yopp, Ruth H. and Hallie K. Yopp 2012. Young children's limited and narrow exposure to informational text. *The Reading Teacher* 65 (7): 480–490.

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A Multimodal Pedagogical Experience to Teach a Foreign Language to Young Learners

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The notion of multimodality highlights the idea that communication takes place in multiple modes, linguistic and non-linguistic. Much of the information produced in our contemporary society is a combination of both, verbal text and image. It is fairly clear, then, that students should develop a set of skills to access and process information in various modes. In consonance with this idea, this paper argues that the inclusion of visual literacy to the teaching of Foreign Languages (FLs) to young learners can enhance communicative abilities, favor language understanding and engagement, and promote critical thinking. Drawing on the theoretical framework proposed by Kress and van Leeuwen (2006) who developed a grammar of visual design based on Systemic Functional Linguistics (henceforth SFL), this study concentrates on three aspects of multimodally construed interpersonal/interactive meanings: contact, social distance and subjectivity. Using three classroom interventions, learners´ interpretations and productions of images and language were examined within an EFLcontext at primary level. The findings confirm that young learners were able to assign meaning to images that could be communicated in the foreign language both at the level of comprehension and production. Students showed sustained interest and participated actively in the tasks provided. The paper concludes by emphasizing the need to adopt multimodal pedagogical practices in teaching FLs to young learners.

KEYWORDS young learners, interactive meanings, visual literacy

1. Introduction

In modern societies, texts have become predominantly multimodal inside and outside school, and being literate entails having a wide range of abilities and competencies to make

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meaning from these multimodal texts. The basic assumption of multimodal perspectives is that meanings are created through various modes, such as image, gesture, movement, music and sound with images being particularly omnipresent in our world. With this in mind, it seems reasonable to think that students should learn to construe meaning from images as part of their literacy practices, and that such process should, in turn, help them develop critical thinking skills.

Based on the assumption that the visual component plays a very important role in communications, Kress and van Leeuwen (2006) offer a semiotic model to make explicit what is often implicit in images. They state that the visual conventions that apply to images can be interpreted in ways analogous to verbal text. In order to explore this correlation from a pedagogical perspective, we put forward the following research question: How does explicit instruction on the interpretation of images help foreign language learning? Our argument is that the inclusion of visual literacy to the teaching of EFL to young learners can enhance communicative abilities, favor language understanding and students´ engagement while encouraging critical thinking. In fact, for EFL young learners, who are still in the process of achieving literacy in their first language, contact with pictures is extremely natural as pictures are used as visual stimuli for a multiplicity of interactions from a very early age. In pedagogical materials for young learners meaning is made through multimodal texts that include verbal language, images, numbers, color, and size, among many other resources. Besides, the importance of understanding and interpreting images has been recognized for many years now. Pictures are part of EFL lessons, with teachers very often resorting to images as a resource to get students to understand meaning or produce language. Many scholars have pointed out the relevance of visual elements in the foreign language lesson (Corder 1966; Maley 1980; Birdsell 2017). In our own practice teaching young learners (five to eleven years old) we noticed that they usually focus on pictures, with special attention on certain characteristics, and then share their reactions with peers, many times using their mother tongue. Based on this observation, we decided to embark on an exploration of visuals and to use the results of our investigation to promote the use of the foreign language (spoken and written) in our students.

In the next section, we begin by anchoring our pedagogical experience in a multimodal framework. The importance of visual literacy and critical thinking are also highlighted, while the three categories of interactive meaning are explained and exemplified with pictures. The third section, presents the research design including subsections with detailed descriptions of the three classroom interventions and their corresponding findings. The paper ends with a discussion on how multimodal approaches integrated in the teaching and learning of EFL helped young learners to better understand the process of meaning-making.

2. Theoretical Framework

2.1 Visual literacy

A great number of research studies on changes in literacy practices (Walsh 2017), initially developed by The New London Group (1996) and furthered by Jewitt (2008) and other scholars, emphasize the importance of different literacy pedagogies (Cope and Kalantzis 2009; Rajendram 2015). The concept of literacy has expanded to mean the ability to use multiple modes of communication, or 'multiliteracies'. This paper puts forth the framework of a multimodal approach underlying multiliteracies practices. One important component of multiliteracies is visual literacy, which was first defined by Debes in 1969 as a literacy that refers to

> ... a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences. The development of these competencies is fundamental to normal human learning. When developed, they enable a visually literate person to discriminate and interpret the visible actions, objects, symbols, natural or man-made, that he encounters in his environment. Through the creative use of these competencies, he is able to communicate with others. (Debes 1969: 27)

More recent definitions (Felten 2008; Blummer 2015) have added various aspects of the processing of pictorial meaning, such as creativity, understanding, manipulation, production among many others, as being essential steps to becoming visually literate. In this evolution of the concept of visual literacy, the relevance of two essential notions stands out: the interpretation of meaning and the construction of meaning from images.

The importance of becoming visually literate is linked to the idea that each mode –verbal and visual- contains different affordances for meaning making (Kress 2010) and familiarity with such affordances can strengthen young learners´ social and communication skills and help them become communicatively competent. Pantaleo (2017) describes the "visually saturated world" (ibid. 153) in which our students live, a world that demands multimodal skills for effective communication and problem solving.

Our work draws on the theoretical framework proposed by Kress and van Leeuwen (2006) who developed a grammar of visual design based on SFL. This framework is based on the co-existence of three metafunctions, ideational/representational, interpersonal/interactive and textual/compositional present in any instance of communication. For the purpose of this work, we will concentrate on interpersonal/interactive meaning, which can be described as the metafunction that enables people "to interact with others in the world" (Derewianka and Jones 2010: 9) and which in visual texts may be identified through the representation of relations between viewer and image. Interactive meaning was chosen on the grounds that

children connect with the world through emotions and affect, which are precisely addressed by this metafunction. According to Walsh (2006), when reading print-based texts interpersonal meaning is "...developed through verbal 'voice' - through use of dialogue, 1st, 2nd, 3rd person narrator" (ibid: 35). In turn, when reading multimodal texts, interpersonal meaning is "...developed through visual 'voice': positioning, angle, perspective – 'offers' and 'demands'" (ibid: 35). These aspects of interactive meaning, which are inherent to the description of viewer-image interaction, are at the center of our multimodal pedagogical experience and research: contact, social distance and subjectivity (Kress and van Leeuwen 2006).

Contact is related to the gaze direction of the represented participant(s), whether the participant depicted in the image is looking at the viewers as if demanding something from them (Figure 1) or offering the viewers something to just look at (Figure 2). Demands are considered to establish an imaginary relation with the viewers since they address them in a direct way, as if inviting the viewers to enter in some kind of social relation. Offers, on the other hand, address the viewers indirectly, depicting the represented participants impersonally as pieces of information or objects for observation (Kress and van Leeuwen 2006).

Figure 1. Demand [1]

Figure 2. Offer [2]

The second category, social distance, relates to size of frame, whether an image is presented close to or far from the viewers. Different sizes, namely long shot (Figure 3), medium shot (Figure 4) and close-up shot (Figure 5) can lead to different relations between represented participants and viewers (Kress & van Leeuwen 2006) and can apply not only to animate figures but also to objects or landscapes.

According to Kress and van Leeuwen (2006), the long shot presents the full length of a character from feet to top of the head. It is used to show a character in relation to their surroundings, giving the contextual clues of public distance. The medium size shot shows a subject captured from around the waist to the top of the head. The complete body is not in full sight, but it is close enough to establish a primary connection with the person. Aspects of the background that appear in the frame showing close social distance can be viewed. The third point of distance, the close-up shot, *is used to show a character from the top of the shoulders to the top of the head. A close-up image can capture facial expressions, magnify emotions and create tension. It depicts close personal distance.*

Figure 3. Long shot [3]

Figure 4. Medium shot [3]

Figure 5. Close up shot [3]

Finally, subjectivity has to do with the choice of angle, that is, point of view. The point of view determined by the vertical angle has been related to power. If the represented participant is seen from a high angle (Figure 6), the viewer appears to be in a position of power with respect to the person depicted in the image, and vice versa, if the person in the image looks down on the viewer, the latter would seem to be in a less powerful position in relation to the image (Figure 7). By contrast, presenting an image at eye level creates a sense of equality between the subject and the viewer (Figure 8).

2.2 Interface between language and image

Our experiences in primary education taught us that young learners have a tendency to talk about their experiences. They are eager to recreate their experiences in words. This insight agrees with the assertion put forward by scholars such as Cameron (2001) and Pinter (2006) that children are always attempting to do things with language. Children develop the language for narrative at a very young age, despite certain complexities of the genre, such as the use of relative clauses, verb tenses, connectives and pronominal reference (Cameron, 2001), a process which takes considerably longer in a foreign language than in the first

language. Many years ago, Paivio's (1986) dual coding theory introduced the idea that the cognitive process of the human brain processes information derived through interplay of both verbal and visual elements. Being able to speak or write incorporating images can, therefore, support communication. What cannot be said can be showed.

Figure 6. High Angle [3]

Figure 7. Low Angle [3]

Figure 8. Eye level [3]

Verbal language involves the use of two sensory channels: visual and auditory while images pertain to the visual channel. Both, language –in its written variant- and images share meaning making features. Typography, the same as pictures, is basically realized through color, size and layout. Helping students understand the strategic use of these different visual meaning making signs is relevant, since young learners encounter multimodal texts in textbooks, stories and magazines. Through the application of this visual knowledge they can acquire a better understanding of how the verbal and the visual modes integrate to convey a message (Liruso et al. 2012).

Children are natural decoders of images and are attracted to illustrations which spark their imaginations and transport them to imaginary worlds. Picturebooks are, therefore, an ideal resource to exploit in the EFL class. Several investigations have explored primary children's reactions to picturebooks (Sipe 2008; Serafini 2014). One such study is the work by Arizpe and Styles (2002), which found that even children who were very young or not fluent in English could show ability to make sense of visual cues, infer information of fairly complex images and communicate ideas. Kaminsky (2019), describing a study in which young learners were involved in the presentation of a story through various semiotic resources, reports that "these elements served as access points and helped learners to decode parts of a message in the FL" (ibid: 182).

These studies call for changes in literacy programs. In the same way as young learners are guided at school to apply conventions for underlining and using color, they could be guided in

the interpretation of images to enhance communication. In this way, they could access meaning through pictures when their foreign language skill is still limited and they could express meaning through pictures when they cannot yet express it through words. For example, a description from a hypothetical story that reads *the striking visitor looked down upon poor Doris...* becomes clearer if it is accompanied by the picture of a character, the striking visitor, looking at another character, Doris, from a high angle. The position of power enforces the idea of *look down upon* and can additionally provide some other type of information, such as the visitor being angry, serious, young, old, tall, or displaying some other relevant feature. The different semiotic properties of the modes therefore add potential meanings to the communication.

2.3 Critical Thinking

The promotion of critical thinking in FL classes has gained relevance, as it is now clear that language development and thinking are closely related. The hierarchy of Bloom's (1956) taxonomy and its revised version (Anderson & Krathwohl 2000) is a widely accepted framework used to guide students through the cognitive learning process. The framework comprises three lower thinking abilities –remembering, understanding and applying, and three higher order abilities –analyzing, evaluating and creating. This taxonomy can be used to plan learning in an increasingly challenging manner, advancing from basic levels towards more complex levels.

Construing meaning paying attention to visual resources demands moving from lower order thinking to higher order thinking, as it is essential to make connections between images, emotions and ideas (Grushka 2009; Duncum 2010). When reading images, young learners assume an active role in which they need to focus, organize, analyze, evaluate and present information by transforming it into knowledge in the process. Thus, it is necessary to design steps to guide them into deeper thinking. The combination of visual literacy and critical thinking skills development can offer new ways to facilitate and motivate communication in a foreign language.

In the next section, we outline the research design and describe three classroom experiences applying the three dimensions of interactive meaning to teach EFL.

3. Research and pedagogical experience: pictures tell and encourage telling

3.1 Setting and subjects

The study involved three groups of seven to ten year old EFL learners, who are native speakers of Spanish residing in Cordoba, Argentina. Each of the groups participated in a different classroom experience involving one of the aspects under examination, namely contact,

social distance, and subjectivity, respectively. The first group (Contact Group) was made up of six girls and four boys, all aged eight. They attended a language school and received four hours of English per week. The level of English was pre intermediate (B1) according to the Common European Framework of Reference for Languages (CEFR) (2001). The second experience (Social Distance Group) involved a group of twenty-five ten-year-old boys, who had four hours of English a week at a semi-private primary school. The level of English was intermediate (B1+) according to the Common European Framework of Reference for Languages (CEFR) (2001). Finally, the last group (Subjectivity Group) consisted of twenty-seven year-old boys, attending a program of four hours of English a week at a semi-private primary school. The level of English was elementary (A2) according to the Common European Framework of Reference for Languages (CEFR) (2001).

3.2 General Implementation

As already noted, three categories that construe interpersonal/interactive meaning were selected for this study, namely contact, social distance and subjectivity. Both social distance and subjectivity do in fact encompass more subtleties of meanings than the ones reported here; however, they were not contemplated as they exceed the scope of the study. The classes were taught by participant researchers, while an external researcher took notes, photographs, and audio-taped the interaction. Video recording proved intrusive in a trial run and was therefore dismissed as a potential research tool. Still images were used in all the pedagogical interventions.

3.3.1 Contact: procedure

The contact dimension was introduced to children through the following questions*: Are the people looking at you? Are they looking at each other? What does this suggest?* Children were exposed to several pictures, both from their English language textbook and from picture-books, to identify demand and offer meanings during two class periods of forty-five minutes. During this initial stage, the teacher guided the responses provided by the students and reformulated the questions if necessary. When it became evident that the students had gained confidence in the interpretation of the images and had started to work more independently, we decided that they were ready to apply this newly acquired knowledge in an activity. Students were shown a picture (Figure 1) and asked to explore demand meanings. They were invited to produce speech bubbles to give a voice to the characters represented and thought bubbles to express the potential thinking of the characters. Working in pairs, they looked at the pictures, discussed people´s facial expressions, and possible feelings. From an observation of concrete features –a boy smiling, a boy covering his face with his arms- students were able to infer interpersonal meanings such as happiness or shyness.

To explore offer, students were shown Figure 2 and asked to write sentences about it.

3.3.2 Contact: Outcomes

Table 1 reproduces some statements produced by students when presented with the picture in Figure 1.

Image	Students	Speech bubble	Thought bubble
Boy n° 1 	Student A	Hi! I´m Tom	I´m very happy
	Student B	Hello! Take me a picture!	I like pictures
	Student C	I want to be a photographer	I want to be in Youtube
	Student D	Hi! Look at me!	For my Instagram! ❤
Boy n° 2 	Student E	My name´s Nico	
	Student F	Hello people!	I want a nice picture!
Boy n° 3 	Student G	No picture! No!	I don´t like pictures
	Student H	Not me!	I hate pictures
	Student I	Please no!	I never well in photos (sic)

Table 1. Students´ reactions to a demand image

The learners' use of speech and thought bubbles seems to provide evidence of their development of critical thinking, which entails the use of many skills, such as understanding, making

hypotheses and suggesting alternatives. Careful observation of pictorial information seems to help young learners infer what is not said. They perceive the visual stimulus first, then process and filter the stimulus, and finally perceive with their minds. We believe that the use of speech bubbles, which convey what a person is saying, and thought bubbles, which reveal an inner voice and/or wishes aids young learners to engage in reflection and peer collaboration. When they put together the concrete experience of looking with their eyes and perceiving with their minds they have the big picture in terms of critical thinking and constructing knowledge.

In Figure 2, an example of an offer image, the participants are represented as an item of information. In response to this image, the learners produced language which corresponds to the categories of description or explanation, including some subjective reactions and some factual data. The answers in Table 1 show subjective reactions to what was depicted, while responses in Table 2 show statements of facts.

	**Students´ language productions**
1	A group of boys are playing football.
2	It´s a nice day. The friends are playing football in the square.
3	It´s hot. Lucas and his friends are playing football.
4	The boys are happy playing football.

Table 2. Students´ reactions to an offer image

3.4.1 Social Distance: procedure

The second intervention involved social distance. This dimension of visual representation was addressed with questions like: *Can you see the character´s full body? Where is he/she/ it? What does this tell you? Look at this face, what can you notice? What is the effect?* After receiving instruction for two forty-five minute class periods and being given opportunities for practice on different meanings enacted by close, mid and long shots, young learners were thought to be ready to work with social distance. They were asked to take photographs to be used in a story telling session. Children watched a drama activity performed at school and were asked to take pictures with their mobile phones. These photographs were then used to make a summary of the

play. They watched a short play called *The Golden Boy* [2] in which a boy who could sing very well went to a talent show and got so anxious that could not perform. Finally, after several incidents, he could get over stage fright thanks to his friends that stood by him. Here follows the analysis of Figure 9, just one of the many photo sequences taken and selected by the children.

Figure 9. The Golden Boy

Scene 1 is a long shot which presents the stage with the boy in central position photographed from head to toes, a desk with the panels of judges looking at the contestant and the audience looking at the show. It clearly sets the scene and the character in it. Scene 2 is a close-up where the face of the boy, worried, anxious, tongue-tied (he is not singing) can be seen. This shot reveals details of the character and highlights his emotions. Scene 3 is a medium shot showing the boy singing into a microphone and all his friends standing in a semi-circle around him. The friends' full bodies cannot be seen but enough detail is revealed to create an image of happiness in the group. This shot puts emphasis on the subjects while still showing some of the surrounding environment.

3.4.2 Social Distance: Outcomes

This group involved participants cognitively more mature than the previous group (ten years old). They were not only readers but also producers of the images. They could take their own photographs and strategically selected the three pictures that depicted the different shots so that the basic line of the story could be retold. They could tell the story using the two semiotic modes. Here follows an example of an oral retelling by a pupil.

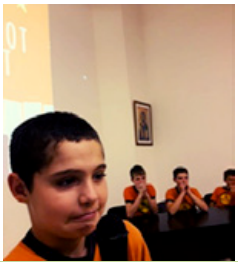
Students´ language productions	
Scene 1 	A boy, Juanjo, who can sing very well go (sic) to a talent show but had a problem. He is shy. There are a lot of people in the room. They are watching.
Scene 2 	He got nervous. Look! Poor Juanjo!
Scene 3 	The friends had an idea: to go with Juanjo. He gets the mic and sings beautiful song (sic).

Table 3. A student´s oral retelling – social distance

In scene 2, the student retelling the story said "look" pointing at the boy´s face. The close up photograph the student was pointing at showed the boy being tongue-tied and unable to sing. Even though the speaker was unable to express these ideas in English, he was able to convey the meaning and continue with the story. In scene 3, it is clear that the children put their arms around each other in a friendly way while the boy, now self-confident, sings in the center. The student was capable to retell the story weaving words and pictures.

3.5.1 Subjectivity: procedure

Point of view implies subjectivity. As noted above, looking from a high angle suggests power, while a low angle suggests just the opposite. In order to interrogate subjectivity, the

following questions were used: *Are you looking up at the people? Are you looking down at the people? What does this suggest?* The intervention was designed around a listening activity. After listening to a short story about a mean-looking monster who terrified people and animals but was afraid of storms, pupils were asked to work in groups to recreate the story using play dough. Then, the teacher took pictures of all the scenes, and showed them to the students on a computer screen. Using these computer screen images, the children were then asked to retell the story orally.

If the monster is photographed at eye level (Figure 8) you can only perceive the monster´s color and the fact that it has got three eyes, a silver tongue, a long body and four arms. Without any object or creature next to its body, it is difficult to tell how big it is. In this shot it is possible to appreciate the physical traits with which the students have provided their monster in order to trigger unpleasant feelings; however, at this point, the monster does not look as scary as students wished. When the picture is taken from a bottom-up angle, the monster can be compared against other elements of the environment that make it look really big and more threatening (Figure 6). With its arms up and its tongue out, it seems even scarier. The monster's weakness – his fear of storms- is revealed one day when a big storm hit the area causing him to become frightened and weakening his power. Figure 7 shows a much bigger setting where the monster is shown from a top-down position. The big rock in the enlarged scene makes the monster look less tall. This, added to the fact that its arms are down, creates an entirely different effect in terms of power. The activity led children to pay attention to detail. They were able to see that a protruding tongue and arms up showed a threatening and dominant monster, while a drooping mouth and arms down the body trunk signaled a more vulnerable creature.

The classroom task involving a hands-on activity, with children modelling the characters using play dough as part of a simple tactile practice, played a key role in sharpening students' focus and increasing their concentration. It also helped young learners to pay attention to body characteristics as representations of abstract concepts such as menace, fear, strength, among others.

3.5.2 Subjectivity: Outcomes

Young learners produced dough figures to represent certain meanings. Then, after watching the shots taken by the teacher, they were able to explore how these meanings could be reinforced or altered through the selection of various angles. We found evidence that shots of the monster at eye level triggered objective descriptions from the children, who referred to the monster's color, size and number of body parts; i.e., they restricted their description to what they saw. Conversely, the bottom-up image triggered a projection of the mind. Almost all the children´s descriptions included the idea of fear and menace. Concerning the last image, from a top-down perspective, many children focused first on details of the general setting, rather

than on the monster. Again, this observation reinforces the idea that there are different paths or access points to read images.

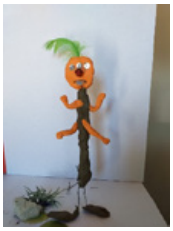
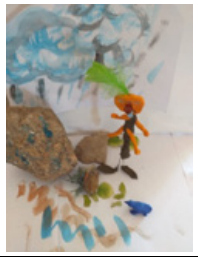
Point of View	Students	Students´ productions
Eye level 	Student A	This is Stormy, the monster. It has got three eyes and four arms. It has got green hair. It´s bad.
	Student B	This is a terrible monster. It´s tall. It´s orange and brown. It has got a big head and a silver tongue. The name is Stormy.
Bottom up Level 	Student C	The animals are afraid. The monster is big and very angry. The long tongue is horrible.
	Student D	The monster is very strong. The blue animal is small and sad.
Top- down Level 	Student E	It´s raining! Stormy not like (sic) the rain. His arms... down, he´s afraid.
	Student G	Look at Stormy! Look at the big rock! Stormy is afraid and the wind is strong.

Table 4. Students´ retelling – Subjectivity

The explicit teaching of the way in which visual resources work helped these young learners to understand how physical features can be used to draw attention, create mood and establish empathy or distance with the listener/viewer. Thus, the activity provided not only a structure to keep the fluency necessary to tell the story in a memorable way, but also a structure to guide the analysis of visual cues and their interpretation within the context of the story.

The paper concludes with a discussion of the effects of explicit instruction on the interpretation of images in a foreign language learning primary context, and the implication it may have on communicative abilities, language engagement and critical thinking.

4. Discussion

This study set out to investigate how explicit instruction on the interpretation of images can aid foreign language learning in the primary context. This pedagogical approach on reading images was found to have a positive effect on three areas: a) development of expression skills; b) understanding and engagement and c) critical thinking.

One of the aims of learning a foreign language is to acquire the ability to process understanding and share meaning (Pearson and Nelson 2000), that is, to use communicative strategies in the foreign language at a certain level. Teachers can significantly help students in their development of communicative skills (speaking and writing) by focusing on semiotic resources that cue interpersonal meanings. The combination of different modes of communication creates an image-word continuum -showing and telling- that can help students to express themselves when talking or writing, and to understand others when listening or reading. As stated before, encouraging them to use pictures and words to overcome linguistic limitations typical of the process of learning a foreign language allows for a flow of ideas that otherwise might be lost. Multimodal compositions also favor different entry points. Both text and image can offer different ways of managing information, which in turn can help the flow of ideas.

As young learners are embedded in a visually saturated environment, any task involving visual interpretation is most likely to be welcome (Cox 2005). Inviting children to participate in classroom activities with images, such as the activities proposed in this paper, proved to be highly engaging for the learners. They all wanted to take part and were willing to invest time and effort in the tasks, which involved problem solving skills.

Being able to decode, comprehend and create meaning using different modes means being able to use critical skills. Reflective thinking implies evaluating what they know, what they need to know, and how to bridge that gap during learning situations. Visual literacy in the classroom can take young learners from basic comprehension and understanding to the development of language skills and the encouragement of creativity. Many times, images get students to think beyond what is represented, not simply to describe what they can see but rather to speculate about what the person in the picture might be thinking, or to suggest what could happen next. Quite often, young learners need to linger on an image to examine details in order to further expand their awareness. This reflects a natural progression from lower order to higher order thinking in the classroom (Bloom 1956; Anderson & Krathwohl 2000). When children read a picture and encode that information verbally, they are using at some level criti-

cal skills. Traditional ways of teaching EFL to young learners tend to focus on the use of images for lower order thinking, i.e. showing a picture with a word on a flashcard. Many activities are designed to aid memorization and repetition, that is, reinforcing the cognitive skills of remembering and understanding. Increasing young learners' awareness of the subtleties of visual communication, increases the opportunities for becoming critically oriented using higher order thinking, specially analyzing. When analyzing pictorial information, students are engaged in a number of subskills, such as comparing, attributing, deconstructing and connecting.

It is our belief that classroom activities that foster the analysis and production of images pave the way to an array of interpretive possibilities. Activities, such as the ones suggested in this paper, hold the potential to expand young learners´ skills in learning foreign languages. As Mourao (2015) asserts, words, pictures and design "come together to produce a visual verbal narrative that FL teachers sometimes take for granted to be led by the words" (ibid: 203).

Undoubtedly, the classroom experiences presented here are just suggestions, not fixed mandates. The latest tendencies show that images and multimodal ensembles will continue to dominate the literate panorama of the future. In a modest way, this approach might help create multiliterate individuals.

NOTES

1 Images exclusively designed for classroom and research purposes
2 The stories are our own creation.
3 Photographs reproduced with permission

REFERENCES

Anderson, Lorin W. and David R. Krathwohl (eds.) 2000. *A taxonomy for learning, teaching and assessing: A revision of Bloom's taxonomy of educational objectives*. New York: Longman

Arizpe, Evelyn and Morag Styles 2002. ¿Cómo se lee una imagen? El desarrollo de la capacidad visual y la lectura mediante libros ilustrados. *Lectura y Vida* 23: 20-29.

Birdsell, Brian 2017. The Role of Images in ELT (English Language Teaching) Textbooks: A Case for Visual Metaphors. *Journal of Liberal Arts Development and Practices* 1. Available from https://www.researchgate.net/publication/319144081_The_Role_of_Images_in_ELT_English_Language_Teaching_Textbooks_A_Case_for_Visual_Metaphors/stats [accessed June 11, 2019]

Bloom, Benjamin S. 1956 *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain.* New York: David McKay Co Inc.

Blummer, Barbara 2015. Some Visual Literacy Initiatives in Academic Institutions: a Literature Review from 1999 to the Present. *Journal of Visual Literacy* 34: 1-34. Available from https://doi.org/10.1080/23796529.2015.11674721 [accessed March 25, 2019]

Debes, John 1969. The Loom of Visual Literacy. *Audiovisual Instruction* 14: 25- 27.

Derewianka, Beverly and Pauline Jones 2010. From traditional grammar to functional grammar: bridging the divide. *NALDIC Quarterly* 8(1): 6-17.

Duncum, Paul Angus 2010. Seven principles for visual culture education. *Art Education 63(1): 6-10.*

Cameron, Lynne 2001. *Teaching Languages to Young Learners.* Cambridge, UK: Cambridge University Press.

Cope, William and Mary Kalantiz 2009. "Multiliteracies": New Literacies, New Learning. *Pedagogies* 4 (3): 164 – 195.

Corder, Pit 1966. *The visual element in language teaching*. London: Longman

Council of Europe 2001. *The Common European Framework of Reference for Languages: Learning, teaching and assessment.* Cambridge: CUP.

Cox, Sue 2005. Intention and meaning in young children's drawing. *International Journal of Art and Design Education*, 24(2): 115–125.

Felten, Peter 2008. Visual literacy. *Change: The Magazine of Higher Education* 40(6): 60- 64.

Grushka, Kathryn 2009. Meaning and identities: A visual performative pedagogy for socio-cultural learning. *The Curriculum Journal* 20(3): 237-251. Available from: https://www.tandfonline.com/doi/abs/10.1080/09585170903195860?mobileUi=0&journalCode=rcjo20 [accessed March 25, 2019]

Halliday, Michael A. K. 1978. *Language as Social Semiotics*. London: Edward Arnold.

Jewit, Carey 2008. Multimodality and Literacy in School Classrooms. *Review of Research in Education* 32: 241-267.

Kaminsky, Annett 2019. Young learners´s engagement with multimodal texts. *ELT Journal* 73 (2): 175-185. Available from https://academic.oup.com/eltj/article-abstract/73/2/175/5364520?redirectedFrom=fulltext [accessed August 3, 2019]

Kress, Gunther and Theo van Leeuwen 2006. *Reading images: the grammar of visual design*. Oxon: Routledge.

Kress, Gunther 2010. *Multimodality: A social semiotic approach to contemporary communication*. New York: Routledge.

Liruso, Susana, Marisel Bollati and Pablo Requena 2012. Multimodal resources in textbooks: Powerful motivators. Views on Motivation and Autonomy in ELT. *Selected Papers from the XXXVII FAAPI Conference* 157-161.

Maley, Alan 1980. *The Mind´s Eye*. Cambridge, UK: Cambridge University Press.

Mourao, Sandie 2015. The Potential of Picturebooks with Young Leaners. In: Janice Bland (ed.) *Teaching English to Young Learners.* London: Bloomsbury.

Pantaleo, Sylvia 2017. Critical thinking and young children's exploration of picturebook artwork. *Language and Education*, 3(12): 152-168. Available from http://dx.doi.org.libproxy.uwyo.edu/10.1080/09500782.2016.1242599 [accessed January 19, 2019]

Paivio, Allan 1986. *Mental Representations: Dual–coding approaches*. New York: Oxford University Press.

Pearson, Judy C. and Paul E Nelson 2000. *An introduction to human communication: Understanding and sharing* (8th ed.). New York: The McGraw-Hill Companies Inc.

Pinter, Annamaria 2006. *Teaching Young Language Learners*. Oxford, UK: Oxford University Press.

Rajendram, Shakina. (2015) Potentials of Multiliteracies Pedagogy for Teaching English Language Learners (ELLs): A Review of the Literature. *Critical Intersections in Education: An OISE/UT Students' Journal* 3: 1- 18.

Serafini, Frank 2014. *Reading the Visual: An Introduction to Teaching Multimodal Literacy.* New York: Teachers College Press.

Sipe, Lawrence 2008. *Storytime: Young Children's Literary Understanding in the Classroom.* New York: Teachers College Press

Walsh, Maureen 2006. Reading visual and multimodal texts: how is 'reading' different. *Australian Journal of Language and Literacy* 29(1): 24-37.

Walsh, Maureen 2017. Multiliteracies, Multimodality, New Literacies and … What Do These Mean for Literacy Education? *Inclusive Principles and Practices in Literacy Education* (*International Perspectives on Inclusive Education)* 11, Emerald Publishing Limited, 19-33.

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Multimodality and Play in Literature Class: Bridging a Gap between School and Life with Education on Screen

Alexandra Milyakina

While trending in other fields of culture, multimodal and playful practices are still marginal to literary education. Since it is based on the values of specialist knowledge, authority, and authenticity, formal education struggles to adapt to the new principles of media production and consumption. Literary experience beyond the school walls embraces a wide range of multimodal texts and activities, however, informal literacy practices are often seen as threatening to the integrity of literary texts. Young people get acquainted with original texts via multiple versions and retellings, starting from adaptations in different media and on to memes, comic strips, and posts on social media. This paper presents a theoretical framework intended to establish continuity between different versions of a literary text along with integrating play and multimodality into literary education. The methodology stems from the tradition of semiotics of culture, which allows considering multimodal and playful practices as part of cultural autocommunication, a mechanism of self-description in culture. The theoretical argument is supported by the experience of Education on Screen, a research and development project focused on creation of digital learning platforms. The project aims to conceptualize the process of reading in a digital environment and showcases different tools for learning literature, such as tests, timelines, maps, role-playing and worldbuilding games. A case study presents the results of testing that took place in Estonian schools in 2017-2019. The design and effectiveness of learning activities are analysed using the tools of multimodal analysis.

KEYWORDS literary education, multimodality, play, semiotics of culture, digital education

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1. Introduction

Literary education remains a tower of logocentrism in the world bursting with new forms of media production and consumption. Whereas contemporary communication is becoming more playful, multimodal and diverse, writing is associated with the opposite values of 'specialist knowledge, authority, and authenticity' (Jewitt 2006: 323). In classroom settings, an original literary text is usually considered as ultimate and inviolable. Up to the present day, some conservative teachers treat literary adaptations, including films, as poor and profane versions of their originals and are likewise skeptical about creative retellings, such as fan fiction. Indeed, translation of a literary work into another media or discourse inevitably implies a certain degree of unpredictability and loss of meaning, which could be seen as a threat to the integrity of the original text. As a result, multimodal and playful practices are still considered marginal to the traditional literary education, while trending in other fields of culture (Thibault 2016: 218), such as marketing, entertainment, and others.

The number of teens who regularly read books for fun has dropped by almost 30 per cent since the 1980s, and the rate continues to decline (Rideout 2014: 14). According to the 2015 report by Common Sense, reading is less popular than watching videos, listening to music, gaming, social networking or browsing websites (Rideout 2015: 31). A demand for modernized pedagogy has already been acknowledged by educational systems around the world (Milyakina 2018: 577) and, with regard to language and literary education, implies a focus on development of digital and multimodal literacies. Whereas, on the system level, the theory is put into practice rather slowly, most notable examples of its implementation come from the periphery. As was observed by Donald Leu, '[o]ur understanding may be informed more often by individuals who use various technologies on a daily basis and less often by traditional forms of research' (2000: 761). These grassroots practices challenge the logocentric approach to literary education and explore the pedagogical potential of multimodality and play. We can roughly subdivide them into three groups associated with formal, non-formal, and informal learning (Council of Europe 2019).

Firstly, some of the most innovative practices are developed by enthusiastic teachers within the system of formal education. Collective volumes of teachers' case studies can offer useful insights into innovation and change: literature teachers already use multimodal and game-like formats, including personality tests, infographics, posters, video clips, animation, book trailers, interactive books, blogs, maps, wiki, trivia games, virtual tours, and role-playing games based on literary classics (Galaktionova et al. 2018; Glazer 2016). All these undertakings share the features rarely present in a logocentric classroom: rather than drawing a line between literary and profane, they make use of everyday pleasures and interests of readers.

Secondly, pedagogy of literary education is influenced by non-formal learning practices advancing beyond the school walls. It is exemplified by educational projects developed

by commercial and non-profit organizations, including universities[1], museums, educational centers or digital content providers[2].

Lastly, literary education also takes place informally, as an involuntary and inescapable part of daily life (Council of Europe 2019). According to a classic definition, informal learning is 'the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment'(Coombs, Ahmed 1974: 8, as cited in Scolari et al. 2018: 803). Whereas a written text used to be the main source of education for centuries, today, young people are exposed to literature in digital, audio, visual, and transmedia forms. They make their way in a diverse and heterogeneous world of literary retellings and dive into transmedia universes, however, they often realize that 'their expertise is little valued in the academic forum' (Mackey 1999: 30).

According to Binkley et al., new social practices 'create reconceptions of key competencies and skills, not defined from a systems level but from the everyday lives of people in our societies' (2012: 18). Students get used to dealing with fragmented, multimodal and nonlinear texts, which is sometimes associated with their incapacity (or reluctance) to read long and linear literary fiction. Moreover, they are more likely 'to reject a single interpretation and to hold possible multiple readings of a text' (Jewitt 2006: 359), which is not always welcomed by conservative teachers. The students' habits of media consumption and production are formed in a digital multimodal environment, and, as was noted by Kress, 'it is highly unlikely that they [young people] will not carry this habitus into their engagement with any semiotic domain or entity in their world' (Kress 2010: 38-39). According to Scolari et al. (2018: 810), 'the most urgent issue is to activate proposals for reducing the distance between formal educational environments and the extremely active "digital lives" of teens in social media and online environments'. A strongly needed pedagogical shift cannot imply a mere replication of the experiences that students engage in outside school (Walsh 2009: 2). It is crucial to investigate how the meaning is constructed through multimodal texts and to step from the vision of digital practices as 'no more nor less than individual, unassessable chaos' (Hunt 2000: 111).

Traditionally, functions of literary education have implied acquisition of cultural knowledge, development of literary skills, adoption of values, and formation of healthy reading habits. Literary education in the age of the Internet can also be seen as a platform for developing the 21st-century skills, such as creativity, critical thinking, learning to learn, communication, collaboration, information literacy, ICT literacy, local and global citizenship, life and career, personal and social responsibility (Binkley 2012: 18-19). Instead of promoting the traditional book-centered literacy, school needs to develop transmedia skills 'related to digital interactive media production, sharing and consumption' (Scolari et al. 2018: 803). Studies in the field of new skills and literacies set an example for future research. First of all, it is important to acknowledge the seminal work of Gunther Kress, Theo van Leeuwen, Carey Jewitt, and other scholars engaged in multimodal analysis. Multimodal environments of Science class-

rooms have been examined by Kress et al. (2014), while Jewitt (2002; 2008) have explored English classrooms. Some notable interdisciplinary case studies include Newfield et al. (2003) analysing a South-African school experiment and a more recent work by Sakr et al. (2016) on teaching history using mobile technologies. A different type of reading needed for digital and multimodal texts is analysed in works by Len Unsworth (2006) and Margaret Mackey (1998; 2001; 2002).

The current case study presents one more experiment in this field – *Education on Screen* (EoS), a digital learning platform developed by Transmedia research group at the University of Tartu. The project is informed by the previous research and aims to integrate effective practices of formal, non-formal, and informal learning. On the one hand, it is based on teachers' experience; on the other hand, it employs the principles of design inherent to the contemporary educational technology; lastly, it makes use of diverse and heterogeneous media experiences of young people. The following chapter provides a theoretical framework for integrating multimodality and play into literary education. The case study aims to analyse the place of multimodal and playful practices in the literature classroom, to establish their relation to logocentric pedagogical methods, and to explore the skills that such education can promote.

2. Theoretical framework

Multimodal and playful forms of reading can be seen through a perspective of Juri Lotman's semiotics, in which 'the elementary act of thinking is translation' (Lotman 2001: 143). Both processes are tightly interrelated and imply creative transformation of a literary text into new texts in various media and discourses. Since any translation includes an element of untranslatability, such practices inevitably create new meanings and enrich the culture. The following section describes interaction with literature as a process of design and play. In both cases, reading is seen as part of cultural autocommunication, a mechanism of cultural self-description that serves both creative and mnemonic functions (Ojamaa,Torop 2015: 61).

2.1. Reading as a process of design

The multimodal approach highlights the agency of students who are seen 'as authors of knowledge they want and need, authors of the kinds of texts that meet their social, personal and affective needs' (Kress 2010: 145). Being 'socially shaped and culturally given phenomena' (Ibid., 79), modes reflect the values of society. While older pages 'embodied notions of authority and authorship', contemporary pages 'are designed on the basis of a quite different social relation of author, reader and meaning-making' (Ibid., 37-38). Reading in the age of the Internet requires 'finding and creating reading paths through the multimodal, multidirectional

texts' (Jewitt 2008: 259). A notable attempt to analyse multimodal learning was undertaken by Kress et al., who studied how students transformed materials 'through the selection, adaptation of elements presented, and introduction of new elements' (2014: 153). Rather than trying to analyse the cognitive process of students' learning directly, the researchers focused 'on the outcome of this process in the form of signs made, whether as whole texts or parts of texts, though always on the full multimodal ensemble' (Ibid.). The mechanics of multimodal learning is described by Gunther Kress elsewhere: *'interest* shapes *attention*, which produces *engagement* leading to *selection* of elements from the message, leading to a *framing* of these elements, which leads to their *transformation* and *transduction*, which produces a new ('inner') *sign*' (Kress 2010: 42).

The described process seems quite different from the one that takes place in a logocentric classroom. In the latter, all the stages of a literary experience are influenced by educational authorities: students neither go through the process of selecting a book themselves, nor are they expected to interpret it according to their interests. Monomodal learning requires an ultimate reading path: instead of engaging with a text on their own terms, students are often forced to focus on its specific aspects highlighted by the teacher. In order to facilitate reading of old and complicated texts, teachers usually provide ready-made frames, rather than encourage students to fill in the gaps themselves. As a result, students are not engaged enough to read more carefully or to invest energy in interpretation (Guthrie and Knowles 2001: 159). Monomodal learning does not imply that students individually transform or transduce elements of the text whereby forming a new inner sign. On the contrary, in these teacher-centered classrooms, 'ready-made meanings are supplied with the expectation that they be reproduced at a later time as an indication of learning' (Siegel 1995: 464).

Whereas it is easy to see multimodal reading as 'individual, unassessable chaos' (Hunt 2000: 111), its results can nevertheless be observed and assessed. The sign is considered the primary aim of learning and described as 'the result of its maker's interest and is an apt reflection of that interest' (Kress 2010: 179). The evidence of learning as defined by Kress et al. (2014: 212) is formed by:

> the apperception of some aspect of the world, its (hypothesized) transformation in the process of apperception and integration into existing sets of inner representations, the rearrangement of that system or those sets of inner representations in that process, and the transformation that happens in the making of the new sign.

A possible way to assess multimodal learning consists in analysing multimodal artifacts created by learners. Newfield et al. (2003) asked students to suggest themselves criteria for assessment as well as to decide whether the artifacts should be at all assessed. Assessment was considered not as 'something separate or happening in the end, but rather as something that is

registered throughout a process' (Newfield et al. 2003: 68). The criteria were built on the idea of 'resourcefulness' and included the following: recruiting 'apt' resources for making meaning; using these resources generatively and productively with evidence of linkages across modes and genres; understanding and use of multimodality; taking risks, innovating, and transforming existing designs; reflecting on her or his processes of making in different representational forms; engaging with 'messiness', ambiguity, contradiction, difference; being sensitive to and giving voice to the broader context of meaning-making (Ibid., 79). A similar approach to assessment is described in Kress' study of multimodal artifacts created by students as after a visit to the museum (2010: 39). Whereas 'museums tend not to exercise power over their visitors in their engagement with an exhibition' (Ibid., 39), the same cannot be said about a literature classroom. Yet, the understanding of reading as a process of design can potentially help to break free from the logocentrism of literary education and use the benefits of the multimodal approach.

2.2. Reading as playing

Reading is similar to playing in many respects – from Barthes' understanding of a text that 'itself plays (like a door, like a machine with 'play') and the reader plays twice over' (1986[1971]: 62) to contemporary video games, chatbots[3] or interactive maps[4] transforming literature into game-like formats. Both playing and reading imply pretending, imagining, performing, engaging with the rules of the game, strategizing, orchestrating, interpreting, fooling around, not working (Mackey 2002: 181). In order to better understand the playful aspects of reading, it is useful to look into the mechanism of play as such.

According to Juri Lotman, play is a crucial tool of learning: when playing a game, an individual 'gets the possibility to freeze the situation in time', 'learns to model the situation in his consciousness' and gets 'the chance of a conditional victory over an unconquerable [...] or a very strong [...] opponent' (2011: 253). Whereas Lotman does not see play as a means of storing information and developing new meaning, Mattia Thibault argues that the play can nevertheless 'enhance the rise of the new meaning' (2016: 314) due to its capacity to model randomness and incomplete determination. In line with Lotman's works, he sees games as 'a sort of translation code between fiction and reality' (Ibid., 316), which 'has always had an important modelling ability' (Ibid.). Playing a game that features a solid system of rules can be considered as an activity of translation from a discrete text (the game, intended as a set of rules, pieces, narratives, algorithms and any other kind of components) into a continuous text (a single play session, which is the result of the interaction between one or more players and the game). (Ibid., 315)

Since translation of discrete texts into continuous ones requires filling a gap in the material with creativity, the play serves as a generator of the new texts (Ibid., 315). Thibault uses the notions of matrix and repertories to describe the process of play: the matrix 'organizes both

the variable succession of the events and the interface (digital or analogue) that allows the player to interact with the game', while '[t]he repertories contain all the figures, roles, pieces of narratives and axiologies' (Ibid., 320). In the context of literature, it is possible to associate repertories with the concept of encyclopedia – 'the whole of our world knowledge' that govern the production and interpretation of signs (Eco 1984: 255).

Playing with and around texts can imply a different level of knowledge of the encyclopedia. Interaction on a higher level – such as creating fan fiction – requires that one is well-acquainted with the encyclopedia and is capable of creating new stories based on it. After Margaret Mackey's work (1999), we call this type of interaction *playing in the phase space*. The phase space includes '[t]hings that might have happened in the plot but did not, aspects of characters or incidents that are known to the author or that can be imagined by readers but that are not laid down in the novel itself' (Mackey 1999: 19). An example of such experience is described by Glazer (2016: 45), whose students created a role-playing game based on *Beowulf* after having carried out background research on the geography and history behind the poem. This type of engagement with literature requires involvement of higher order skills, such as application, analysis, evaluation, and creation (Kapp 2012: 87).

Literary experiences that do not necessarily imply good (or any) knowledge of the encyclopedia can be conceptualized as '*text tinkering*'. According to Mackey (2002: 25), tinkering is a playful stage that often precedes more focused work and helps students to get acquainted with the text. Tools may include interactive maps, quizzes and puzzles and are usually associated with lower order skills – remembering and understanding (Kapp 2012: 87). While some teachers may consider that tinkering should be skipped over in order to move forward to more purposeful activities, Mackey identifies tinkering as 'a long-term investment, however footling it may appear at first glance' (Ibid., 25). Game-like experiences based on a literary text are potentially motivating for 'good-enough readers' – those who choose an interpretation that is sufficiently satisfying to keep going (Mackey 2011: 159).

In the new literary landscape, '[t]he book matters, but no longer represents "the end of the Story"' (Mackey 2001: 179). Semiotics of culture offers a holistic perspective that allows embracing not only the original text but also phenomena deemed as peripheral. Literary texts are seen as 'a series of possible forms and interpretations, none of which is the ultimate or ideal one' (Ojamaa, Torop 2015: 64). Rather than forcing their way through complex and obscure texts, students can start with text tinkering: explore maps, take quizzes, or solve puzzles. Deeper engagement with the text can be facilitated by playing in the phase space – reconstructing fictional universes or inventing new stories. Even though playing with and around text cannot substitute enjoyment of reading, it could offer a different kind of pleasure and spark interest in literature. On the one hand, digital game-like formats can simulate the processes taking place in a literature classroom, such as close reading, highlighting key themes or writing an essay (Ibid., 105). On the other hand, they often imply a simultaneous application of both traditional

(reading, writing, speaking, listening) and new literacies (digital, critical, information, visual, media, tool literacies) (Churchill 2017: 6).

3. Case study: Education on Screen

Education on Screen (haridusekraanil.ee) is an open-access educational platform targeted primarily at secondary school students. The platform includes three projects based on popular Estonian literary texts and their cinematic adaptations: Literature on Screen (2017), History on Screen (2018), and Identity on Screen (2019). Each project provides a methodological framework for understanding the topics as well as materials for practical implementation: excerpts from films and novels, examples of reception on social media, illustrations, analytical tasks and interactive assignments for working in groups or individually. All content is divided into bite-sized modules, which allows building customized lesson plans for different purposes.

Literature on Screen (kirjandus.haridusekraanil.ee) (LoS) is based on the Estonian best-selling novel *Old Barney or November* by Andrus Kivirähk (2000) and its cinematic adaptation *November* by Rainer Sarnet (2017). The project includes a map of the storyworld and three theoretical sections: Film in Literature, Literature in Film, Literature and Film in Culture. Students are encouraged not only to compare the source text to its adaptation, but also to embrace the whole lifecycle of an adaptation and to contribute their own interpretations, which includes writing a script, choosing a soundtrack, making a mood board, etc.

History on Screen (ajalugu.haridusekraanil.ee/en/) (HoS) is based on the autobiographical trilogy (*Comrade Child and grownups 2008, Velvet and sawdust 2009, The touch of a woman's hand 2018*) by the Estonian literary classic Leelo Tungal and its adaptation *The Little Comrade* (2018) by Moonika Siimets. The novels describe the tragic time of Stalinist repressions through the eyes of a small girl whose mother was deported to Siberia. The platform includes three theoretical chapters (Time in Story, Story in Time, Time and Story in Culture) and a map of the storyworld.

Identity on Screen (identiteet.haridusekraanil.ee/en/) (IoS) is based on the novel *Truth and Justice* (1926-1933) by the major Estonian writer Anton Hansen Tammsaare and the eponymous cinematic adaptation by Tanel Toom (2019). Being a key text of Estonian culture, *Truth and Justice* covers various issues related to the problem of identity: interpersonal relations, national belonging, and living environment. The platform features a map of the storyworld with theoretical introductions and interactive tasks.

3.1. Methodology

The projects have been tested in different schools throughout Estonia both in Estonian-speaking and Russian-speaking classrooms. LoS was tested by over 200 students in five

schools in the years 2017-2018; HoS was tested by over 100 students in 2018-2019; IoS is scheduled for testing in 2019-2020. The activities were offered to students of 9-11 grades and included one-time workshops or three-lesson sessions.

The data used in the analysis include observational field notes, feedback surveys, and multimodal artifacts created by the students. The methodology combines different tools, including multimodal analyses of the learning objects, gains and losses, and signs of learning. At first, the learning objects are analysed from the perspective of visual grammar (Kress, van Leeuwen 2006: 177): we take a look at the modes used in the task, their relation to each other, and the dominant one. Secondly, the learning activities are analysed through the prism of gains and losses (Kress 2005): we investigate potentialities and constraints of different modes and compare them to the ones used in a logocentric literature classroom. Thirdly, the multimodal artifacts produced by the students are analysed as the signs of learning (if applicable). The analysis is focused on the following dimensions: the students' selection of elements from the lesson; the students' adaptation of the elements; the students' introduction of elements not made available by the teachers; the students' arrangement of these elements into texts, their 'design'; representational modes used by the students; physical characteristics of the texts – their materiality (Kress et al. 2014: 46-47).

3.2. Analysis

The three projects were designed in accordance with slightly different aims and principles. This corresponds to the specificity of the chosen texts: the first is an example of modernized folklore, the second provides a child's perspective on the Stalin era, while the third is a 19th-century identity-forming novel. Even though the platforms were designed from the very beginning to be multimodal, LoS still bears an impression of the creators' logocentric consciousness: the text outweighs audiovisual content, while the tasks mainly serve to illustrate theoretical concepts. HoS follows a different logic, where theory is used to support the practice. Finally, IoS employs a method of learning-by-doing and features only small portions of theory that are integrated into tasks. The tasks offered by all three platforms can be used both in tinkering or deeper engagement with literature. However, the distinction between the different formats is not strict, and most tasks involve both types of engagement at once. In the following section, the tasks are discussed in the order of increasing complexity; since the first three types do not necessarily imply creation of artifacts, this stage of analysis is omitted.

3.2.1 Tests

HoS is the only part of EoS that features tests with multiple-choice answers and instant feedback; there are four tests in total. The first two tests are built on the idea of drawing together seemingly distant phenomena: the first task ('Cult of Personality') invites students to

compare the cult of personality and pop culture, while the second ('Pioneers') juxtaposes the principles of the Young Pioneers and a modern girl scout organization. The same principle lies behind some recreational quizzes: for instance, a popular test in *Esquire* challenges readers to guess whether a name comes from *The Lord of the Rings* or the catalog of Ikea[5]. The test of the second type ('Fear') also offers multiple-choice answers but it is based on a sole source: the students need to decide which criminal rule corresponds to different violations based on Aleksandr Solzhenitsyn's *The Gulag Archipelago*. The third-type test ('Russian stuff') employs the mechanics of a matching game: students match concepts of the Soviet newspeak with their pictographic depictions.

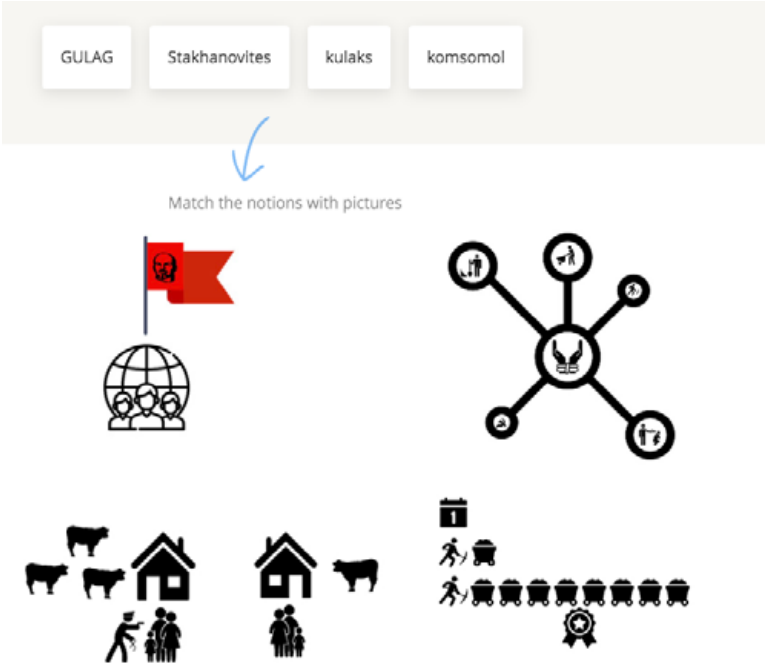

Figure 1. Task: Russian stuff. History on Screen. https://ajalugu.haridusekraanil.ee/en/

The tests of the first and second types are mostly monomodal: a brief verbal introduction is followed by questions and multiple-choice answers. Although these tasks follow the mechanics of a memory game or a trivia game, they do not require recalling of any text-based facts (in this case, Leelo Tungal's *The Comrade Child* trilogy). Rather, they encourage the students to deduct the answers by using intuition or general knowledge. While the first two tests only provide feedback for correct/incorrect answers, the 'Fear' task based on *The Gulag Archipelago* also offers explanatory quotes from Solzhenitsyn's text. 'Russian stuff' task is based on a visual mode: the students need to analyse pictograms representing kulaks, Komsomol, Gulag, and Stakhanovites and to match them with corresponding notions. Afterwards, they are asked

to create their own visual definitions for NKVD, communal apartment, kolkhoz and enemy of the people.

All tests on HoS aim to introduce the encyclopedia of the text by explaining the realia in the form of a game. Instead of reading a paragraph about Soviet politics and culture, the students can derive this knowledge from analysing real-life examples and solving practical tasks. For instance, they can notice some connections between the mechanisms of pop-culture and the cult of personality by trying to guess who was depicted in a 63-meter-high golden statue (Saparmurat Niyazov) or in a diamond-covered portrait (Mickey Mouse). While reflecting on the striking similarities between distant phenomena, the students also learn to understand the differences. Whereas Kapp (2012: 69) associates tests with the lower order skills, such as mere memorization and recalling of facts, the tasks on HoS are designed to be thought-provoking and even provocative. To complete the tasks, learners need to crack the cruel and often counterintuitive code of the Soviet culture. For instance, they have to decide whether selling radishes to a German officer would have been qualified as espionage, aiding an enemy country, or willful neglect of citizen responsibilities ('Fear' task). While trying to find a logic behind Soviet domestic policies, the students would probably be frustrated by the lack of the latter, which adds an emotional level to the task. Whereas gamification and interactivity can arguably make learning more dynamic and engaging, the test format has many drawbacks. As with most multiple-choice tests, the tasks on HoS can be completed by randomly and mindlessly clicking on various answers. Without a teacher's support, solving tests on HoS would hardly be an effective learning activity. According to testing in schools, the most beneficial option is to ask students to complete tests in a classroom (individually or in groups) and then discuss the results with the teacher. However, since the development of tests appeared to be very time-consuming, and the results were not especially rewarding, this format was abandoned in other projects.

3.2.2. Timelines

Timelines allow putting events in a chronological order and juxtaposing different levels, starting from global history to private life. This format is used twice on HoS: in the first task (Part 2.1), the students are asked to match events of the Soviet history with the stages of Leelo Tungal's life; in the second task (Part 3.2 of HoS), the students link periods of the Soviet history to artistic texts created at that time.

Events on the timelines are represented by images: paintings, drawings, photographs, book covers, and shots from films. In both examples, the visual mode is dominant: the students can complete the tasks by dragging images to the timeline and consulting the verbal descriptions only where necessary. In Part 2.1, short descriptions are given below the images, while in Part 3.2 they appear in a pop-up window and sometimes include additional videos. In the ideal scenario, the students would make their decisions based both on analysing the images and

verbal texts. In both tasks, the students receive instant feedback for correct/incorrect answers and can try different options until each element is in its right place.

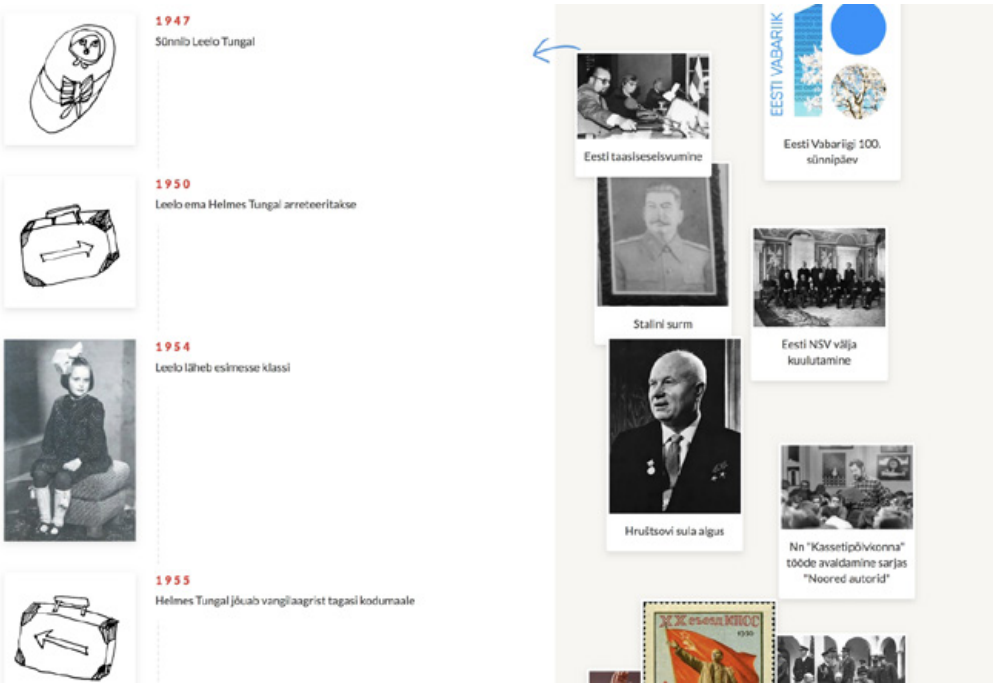

Figure 2. Task 2.1: Leelo Tungal's life in the context of Soviet history. History on Screen. https://ajalugu.haridusekraanil.ee/en/

Timelines help to understand the role of art in remembering the past. The students are encouraged to reflect on the place of different texts in culture and to consider them as imprints of certain historical periods. In contrast to a lecture or a textbook chapter, a timeline offers a multimodal and spatial approach to the presentation of content. Timelines can be used in a preliminary stage of work with *The Comrade Child*, so that the students get an instant overview of the Soviet era as a whole. While the tasks may be completed by searching for correct dates in *Google* (or merely clicking on random objects), the students can also try to derive the answers from the information they already have on this topic. However, the testing showed that the task may be too difficult for those who are not very familiar with the Soviet history. As with the tests, it is recommended that students complete the task in class and discuss it afterwards. If the situation permits, the teacher can ask students to create their own timelines featuring artistic texts about the Soviet era. This type of activity was used in testing and proved to be especially intriguing in multicultural groups, when Estonian- and Russian-speaking students worked on the timelines together.

3.2.3. Maps

Each of the three platforms includes an interactive map that helps to navigate culturally and historically specific aspects of the storyworld. The maps are detailed illustrations representing a fictional Estonian village from *The Old Barny*, a room of a Soviet Estonian girl from *The Comrade Child*, and Vargamäe village from *Truth and Justice*.

Figure 3. Map of the storyworld. Literature on Screen. https://kirjandus.haridusekraanil.ee/

The map presents important elements of a storyworld in a spatial way and allows the students to explore the topic in a preferred order. Learners can locate active objects, click on them to open popup-windows and get access to additional information and tasks. All three maps feature an introduction that provides an overview of the content and suggests tips for navigating the map. The maps present content mostly in a visual mode, except for short verbal captions on LoS and IoS maps. This adds an element of play to exploration: the students are required to guess which topics are represented by different objects – for instance, a toy train, a goat or a suitcase. In order to develop such maps, the team has to define problematic topics (by conducting test readings and interviewing students), to perform a detailed study of the context, and then to translate the information from the verbal into a visual form. The importance of a map as a learning object has risen since the team's work on the first project:

this element was added only retrospectively to LoS, became an important part of HoS and remained the only part of IoS providing access to all content on the platform. Whereas pop-up-windows on LoS include only verbal comments and few illustrations, the topics of HoS and IoS are introduced with the help of words, images, music, videos, and interactive tasks.

Since any artistic world to some extent overlaps with the physical reality, exploration of the maps on EoS results into gaining knowledge about the history, culture or nature. Each map creatively integrates historical facts (for instance, a layout of an Estonian village or appearances of household items) with fictional elements. Rather than presenting the physical dimension of the storyworld, the maps introduce an encyclopedia of a certain time and space. Similarly to medieval *mappaemundi,* they present the world as a 'projection of local experiences of knowledge, divine presence, climate and custom' (Barrows 2016: 151-152). Students who are not familiar with the depicted culture can acquire missing frames by exploring the map: LoS explains the specificity of Estonian folklore and history; HoS introduces some concepts of Soviet life; IoS deals with the aspects of material culture, social life and environment in a 19th-century village. When used in a preliminary stage of a literature lesson, the map can become a gateway to the text and make the material less provocative and more graspable for students. In contrast to a linear commentary in a textbook or a teacher's lecture, the maps offer an alternative way of presenting contextual information. However, the map format still does not guarantee that the commentary would be comprehensive and unbiased. Indeed, selection and interpretation of elements is inevitably influenced by the creators' worldviews and ideologies. To avoid restrictive interpretations, teachers can encourage students to continue the background research on their own by looking up information on the Internet or following hyperlinks given on the maps.

3.2.4 Role-playing tasks

All three platforms feature several tasks that include elements of a role play. They do not provide instant feedback, but imply that the result is discussed with peers and teachers. In Kapp's taxonomy (2012: 87), role-playing games correspond to the level of application: the player has to assume someone's role and perform according to the rules. One task on LoS allows writing a film script based on an excerpt from *The Old Barny*: students can choose a different genre and tell the story from the perspective of a different character (for instance, a cow). In a similar task on HoS, students are asked to rewrite a fragment of the novel from the perspective of different characters. For a task on IoS, students need to assume the roles of main characters and create a pyramid of values for each of them.

The play implies translation of discrete texts into continuous ones (Thibault 2016: 315). At first, the students follow verbal rules to create continuous mental images: they imagine the scenes, analyse motivation of the characters or act out given events. At the next stage, they

translate their experience back into discrete texts, such as essays or oral narratives. Whereas the rules are presented mostly verbally, they still include some multimodal elements: for instance, the task on LoS has a tool for shuffling topics; the task on HoS features a gallery of characters; the task on IoS includes an interactive chart that allows dragging elements. These additions aim to make the learning experience more engaging by introducing a visual dimension or an element of unpredictability. In all cases, the students can complete their tasks in a digital form, print out the results, share them with peers, and discuss in class.

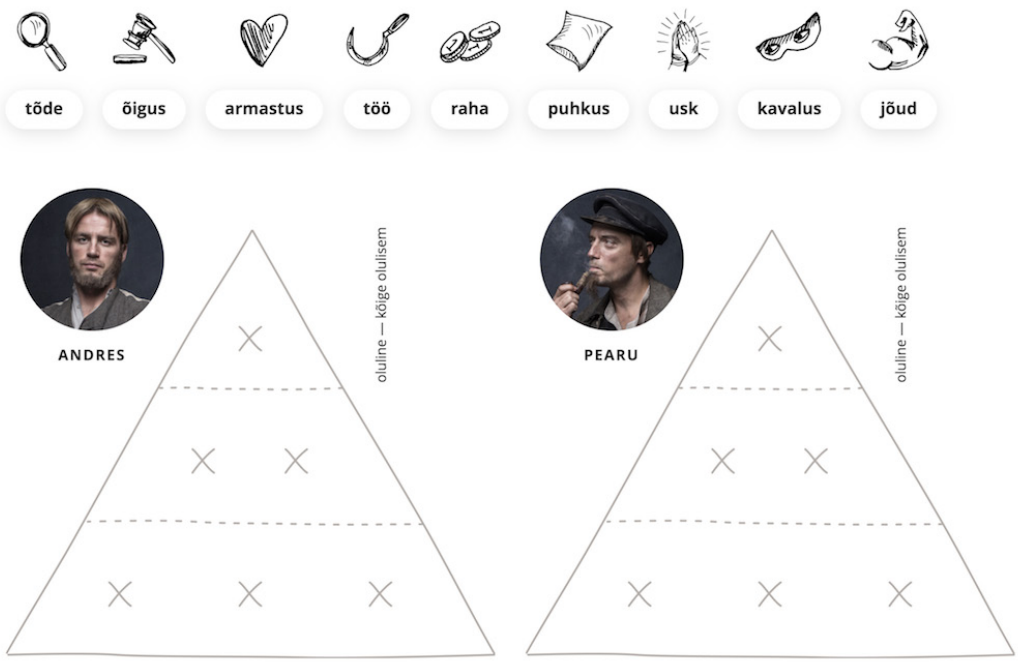

Figure 4. Task: create the pyramid of the characters' values. Identity on Screen. https://identiteet.haridusekraanil.ee/en/

Changing a perspective is a useful exercise for analysing the rules lying behind an artistic text. Role-playing is a more complex activity than remembering and understanding, since it requires that the students are already acquainted with the encyclopedia of the text and can build their own interpretations based on it. The same principle lies at the core of fan fiction writing and playing in the phase space in general. Role-playing helps to acquire a deeper feeling of the story and a storyworld, which is not always possible with monomodal methods of literary instruction, such as answering text-based questions or writing essays. At the same time, the testing showed that this type of task demands a lot of time and energy from students as well as from teachers. Also, learners may find it challenging to establish a balance between creative reworking of the text and being faithful to it.

All role-playing tasks on EoS imply creation of artifacts: the tasks on LoS and HoS are completed in the form of essays, while the result of the task on IoS is a printable scheme. Whereas these tasks on HoS and IoS have not yet been tested in classrooms, the testing of LoS task demonstrated that students are willing to make creative choices, if they have enough motivation and energy. Since the students had to work under harsh deadlines, their engagement with the original text appeared to be superficial: many participants merely rewrote the excerpts by replacing the names and pronouns. However, some of them managed to transform the scenes creatively and employed additional modes: for instance, suggested soundtrack for a scene or provided tips on visual appearance of characters. During the testing the students completed the task individually at home, which might have impacted their motivation. Arguably, the activity would be more engaging if it took place in a classroom and implied teamwork.

3.2.5 Worldbuilding tasks

The most complex tasks on EoS combine the mechanics of several games at once including strategy and worldbuilding games. According to Kapp (2012: 74), these games are associated with the highest cognitive levels, such as analyzing, evaluating and creating. For the task on LoS, students analyse the cultural depictions of *kratt*, an Estonian mythological treasure-bearer, and come up with their own versions. A similar idea lies behind the task on HoS, where the students visualize a scene based on a script of *The Little Comrade*: the teams collect materials and produce collages depicting a Soviet hairdressing salon, school, living room or kitchen. The task on IoS follows the principles of a strategy game and helps to understand the value of different skills and resources in a 19th-century Estonian village. All tasks are completed in groups in the classroom or at home.

As in the case of the role-playing tasks, the descriptions themselves are mostly textual, while the learning activities are multimodal. Each task offers access to repertories, which overlap with the actual history, geography or art of Estonia. The repertories can be accessed either directly on the website (a gallery of *kratt*'s depictions on LoS), or via links (digital archives and libraries in case of HoS and a website of Estonian protected areas in case of IoS). Each task is completed in several stages that include analysis of the resources, making judgments through checking and critiquing, and putting the selected elements together to form a coherent whole. While interacting with the material and each other, the students construct their own multimodal narratives and artifacts. For the task on LoS, learners explore the representations of *kratt*; define the traits that are common to all of them; create their own versions by integrating features they found important. The result of their work is a drawing of a creature on paper or in a digital form. To provide an authentic image of the 1950s interiors in Soviet Estonia (task on HoS), the students search for the images of furniture, household items, and clothing in digital archives; choose the historically correct images; integrate the elements into a coherent collage

that would reflect the mood of the scene. For the task on IoS, the teams develop a strategy for building a farm: they analyse the resources (according to the rules, each team gets a plot of land belonging to an actual nature park); decide which works need to be done; present their plan to other teams.

Figure 5. Visualization of the scene from The Comrade Child. Student's work created for the workshop "Artistic text as a mediator of historical memory" (30.11.2017).

In the context of a literature classroom, worldbuilding tasks can serve as final projects showcasing skills and knowledge acquired by the students. In contrast to traditional text analysis, the task of this type puts a literary work into a context of the whole culture and helps to develop transdisciplinary skills. By engaging with the encyclopedia of the text, the students simultaneously dig into folklore, history or geography of their country. Successful completion of the task requires teamwork, critical thinking and creativity. At the same time, the task fosters development of digital literacies, as the students get to work with digital archives and databases. Like role-playing games, worldbuilding tasks appeared to be very complicated both in terms of technological solutions and students' work. Judged by the results of testing, completion of the task could take up to one academic hour or even more if it is done at home. Assessment of the results is also time-consuming and requires thorough and individual analysis of each case.

The testing of the LoS and HoS has shown that worldbuilding tasks appear to be the most memorable and enjoyable for students. The analysis of the new versions of *kratt* created by Estonian- and Russian-speaking students revealed differences between the two types of cultural memory. Whereas most creations of Estonian students resembled the traditional image of *kratt* (anthropomorphic creature consisting of household items), Russian students made peculiar connections to artificial intelligence, anime cartoons, and Russian folklore. In this way, they compensated their lack of familiarity with the foreign phenomenon of *kratt*. The task of HoS was tested in bilingual groups and proved to be successful. Collages created by the students included not only objects mentioned in *The Little Comrade*, but also additional elements that helped to convey the atmosphere: portraits of Soviet leaders, propagandistic posters, and even links to music clips on *Youtube*. Even though the images selected by the students were mostly historically correct, the background research was not always thorough, which led to ambiguous and often amusing results: for instance, a photo of SS militant was mistaken for an image of a KGB officer. In general, the students made use of the digital resources offered in the task but also employed some additional websites and archives.

4. Conclusion

While literary instruction is largely based on conveying the predetermined meanings through monomodal, literary experience beyond the school walls embraces a wide range of multimodal texts and activities. *Education on Screen* aims to reimagine literary education by bridging a gap between the literary and profane, school and everyday life. The project developed by the University of Tartu can be considered both as a theoretical and a practical experiment. On the one hand, it aims to conceptualize the processes of reading and learning in digital environment. On the other hand, it showcases the formats and activities that can be adapted by literary education. The project is based on the theoretical premises, according to which any version of the text is meaningful regardless of its form. The multimodal and playful tasks offered on EoS combine the effective practices developed within formal, non-formal, and informal education. While tests, timelines and maps help to get acquainted with the encyclopedia of the text, role-playing and world-building games offer a possibility to apply the acquired knowledge and play in the phase space.

The testing of the platforms demonstrated that multimodal and playful tasks help to engage students and expand the range of discussed problems. On the one hand, someone may find controversial the very idea of playing with literary plots or developing games on such serious topics as repressions or deportation. Yet, the play should not be associated with profanity and superficiality. According to Lotman (2011), the play can be an extremely powerful learning tool, as it helps to model situations and master behaviours. The game-like tasks of EoS are

built on the idea that the fictional world of a literary text overlaps with the real one. While exploring the encyclopedia of different storyworlds, the students can simultaneously build connections to the actual history, culture and geography. Engagement with different types of tools and resources allow them not only to deepen their knowledge of the topic, but also to support the development of digital, critical, information, visual, media and tool literacies. Also, games can provide a deeper feeling of the problem and may become a good starting point for discussing controversial topics. Whereas without a strong methodological framework playing with literature can lead to superficiality and profanity, it can indeed be an effective tool in good hands of a motivated teacher.

NOTES

1 For instance, *Live Pages* by Higher School of Economics in Moscow offers interactive editions of Russian literary classics. https://play.google.com/store/apps/details?id=com.samsung.livepagesapp&hl=ru

2 An example of a platform offering literary quests, quizzes, and courses is Russian *Arzamas. academy* focused on teaching literature, history, and art. The tasks range from filling in gaps in Pasternak's poetry with emoji to generating Shakespearean insults. https://arzamas.academy/themes/game

3 For instance, *Author Bot* is a service that allows authors and publishers to create an interactive chatbot that helps readers to find out about the plot, characters, backstory through messaging. Website: http://www.fastbot.io/author-bot

4 One example is *Wildwood Storymap*, a mobile app based on Colin Meloy's adventure series, which includes a map of the storyworld and allows users to follow adventures of the characters.

5 A quiz was published in a Russian edition of *Esquire* magazine in April 2009 (43). Available online at https://esquire.ru/archive/2141-test/

REFERENCES

Barrows, Adam 2016. *Time, Literature, and Cartography After the Spatial Turn: The Chronometric Imaginary.* New York: Palgrave Macmillan.

Barthes, Roland 1986[1971] From work to text. In: The Rustle of Language**,** (Howard, Richard, trans.) New York: Hill and Wang, 56–68.

Binkley Marilyn, Ola Erstad, Senta Raizen, Martin Ripley, May Miller-Ricci, Mike Rumble 2012. Defining Twenty-First Century Skills. In Griffin, Patrick; McGaw, Barry; Care, Esther (eds) *Assessment and Teaching of 21st Century Skills.* Dordrecht, Heidelberg, London, New York: Springer, 17-66.

Churchill, Daniel 2017. *Digital Resources for Learning*. Singapore: Springer.

Council of Europe 2019. Formal, non-formal and informal learning**.** Available from: https://www.coe.int/en/web/lang-migrants/formal-non-formal-and-informal-learning [accessed July 25, 2019]

Eco, Umberto 1984. Metaphor, Dictionary, and Encyclopedia. New Literary History 15(2): 255-271.

Galaktionova, T. G., E.I. Kazakova, V.E. Pugach (eds.) 2018. Philology education in the context of the electronic digital environment. Conference Proceedings. Saint Petersburg: LEMA. [Галактионова, Т. Г.; Казакова, Е. И.; Пугач, В.Е. 2018. Филологическое образование в условиях электронно-цифровой среды. Сборник научных статей по итогам Всероссийской научно-практической конференции. СПб.: ЛЕМА]

Glazer, Kip 2016. Beyond Gameplay – Using Role-Playing Game Creation to Teach Beowulf in High School English Class. In Williams-Pierce, Caro (ed) T*eacher Pioneers – Visions from the Edge of the Map*. Pittsburgh: ETC Press, 43-53.

Guthrie, John T, Kaeli T. Knowles 2001. Promoting Reading Motivation. In Verhoeven, Ludo; Snow, Catherine E. (eds) *Literacy and motivation: reading engagement in individuals and groups*. Mahwah, N.J.: L. Erlbaum Associates, 23-39.

Hunt, Peter 2000. Futures for children's literature: evolution or radical break. *Cambridge Journal of Education* 30(1): 111–119.

Jewitt, Carey 2002. The move from page to screen: the multimodal reshaping of school English. *Journal of Visual Communication* 1(2): 171-196.

2006. Multimodality, "Reading", and "Writing" for the 21st Century. *Discourse: studies in the cultural politics of education* 26 (3): 315-331.

2008. Multimodality and Literacy in School Classrooms. *Review of Research in Education* 32: 241–267.

Kapp, Karl M. 2012. *Gamification of Learning and Instruction: Game-Based Methods and Strategies for Training and Education*. San Francisco: Pfeiffer, 2012.

Kress, Gunther 2005. Gains and losses: New forms of texts, knowledge, and learning. *Computers and Composition* 22: 5–22.

Kress, Gunther 2010. *Multimodality: A Social Semiotic Approach to Contemporary Communication*. Routledge: London.

Kress, Gunther, Theo van Leeuwen 2006. *Reading Images. The Grammar of Visual Design*. London; New York: Routledge.

Kress, Gunther, Carey Jewitt, Jon Ogborn, Charalampos Tsatsarelis 2001. *Multimodal Teaching and Learning*. London: Bloomsbury Academic.

Leu, D. J. J. 2000. Literacy and technology: deictic consequences for literacy education in an information age. In: M.L. Kamil, P.B. Mosenthal, P.D. Pearson and R. Barr (eds) *Handbook of Reading Research*. Vol. 3. Mahwah, NJ: Lawrence Erlbaum Associates, 743-770.

Lotman, Juri 2001 [1990] *Universe of the Mind: A Semiotic Theory of Culture*. London: I.B. Tauris.

Lotman, Juri 2011[1967]. The place of art among other modelling systems. *Sign Systems Studies* 39(2/4): 251–270.

Mackey, Margaret 1998. *The case of Peter Rabbit: changing conditions of literature for children*. New York, London: Garland Publishing.

Mackey, Margaret 1999. Playing in the phase space. *Signal* 88: 16-33.

Mackey, Margaret 2001. The survival of engaged reading in the internet age: new media, old media, and the book. *Children's Literature in Education* 32(3): 167–189.

Mackey, Margaret 2002. *Literacies Across Media: Playing the Text*. London: Routledge/Falmer.

Milyakina, Alexandra 2018. Rethinking literary education in the digital age. *Sign Systems Studies* 46(4): 569-589.

Newfield, Denise, David Andrew, Pippa Stein, Roberto Maungedzo 2003. 'No Number Can Describe How Good It Was': Assessment issues in the multimodal classroom. *Assessment in Education Principles Policy and Practice* 10(1): 61-81.

Ojamaa, Maarja; Peeter Torop 2015. Transmediality of cultural autocommunication. *International Journal of Cultural Studies* 18(1): 61–78.

Rideout, Vicky 2014. *Children, teens and reading: A Common Sense media research brief*. San Francisco, CA: Common Sense Media.

Rideout, Vicky 2015. *Media use by tweens and teens*. San Francisco, CA: Common Sense Media.

Sakr, Mona, Carey Jewitt, Sara Price 2016. Mobile experiences of historical place: a multimodal analysis of emotional engagement. *Journal of the Learning Sciences* 25 (1): 51-92.

Scolari, Carlos A, Maria-José Masanet, Mar Guerrero-Pico, Maria-José Establés 2018. Transmedia literacy in the new media ecology: Teens' transmedia skills and informal learning strategies. *El profesional de la información* 27(4): 801-812.

Siegel, Marjorie 1995. More than words: the generative power of transmediation for learning. *Canadian Journal of Education* 20(4): 455-475.

Thibault, Mattia 2016. Lotman and play: For a theory of playfulness based on semiotics of culture. *Sign Systems Studies* 44(3): 295-325.

Unsworth, Len 2006. *E-literature for children: Enhancing digital literacy learning*. Oxford, UK: Routledge.

Walsh, Maureen 2009. Pedagogic Potentials of Multimodal Literacy. In Tan Wee Hin, L., and R. Subramanian (eds.) *Handbook of Research on New Media Literacy at the K~12 Level: Issues and Challenges*. U.S.: IGI Global, 32-47.

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Beyond the Bio-Reductionist Symbolic Code: Experiences of Multimodal Education in Italy

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Medical education is mostly based on a reflexive bio-reductionist paradigm, characterized by a technical language that is abstracted from the social materiality of the body and the disease. This linguistic code learnt during lectures is reproduced during the apprenticeships, in which a deceptive restoration of iconic and indexical links with the patient is integrated and exploited by the main symbolic modality of education. In this case, the implementation of multiple semiotic modes of meanings, such as visual and/or gestural, consolidates a rituality aimed to the embodiment of the medical role by the students (hidden curriculum) and to a further objectification of the patient. In Italy, groups of medical students and young doctors have been trying to experiment alternative multimodal practices of education and implementation of their competence. The aim of these experiences is to shift the focus from the pathology as a mere object of medical abstracted knowledge (and power) to the patient's incorporated experience of illness and to the entire social and material process that determines health and disease. In these cases, multimodality is conceived as a strategy to restore a fair exchange of knowledge and practices with the patient, recognized as an active social subject in the whole care process. Through the comparison of these two medical educational approaches, the aim of this study is to demonstrate that an alternative medical education method should overcome the bio-reductionism paradigm. To this purpose, we will identify multimodality and its effectiveness not merely in the implementation of different tools (other than the linguistic ones) in educational practices, but in the adoption of multiple modes of sign relation beyond the hegemonic symbolical one.

KEYWORDS health vs. disease, medical education, multimodalities, medical doctors vs. patients.

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1. The bio-reductionist paradigm

The educational path of medical doctors is mostly based on a theoretical and technical knowledge. The body, as the key *object* of study, is codified in a semiotic structure of elements and relations. On the discursive level, this matrix is characterized by bio-reductionist concepts and registers, of which *evidence* restores a deceptive empirical link with the materiality of the body and contributes to building the myth of medical objectivity[1]. This myth mystifies its linguistic abstraction behind the empirical evidence of biology. According to Davis-Floyd (1994: 23), "to technocratize a natural process is to create it in the image we have chosen as the guiding metaphor". The mechanism reveals its own ambiguity: the naturalized body is under the control of the subject since it is designed as a meaningful object through a linguistic structure which mediates between subject and object itself by separating the two terms of this relation of knowledge. In other words, knowledge and control of the subject on the body-object is always a consequence of a linguistic abstraction of the object itself as a discrete element and autonomous system. This is what Davis-Floyd defines as "the principle of separation" of the technocratic approach, according to which "things are better understood outside of their context, that is, divorced from related objects or persons. Technomedicine continually separates the individual into component parts" (Davis-Floyd 2001: 6). Therefore, the *objective* status of health is determined by the coherence of these components within such a linguistic and bio-reductionist *model* of body. As in language, therapy is aimed to technically re-establish the correct syntax amongst the elements of the model.

According to Charles Sanders Peirce's semiotic perspective (Peirce 1905), we could define these series of linguistic notions and concepts as symbolic signs. The relation of symbols to their meaning/referent is always mediated by a third plane, a sort of conventional code, to the liminal point in which symbols lost the link to the referent and signify exclusively themselves. Despite their referential power, natural languages are emblematic structures of arbitrary symbols. This is the reason why we have defined the bio-reductionist paradigm as a modality of linguistic objectification: like a natural language, bioreductionism exploits the evident reference to the objective world in order to conceal its own naturalized and self-referential conventionality. Nevertheless, more properly, we should interpret bio-reductionism as a symbolical code, rather than a linguistic one. Indeed, the bio-reductionist approach that characterizes medical education is not only an issue of linguistic notions learnt during lessons or studied on books, but a broader conventional discourse that is reproduced at every step of the medical doctor's formative path and professional experience. Learning and developing this code is the main achievement in the medical education path.

In Italy, this educational paradigm is designed since the first years of university, in which students are asked to learn a series of theoretical notions through which a bio-reductionist model of body is constructed. Lessons consist in moments of vertical transmission of a se-

ries of data that the student is required to memorize. Some clinical cases are rarely introduced; these would be useful to the student to investigate the object through an inverse approach: knowing the pathology starting from the way in which it manifests itself in real life. Nevertheless, even this approach results in a simulation of reality through a standardized model: the cases debated in classroom are usually typical examples, in which the symptoms manifest themselves in a predictable way and the diagnosis proceeds without any irregularity. In other words, these cases are predisposed to automatically reflect a given theory, which is never developed inductively from the observation of a real pathologic phenomenon.

What is denied in the university classrooms is a direct contact with the materiality of the body – a contiguity negated in two different but interrelated ways. First of all, a set of abstracted terms acquired from lectures consists in a mere semiotic representation of the body through its absence. Secondly, the materiality of body is conceived just in bio-logical terms, purged from its social and cultural determinants. The category health vs. *disease* is determined by the linguistic and biological reductionism which affects the notions of life and body in the medical scientific epistemology. The predominance of biomedical disciplines in the educational curriculum prevents to acknowledge the broader social and cultural context in which people and their bodies develop *sickness*, and it also limits the recognition and the confrontation with the patient's subjective perception and experience of his/her own *illness*. The use of the terms in italics reflects three different aspects and perspectives on a broader condition of lack of health (Twaddle 1993):

- *disease* is used to describe a biological alteration in the functioning of the organs and/or of the physiological system;
- *illness* indicates the subjective perception, experience, attitude and expectations of the patient about his/her (lack of) health condition;
- *sickness* refers to the social aspects of disease, in particular the way in which a social group acknowledges, interprets and implements strategies in relation to a "socialized disease".

The disease-centered perspective, hegemonic in contemporary medical education and practice, has its origin in the contribute of Thomas Sydenham:

> Nature, in the production of disease, is uniform and consistent, so much so, that for the same disease in different persons the symptoms are for the most part the same; and the self-same phenomena that you would observe in the sickness of a Socrates you would observe in the sickness of a simpleton. (Sydenham 1848, 15)

To this regard, Maccacaro (1979: 414) highlights the mythical and ideological mechanisms that instrumentally exploit and absolutize scientific data to conceal the structural causes of disease[2]. In particular, Maccacaro provides the example of two medical myths that, by a curi-

ous coincidence, have their origins in the same year. In 1865, Mendel started his experiments on genetics while Pasteur theorized the microbial genesis of infectious diseases. Almost a century later, the contemporary medicine will have transformed these two fundamental scientific achievements (the gene and the germ) in ideological myths: every disease has a genetic and/or microbial origin. To this purpose, it is emblematic the emphasis dedicated by the generalist press to discoveries such as the gene related to Alzheimer[3] and/or the virus that causes the lung cancer[4], while studies on the social determinants and factors of disease do not receive the same attention.

> A bio-reductionist model mystifies the structural social determinants of disease. This way, tuberculosis is not a consequence of malnutrition and of the insalubrity of an overcrowded habitat, but simply of the mycobacterium Koch [...] For these reasons, the student perspective is not focused along the etiologic chain starting from the sick person to the causes of the causes of his/her conditions within the social system (Stefanini 2014, our tr.)

In more recent years, the same emphasis reserved to genetics and microbiology is attributed to lifestyles: nutrition, physical activity, smoking and alcohol consumption are considered the principal and individual causes of several diseases. Nevertheless, as widely documented by epidemiological studies, unhealthy lifestyles and behaviors are not casually distributed along the population, but they are more widespread in the deprived social classes and brackets. In the Italian case, people from regions with a higher rate of poverty and unemployment are more subjected to obesity, smoking, alcohol consumption and sedentary habits (ISS 2017). In the light of these studies, although it is not our purpose to embrace a strict social determinism, it is necessary to state how lifestyle is not a (individual) choice.

The lack of confrontation with elements outside the bio-reductionist paradigm does not allow the medical students to develop a critical perspective on their own field of study and work. Promptly inserted in the mechanism of self-reproduction of the bio-reductionist language, students have not provided with a semiotic gap of interpretation of symptoms and of broader conditions of health and disease. Their knowledge of the object of study is reduced to the automatic solution of a code, aimed to discover a self-evident *formula* of life and body, rather than investigate their social *form5*. Consequently, their practice on body consists in a series of technical operations, aimed to activate that formula and metonymically the whole bio-reductionist paradigm:

> University works to 'manufacture consenting workers', by providing information and notions detached from the context [...] these notions are useless and serves to damage the critical sense and to educate the future medical doctor to passively accept the technical data provided by professors (Stefanini 2014, our tr.)

2. The Medical Doctor-Patient relationship

The symbolic abstraction of life, body and disease is operated even when medical students and professionals are in contact with *material* bodies and, more generally, *real* people. Maccacaro (1979: 413) highlights that medical doctors often provide their diagnosis through a translation of the patients' symptoms in medical terms. The tautological codification and linguistic privatization of the same empirical element are used to affirm the differential of power between medical élites and patients[6]. The symptom is rarely interpreted as *index* of its own cause (etiologic diagnosis), but it is immediately objectified in the medical linguistic structure, and separated from the patient, as a conventional *symbol* (descriptive diagnosis). In particular, the symptom is purged from the experience lived (and narrated) by the patient and directly acknowledged as a discrete signifier of a disease in the medical code. Along with the symptom, patients themselves are objectified as medical cases of study and intervention, under the knowledge and the agency of the doctor – (self)designed as a professional figure.

Jordan (1993 [1978]) demonstrates how this tendency to objectify patients can extend to the refusal to discuss any details of a case with the person who embodies it. Moja and Vegni (2000: 92) report the average time dedicated to anamnesis: only 18 seconds at disposal of the patient to describe his/her symptoms before being interrupted by the medical doctor. After this short period of time, the medical doctor starts to abstract and re-codify the patient's narration in a bio-reductionist symbolical structure. The medical doctor usually tries to individuate the spatial-temporal coordinates of the symptom by asking the patient to precisely collocate his/her perception of the illness through categories such as /below vs. above/, /up vs. down/, /parietal vs. visceral/, /before vs. after/, /chronic vs. acute/. These linguistic categories and coordinates serve to construct a signifier-signified equivalence that does not leave room to external factors and critical interpretation. To this regard, the two authors identify in the ease of transmission of this code, in particular in the possibility to be taught and learnt, its most important factor of success.

Indeed, the critical elements in the relationship between medical doctors and patients, emerged from the previous examples, are a consequence of how medical students, during their educational path, are both formally taught and informally induced to create a gap from patients, merely objectified and identified with their own disease. Behind the *explicit* linguistic code of objectification acquired during traditional lessons and learning activity, an *implicit* (both as hidden and implicated) educational curriculum is absorbed by students during their practical drills and apprenticeships. The implicit curriculum consists in a series of practices and undeclared rules that constitute a hidden but effective code. This code is directed and performed by professional medical doctors in order to establish patterns of hierarchical relationships amongst the subjects involved in the medical environment, in particular between medical doctors and patients. In this dialectics, students and interns are trained to learn (through),

imitate and progressively assume the attitudes and the behaviors of their superiors in the relationship with the patient.

Bert (1974) states that the main purpose of *shadow-didactics* - more often known as *hidden curriculum* - consists in the reproduction of medical doctors' hegemonic and institutionalized role. In other words, the hidden curriculum does not provide the future medical doctor technical competences in the treatment of the patient, but rather a set of symbolical rules to reaffirm his/her power as a subject through the annihilation of the objectified patient. Again, objectifying knowledge represents a *dispositif* of self-reproduction and separation rather than a mean of connection. Therefore, despite its more practical focus, centered on a direct contact with the patient, the hidden curriculum acquired during the apprenticeship is not opposite to the explicit one; rather it *implies* and materializes the same hegemonic symbolic and abstract modality of medical education. As reported by Davis-Floyd:

> Mechanizing the human body and defining the body-machine as the proper object of medical treatment frees technomedical practitioners from any sense of responsibility for the patient's mind or spirit. Thus, practitioners often see no need to engage with the individual who inhabits that body-machine. [...] This kind of alienation from their patients is often trained into physicians during medical school and residency, as they are taught to protect themselves by avoiding emotional involvement. It logically follows that there is no reason to deal with the patient's emotions at all (Davis-Floyd 2001: 6).

The apprenticeship activity is accurately described in the book *Medici senza camice. Pazienti senza pigiama*7 (Abbracciavento et al. 2013): this important source consists in a study conducted through the method of narrative socio-analysis (Curcio et al. 2012) by a group of medical students and young doctors aimed to explore medical institution in Italy through a focus on education. The book criticizes the process of obliteration of the patient. This is the case of the rounds, one of the most emblematic moments during the apprenticeship, widely narrated in the book. Rounds consist in a sort of ceremonial in which the deceptive focus on the patient is instrumental to the performance and the reproduction of the medical hierarchical roles. An 89-year woman, suffering and crying, exhibited to students and interns by the doctor as a "wonderful case of rheumatoid arthritis" (ibid.:24, our tr.). The woman is exposed and spectacularized, reduced to an empty *image* of herself. The medical gaze violates the intimacy of the patient, reduced to an objectified surface. In fact, her actual presence is irrelevant, her voice and pain ignored, and "nobody seems to realize that she is listening [...] she is there" (ivi, our tr.). The following patient is subjected to the same ceremonial. Her body is covered by deep bedsores, opened to make the femur visible. Her intimacy is violated and exposed not only by the disease, but also by an intern who repeatedly invites the students to "look at" those sores. The physical spectacularization and personal violation is further marked by students promptly to photograph the scene with their smartphones and tablets (ibid.:25,

our tr.). A third example is even more emblematic: a man subjected to a cystoscopy test, with a probe inserted in his penis and linked to a non-working monitor. Thus, students and interns inspect and put their hands to re-establish a connection between the patient's body and the machinery, waiting for a further exposition and bio-reductionist superficialization of his intimacy on the monitor (ivi. our tr.)

At the Harvard Medical School, an internist used the term *fascinoma* to define a complex clinical case that needed to be thoroughly showed to and observed by students for its emblematic scientific value (Good 1994). The neologism mocks the nomenclature of tumorous pathologies to mark the fascinating aspect of these complex cases. The overexposure of these diseases undermines their indexical link with the patients to increase their symbolic value in relation to the medical code and gaze. Paradoxically, such exposure reaches its highest level when there is no patient to show. In another example provided by *Medici senza camice*, a medical doctor says that during the rounds the entire ceremonials go on, even if the patient is temporarily absent.

The presence of the patient is irrelevant, since his/her status of health is already totally codified in the symbolic data inserted in the medical chart. The spectacle of the disease is functional to the spectacle of the rounds, which consists in the performance of reproduction of the medical role(s) with no other spectator than the medical figures themselves. Indeed, rounds are the moment of maximum visibility of the students and interns. The recognition of the students by the doctor depends on his/her capability to reduce the patient in "bullet points" during the reading of the medical chart (Abbracciavento et al. 2013: 28). During rounds, the anamnesis is a moment to test the ability of the students to direct and skim the narration of the patient in favor of medical technical data. A student talks about her experience of anxiety during the anamnesis of a patient, "How to write this, how to traduce it and, above all, is what she is saying pertinent?" (ivi, our tr.)

The anamnesis is one of the steps during rounds aimed to move the focus from the multimodal relationship of knowledge between patient and student to the symbolic reflection of roles and power between students and medical doctor. "What is important during anamnesis is to bring everything to the intelligibility amongst colleagues. If the patient read *his/her own* medical chart he/she would not understand anything" (ivi, our tr.). The first two years of the apprenticeship serves to learn to write, to reduce the ill person to patient and documents: as a student affirms, "the authority comes from writing" (ibid.: 29, our tr.).

In reading the clinical notes of a patient suffering from chronic bronchitis, a student wonders whether: "the patient is really having the symptoms reported in that technical terminology or he has to have those symptoms just because he has the chronicle bronchitis?" (ibid.: 30). After reading a series of medical charts, the same student states to perceive a sort of "acritical and automatic repetition of some technical terms, besides the patient's *real* conditions [...] an automatic translation from the diagnosis to the description of the symptoms [...] a pure exer-

cise of style" (ibid: 30 - 31, our tr.). The direct link with the patient is always sacrificed in favor of a symbolic linguistic codification, of which intelligibility is circumscribed to the medical figures.

> How can we answer the people's questions if they are not able to communicate our language? [...] They teach us to be pleased with our own magnificence, with our incomprehensible words and consequently with our impenetrability. I knew I was learning a language belonged to an elite [...] that would have separated me from the other people. (ibid.: 32)

This conventional language is acquired during the first years of university and further reproduced during the apprenticeship[8]. Although during their apprenticeship students and interns are apparently provided with a different didactic material, the iconic and indexical link with the patients' body are not nearly alternative to the main symbolical and abstract modality of education. Such multimodality is determined and characterized by the hegemony of the bio-reductionist linguistic pattern. The visual and physical contact with the patient does not constitute icons or indexes, but it works as a symbolic mode of signification: it signifies (in) the absence of the referent (the patient), reduced to an automatic meaning (disease) of that symbol (symptoms). Therefore, the overexposure of the body and the physical contiguity with the patient are the elements that *play hide-and-seek* in the mythical chain[9]. The iconic and indexical links with the patient are taken to the extreme to affirm the scientific validity of the medical discourse and, at the same time, negated to not interfere with the autonomy and self-referentiality of that discourse.

Michel Foucault (1973) represents a key theoretical source in order to further investigate the modalities underlying contemporary medical discourse and education. Foucault identifies the birth of modern medicine with the development of the hospital *dispositif* at the end of the XVIII century. Before this passage, medicine observed disease and implement therapy in the contexts of its natural (and social) manifestation and development, since the hospital was a space exclusively aimed for the assistance of indigent people, in which the disease could have been altered and even worsen. Nevertheless, when medical societies began to finance the construction of new hospital structures, a new contract between medical doctors and patient was established: these spaces become clinics for medical observation and formation. The patient, as the subject who required assistance and therapy in a hospital conceived for him/her, becomes an object of observation to improve knowledge (control and power) of students and doctors in a clinic conceived for these medical figures:

> But to look in order to know, to show in order to teach, is not this a tacit form of violence, all the more abusive for its silence, upon a sick body that demands to be comforted, not displayed? Can pain be a spectacle? [...] it is just that the illness of some should be transformed into the experience of others [...] And in accordance with a structure of reciprocity, there emerges for the rich man the utility of offering help to

> the hospitalized poor [...] What is benevolence towards the poor is transformed into knowledge [...] these, then, were the terms of the contract by which rich and poor participated in the organization of clinical experience (Foucault 1973: 84 - 85)

What is pointed out by Foucault is that, *despite*, or better, *by10* the spectacle offered by the patient's sick body, the focus of clinics and hospitals is moved on medical experts. The image and the direct contact with the patient are actually abstracted in a relationship of knowledge and power in which the medical figure represents the hegemonic term. Likewise, Davis-Floyd highlights how the institutionalization of the medical discourse and practice coincides with a further crystallization of the medical power:

> Like its industrial predecessor, the technocracy is a hierarchically organized society. The term technocracy implies use of an ideology of technological progress as a source of political power. It thus expresses not only the technological but also the hierarchical, bureaucratic and autocratic dimensions of this culturally dominant reality model (Davis-Floyd 2001: S7).

Through a different perspective, the same point is developed by Baudrillard (1976); what is prevented in such a power relationship is a form of *symbolical exchange11* between patients and medical doctors. The reciprocity and gratitude of the exchange in a logic of endless reversibility is interrupted and mediated by the institutionalization and codification of the relationship through a contract, and the following accumulation of value by one of the two terms. The body and the image of the patient are generally subjected to a *positivization*, since their meaning is no longer symbolically exchanged with the reality of the ill person, they lost their *negative* depth and become mere symbolic signifiers on the surface of the medical linguistic code. The iconic and indexical signs, abstracted from the patient-referent and interpreted exclusively in function of the medical code, become medical means of obliteration of the patients themselves.

3. Alternative multimodal experiences

In this last section, we want to provide some examples of alternative experiments and experiences of medical education in Italy. As in the case of *Medici senza camice*, the alternative experiments are usually undertaken by group of Italian medical students and/or young doctors that try to critically analyze their academic and professional experience in order to propose new modalities of medical education and activity. The experience of Medici senza camice, focused on a meta-reflection on the educational *dispositif*, has inspired other groups and ac-

tivities directly centered on the experimentation of alternative educational practices, beyond the traditional clinical environment.

In the following cases, multimodality is not merely conceived as a plurality of educational devices and languages, but it is adopted to restore a direct link with the patient, conceived as an active subject in the symbolical exchange of knowledge and practices with the medical figure. What we propose through such examples is something different than a "humanistic" approach (Davis-Floyd 2001). A *humanization* of the medical relationship is not enough if conceived just in terms of a kinder, "compassionate" treatment of the patient, at superstructural/communicative level, leaving unaltered the technocratic/bio-reductionist basis of the approach. Focusing on the social determinants of health (fig. 1) and disease is not merely an issue of perspective on a stable object, but it is important to acknowledge how social material factors and relative discourse affect and transform the entity of health and disease themselves.

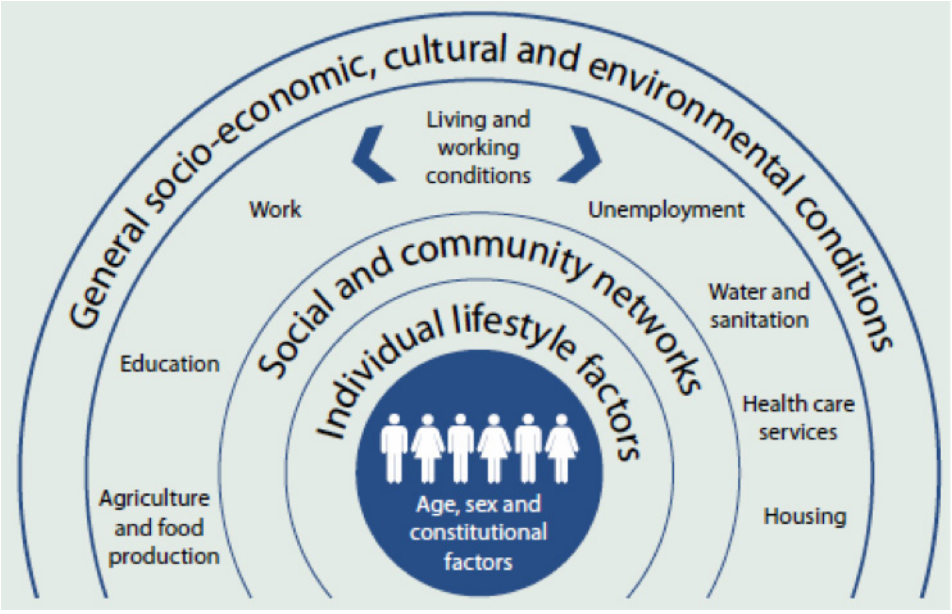

Figure 1. Social determinants (and strategies) of health. Source: Dahlgren & Whitehead 1991

Indeed it is necessary to recognize the way in which social discourse is embodied by social actors (Csordas 1990, 1994). For these reasons, a truly alternative medical paradigm has to conceive the patient not only as a human being (rather than an object), but as the fundamental social agent of his/her own health condition[12]. To this purpose, the work by Ivan Illich (1976) has been a theoretical basis for many of the alternative experiences we propose in this article. Through the concept of "medical nemesis" (105), the author points out that technocratic medicine and clinical environments, by depriving the patient of any autonomous ability to cope with illness, become main factors of disease:

> New devices, approaches, and organizational arrangements, which are conceived as remedies for clinical and social iatrogenesis, themselves tend to become pathogens contributing to the new epidemic. Technical and managerial measures taken on any level to avoid damaging the patient by his treatment tend to engender a self-reinforcing iatrogenic loop (Illich 1976: 11).

For these reasons, Illich states the necessity to limit the development of the technocratic model of medicine in order to promote health starting from its social factors and subjects:

> Instead of multiplying the specialists who can grant any one of a variety of sick-roles to people made ill by their work and their life, the new legislation would guarantee the right of people to drop out and to organize for a less destructive way of life in which they have more control of their environment [...] Instead of submitting the physical and mental integrity of citizens to more and more wardens, such legislation would recognize each man's right to define his own health (ivi 105).

One of the requirements of these alternative experiments is the immersion into the context in which patients, or better, people, build and develop their daily life and relationships. The aim is to move the focus from the disease as a scientific object in the clinical environment, to the entire social and historical process that determines health and sickness as socio-cultural values. Reframing care work and education as activities with and within the community not also requires the epistemological and methodological recomposition of the medical academic knowledge fragmented in the different disciplines, but also the alliance with fields of knowledge focused on society, history, politics and language (Riccio et al. 2016: 225). Indeed, these experiments conceive the transformation of medical education and research as tool of social transformation, following the examples of the Participatory Action Research (Montero 2000; Barbier 2007; Genat 2009; Loewenson et al. 2014), and of Research/Education-Intervention (Ceccim and Feuerwerker 2004; Franco 2007; Curcio et al. 2012).

Nevertheless, such an operation of self-critique and of re-organization of the medical and, more broadly, academic knowledge risks to reproduce the same reflexive bias if the role of the researcher is not questioned. According to Basaglia and Basaglia Ongaro (1975: 3), the researcher, remaining prisoner of his/her own role, reproduces the division of labor and classes in the attempt to overcome the same divisions. In other words, an effective Participatory Action Research has to redefine the hierarchy of roles between researcher and object of research, as affirmed by the Theory of Dependence (Freire 1973, 2002). As demonstrated by numerous studies of medical anthropology (Farmer 2003, Krieger 2011, Quaranta 2012, Napier 2014) and by researches on public health (Who 2008, Marmot 2010), the practices aimed to improve the agency and the self-determination of the patient are fundamental for the effectiveness of alternative approaches on health.

a. Laboratorio di Mondialità

The *Laboratorio di Mondialità13* consists in three days of educational workshops organized by medical students (supervised by the Italian Secretary of Medical Students) in order to reflect on the social determinants that cause health inequalities. The meeting takes place every year since 2007, involving an average of one hundred students for each edition. The first Laboratorio met the exigencies of some students involved in projects of health cooperation in some developing countries, in order to critically reflect on these experiences that usually reproduce colonial attitudes and interventions, masked as "humanitarian operations" (SISM 201; Ceschi et al. 2015).

This initial topic has been successively extended to a broader reflection on global health, leading to changes in both contents and methodologies. In the last years, students have been increasingly taking in charge the education responsibility and organization. The prevalence of frontal lectures has been replaced by peer-to-peer methods, based on the horizontal circulation and sharing of knowledge. The use of multiple modalities of education fosters confrontation and debate among students, often putting into play their bodies and emotions – totally narcotized during traditional medical courses and apprenticeships. In particular, workshops based on the theatre of the oppressed have been useful to understand how the dynamics of objectification of the patient are reproduced on a global scale through a colonial attitude to medical intervention (fig. 2). Such an acknowledgement is necessary to question the whole symbolic process of separation of roles within the medical institution. The theatre of the oppressed does not merely consist in the interpretation or identification with a performed role, but it is aimed to a material incorporation of this, putting again the reality of the body at the center of the medical (meta)practice.

Figure 2. Theatre of the oppressed during the Labortorio di Mondialità

During this workshop, the incorporation of the patient's role by the future MD gives the student the possibility to reactivate a material link with the patient, to physically experience on his/her own body the effects of the symbolic objectification. Indeed, this practice is fundamental to understand how the assumption and the assignment of a symbolic role is not limited to the creation of an abstract hierarchy of power and knowledge, but has material consequences on both medical doctors and patients.

b. Communicating death

Like the experience of childbirth is separated from the flow of life (Davis-Floyd 1994, 2001), also the moment of death is objectified and never exchanged as a social-cultural value (cfr. Baudrillard 1976). Nevertheless, with the irreversible progression of the disease, medical doctors have the task to communicate to the patient the reality of this condition and to manage the relational and emotional implications of this information. To this regard, *Medici senza Camice* and the C.U.R.A. (Centro Universitario per la Ricerca sugli Aspetti Comunicativo-Relazionali in Medicina)[14] of the University of Milan have organized for two years (2012 – 2013) a three-day educational course in order to develop the communicative and relational competences of medical doctors in relation to terminal patients.

The course has involved more than a hundred students from several Italian universities and it has been characterized by an active and experiential didactics and a multimodal educational approach: very short frontal lectures (about 15 minutes), workshops, role playing, projections of both real and virtual medical visits, and a space for the evaluation of each activity and of the whole course. These spaces of exchange amongst peers were conceived as moments of fair and free discussion on the activities, in order to preserve the effectiveness of such a multimodal educational material. Indeed, students were led to stay focused on the patient's feelings and perception on both his/her disease and his/her relationship with the doctor. The main purpose of this educational multimodality was to question and overcome the limitations occurring during traditional apprenticeship, in which students are pushed to imitate and reproduce the doctor's medical practice of objectification, translating (and negating) the whole patient's complex experience of illness into the medical symbolic code.

The possibility of exchange among all the participants to the educational activity served as a model for future professional situations, in which the relationship between medical doctor and patient will be no longer based on the accumulation of symbolic power by the former, but on a fair exchange between the two figures. Facing together fear, rage, anguish and sufferings, avoiding the exposure of technical medical details and the simulation of an emotive detachment is not simply a way to establish a more human relationship with the patient; the aim is to acknowledge the limits of a bio-reductionist model in facing the issue of illness and death, and to adopt a new paradigm of medicine and health:

> Healthy people are those who live in healthy homes on a healthy diet in an environment equally fit for birth, growth, work, healing, and dying; they are sustained by a culture that enhances the conscious acceptance of limits to population, of aging, of incomplete recovery and ever-imminent death. Healthy people need minimal bureaucratic interference to mate, give birth, share the human condition, and die. (Illich 1976: 106)

c. CSI: Self-determination of Communities

The CSI[15] of the University of Bologna organized during the academic year 2013-14 the course in "Salute globale, determinanti sociali e strategie di Primary Health Care[16]", open to students from every major. This course was based on the model of the "university extension", a strategy of education and research set in the context in which the future professionals will work. This educational approach aims to blur the boundaries amongst communities, social and health services and university, by creating a space in which the activities are extended from a context to the other (Riccio et al. 2016: 226). The course involved 50 students from the School of Medicine and from the field of social sciences and humanities. It was organized in twice-weekly meetings for ten weeks; the first four weeks consisted in circular and horizontal lessons aimed to establish a fair relationship among students, tutors and professors, and to develop a common language among figures from different disciplines. The main purpose of this first part was not to restate given theoretical notions, but rather to raise doubts and questions among participants starting from the presentation of empirical cases and experiences. The second part of the course was conducted on the field, that is within the communities with which the CSI had already collaborated for other projects on public health; The aim of this second part was to involve the students in the practices of resilience undertaken by those communities and conceived as tools of promotion of health in a broader sense (ibid.: 228).

Acknowledging the embodied essence of the social processes related to health and disease (Csordas 1994; Quaranta 2006) helps the future professionals to conceive the therapy not in a prescriptive and individualizing form, centered on the modification of the individual attitudes, behaviors and life-style. During the course, such an educational aspect emerged in the passage from the lessons in classrooms to the experience on the field. For example, in classroom, during a debate around the possible therapeutic strategies to adopt on a patient affected by diabetes and living in a reception center, many students prospected changes in his alimentary habits and improvement of the physical activity. The direct confrontation with the patient in his living context has permitted to develop a complex reflection on the impact of life and work conditions on his health status, and to co-construct with the patient himself a therapeutic strategy in relation with the context (Riccio et al. 2016: 233). The inequalities of

the relationship MD-patient in the clinic, which mystify and, at the same time, reflect broader social inequalities, are overcome by the co-construction of a therapy strategy. In other words, the experimentation of new forms of social relationships and work through the involvement and the negotiation with the actors of a specific context avoids the reproduction of forms of subordination, which constitute a substantial part of the processes of disease.

The educational experience on the field has shown that knowledge and learning exist as forms of negotiation within specific social and political contexts (Lave and Wenger, 2006). The clinic, organized as a space of subordination by medical experts through abstract knowledge and technical competence of which patients are lacking, prevents the sharing of resources by all the subjects involved in the medical processes. The extension of the learning practices beyond the standard pedagogical context of university classrooms has legitimized communities, and their respective contexts as spaces of education, decentering the practice of teaching from the figure of the professor and/or the expert. The patient was no longer object of sanitary interventions, but active subject in the co-production of his/her own health therapy along with the (future) professionals (Franco and Mehry 2013).

Furthermore, alternative supports, such as extracts from a collective diary written by the students during the course, and a register with comments on the activities elaborated by all the participants, constitute a multimodal (meta)educational apparatus. By keeping the focus on the experience of all the participants to the educational/therapeutic practice, these educational multimodal devices and contents were aimed to rethink the medical methodology and epistemology beyond a series of dualisms such as theory vs. practice, medical doctors vs. patients, subject vs. object. As reported by a medical student who took part to the course, the experience on the field led students to comprehend that, as future professionals, they are not provided with a greater knowledge by virtue of which it is possible to assume a prescriptive role compared to the patients; quite the opposite, they share the same questions and doubts without the possibility to appeal to ready-made solutions. Another student affirms that the participation *into* the practices of a community has been one of the most relevant educational aspects of the experience, since it permitted to "touch with hands" the complexity of the social contexts in which the processes of health and disease are produced (ibid.: 239).

d. CSI: Maps and territory

The same course was renewed for the following academic year (2014-2015). The Participatory Action Research has been conducted in a peripheral area of Bologna, called "della Pescarola". This place has been chosen to offer the 25 students involved in the course a direct experience with a complex social context, in which a network of associations, especially of self-organized residents, emerged as a practice of social integration and cohesion against the marginalization of the periphery.

The course tried to build strategies of health promotion in a participatory form, starting from the existent networks of relationships, with the aim to further expand and strengthen these social links (Bodini et al. 2016: 144). Indeed, the involvement of the CSI was a consequence of the exigence come upon by the actors of the territory around the issue of health. Thus, the course has been conceived as collective path planned by all the people involved in a series of steps:

- a preliminary moment of expression, negotiation of the practical and educational needs of the actors involved in the project;
- co-construction of the multimodalities of meetings: registration, transcription and written restitution;
- evaluation of the activities and of the whole project both in anonymous-individual form and in group;
- co-writing of a final report as a basis for a future development of the path.

All these steps helped the participants to build a common basis of languages and practices to overcome the boundaries of disciplines and interests and, at the same time, to preserve and foster the heterogeneity and the hybridization of different knowledges. In particular, medical students had the possibility to go beyond the bio-reductionist paradigm that structure medical educational upon the dichotomies theory-practice and comprehension-application (Bodini et al. 2016: 145).

Besides the activities explicitly centered on health, such as focus groups and workshops on real pathological cases, the issue of health emerged from the observation and the participation to the daily activities of the residents in the territory. These moments assumed a relevant educational value for both students and residents. During meetings, a phase of self-analysis of the daily social activities in the territory made explicit the process of embodiment of social elements and relationships, and the direct effect of these factors on the status of health of the residents. The collective and reflexive aspect of the analysis transformed the object of the study in the primary subject-actors of the participatory action research (Bodini et al. 2016: 146).

Meetings and workshops were based on methods and approaches that privileged visual and creative forms of expressions. This material was never objectified/objectifying, but always subjected to a negotiation between what was documented and what was perceived. In particular, the use of maps created by the participants highlighted the presence (and the absence) of health places, resources and services in the territory in which the activities of the residents take place (fig. 3). This specific *semiotization* of the territory had a performative power (rather than representative) since it modified residents' perception and acknowledgement of the space according to their daily social life. In this case, the reading of the territory through the map did not consist in the objectification (and separation) of the space through its abstract representation; rather the map pointed out the active role of the territory in the life of its residents and, at the same time, testified the ability of the residents to redefine and transform the space according to their

health interests. As a result, the map became a relevant tool, within a multimodal educational set, capable to restore an active exchange between territory, residents and medical students.

> If we look at health as a social construction, realized in the twist of different practices and discourses, both collectively and subjectively determined, we can practice a more effective work of transformation only by respecting and performing the complexity of these processes (Bodini et al 2016: 147, our tr.).

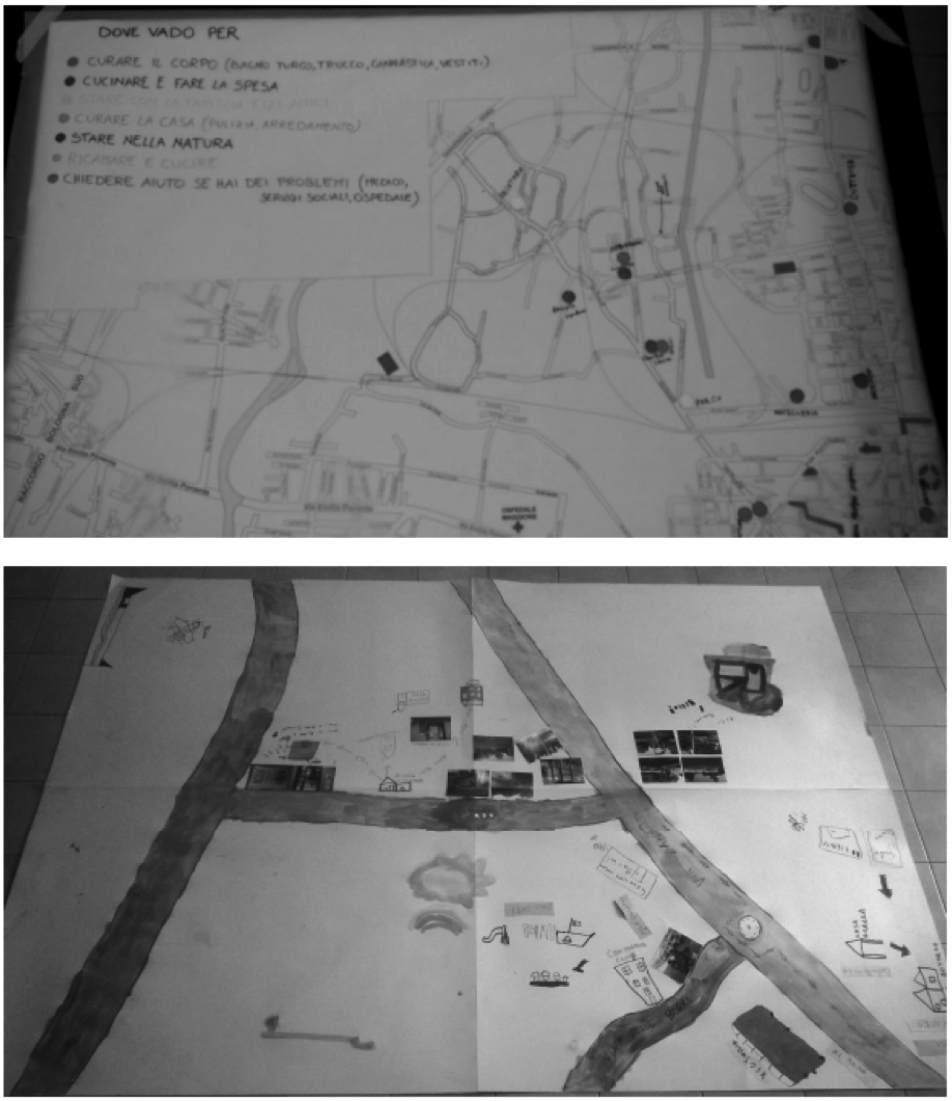

Figure 3. Performative maps of Pescarola

e. GRUP-PA

Many students who took part to the courses and the experiences listed above have given life to other collective projects aimed to further develop a different idea of medical education. To this regard, the experience of GRUP-PA is relevant. GRUP-PA (Gruppo Permanentemente Aperto)[17] is an informal group born in 2014 as the Italian node of the People's Health Movement (PHM). The PHM is an international movement born in 2000 dealing with the promotion of right to health for everybody, active in many countries all over the world. As it results from the report of the first phase of the project elaborated by the GRUP-PA, the connections between this project and the previous educational experiences are clear:

> This network originates from a training experience in global health organized yearly, since 2006, by a medical students' association. When the first students involved started graduating from university, they decided to continue to study and discuss together the issues they all cared about (GRUP-PA 2015: 3).

One of the key issues of the project is the analysis of how civil society and social movements promote health through their transformative action on its structural social determinants. In particular, the work of social movements and organizations is focused on many fields and issues, such as the right to work, the right to housing, gender and sexuality, environment and relation with the territory, etc., that strongly concern heath. Rather than a detached group of research, the GRUP-PA participates and contributes to the activities of these social groups, and consequently to a broader promotion of social health. Though the GRUP-PA does not represent an educational institution, it is involved in a rich and multimodal exchange of knowledge and practices with social movements and civil society. For this reason, this experience of Participatory Action Research constitutes a relevant moment of (in) health education for all its participants.

Conclusion

The analysis of a series of experiences in the Italian medical educational environment has been useful to acknowledge the relevance of the social context in shaping not only the differences between two medical (educational) approaches, but also the entity of the respective objects/values of practices. In particular, it is just the relation, or lack thereof, to the context the discriminant element that leads us to define the two paradigms as different. In the first case, bio-reductionism, as the hegemonic paradigm of medical education, is characterized by the obliteration of the relation with the context in which body, life, and disease take shape and place. The bio-reductionist perspective recreates a self-referential and apparently neutral clinical environment to approach these issues as *objects* of medical analysis and practices. On the

other hand, the alternative medical experiences grounds their practices on the social/material context in which health and disease acquire *meanings*.

In other words, while bio-reductionism looks at health and disease as objective realities - or at least tries to simulate and objectify such a reality through the reproduction of a symbolic code - the alternative approaches do not act on an ontological plane, but they consider health and disease in terms of socially negotiable conditions and values. If a cause-effect aspectualization is common to both the paradigms, the second approach tries to question the hegemony of the physiological discourse – and relative forms of power relations in the medical institution - by investigating the deep social and cultural factors that shape the *material* essence of health and disease, or at least their meaning. Therefore, the key difference between these two paradigms is at semiotic level. This is not just a divergence of formal perspective on the same physical object: the modality of signification of health and disease has a substantial role in medical education, practice, and in its capability to construct and transform reality. For the same reasons, multimodality has to be conceived not just in terms of plurality of educational devices, tools, *objects*, but by considering the variety of semiotic relationships amongst social actors (patients, medical doctors, students) and cultural values (health and disease) within a specific context.

NOTES

1 The myth of medical objectivity reproduces the same formal linguistic operations described by Roland Barthes: myth is a metalanguage which exploits and "impoverishes the richness" of a previous full linguistic system/sign (the empirical evidence), reduced to a mere form/signifier - "an indisputable image" - "from which the mythical meaning will draw its nourishment" (Barthes 1972: 117 - 18).

2 According to Barthes (1972: 151), the absolutization of a perspective, beyond its ideological and situated circumstances, is one the key ideological linguistic operations in the construction of a myth.

3 http://www.lescienze.it/news/2018/06/04/news/alzheimer_apoe4_accumulazione_amiloide_microglia-4006189/

4 https://www.repubblica.it/salute/medicina/2016/12/07/news/tumore_al_polmone_infezioni_e_virus_tra_possibili_cause-153628408/

5 The use of the category *form vs. formula* is taken from Baudrillard (1990) and used to highlight the progressive reduction of the socio-cultural forms of life to a bio-technologic paradigm (Agamben 1990).

6 For a deeper analysis on the linguistic and ideological use of "tautology" in mythical discourse, see Barthes (1972: 152).

7 Since the book has not been translated in English, we could provide the literal translation "Medical doctors without white coat. Patients without pijamas" that is still capable to highlight the purpose of the text to build a relationship of exchange between medical doctors and patients beyond the symbols that define their separated roles.
8 To this regard, semeiotics, the discipline through which medical students learn how to recognize and interpret symptoms, results paradigmatic of the whole semio-linguistic (symbolic) and abstract paradigm of medical education and practice.
9 Once again, the reference is to Barthes (1972, p. 118).
10 The mechanism through which an ideological order is established and mythologized *by* the exposure of the elements that apparently contrast/are in contradiction with that order is defined "inoculation" by Barthes (1972: 150).
11 The category of the *symbolical* by Baudrillard (1976) has nothing to do with Peirce's use of the term *symbolic*. Actually, the two terms acquire two opposite meanings throughout our argumentation. From now on, in order to avoid any misinterpretation, we will use and refer to the category of the *symbolical exchange* just in terms of *exchange*.
12 Despite the large reference to the work of Davis Floyd, we do not individuate the *holistic* paradigm as the alternative medical approach to the *technocratic* and *humanistic* ones. The reason of this choice is methodological: we set our research in the Italian medical context, in which the paradigm of the *social determinants of health* (that we present as alternative) have been developed much more than the *holistic* one.
13 "Workshop of Mundiality".
14 Research Centre on Medical Communication and Relation.
15 Centre of Study and Research in International and Intercultural Health
16 "Global Health, Social Determinants and Strategies of Primary Health Care".
17 Permanently Open Group.

REFERENCES

Abbracciavento, Giuseppe, Cristiano Alicino, Elisa Cennamo, Viviana Forte, Carla Gueli, Silvia Minguzzi, Alessandro Rinaldi, Dina Rossi, Cristina Tumiati, Nicola Valentino and Susanna Zecca 2013. *Medici senza camice*. Roma: Sensibili alle foglie.

Agamben, Giorgio 1995. *Homo Sacer. Il Potere Sovrano e la Nuda Vita*. Milano: Feltrinelli.

Barbier, René 2007. *La ricerca-azione*. Roma: Armando Editore.

Barthes, Roland 1972. *Mythologies*. New York: Hill and Wang.

Basaglia, Franco and Franca Ongaro Basaglia (eds) 1975. *Crimini di pace. Ricerche sugli intellettuali e sui tecnici come addetti all'oppressione*. Torino: Einaudi.

Baudrillard, Jean 1976. *L'*échange symbolique et la mort. Paris: Editions Gallimard.

Baudrillard, Jean 1990. *La transparence du mal*. Paris: Editions Galilée.

Bert, Giorgio 1974. *Il medico immaginario e il malato per forza*. Milano: Feltrinelli

Bert, Giorgio and Silvana Quadrino 2002. *Parole di medici, parole di pazienti*. Roma: Il pensiero scientifico editore.

Bodini, Chiara, Francesca Cacciatore, Anna Ciannameo, Nadia Maranini and Martina Riccio 2016. Appunti per una ricerca "in salute": presupposti teorici ed esperienze concrete per una funzione politica e trasformativa della produzione di conoscenza. In: Ivan Severe and Nicoletta Landi (eds) *Going public. Percorsi di antropologia pubblica in Italia.* Bologna: Dipartimento di Filosofia e Comunicazione.

Butler, Judith 1993. *Bodies that matter: on the discursive limits of "sex"*. New York: Routledge

Ceccim, Riccardo Burg and Laura Camargo Macruz Feuerwerker 2004. O Quadrilátero da Formação para a Área da Saúde: Ensino, Gestão, Atenção e Controle Social. *PHYSIS: Rev. Saúde Coletiva* 14 (1): 41- 65.

Ceschi, Ludovica, Giulia Gagno, Federico Landucci, Giulia Nizzoli, Giorgia Pacchiarini, Samantha Pegoraro, Anna Perulli and Benedetta Rossi 2015. *Il laboratorio di mondialità. Una palestra che ripensa la formazione medica*. Available from: http://www.saluteinternazionale.info/2015/09/il-laboratorio-di-mondialita-una-palestra-che-ripensa-la-formazione-medica

Csodras, Thomas J. 1994. *Embodiment and experience. The existential ground of culture and self*. Cambridge: Cambridge University Press.

Curcio, Renato, Maria Rita Prette and Nicola Valentino 2012. *La socioanalisi narrativa*. Roma: Sensibili alle foglie.

Farmer, Paul 2003. On suffering and structural violence. Social and economic rights in the global era. In: Paul Farmer *Pathologies of Power. Health, Human Rights, and the New War on the Poor*. Los Angeles: University of California Press.

Foucault, Michael 1973 [1963]. *The birth of the clinic. An Archaeology of medical perception*. Trans. Alan Mark Sheridan, London: Routledge.

Franco, Túlio Batista 2007. Produção do cuidado e produção pedagógica: integração de cenários do sistema de saúde no Brasil. *Interface - Comunicação, Saúde, Educação* 11 (23): 427-438.

Franco, Túlio Batista and Emerson Mehry 2013. *Trabalho, produção do cuidado e subjetividade em saúde*. São Paulo: Hucitec.

Freire, Paulo 1973 [1967]. *L'educazione come pratica della libertà*. Trans. Linda Bimbi, Milano: Mondadori.

Freire Paulo 2002 [1968]. *La pedagogia degli oppressi*. Trans. Linda Bimbi. Torino: EGA Editore.

Genat, Bill 2009. Building Emergent Situated Knowledges. In *Participatory Action Research. Action research* 7 (1): 101-115.

Good, Byron J 1994. *Medicine, Rationality, and Experience: An anthropological perspective*. Cambridge: Cambridge University Press.

GRUP-PA 2015. *The Contribution of Civil Society Organisations in Achieving Health for All. Italy.* Available from: https://gruppaphm.noblogs.org/files/2016/06/REPORT-English.pdf

ISS - Istituto Superiore di Sanità 2017. *Progressi delle Aziende Sanitarie per la Salute in Italia: la sorveglianza PASSI 2014-2017*. Available from: https://www.epicentro.iss.it/passi

Krieger, Nancy 2011. *Epidemiology and The People's Health: Theory and Context*. New York: Oxford University Press.

Lave, Jean and Etienne Wenger 2006 [1991]. *L'apprendimento situato. Dall'osservazione alla partecipazione attiva nei contesti sociali*. Trans. Gabriele Lo Iacono, Trento: Erickson.

Loewenson, Rene, Asa C Laurell, Christer Hogstedt, Lucia D'Ambruoso and Zubin Shroff 2014. *Participatory Action Research in Health Systems: a Methods Reader*. Harare: EQUINET.

Maccacaro, Giulio Alfredo 1979. L'uso di classe della medicina. In: Giulio Alfredo Maccacaro *Per una medicina da rinnovare. Scritti 1966-1976*. Milano: Feltrinelli.

Marmot, Michael 2010. *Fair Society, Healthy Lives*. London: The Marmot review.

Marx, Karl 1867. *Das Kapital*. Hamburg: Meissner.

Moja, Egidio and Elena Vegni 2000. *La visita medica centrata sul paziente*. Milano: Raffaello Cortina Editore.

Montero, Maritza 2000. Participation in Participatory Action Research. In: *Annual review of critical psychology* 2: 131-143.

Napier, David 2014. *The Lancet commission on Culture and Health*. Elsevier.

Ongaro Basaglia, Franca 2012. *Salute/Malattia. Le parole della medicina*. Merano: Edizioni alpha beta Verlag

Quaranta, Ivo 2006. *Antropologia medica, i testi fondamentali*. Milano: Raffaello Cortina Editore.

Quaranta, Ivo 2012. *Malati fuori luogo*. Milano: Raffaello Cortina Editore.

Riccio, Martina, Nadia Maranini, Angelo Lorusso, Marianna Parisotto and Chiara Bodini 2016. Apprendere nella/con la comunità: una sperimentazione di estensione universitaria nella formazione in salute. In: Tulio Batista Franco and Riccardo Burg Ceccim *Prassi in salute globale*. Porto Alegre: Rede UNIDA; Bologna: CSI- Unibo.

SISM – Segretariato Italiano Studenti in Medicina 2010. *Il Laboratorio di Mondialità: il nostro approccio per la formazione in Salute Globale*. Available from: http://www.saluteinternazionale.info/2010/10/il-laboratorio-di-mondialita-il-nostro-approccio-per-la-formazione-in-salute-globale

Stefanini, Angelo 2014. *Capovolgere la facoltà di medicina? L'eredità di Giulio A. Maccacaro*. Available from: http://www.saluteinternazionale.info/2014/04/capovolgere-la-facolta-di-medicina-leredita-di-giulio-a-maccacaro

Sydenham, T. (1848). *The Works of Thomas Sydenham, 1624-1689, vol. 1: Medical Observations Concerning the History and Cure of Acute Diseases*. Trans. Dr. Greenhill, London: Sydenham Society.

Twaddle, Andrew and Lennart Nordenfelt 1993. *Disease, illness and sickness: three central concepts in the theory of health*. Linköping: University SHS.

World Health Organisation 2008. *The World Health Report 2008: Primary Health Care Now More Than Ever*. Geneva: WHO.

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Reading as designing: A multimodal approach to literary texts

Rumiko Oyama-Mercer

The theme of the current paper has arisen from the context of teaching literature to undergraduates in Japan. I will base my discussion on several examples of visual translation done by my students. They were asked to visualise what seems most crucial to them in the story they read in the literature class. The paper explores the relationship between the choice of represented participants and what is perceived as a salient element in the story; namely, how written words in literary texts can be translated into visual manifestations and most importantly how the given visualisation is motivated by the reader and what it indicates about their interpretation of the written text.

The paper first gives a brief outline of some issues of reading in the age of the internet and its impact on reading in general in terms of social semiotics. It will then draw attention to some specific data in order to explore the relationship between the affordances of two modes. What is there to tell the story and show the world-view of the reader? The data shows how different readers position their point of view, from which the story is appreciated. By looking at how the given text can contribute to a more active understanding of the story.

The paper therefore explores some positive outcomes of a multimodal reading of literary texts. My proposal here is that the approach can actually enhance awareness towards language use rather than pushing it aside – in order to visually translate the verbal narrative, one needs to have a precise focus or a specific perspective from which the story is read and interpreted. The current research demonstrates the potential of reading as a more open-ended and creative sign-making activity.

KEYWORDS visual translation, motivation, point of view, salience, affordance

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1. Introduction

With the advancement of communication technology and the increasing use of screens rather than paper, reading is getting less and less 'just a matter of getting meaning out of printed words'. Information that used to be conveyed via writing has now been replaced by visual elements. There are domains where language used to play a primary role, which has been replaced by visual images. Take school textbooks and newspapers for example, the proportion of visual images is growing larger (Kress 2003). Among various genres of texts, it is literature that seems to be quite resilient to the current changes in the landscape. That is, most novels are still being *written* and reading novels means reading written words on the page. There is a newly established category of novels named 'graphic novel' that exemplifies the shift of conventional landscape of what a novel is like, that can be looked at and not just 'read'.

This paper will attempt to explore what can be done about the *reading* of literary texts in the era of visualisation. As Kress and Van Leeuwen (1996), and Kress (1997) have demonstrated reading is a far from passive activity; reading gives rise to highly creative activities depending on *how* the reader approaches and views the given texts. Then how can reading be practically creative? Within the pedagogical context, how can the act of reading and what is gained through reading be *proved*? There is no doubt that reading comprehension and essays on an assigned literary text are commonly recognized as a 'test' of the reader's understanding and interpretation. I would contend that genuinely rich and profound texts can be re-interpreted across different modes, as is often pointed out, for example, about plays by Shakespeare that have been originally written in the format of play can be made into drama, film, dance and music. In this sense, trans-modal interpretation of literary works is far from a new phenomenon. It goes without saying that the same meaning cannot be conveyed once writing is translated into another mode(s). By the same token, there is no such thing as a completely accurate and faithful translation.

Writing about literary texts is indeed one form of transformation between a single mode: writing. In this paper, I'd like to propose that trans-modal approach to literary texts is effective in a number of ways, particularly in the context of teaching literature. Firstly, it can activate the reading experience as a whole, often shunned by the students as a monotonous and tedious activity; they are expected to focus on a specific theme in the story. Secondly, some literary devices (such as narrative and point of views) that are unique to writing should be represented in the visual representation but how? The linearity is the one crucial feature that differentiates writing from visual images, which capture one particular instance of the whole story. Thirdly, in order for the reader to visualise the written text, I would argue, that an even closer and focused reading into the texts should be required and it provides one pathway for 'close reading', as Carter (1982:64) argues that 'a close analysis of features of language can show how some key literary meanings in the story are made.'

A trans-modal approach to literary texts, which are conventionally single-modal, can prompt a positive awareness towards how the language works in the text; hence it makes it possible for the reader to draw closer attention to the linguistic aspects such as choices of words and, more generally, the style of writing. A few examples of this trans-modal interpretation will be shown for the discussion with reference to the above-mentioned points. In so doing, I would like to consider and re-consider the role of language and pedagogical implications of multimodal approach to literary texts. In short, this is an attempt to demonstrate an act of reading through visualising.

2. Visual transformation of literary texts

2.1 Reading as a sign-making

The section will briefly review how the act of reading has been considered in the domain of literary criticism and related areas of studies. Barthes (1978) argued that the status of the author should be mitigated in order for the text to be fully appreciated. This well-known notion of the 'death of the author' not only challenged the status of the author, but also proposed more active involvement on the part of the reader rather than allowing them being a passive receiver of what is on the pages. Kress (1997), in relation to this issue, considers reading as 'internal sign-making' and that what comes out of such kind of reading is highly motivated depending on the reader's interest, and their socio-cultural conditioning. Affect, which derives from the reader's 'enthusiasm and involvement' (Kress, 1997: 68) is another important factor that contributes to the overall meaning making of texts:

...reading is the making of new signs, by the reader, internally, silently. These signs are, like those made outwardly, *motivated* conjunctions of forms and meanings, and it is this, which in fact provides a guiding principle for the reader in attempting to establish the meaning of the text. This search, as with outwardly made signs also, is guided by the reader's interest. Reading is a contested activity socially, and inevitably theories of different kinds develop around it, theories which are social and cultural metaphors, which lead to prohibition, circumscription, and concession, around the process of reading. As always there are choices to be made here. My guiding principle is: what kind of reader do we want to produce, and for what and whose ends? (Kress, 1997: 47)

As Kress points out above, the main focus has always been on the authorial intentions and the reception of the reader, let alone what is expected of the reader to do, has been less focused upon. Practically speaking, particularly in the context of teaching literature, however, how *well* and *what* the students 'read and understand' about literary texts is often tested and assessed through writing. Writing about written texts is evidently one transformative action

and its 'end-product' can demonstrate how the text was consumed, up to a point. As writing about literary works serves as a verbal manifestation of motivated signs, it should follow that visual transformation of literary works should be considered likewise. The validity of reading literary texts through visualisation, where more than one mode of communication is involved, will be taken up in the next section.

2.2 Social semiotics and multimodality

As is discussed above, the paper takes the stance that reading literary texts should be viewed as more than just a matter of writing. Behind this is the notion that, regardless of modes of communication, there is a meaning made, which is never arbitrary but always motivated. A Social semiotic approach to communication, which is followed by multimodality, proposed by scholars like Hodge and Kress (1988), Kress (1997, 2003, 2010) and Van Leeuwen (2005) has its grounding in Halliday's (1978) notion that language is one of the many semiotic modes that contribute to the meaning making and communication between *any* text (in the sense 'text' is not restricted only to pages with writing) and *who* is involved *how*, be it a reader or writer. What is relevant here is that texts are not viewed as an entity with so-called prescribed meaning; the meaning is *made* through the interaction of readers with the text in front of them (labelled as 'interpersonal metafunction' in Kress and Van Leeuwen, 1996), which they argue, essentially varies depending on the interest and socio-cultural conditioning of the subjectivity of the reader. The crucial point is that what is visually represented engages with the viewer of the image in one-way or another. For the textual analysis of students' visual transformation of the short story, the paper will draw attention to the following three categories at work in any kind of texts, which are proposed by Kress and Van Leeuwen (1996): interpersonal metafunction; textual metafunction and ideational metafunction. Visual transformation data will be discussed in relation to the first two categories in particular.

The relationship between what is visually represented and the viewer can be viewed in terms of interpersonal metafunction, depending on, what Kress and Van Leeuwen (1996)) call, 'interactive meaning' created through three domains: 'contact'; 'social distance' and 'attitude'. 'Contact' has two different realisations: Demand and Offer. In the former case, the represented participant is depicted as 'gazing at the viewer', namely with 'eye contact', while the latter is characterised with the absence of the gaze, with no eye contact. 'Social distance' between the represented participants and the viewer is manifested depending on the type of shot (which is originally used for film analysis); intimate/personal meaning is created by close shot and more impersonal meaning is realised with long shot. What Kress and Van Leeuwen call 'attitude' is related to a perspective with which a represented participant is depicted. They can be represented either from a frontal angle ('involvement') or from an oblique angle ('detachment'). Besides, the choice of vertical perspective is also crucial for representing: 'viewer power' when

represented participants are viewed from high angle; 'equal power' from eye-level angle; 'represented participant power' from low angle.

Textual metafunction is related to how visual represented participants are positioned in the visually transformed text and the linguistic notion of information structure of Given and New is paralleled with the visual domain of Left and Right, respectively. 'Salience' is another entity to be focused here, as they state, 'The viewer of spatial compositions is intuitively able to judge the 'weight' of the various elements of a composition, and the greater the weight of an element, the greater its salience' (Kress and Van Leeuwen, 1996: 202). I would therefore incorporate the notion of salience to connect visual transformation into thematic points along with its relevance to the title of the story.

3. Visual transformation of 'Cat in the Rain'

I would like now to move on to looking closely at what happens when written words are translated into visual images by focusing on actual sample cases that indicates part of the reading that students did: a drawing the students created after reading a short story by Ernest Hemingway 'Cat in the Rain'. This is the course titled 'Seminar: British and American Literature,' which is one of the compulsory courses for literature major undergraduates with its general goal as *reading* literary texts. *What* and *how* they are introduced as course materials are left up to each instructor. Conventionally, students are expected to translate parts of the text into Japanese and the primary emphasis is on grasping what is going on in the story and it has been often the case the process of reading, that is, how each reader negotiated meaning across two different languages, has been marginalized.

The instruction given to the students was 'Read the short story and visualise whatever images you wish about the story'. The class size is 21 (10 male students, 11 female students, age ranged between 20-21), all literature-majored undergraduates. More than two thirds of the students are beginners to intermediate readers of literature in English and many of them seem to be underconfident about reading authentic English texts (as opposed to abridged versions specially tailored for learners of English). Some of them, male students in particular, expressed how challenging it felt them to read literature in English without a Japanese translation.

The rationale of choosing this particular short story for this small project lies greatly in its style of writing. The whole text is short (approximately 1,000-word long) and it consists of only two scenes (the wife and husband in the hotel room and the wife goes out to fetch the cat in the rain), and what is more, there are very few adjectives used (this is often pointed out about Hemingway's style of writing as a whole) so that the students can expand and elaborate their reading, in other words, it can potentially allow more variations for visual transformation.

3.1. The story

'Cat in the Rain' was published in 1926 and is set in an Italian holiday resort; the story begins with a description of the setting. The hotel that the American couple is staying in faces a square with a war monument and palm trees around it. It is raining. The nameless wife (while the husband is addressed as 'George') looks out of the hotel window and sees a cat outside in the rain. She goes down to make sure the cat is safe, but by the time, with the help of a hotel maid, she has gone down, the cat has disappeared. She sees the old hotel owner, whom she likes; he is always there to serve her nicely and treats her very well. She comes back up to the hotel room and starts talking to her husband George, who is reading. She expresses her disappointment in missing the cat and she goes on to mention what is missing in her life; she is not content with how she looks and she wants to grow out her hair. She carries on that she could do with her own silverware and candles until George tells her to stop. After a while, the hotel maid brings the wife a big tortoiseshell cat and that is where the story ends.

The most common reaction to the initial reading of this story by the students was 'Where is the rest [of the story]?' To some of them, the story is not complete and a sense of suspension is strongly felt as if the story needs more events or tension to make it a proper narrative. As supporting questions that encourage them to visualise what they have taken in, I gave them another task: to guess the title of the story. It is notable that more than half of the students put a word 'cat' in the titles they guessed and one or two got it very close to the 'right answer' such as 'A Cat in the Rain', 'The Cat in the Rain' and 'Cats and Rain'.

3.2. Visually represented narrative

The story is written in the third-person narrative, which is expected to have an omniscient view in relation to the story. It is interesting to observe some visual translations take on the omniscient position while the others seem to represent a view from a particular character in the story. Take **Figure 1** for example, where both the husband and wife are represented as if viewed from above, namely a bird's eye view; the husband is drawn on the left reading his book on the bed and his wife is seated in front of the dressing table. Others show the view from the window, the public garden with a war monument with palm trees alongside and it is raining. This is what the American wife is supposed to be looking at; in other words, the visual image is a visual representation of the wife's point of view. There is a different version of representation of the wife's view, where its focus is specifically on the cat 'that is crouched under the table in the rain'.

It is notable that the choice between the first- and third-person narrators here is greatly connected with where the students positioned themselves in relation to the characters. The female student who drew the view from the window commented on her drawing: 'I felt sorry for the wife being stuck in the hotel room and her husband being indifferent to her. She's on

holiday but all she could see is the view from their hotel room. That's so sad.' In fact, there are 4 other female students who made a similar visualisation based on the same reason. These students said that they couldn't help identifying themselves with the wife, who was neglected by her husband. In this sense, this is a visual manifestation of empathetic views towards the female character in the story. The view from the window is all that is given to her and she is deprived of freedom. It is interesting to point that there was no male student who drew the wife's view as a salience.

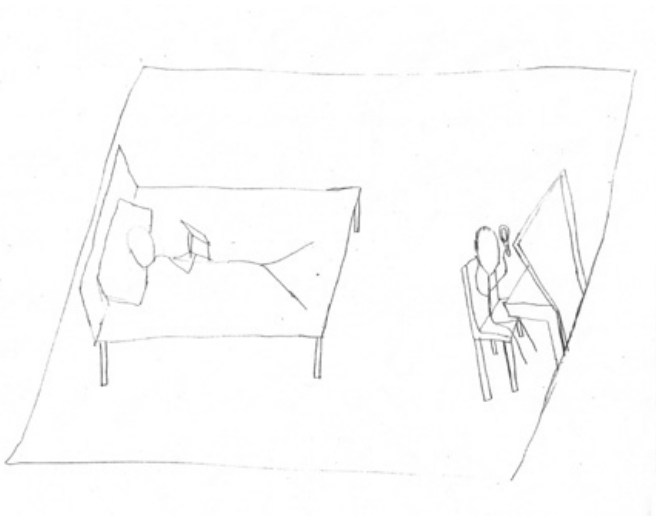

Figure 1. Student's drawing representing the hotel room with two characters

There was a notable tendency among the male students, who drew an overall view of the setting in the hotel room (5 out of 10 students), while others (3 students) focused on the depiction of the cat in the story. One of the students in the latter group, explained the reason why he had chosen the cat out in the rain as, 'I think I drew the cat because it seemed to be a key to understanding this story.' There is another interesting comment (by another male student in the same group) on the cat, who claimed that the cat was not really there, but the wife made that up to draw her husband's attention. This is a notable point that shows one aspect of gender expectation towards women and a few female students shared the same opinions with this male student.

The choice between the first-person and third-person narrator is no doubt a crucial factor for literary texts and in the case of 'Cat in the Rain', a cat is first introduced in the third-person narrator (the omniscient narrator). However, the question arises as to the truthfulness of what it tells the reader. Wood (2009) argues that the third-person narrator cannot be reliable and justified as having an omniscient view while the first-person narrator cannot be always be labelled as 'unreliable':

So-called omniscience is almost impossible. As soon as someone tells a story about a char-

acter, narrative seems to want to bend itself around that character, wants to merge with that character, to take on his or her way of thinking and speaking. A novelist's omniscience soon enough becomes a kind of secret sharing; this is called *free indirect style*, a term novelist has lots of different nicknames for – 'close third person' or 'going into character' (Wood, ibid: pp. 8-9).

I'd like to note in my textual analysis how this free indirect style can be visually transformed in the students' drawings and what kind of motivation is behind the visual representation of the characters in the story. This is one of the points where the interface between writing and visual images can be explored, in other words, it exemplifies how multimodality *can* come into the meaning making of a literary text.

3.3. Salience as representation of affect

The section will look at the relationship between what is chosen to be the salience factor(s) and what is considered to be the theme of the short story. Roughly speaking, there are two types of represented participants as a salient element in the visualisation: a cat and the American wife. Some students (more prominent among the male students than female students) drew a cat right in the middle of the paper while others put the American wife as the central figure.

Figure 2. Student's drawing representing the wife looking herself in the mirror

Figure 2 is drawn by a female student, who positioned the cat in the centre of visual space considered the cat as the primary focus of the story and her drawing is parallel to the title she came up with: 'A Cat in the Rain'. Obviously, the cat plays a significant role in the story as this female student put, 'at some symbolic level rather than literary level'. **Figure 2** shows a cat depicted in the thought balloon that is emitted from the wife. Here the cat is a projection within the American wife and it should be noted that there she is depicted faceless. I asked the student the reason why the wife had to be faceless, this female student said, 'She is not given a name with no identity, therefore no face'. It seems to be a skilful and relevant visual transformation from written text with its crucial point picked and reflected in its visual representation. The point is that if she had been assigned to write about the story, she might not have picked this aspect of the story as something worth noting, but the visualisation is now giving a clue to expand and elaborate her interpretation of the story and perhaps leads to exploring what lies possibly behind the story by asking a question: why the woman is not given a name. The fact that the female character has not given any name while the male counter part is can lead to an interesting question: to what extent the visual representations of the students reflect the social and cultural stereotypes which condition their way of reading this short story.

Figure 1 is in fact an example that makes use of abstract representation of the American couple staying in the hotel room. Here, the bodies are drawn as abstract figures, which do not even reveal the gender of the person depicted (unless one has read the short story) let alone its details. I propose that this is a visual representation of third-person narrator in **3.2** in that it is a birds-eye-view as if the couple were watched from above. In other words, their action, the husband is reading while the wife is looking at the mirror, is represented as factual.

In relation to the notion of affect, it is a detached aloof representation of the couple. The wife and husband are 'detached' turning their back against each other and what is more, compared to **Figure 2**, no detail is given about their physical appearance let alone their facial expressions. What does it signify? The male student answered, 'It's so common for the couple to be like that. I don't think they are bored with each other after so many years being married'. What this student was trying to convey was that 'It could happen to any couple, husband and wife', and it seems to me that these abstract figures are a visual representation of 'generality', therefore no definite specific depiction. In other words, it could happen to *anyone*, and it is not a unique case that is particular only with this couple. When I mentioned this to the student, he said, 'I didn't think that far but I just wanted to show them as one *type* of couple, rather than individual husband and wife'. There is something else worth mentioning here: it is the positioning of the two figures, but this will be discussed in the next section (**3-4**) in terms of visual composition. Visual transformation of a short story thus allows the students to read into the story and get its gist, which might not have happened if their feedback is done only through writing such as essays and reaction papers.

One of the most common salient represented participants in students' visualisation is a

cat. **Figure 3,** drawn by a female student, is an example that placed the cat in the middle of the space. To apply the notion of interpersonal metafunction, it can be taken that the cat is depicted with a close shot, with a frontal angle, with a high angle. This signifies that the cat is represented (to the reader) as something close, intimate and something to be 'looked down on'. The equivalent part in the text goes:

The American wife stood at the window looking out. Outside right under their window a cat was crouched under one of the dripping green tables. The cat was trying to make herself so compact that she would not be dripped on. (Hemingway, 1926)

Figure 3. Student's drawing representing a cat in the rain outside the hotel

In terms of narrative, there is a shift in the kind of narrators. The first sentence starts in third-person narrative, which ends up with the sentence 'The cat was trying to make herself so compact that she would not be dripped on', where the wife's point of view is somehow inserted. It is the wife who is supposed to be looking at the cat in the rain and it is reasonable to think that she is feeling sorry for the cat at the same time it is an objective description of the event. In other words, this sentence is a free indirect thought of the wife.

What seems to be significant in this visual transformation is that the reading, that is, the wife's empathy towards this 'poor kitten' in the rain, is visually manifested in that the cat is given full details about its appearance (with the implication of affect) as opposed to the detached abstract representation of the character as is observed in **Figure 1**. As is often pointed out that use of adjectives and other details are spared typically in Hemingway's writing and the cat's appearance is not mentioned in the text. This aspect of writing makes **Figure 3** even more meaningful because it demonstrates the student's reading into the cat as a character

now in a different mode than writing. What is more, the interactive meaning that the cat conveys in relation to the viewer is that the cat is looking up with eye contact ('demand' contact), with personal (social distance) as opposed to impersonal. The perspective that it creates is that of 'subjectivity' with a direct frontal angle and it is also allowing the viewer power with a high angle, as if the cat is been looked down on (the viewer power). This is a representation of the 'poor' cat in the wife's inner thought more than just what is described in the third-person narrative.

3.4 Visual composition as a manifestation of reading

Finally, I am now focusing on the syntactic feature of visual transformations of the short story. **Figure 1,** as was discussed above, shows the husband and wife in the hotel room and in terms of visual syntax, there is a strong sense of centrality that divides the two people. Arnheim (2009: 133) argues that the centrality in visual representation serves as a divider, which creates polar composition. Notably, there is no specific description that says that the husband and wife are sitting facing opposite directions in the story but the student *chose to* put them the way they are in its visual transformation of the story. This is a visual signifier that signifies a rift between the couple and the student realised that in its visual composition. The centrality creates the domain of Left and Right: the husband is positioned in the Left while the wife is on the Right. If this 'Given-New' is to be applied to **Figure 1**, it follows that the husband is taken for granted (the Given) as the status quo and the wife is the one who makes a move while the husband remains physically 'static': reading a book. The student who drew this illustration remarked that 'the positioning of the husband on the left and the wife on the right came naturally', but 'the husband was drawn first'. I'd like to note the 'writing path', that is, there is a linearity created here: from left to right, namely from the Given to New. The student picked up a sense of disharmony and rift between the husband and wife and transformed its meaning into visual syntax, in other words, along with the choice of abstract representation of the two human figures, his reading of the couple's relationship is visually realised and transformed from writing and its composition is a motivated sign of his reading.

Visual transformation can also serve as one process of understanding of what has been 'read' through the given piece of text. In this way, a trans-modal approach to literary texts has a positive implication for the future of teaching literature particularly in English as Foreign Language context, where the students must go through one extra linguistic filter in order to appreciate the message encoded in the text.

4. Conclusion: Pedagogical implication of trans-modal approach to literary texts

As the examples that I discussed above showed, a single-modal text (such as literary texts) can be approached from a multimodal perspective. Not to make the study easy but to be more creative and allow the reader to engage more with the particular text, rather than being a passive (and imposed) reader. What gets passed in feedback in writing can be elicited through visualisation. As Eaglestone (2016) asserts, literature is not a code. As a single text allows multiple readings depending on the reader's socio-cultural standing, interest and motivations, its interpretation and appreciation can be achieved through different modes from writing: visual transformation is only one of them and as some cases in the paper demonstrated, a multimodal approach can open up different aspects of texts.

The recent shifts and changes in the communication landscape (Kress 2003) give rise to changes in the meaning making potential of writing. Literary texts can no longer have to have feedback exclusively in the form of writing but could also have in the form of visual representation. Meaning making across different modes in this way has a potential for interpretation of the text from a different perspective. Visual transformation of literary texts can therefore provide an opportunity for the reader of the text to view the story from a different point of view. The richer the literary texts are the more potential they have for multimodal reading.

By introducing a trans-modal reading of literary texts, the taken-for-granted notion of the linearity of information that writing carries will be challenged and re-considered. Involving visual elements into teaching literature, where writing has been served as conventionally the primary mode of communication, does not necessarily make the given text accessible, easy and even enjoyable, but can pose yet another challenge because the message in one mode has to be transformed into another mode. The findings in this paper have demonstrated that teaching literature give rise to research potential, that is, to explore the possibility of literary texts in terms of trans modal reading. This is where an active (rather than a passive where the students were simply given some knowledge) reading of the text becomes possible. A trans-modal approach to literary texts has its strength in the sense that this research has come out of actual teaching and has reinforced the point: teaching and research can and should be closely connected to full potential. It is an inspiring point that reading and understanding literary texts (writing) in terms of visual 'translation' can actually lead to the re-assessment and closer examination of how writing works, therefore for a better and more profound understanding of literature.

REFERENCES

Arnheim, Rudolf 2009. *The Power of the Center: A study of composition in the visual arts.* 2nd edition. Berkeley: University of California Press.

Barthes, Roland 1978. *Image-Music-Text.* London: Fontana.

Carter, Ronald 1982. Style and Interpretation in Hemingway's "Cat in the Rain". In: Ronald Carter (ed.) *Language and Literature: An Introductory Reader in Stylistics.* London: Unwin Hyman.

Doloughan, Fiona 2010. Multimodal Storytelling: Performance and Inscription in the Narration of Art History. In Ruth Page (ed.) *New Perspectives on Narrative and Multimodality.* London: Routledge.

Doloughan, Fiona 2011. *Contemporary Narrative: Textual Production, Multimodality and Multiliteracies.* London: Continuum.

Eaglestone, Robert and Jonathan B. Field 2016. *Studying English: A Guide For Literature Students.* London: Routledge.

Halliday, M.A.K. 1978. *Language as social semiotic.* London: Edward Arnold.

Hemingway, Ernest 1996 [1926]. 'Cat in the Rain' In *In Our Time.* London: Simon and Shustar.

Hodge, Robert and Gunther Kress 1988. *Social Semiotics*. Cambridge: Polity Press.

Kress, Gunther 2010. *Multimodality: A Social Semiotic Approach to Contemporary Communication.* London: Routledge.

Kress, Gunther 2003. *Literacy in New Media Age.* London: Routledge.

Kress, Gunther 1997. *Before Writing: Rethinking the Paths to Literacy.* London: Routledge.

Kress. Gunther and Theo Van Leeuwen 1996. *Reading Images: The Grammar of Visual Design.* 2nd ed. London: Routledge.

Oyama, Rumiko 2007. Visual Translation of Literary Texts. In *Bungei-Kenkyu* ('Literary Studies') 103. Tokyo: Meiji University.

Van Leeuwen, Theo 2005. *Introducing Social Semiotics*: *An Introductory Textbook.* London: Routledge.

Wood, James 2009. *How Fiction Works*. London: Vintage.

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Production of multimodal texts in Secondary Education: A case study

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This paper describes the theoretical framework and the methodology followed by three researchers from different disciplines (Literature, Art Education and Educational Psychology) in order to present the challenges 12-15-year-old students faced in the production of a multimodal text in a school context. It examines the way students address specific dimensions of meaning (representational, social and organizational) within and across linguistic and visual-spatial modes, when producing a multimodal text. Specifically, it demonstrates students' challenges in addressing the different dimensions of meaning and achieving synergy among different semiotic systems in creating multimodal artefacts. Qualitative methods were utilized to analyze how groups addressed linguistically and visually the representational, social and organizational dimensions of meaning for the production of their multimodal texts and how they reflected on the production of their multimodal meaning making. The results of this study shed light on the difficulties the students have faced in the production of multimodal meaning making. Moreover, the study stresses the need to support students through systematic approaches on how to address the different dimensions of meaning in multimodal text production. Finally, several suggestions are provided regarding further research on studying in depth the process of producing multimodal texts in school context.

KEYWORDS multimodal texts, secondary school, framework, multimodal meaning making

1. Introduction

Although multimodality is not a contemporary phenomenon, during the last decades it has been approached anew as a growing interdisciplinary field of research. Adami considers

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multimodality as 'a phenomenon of communication', which 'defines the combination of different semiotic resources, or modes, in texts and communicative events, such as still and moving image, speech, writing, layout, gesture, and/or proxemics' (2017: 451). Modes have 'an organizing principle' (Adami 2017: 451) and require various researchers from different disciplines and backgrounds to study and add new perspectives to the way these modes work together, interact and often contradict one another in order to communicate information and render narratives (Serafini 2014: 15). One of the main assumptions that recipients of multimodal texts should bear in mind is that, when modes concur, each acquires a specialized role in meaning (Jewitt 2008). Each mode 'offers distinct possibilities and constraints' (Jewitt, Bezemer & O'Halloran 2016: 3), or, in Adami's words, modes have 'a specific functional load to the meaning made by the overall text – and as such they deserve attention' (2017: 452).

Apart from the linguistic modes of writing and speech, other modes, through which contemporary societies experience the world, are the visual ones (Albers 2007; Kress 2003). The spectrum of visual production and communication is becoming broader. All that is humanly formed and sensed through vision or visualization shape the way we live our lives, and they are defined as visual culture. Visual culture points to connections between popular and fine art forms, and is considered inherently interdisciplinary and increasingly multimodal (Freedman 2003). Understanding the visual structures that exist within images is as important as comprehending written text (Harste 2003). Berger (1972) suggested that reading images involves a process of seeing and taking notice of what we choose to look at. Viewers, through immersion and recognition, learn to notice and identify relationships across visual text. Research has shown that viewers' interests and individual differences may affect the reading path they choose when they encounter an image, which will ultimately reflect their effort in visual reading (Cope and Kalantzis 2009).

As mentioned above, each mode in an ensemble carries only part of the message, so it is indispensable to study the interplay between modes in a certain multimodal artefact and to examine the way each semiotic system interacts with and conduces to the others (Bezemer and Jewitt 2009: 9). Bezemer and Jewitt observe that, during the interplay of the modes, the reader may realize meaningful tensions between the various textual aspects, which lead to reflection and finally expand the meaning (2009: 9).

In 2015, Theo van Leeuwen, in his paper 'Multimodality in Education: Some Directions and Some Questions', stresses the significant impact multimodality has had on educational theory and practice and formulates a series of questions on multimodality in education, which need to be addressed. Some of the questions he raises are the following: 'Should we see multimodality as something in which students are already literate, or is there a role for educators in developing multimodal literacies [...]. If so, in which directions, and why?' (2015: 582). Acknowledging van Leeuwen's directions for the study of multimodality in educational contexts,

we designed an empirical case study to explore the difficulties that students may have when producing a multimodal text.

This paper will discuss the results of a case study on multimodal text production in a school context. The study was initiated when the researchers were invited by a secondary school to plan a workshop on multimodal production, in order to assist students to participate in a competition organised by the Ministry of Education. The paper will demonstrate students' challenges in addressing the different dimensions of meaning and achieving *synergy* (Sipe 1998: 98-99) among semiotic systems in creating multimodal artefacts. The main research question is: How do students address specific dimensions of meaning (representational, social and organizational) within and across linguistic and visual-spatial modes, when producing a multimodal text? The results of this study shed light on the difficulties the students have faced at the production of multimodal meaning making and indicated the need to support students grappling with the dimensions of multimodal meaning. Several suggestions are provided regarding further research on in-depth studies of the complex process of producing multimodal texts in school contexts.

2. Theoretical framework

The main theoretical framework guiding this study comprises the 'Grammar of Multimodality' by Cope and Kalantzis (2009). The approach of 'Slow Looking', introduced by Tishman (2018), is utilized to discuss how such a framework could illuminate the multiple dimensions of meaning and uncover the complexity of interconnections among different modes.

Multiliteracies, in an era where communications are multimodal and an image culture has risen (Kress 2009), pose challenges for learners, since 'new structures of agency' emerge in the meaning-making process (Kalantzis and Cope 2015: 17). Cope and Kalantzis (2009) suggested a multimodality grammar to emphasize the parallels and the affordances shared among different modes of meaning. They raise important questions about meaning-making, which relate to five dimensions:

1. Representational dimension: 'What do the meanings refer to?' (2015: 19).[1] When we write or speak, we represent things with nouns and processes with verbs. In images, representation is achieved through line, form and color. In tactile representation, edges and texture are utilized for representation, whereas in gesture representation, different means are used, such as beat, as well as acts of pointing. Similarly, each mode can uniquely add to the representational aspect of meaning (i.e., a word can refer to a concept, an image can serve as a symbol and a sound can be used to represent the main idea). The act of referring can also establish relations (through prepositions in language, contrast in image) and qualities (adjectives in language, visual attributes in images).

2. Social dimension: 'How do meanings connect the participants in meaning-making?' (2015: 20). In meaning-making, we establish roles (speaker/listener, designer/user, sound maker/hearer), direct orientations (first/second/third person in language, placement of objects in image, pointing to self/others/world in gesture), encounter agency (voice/mood in language, focal planes of engagement in image, openings/barriers in space) and interpret potentials (open/closed texts, realistic/abstract images, directive/turn-taking gestures).
3. Organizational dimension: 'How does the overall meaning hold together?' (2015: 20). Internal cohesion, coherence, and boundedness in meaning are achieved through ordering the atomic meaning units in each mode. Morphemes, picture elements, physical components, and strokes in gesture can be ordered in conventional or inventive ways. For example, ideas can be arranged through sequence in the text and by positioning picture elements in images.
4. Contextual dimension: 'Where is the meaning situated?' (2015: 20). Context is important in meaning-making in the sense that the meaning of an object ('what') is determined by the place it appears ('where'). Therefore, context is part of the meaning. It defines how the meanings fit into the larger world of meaning. For example, an object such as a ring can mean different things depending on its context.
5. Ideological dimension: 'Whose interest is a meaning designed to serve?' (2015: 21). It is important to consider motivation in interrogating meanings. Considering subjectivity or objectivity in verbal or visual modes in a multimodal text requires critical thinking so that text, image, gesture, sound, or space are explored to uncover concealed interests.

Cope and Kalantzis (2009: 363) have used the word *'synaesthesia'* to refer to the process of switching representational modes to convey the same or similar meanings. In a multimodal text, each mode, which constitutes a distinct semiotic resource, has unique meaning potential to recognize or adequately use the meaning and learning potentials inherent in different modes. Representational parallels make synaesthesia possible, because each mode provides an added value in the process of meaning-making when producing a multimodal text.

Producing the multiple dimensions and interconnections of meanings requires skills for slow and attentive viewing. In Tishman's terms, '[s]low looking means taking the time to carefully observe more than meets the eye at first glance. [...] Learning through prolonged observation can occur through all of the senses' (2018: 2). Seeing constitutes a meaning or interpretation through viewing (Berger 1972), which implies that it is an active process. Lancaster (2001) suggests that gaze is an action, influencing what is interpreted in visual and spatial modes.

Tishman (2018) suggests several strategies for slow looking. One of them is the use of certain categories to guide the eye in identifying elements and principles of design in an

image, such as color, shape, line, balance, and pattern. A complementary strategy is switching up one's point of view (physical perspective) to see things in a new way and to describe them from a different angle. This approach, as Tishman (2018) points out, emphasizes looking at things from the vantage point of different physical perspectives – far away or close up, above or below.

Cope and Kalantzis' framework was used to design an empirical case study in a school context. The aim was to guide students to carefully view several dimensions of meaning-making through the production of a multimodal text.

3. Methodology

A. Participants

The participants in this case study were 208 students (46 groups of maximum 5 students), twelve to fifteen years old, at a public junior high school (gymnasium) in Cyprus, and three researchers-academics specializing in Literature, Art Education, and Educational Psychology.

B. Procedure

This study was conducted in two phases. In phase one, students were introduced to the core idea that when producing a multimodal text, meaning-making operates at several levels. In order to emphasize the parallels shared among the different modes of meaning, researchers presented examples of the ways multimodal texts (comic books, picture books and advertisements) are read, explaining how each dimension was addressed and emphasizing the importance of synergy among them. Researchers elaborated on how meaning is created through the relation among modes and the social values these meanings transmit to the text. This introductory presentation concluded with the theoretical framework of Cope and Kalantzis (2009) regarding a 'Grammar of Multimodality'. Specifically, students were introduced to important questions about how meaning is created in a multimodal text through five dimensions (representational, social, organizational, contextual, ideological).

Thereafter, students were presented with a task requiring them to collaborate in groups to create a multimodal text during a 60-minute school session, utilizing a provided image outline and a matrix. More specifically, students were asked to combine at least three semiotic modes by enriching the visual mode (i.e., adding colors, lines, additional patterns), developing a hand-written text of approximately 50 words (either prose or verse), and adding movement or sound or both in relation to their given transformed outline.[2] A certain guideline required the students to identify the narrator of their linguistic text with any inanimate figure.

The choice to have an image as a starting point was based on Kress (2003), considering

the reading path of an image being more open than that of writing. As explained by Cope and Kalantzis, the reading path in a written text is clear even if it demands some semantic filling, because its syntax provides 'stable blueprints for semantic interpretation' (2009: 364). In the case of images, the syntax is in the hands of the viewer, since they are not characterized by linearity. Researchers aimed to challenge students to experience the production of a multimodal text through a non-linear process for meaning-making.

During phase two, students were presented with the multimodal texts created collaboratively during phase one. The purpose of this phase was to have students reflect on their previous work and examine the synergy between linguistic and visual modes of their multimodal artefacts. Specific prompts were used to direct students' attention to the representational, social and organizational dimensions of meanings in their texts, in order to proceed to written reflections on their multimodal productions.

C. Instruments

Image outline for producing the group multimodal text

The outline used as a starting point for students' multimodal text production was an illustration from the picture book *Erotokritos* (Diaplasi 2015).[3] The text was an adaptation of the homonymous Cretan Renaissance romance (sixteenth-seventeenth centuries) by Vitsentzos Kornaros, whose length is more than 10,000 fifteen-syllable coupled verses. The poetic adaptation of the picturebook was made by Katerina Mouriki and Ioanna Kyritsi-Tzioti, the illustrations by Iris Samartzi,[4] and the music was specially composed for this multimodal text by Nikos G. Papadogiorgos.

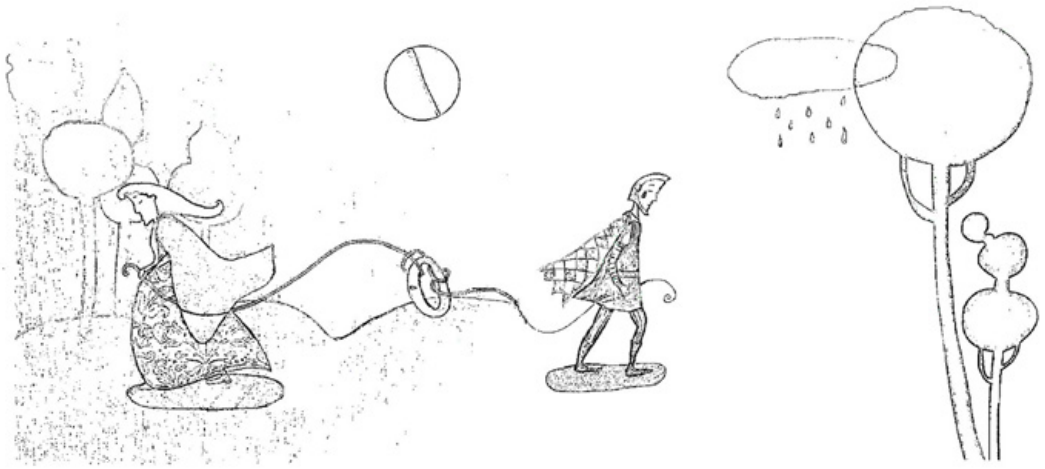

Figure 1. Outline of a picture book image as a starting point for students' multimodal meaning making

Although the students were familiar with the prototype text of *Erotokritos*, since particular passages of the particular work are taught at gymnasium, researchers did not unveil the source of the illustration. That is because, they aimed at encouraging students to recreate a new context of the image based on their own reading of the outline. In any case, the original illustration was modified in order to present to the students a black-and-white outline (see Figure 1). Freedman (2003) describes how approaching visual culture in education requires consideration of the relationship between form, feeling, and knowing to learning. Researchers chose an image that was neither simplistic nor predictable, neither chaotic nor unrelated to anything that the students have seen before.

Matrix introducing the grammar of multimodality

A matrix with guiding questions about the representational, social, and organizational dimensions of meaning (Cope and Kalantzis 2009) in different modalities (linguistic, visual-spatial, gestural, audio) was provided to students (see Table 1). The matrix aimed at introducing the complexity of creating meaning within and across modes.

Specifically, with regards to the representational dimension, students were prompted to think about who speaks, to whom he/she/it addresses, and what he/she/it says (linguistic mode). They were also asked to observe the details of each element included in the outline-image and think about the placement of objects in the image space, the significance of space among elements, the colors they would use to paint the objects, as well as why the two figures were facing opposite directions (visual-spatial mode). As far as the gestural mode was concerned, students were asked to think about the elements' implied movement and how they would represent movement in the image. In case students would choose to add an audio mode to their multimodal text, they would have to think about how to produce sound and rhythm for selected elements of the image.

To address the social dimension of meaning in their multimodal text, students were guided to think how each element of the image speaks based on its social status or physical position and the relationship among the elements (linguistic mode). Furthermore, they were prompted to think about the perspective of each element based on its position (visual-spatial mode), how elements would move according to their feelings, attributes, social status, or physical position (gestural), or sound based on the elements' attributes (audio mode).

The organizational dimension was also introduced in the matrix, prompting students to think how the meanings are interconnected across the different modes. Students were asked to decide whether they would compose a monologue or a dialogue among elements (linguistic mode), the meaning of each element's location (still or moving), possible interactions among elements, and whether there was harmony, balance, and contrast in their relationships (visual-spatial mode). There were also guiding questions to think about how to present ges-

tures, facial expressions, posture (gestural mode), and the kind of music or sound that elements would produce (audio mode).

Dimensions of meaning	**Linguistic**	**Visual-spatial**	**Gestural**	**Audio**
Representational What do the meanings refer to;	Who speaks, whom does he/she/it address to and what does he/she/it say?	What details do you see in each element? Why each element is placed in a certain space at the image? Why do the figures face opposite direction? What is the significance of space among elements? In what colours would you paint each element?	Is movement implied by elements? How would you represent movement in the image?	Produce sound and rhythm for selected elements of the image.
Social How do the meanings connect the elements they involve?	How does each element of the image speak based on its social status or physical position? What is the relationship among the elements?	What is the perspective of each element? Why are elements placed in the specific space?	How do they move according to their feelings, attributes, social status or physical position?	How does each element sound based on its attributes? Mood, volume
Organizational How do the meanings interconnect?	Is there a monologue or a dialogue among the elements?	Where are the elements placed in the image and what does their particular location mean? Are the elements still or moving? Do elements interact with each other? And if so, is there harmony, balance, contrast in their relationships? (If you wish, make modifications in the image.)	Gestures, facial expressions, posture?	What kind of music or sound would you produce?

Table 1. Matrix introducing the grammar of multimodality

Self-reflective questions about multimodal meaning-making

Students were asked to reflect on their choices for creating meaning in their multimodal artefacts, describing the following dimensions:

a. Representational: What are the meanings of your multimodal text? Which visual

elements (such as color: warm, cold; type of lines: curve, straight, dotted; direction: vertical, diagonal; composition: adding new elements) are used to represent these meanings? Which verbal elements of your multimodal text are associated with the meanings you assign to the text?

b. Social: How did you consider perspective or focal planes or emphasis in order to draw the reader-viewer of your text into your meaning?
c. Organizational: How do visual elements relate to speech? How are verbal elements linked to the image?

Students' reflections were followed by the researchers' insights concerning technical aspects of how visual and linguistic characteristics of the multimodal texts could represent examples of meanings related to the initial black-and-white outline of the illustration.

D. Data analysis

Qualitative methods of analysis were utilized in the study. A matrix based on an adapted version of the grammar of multimodality framework by Cope and Kalantzis (2009) was used to analyze how groups addressed linguistically and visually the representational, social, and organizational dimensions of meaning for the production of their multimodal texts.

Analysis of the representational dimension of meaning in the linguistic mode focused on identifying the content, through certain themes and motives in the written text, whereas, in the visual-spatial mode, the analysis focused on identifying specific elements and principles of design in students' drawings. More specifically, students' choices of color properties, lines, and form were described.

Analysis of the social dimension of the linguistic text was based on roles and directed orientations (person of narration, vantage point, roles, attributes of the figures, status), as revealed by the students' views. As far as the visual-spatial mode was concerned, the social dimension was studied based on the visual emphasis of each element added to the given image outline in relation to its role in the written text.

Analysis of the organizational dimension of group multimodal texts focused on the interconnection of meanings, on how that was achieved through the linguistic mode (monologue or dialogue among the elements prose, rhyming or free verse, dialogic form), and through the visual-spatial mode (composition, harmony, balance, contrast).

The two researchers specialized in Literature and Art examined the linguistic and visual modes respectively and analyzed interconnections between the two modes. For reliability control, the two researchers discussed with the third researcher their findings until one hundred per cent agreement was reached.

Students' responses to the self-reflective questions were analyzed to check whether the

visual and linguistic texts denoted synergy among the modes and the dimensions of meanings. More specifically, researchers examined group responses' clarity and depth in stating the dominant meanings of their multimodal texts and in defining both the linguistic and visual choices.

4. Results

Analysis of students' multimodal artefacts is presented based on the three dimensions of meaning (representational, social, and organizational). Each dimension is discussed in relation to the linguistic, the visual mode, and the synergies attained within and across modes.

a. Representational dimension of meaning in students' multimodal texts

Content is the aspect that relates to the representational dimension of the linguistic mode. The largest number of texts referred to an intentional split, because one of the characters of the couple could not live in harmony with the other person. Although the separation was deliberate, it was mentioned, in some cases, that the characters were still in love. Moreover, a few noted that the characters remained united or that they would reunite. Almost a quarter of the texts referred to an unintentional separation that was due to war, death, rival kingdoms, different religion, and different social status between the couple. The sociocultural differences caused parents' disapproval of the couple's unity.

In relation to the overall analysis of students' visual-spatial elaboration of the text, focusing on the representational dimension showed that, even if some students had developed technical knowledge of elements and principles (such as achieving color tone gradient, color mixing, intensity, variety of lines, and textures), the above characteristics in the majority of the drawings seemed random, with no obvious symbolism or connection to the linguistic text. Symbolism and relevance to the text was, to a small degree, achieved when students chose to add elements and shapes to the image that were not included in the initial outline, rarely leading to original additions and abstraction. For example, a group of students chose to add the outline shape of a lightning below the top-centered split circle, directed towards the ring (see Figure 2). This group also transformed the outlines of the trees and the cloud into abstract human figures, and the shadow of the figures into red, broken hearts, which were also viewed as symbols of separation.

Each element was signified by its shape and position in the composition of the given outline, and it often affected the choice of color. For example, in all drawings, the circle in the top center of the image was assigned the meaning of a sun or moon, or a combination of both, due to the dividing diagonal line in the original outline, and was colored accordingly.

Sometimes, the students added rays. The oval shape in the lower center of the image, between the two figures, was assigned the meaning of an engagement/wedding ring. Therefore, it was colored yellow or orange in the majority of drawings to signify gold, or an extra element was added, such as a diamond. Additionally, the drops under the cloud, on the top-right side of the image, represented raindrops, but in some images, they were connected to the tear on the male figure's face. In the majority of drawings, the specific cloud was painted gray or black, symbolizing the male figure's negative emotional state.

Figure 2. Synergy of linguistic and visual modes achieved in students' multimodal text

Color choices, mainly in relation to inanimate elements, were not connected to the story of the linguistic text. It was observed that there was no consistency between the content and verbal and visual modes. For example, more surrealistic elements were incorporated in the visual text, such as pink or multicolor trees, a blue moon, orange clouds, or personified trees, whereas no relevant diction and style were found in the linguistic mode.

b. Social dimension of meaning in students' multimodal texts

The person of the narration refers to the social dimension of multimodal meaning-making. The majority of the texts were written in third-person singular. However, it was difficult to

understand which object narrates the story, since it was rarely directly mentioned or visually denoted. The narrator's identification could have also been revealed through the style of the supposed 'idiolect' of the object's language (e.g., How does a tree or a ring talk? Are there particular ways to make a moon speak?). However, clarifying an inanimate narrator seemed to be challenging for students, possibly because students might not frequently represent the speech of such types of narrators. Special practice is needed in order to illustrate or depict in stylistic verbal terms personified perspectives of objects. The element chosen from the image to use first-person singular was frequently denoted either in words (for example 'Cloud: I do not like …') or by visually transferring the particular words of the narrator in added speech bubbles. This addition demonstrated an organizational link across modes to identify the narrator. The first-person plural was mainly used when the trees spoke.

Apart from the first-person narration, the students used the second person singular in order to give voice to the objects, especially when they needed the objects to directly counsel the couple. Frequently, the phenomenon of polyphony appeared, in the sense that more than one object talked. However, in some cases the polyphony was counterpart in the text, meaning that the two objects speaking to the couple gave different advice to each of them. For example, the cloud advised the man to walk away from the woman and never come back, whereas the sun advised him to remain in the relationship. In some cases, apart from the direct speech of the objects, the inanimate elements shared a dialogue between themselves. Frequently, the students thought that the first or even the second-person narration was not enough to complete the text, so they also incorporated a third person narration in conjunction with the direct speech of the objects.

Two extraordinary narrators that were observed when analyzing the multimodal texts were God and a cloud-poet. In the case of the narrator, who was presented to be God, an extra visual element (a dome) was added, which also showed a good organizational relationship between the representational and social dimensions of the two modes (verbal and visual). God's advice to the couple stylistically imitates a phrase taken from the *New Testament*, which priests often use in church. The other case is when the cloud invoked the sun to recount the story of the resourceful male character of the image:

Σύννεφο: 'Τον άντρα, ήλιε, τον πολύτροπο να μου ανιστορήσεις
Που έφτασε μέχρι την άκρη του φωτός για να την αντικρίσει!'
[Cloud: 'Recount, sun, for me the story of the resourceful man,
Who reached the edge of light to meet his beloved.']

This passage has clear intertextual elements with Homer's *Odyssey*. More specifically, it recalls the way the poet invokes the muse at the beginning of this exemplary epic. Students' use of the most representative adjective of Odysseus, as appeared in the first line of *Odyssey*, 'πολύτροπον', shows clearly this intertextuality along with the invocation of a celestial power. It

is noteworthy to mention that the literal meaning in Greek of the adjective the students used (πολύτροπο) is 'multimodal'. Although one cannot be certain whether the choice of the particular word was intentional in relation to the multimodal practice the students experienced, it makes us realize how many centuries the etymology of this growing field of multimodality (πολυτροπικότητα) dates back to, despite that, in the *Odyssey*, the term is used in a different context.

Studying the social dimension of the visual-spatial mode, the researchers focused on identifying elements and principles that enhance aspects of the characters' physical appearance that symbolize feelings, attributes and social status as described in the texts. More specifically, design elements that affect the perspective in an image, such as color value, lines, axes and shapes, were examined in relation to the written text in order to identify students' intentional use of elements to emphasize the role of each character of their story. It was found that, in the majority of drawings, groups employed either color or line to symbolize the social status of the figures. For example, the figures of happy princes and princesses were in bright colors, whereas, sad or belligerent figures were either black or other dark colors. Additionally, straight lines in the same direction depicting smooth textures were utilized to symbolize positive feelings, whereas, swirling lines and rough textures symbolized negative attitudes. Students chose earth tones to represent poverty.

In the drawings that had "separation" as the central idea, students emphasized it by visually separating the two figures in the image with two colors in contrasting hues (cold-warm) or values (light-dark) for the background, or for the circle in the top center of the image, or on the ring between the figures. Visual separation of the picture plane was achieved in a few cases by drawing a straight or zigzag line vertically to divide the surface in half.

In general, excluding the drawings where speech bubbles were added, the narrator could not be visually or linguistically identified. Partial synergy between modes regarding the social dimension of students' multimodal texts was sometimes achieved when students gave voice to objects, such as the cloud or a tree, in their written text, while also visually personifying these objects by adding facial features to them with relevant expressions.

c. Organizational dimension of meaning in students' multimodal texts

As far as the organizational dimension in the linguistic mode is concerned, most of the texts were written in prose. A few of them had a clear dialogic form, whereas some others combined dialogic form in direct speech and prose, writing in continuous speech. In only five cases was there an attempt to write poetry, in either rhyming couplets, such as the passage cited above that adopts Homeric elements, or free verse in stanzas, or rhyme without versification.

Apart from a very few exceptions, the style in third person narration was relevant to the style of story-telling, and often the students chose to start their texts with the formulaic fairy-

tale opening phrase 'Once upon a time' to briefly narrate the whole story. The vocabulary was usually simple without particular adjectives or sophisticated phrases. In dialogic parts, a colloquial style was adopted.

The vast majority of drawings depicted either the initial scene or the final scene of the story. Only one drawing depicted both the beginning and the end. Two different drawings depicted mainly the beginning and part of the evolution of events. However, there was one drawing (see Figure 3) where the complete story evolves visually throughout the surface. Also, a similar visual flow and unity of elements was achieved by placing the written words in between the existing visual elements of the outline. In this way, a vertically positioned semi-circular axis is created, enriching the organizational dimension.

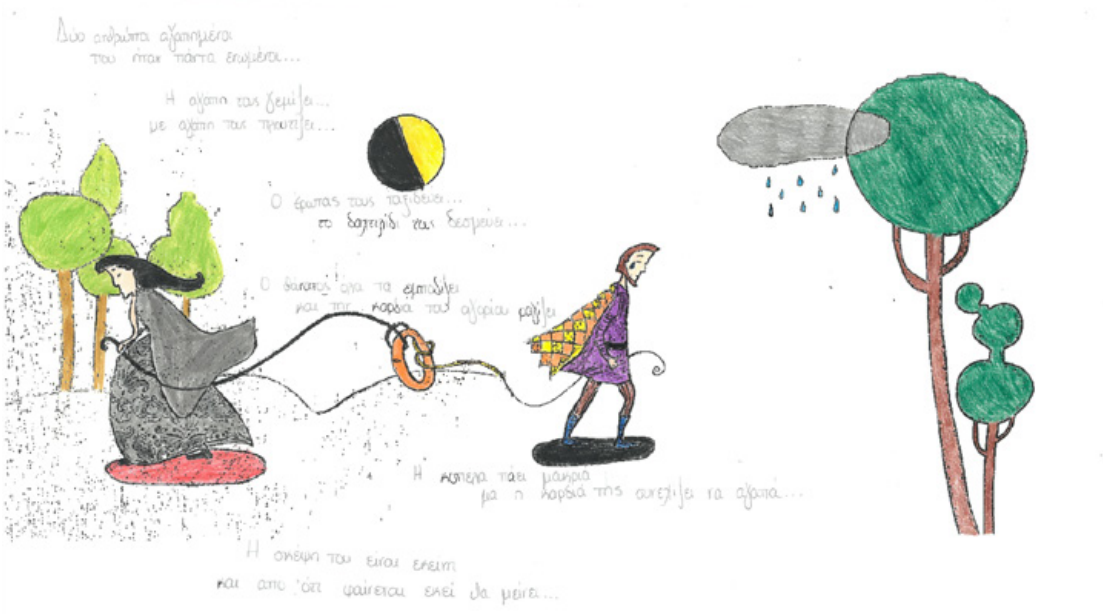

Figure 3. Visual flow and unity of elements in students' multimodal text

In most multimodal texts, student groups either limited their written text to a verbal description of the image or did not include important visual elements in the linguistic mode. Moreover, some groups tried to explain directly what the visual mode described and did not try to compose a parallel linguistic story in order to create meaningful interplay between modes. Analysis of students' multimodal texts and their reflections on how the linguistic and visual elements were interconnected to support the meanings revealed that there was a lack of synergy across modes. Even though the researchers in phase one analyzed and distributed a matrix in an attempt to show the importance of the modal interdependence layering of meaning, students faced difficulties in applying it in the production of their multimodal texts.

In several cases, students' choices were random and fragmented, indicating challenges in attributing synergy of the three aspects of meaning across the two modes.

Analysis of students' reflections regarding the choices made in the production of their multimodal texts (phase two) demonstrated that students could not adequately justify the choices they made to produce meaning in each semiotic system. Moreover, their main difficulty was in explaining how they interconnected the modes in the process of multimodal meaning-making.

Conclusions and suggestions for further research

This study explored multimodal text production by groups in a local school context. The process was initiated by an invitation to the researchers from a specific secondary school to provide students with guidance for participating in a competition organized by the Ministry of Education. External time limitations affected the design of this study and raised important issues regarding the process of scaffolding students to develop necessary skills for multimodal meaning-making. The study allowed an initial investigation of the challenges that exist in producing a multimodal text, which reveal useful directions for further research that will be discussed below.

Production of multimodality is a multilayered approach, since it requires understanding of: a) how the visual mode leads to incorporating multiple paths for orchestrating meanings bounded by image properties; b) how each mode emerges in the moment as the group members collaborate; c) how cross-checking meanings across modes is achieved; and, d) how students engage in self-correcting, when meanings are not working together. Our study indicated that students' approach to meaning-making was fragmented and often one-dimensional. The fact that we asked students, in a limited time frame, to start their production from an open image outline brought to the fore difficulties caused by the ambiguity of wordless images. Viewers could be given more time to make sense of multiple indefinite meanings and choose a narrative path among many. Assisting students to avoid limiting the text to a verbal description of the image and to write a creative story and helping them to introduce all the essential visual elements in their linguistic text, by making the appropriate synergies between the modes, students should engage in long-term processes of reflection, dialogue and justification of choices in multimodal meaning-making.

Admittedly, the limited time frame of the study did not allow for slow and engaged looking, as suggested by Tishman, which would enable students to pause and 'uncover complexities that can't be grasped in a quick glance' (2018: 141). This is a practice of vital importance for constructive multimodal text production.

Working in groups for a limited amount of time seemed to cause additional difficulties for students' collaborative production of multimodal texts. Transforming an image outline into a

multimodal text is in itself, as mentioned above, an open process, which especially welcomes multiple perspectives. This process becomes even more open when the producer engages in dialogue with others. If we would redesign this action, we would provide more time for this 'interpersonal function' (Kalantzis and Cope 2015: 19) of meaning-making, which involves students engaging in dialogue with themselves and others in relation to the visual and verbal texts in progress.

Reflecting on the production of multimodal texts from a researcher's perspective could be further studied by recording and analyzing the process of creating multimodal texts. For example, comprehending a visual mode involves decoding image properties (salience, positioning, use of color, vectors), that is, how one reads and reacts to an image. When images are used, as in this case study, video data of viewers' interactions with the image, while they dialogically transact with it, might be important to provide insights into how individual or group meanings are created.

As Lysaker (2019) suggests, in order to experience how readers voice meanings with the special symbolic resource of image, it is necessary to sit by readers and observe all that happens with their eyes, hands, bodies, and words. The fact that such data were not captured and analyzed is one of the limitations of this study. Group members' gaze as they interacted with the image, their facial expression, and their deictic gestures could provide deep insights regarding the process of meaning-making and its communication among group members. Assessing the relative importance of modes in an interaction requires rich context data to provide information for the intensity, complexity and density of modal use. If a mode is intense in a particular interaction, meaning-making is attached to it. Therefore, an interaction has modal complexity when modes are 'intricately intertwined' (Norris 2004: 79).

Multimodal pedagogy requires long-term, scaffolded, and purposeful interdisciplinary synergies and projects among central and active agents in educational contexts (educators, students, academics, and policymakers). We share the opinion of Gardiner, Cumming-Potvin, and Hesterman that the 'simplistic way multimodality is collaged into the curriculum' (2013: 357) underpins teachers' and students' understanding of the complexity and depth of the multimodality phenomenon. We argue that engaged educators and students can reflect and elaborate on the new possibilities of meaning-making utilizing different semiotic modes, especially, in an interdisciplinary level, which would demonstrate clearly the synergies of multiple modules (e.g., Modern Greek Language, Art, Technology) in students' exploration of modal affordances. Students' literacy and educators' professional development regarding multimodality should be part of an enculturation process through participatory experiences, required by educational policies, curriculum, educators' and academics'[5] initiatives, as it was with this case study.

NOTES

1 The five questions about meaning posed by the two researchers regarding multimodal grammar are quoted from Kalantzis' and Cope's 2015 paper. They originally addressed them in detail in their paper published in the *International Journal of Learning* (Cope and Kalantzis 2009: 365-422).
2 We do not discuss students' movement or sound productions in this paper, since no license was provided for audio and video recordings.
3 We thank the publishing house Diaplasi for allowing us to make the outline of an illustration by Iris Samartzi in *Erotokritos* 2015 and to use it for educational and research purposes.
4 The illustrations by Iris Samartzi in the specific picturebook follow the Renaissance motifs and colors. The clothes of the protagonsts give information about the time and the social status to which they belong. In general, her illustration shows the concern of an artist to study the historical period of the original book and to transmit certain cultural elements of the time in her work. The students could analyze some of these aspects even in the black and white outline. For more information about Samartzi's illustrations in *Erotokritos*, see Rodosthenous-Balafa 2017: 106-119.
5 Academics play an important role in the constructive practice of New Literacies in schools. Especially through research programs with which they are engaged. An example is *Dialls*, Dialogue and Argumentation for Cultural Literacy Learning in School (2018-2021), where through multimodal texts students are engaged in discussions, which enable a growing awareness of their own culture but also of the other's culture. This research program is applied to Pre-Primary, Primary and Secondary Education. Ten academic partners are involved (including the University of Nicosia). The leading University of the project is Cambridge University, see https://dialls2020.eu/.

REFERENCES

Adami, Elisabetta 2017. Multimodality. In: Ofelia García, Nelson Flores and Massimiliano Spotti (eds.) *The Oxford Handbook of Language and Society*. Oxford: Oxford University Press, 451-472.

Albers, Peggy 2007. Visual discourse analysis: An introduction to the analysis of school- generated visual text. In: Deborah Wells Rowe, Robert T. Jimenez, Donald L. Compton, David K. Dickinson, Youb Kim, Kevin M. Leander and Victoria J. Risko (eds.) *Fifty Sixth Yearbook of the National Reading Conference,* vol. 56, Oak Creek, WI: National Reading Conference.

Berger, John 1972. *Ways of Seeing*. New York: Penguin.

Bezemer, Jeff and Jewitt, Carey 2009. Social Semiotics. In: Jan-Ola Östman and Jef Verschuer-

en (eds.) *Handbook of Pragmatics*. Amsterdam: John Benjamins. Also available online https://doi.org/10.1075/hop.13.soc5

Cope, Bill and Mary Kalantzis. 2009. A Grammar of Multimodality. *The International Journal of Learning,* 16 (2): 361-425.

Harste, Jerome C. 2003. What do we mean by literacy now. *Voices in the Middle*, 10 (3): 8-12.

Freedman, Kerry 2003. *Teaching Visual Culture*. New York, NY: Teachers College Press.

Jewitt, Carey 2008. Multimodality and Literacy in School Classrooms. *Review of Research in Education* 32: 241-267.

Jewitt, Carey, Josephus Johannes Bezemer and Kay L. O'Halloran. 2016. *Introducing Multimodality*. London: Routledge. Available from: http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,sso&db=nlebk&AN=1204264&site=ehost-live [accessed 25 April 2019].

Gardiner, Veronica, Wendy Cumming-Potvin and Sandra Hesterman 2013. Professional learning in a scaffolded 'multiliteracies book club': Transforming primary teacher participation. *Issues in Educational Research* 23 (3): 357-374.

Kalantzis, Mary and Bill Cope 2015. Regimes of Literacy. In: Mary Hamilton, Rachel Hayden, Kathryn Hibbert and Roz Stooke (eds.) *Negotiating Spaces for Literacy Learning: Multimodality and Governmentality*. London: Bloomsbury, 15-24.

Kress, Gunther 2003. *Literacy in the New Media Age*. London: Routledge.

Lancaster, Lesley 2001. Staring at the page: The functions of gaze in a young child's interpretation of symbolic forms. *Journal of Early Childhood Literacy,* 1 (2): 131-152.

Leeuwen, van Theo 2015. Multimodality in Education: Some directions and some questions. *Tesol Quarterly* 49 (3): 582-589.

Lysaker, T. Judith 2019. *Before words. Wordless picture books and the development of reading young children*. New York: Teachers College Press Columbia University.

Mouriki, Katerina and Ioanna Kyritsi-Tzioti 2015. Erotokritos [IN GREEK]. Illustr. Iris Samartzi, Mus. Nikos G. Papadogiorgos, Athens: Diaplasi.

Rodosthenous-Balafa, Marina 2017. 'Her face was the moon': Poetic imagery and illustration in *Erotokritos*'s latest picture book version. In: Rodosthenous-Balafa (ed) *Creative Teaching of Literature. Suggestions and Practices in Primary Education*. Athens: Grigoris, 106-119. [IN GREEK]

Norris, Sigrid 2004. *Analyzing Multimodal Interaction: A Methodological Framework*. New York, NY: Routledge.

Serafini, Frank 2014. *Reading the visual. An introduction to teaching multimodal literacy*. New York: Teachers College Press.

Sipe, R. Lawrence 1998. How Picture Books Work: A Semiotically Framed Theory of Text Picture Relationships. *Children's Literature in Education* 29 (2): 97-108.

Tishman, Shari 2018. *Slow Looking. The Art and Practice of Learning Through Observation.* New York, NY: Routledge.

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The impact of multimodal learning environments on the development of creativity

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This paper seeks insight into the impact of multimodal learning environments on the development of creativity. It draws on a case study of a three-day workshop 'Creativity and Innovation' held with first year Master's students at the Graduate School of Management of Grenoble Alpes University. The goal of the workshop was to accompany students, through the use of Creative Problem Solving (CPS) techniques, in finding creative and innovative solutions in a real-life problem-solving task: to come up with an idea of an efficient system that would allow a long-term cooperation between students and the Sustainable Planning Office (SPO) for enhancing the sustainable planning of the campus. To this end, students were placed in a multimodal learning environment: designed with a wide range of multimodal practices (individual and team-work in small and large groups; rotation of group members; collective intelligence games; brainstorming; role-play; story-telling, etc.); working in multidisciplinary groups (students majoring in different fields); and were asked to provide multimodal productions (posters; oral presentations; 'product boxes', etc.). Participants were explicitly asked to use written language in their productions the least possible. Drawing on the analyses of the learning environment and learners' multimodal productions, the study aims at contributing to the understanding of the impact of multimodal learning environments on the development of learner creativity.

KEYWORDS Multimodal learning environments; situated multimodal practice; multimodal productions; creative problem solving (CPS); development of creativity

1. Introduction

Although multimodality research has been gaining ground only over the past few decades, 'it addresses a phenomenon which is as old as representation itself and crucial to an under-

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standing of almost all forms of communication' (Stöckl 2004: 9). Indeed, human communication and representation have always been multimodal by nature and the recent interest in multimodality is seen as the late discovery of the obvious (cf. Kress and Van Leeuwen 2001; Ventola et al. 2004; Stöckl 2004; Iedema 2003). Stöckl (2004:10) accounts for the focus on language as the standard and dominant form of communication by the lack of adequate models for the analysis of other modes and puts forward two models of multimodal analysis for printed as well as TV and film media.

Considering that with the development of new technologies multimodality has taken an even greater place in everyday communication, 'the multimodal literacy needs of students are stretching the ability of teachers to support them' (Ventola et al. 2004: 2). Thus along with the domains of media and communication, multimodality is increasingly prevalent in education. Guo (2004: 215), for instance, suggests that 'teachers and researchers need to take seriously the multimodal nature of meaning making in academic apprenticeship and professional life and refocus our research and teaching agenda to better prepare our students for their current and future academic and professional life'. While discussing the new multimodal opportunities for language teaching, Kaltenbacher points to the:

> growing pressure on teachers at all types of educational institutions to make extensive use of IT and the new media in their classrooms. This is due both to the IT industry's lobbying of governmental and educational authorities to spend more money on training pupils and students on computer-based products, as well as the wide-spread public belief that if something is 'multimedia', it is also automatically good. (2004: 120)

In a study on the impact of new media and information technologies on learning and teaching (2004), he warns against delivering multimodality in education in a way that actually disrupts learning. The findings of his study point to the need for carefully designing multimodal experiences for learners that are based on deliberate thought or on a didactic concept, rather than on chance. While the author quite rightly questions the efficacy of the massive use of the new media in classrooms, he also brings up a common ambiguity linked with the idea of multimodality.

When it comes to educational practices, more often than not multimodality is associated with and sometimes even equaled to technology-mediated learning (cf. Sankey et. al 2010). However, although the notion of multimodality goes hand in hand with that of multimediality, one should be careful not to reduce the former to the latter. In a similar stance, Shipka (2011) has critiqued the way multimodality is conflated with digitality. Indeed, in view of the relatively recent development of multimodality research, the terms mode and modality still lack precision.

The notion of modality is often reduced to sensory modes. Thus, while referring to multimodal learning environments, Sankey states: 'multimodal learning environments allow in-

structional elements to be presented in more than one sensory mode (visual, aural, written).' (Sankey et al. 2010: 853)

The conventional notion of mode governing linguistic communication is grounded on the idea of mode as a way in which language is used and therefore implies speaking, listening, reading and writing. The term 'mode' is also used to conflate with different channels of oral and written communication (telephone, face-to-face, fax, email, letters, etc.). This approach is based on tools and technology-mediated channels involved in communicative acts. Furthermore, formats of communication (e.g. presentation as opposed to conversation or interview) can also be considered as a mode of communication. Kress and Van Leeuwen (2001: 21-22) define modes as 'semiotic resources' that 'can be realized in more than one production medium'. In a more socio-cultural view, Kress (2010: 79) defines mode as 'socially shaped and culturally given semiotic resource for making meaning'.

However, as Prior (2005) argues, while addressing the notion of multimodality Kress's focus on artifacts rather than practices is problematic. In line with Prior's view, the present study endeavors to explore multimodality in education in a wider sense, as referring to 'communicative artefacts and processes which combine various sign systems (modes) and whose production and reception calls upon the communicators to semantically and formally interrelate all sign repertoires present'. (Stöckl 2004: 9)

As pointed out by Prior (2013: 523) 'A striking feature of [...] multimodality studies in general, is the almost exclusive focus on texts and other semiotic objects. Multimodality studies rarely involve close attention to how people make, distribute, or use multimodal texts and objects.' Indeed, multimodal meaning-making practices as such have still not received sufficient attention in the field of multimodality research. This paper advocates the need for such studies and attempts to contribute to the field by placing multimodal practice at its core and refocusing multimodality research attention to situations of use and the complex dynamics of situated semiotic activity. On a similar vein, practice-oriented approaches to multimodality research and discourse analysis are noted in Norris (2004), Scollon (2008) and Johns (1998).

Furthermore, while most studies on multimodal learning environments focus on the input, that is to say, on the content material as well as the design and delivery of teaching (what and how to teach) (cf. Baldry 2000; Jochems, van Merrienboer and Koper 2005), the present study adopts a shift in perspective and enquires into learning and not teaching practices, though the two are intimately linked. The focus of the present study is the learners' experience of multimodal practices, as well as the learning outcome (multimodal productions), i.e. what and how students learn in a multimodal environment.

Finally, while multimodality has mainly been treated as an approach to analysis (resulting in Multimodal Discourse Analysis), this paper addresses the issue as an approach to learning. Multimodality as an approach to learning is a relatively new issue and is therefore fairly under-researched. For this reason, the present study attempts to contribute to understanding

how situated multimodal practices can open up new opportunities for learners to actively and naturally engage in learning-processes, and thereby enhance their motivation and develop skills, such as creativity and multimodal literacy.

After presenting the research method and the framework of analysis in the opening sections, we will proceed with presenting the research tools that served for data collection. Some qualitative findings will be discussed in section five that falls into two sub-sections: the first focuses on the multimodal practices comprising the learning environment, while the second – on learners' multimodal productions. The limitations of the present study as well as some directions for further research will be considered in the concluding part.

2. Research Context

Grenoble Alpes University ranks first in France and the eighth in Europe[2] in terms of campus layout. Situated in the French city of Grenoble, the university sits adjacent to the French Alps and counts three mountain ranges as part of its campus. With its complex layout and onsite management system it is truly a city within a city. A special unit was thus created to deal with these involved tasks. It is the Sustainable Planning Office (SPO) that operates with in-house staff members and a number of external service providers. However, the SPO has been confronted with a real problem that of motivating students to commit to participating in the sustainable management of their campus. The SPO thus asked the participants of a creativity workshop to come up with innovative and creative solutions as to how to motivate students to commit.

This paper presents the findings of a case study carried out within the framework of this workshop organized by the Graduate School of Management of Grenoble Alpes University. The workshop aims at training learners to use creative problem solving (CPS) techniques in finding innovative solutions to real-life problems. It is organized yearly within a very brief but intense period of time, i.e. three seven-hour days. Participants are given a research problem on the first day and need to come up with an innovative solution on the second day. A material representation (poster, video, product box, etc.) of the proposed solution along with an oral presentation of it are to be made by the end of the third day.

A wide range of learning practices deriving from the theory of CPS are used in the workshop to accompany students in acquiring tools and techniques, and accomplishing tangible learning outcomes. There are more than a hundred participants that work in small groups of four to five students majoring in different fields, and each teacher is in charge of three to four of such groups. The present case study concerns fourteen participants that worked in three groups. In what follows, the research focus and methodology are presented.

3. Aim and Methodology

The paper reports on a case study designed to gain insight into the impact of multimodal learning environments on the development of creativity. As mentioned, it conceives of a multimodal learning environment as being comprised of both multimodal practices and multimodal productions. As for the idea of creativity, its use in the present study is twofold: it refers both to the creative and innovative nature of the proposed solutions and the choice and combination of semiotic resources used to construct multimodal representations in order to communicate about the given solutions.

In the perspective of establishing a connecting relationship between a multimodal learning environment and the development of learners' creativity, the following research question was addressed: does a multimodal learning environment involving multimodal communicative practices and multimodal assignments positively affect learners' creativity?

The multimodal learning environment was analyzed through learner evaluations of its different aspects, while learners' creativity was explored through the analysis of their multimodal productions. Such method of analysis was determined by the fact that learner-centeredness was key to the design of the present research.

In an exploratory approach, a case study was carried out with fourteen participants. This could seem as a rather limited sample in order to be considered as representative, however, the study was conceived adopting a qualitative, exploratory approach and to compensate for this limitation its findings were put to test in two further case studies with eight and ten participants respectively. By adopting this method, we were looking for qualitative insights into our research question.

4. Research data and interpretative framework

The research draws on two sets of data: learner evaluations in a questionnaire survey and multimodal artifacts produced in specific pedagogical assignments.

The questionnaire survey was submitted to learners at the end of the workshop and sought to elicit learner evaluations of different components of the learning environment. Taking into account highly disparate levels of English of the participants and the fact that the workshop was carried out in French, the questionnaire was also conceived in French. It was comprised of questions pertaining to different aspects of the design of the learning environment. These constitute the analytical categories under which the results of the questionnaire are discussed in the first part of section five. In particular, communicative practices directly and explicitly linked with the solution of the problem (individual vs. small and large group work; rotation of group members; brainstorming; learning-by-doing) and those indirectly and implicitly affect-

ing the problem-solving process (collective intelligence games; working in multidisciplinary groups and audio-visual stimuli used to enrich the learning environment).

The use of a questionnaire survey to evaluate the learning environment derived quite naturally from the overall learner-centeredness of the study. Furthermore, this method, with its underlying self-reflecting processes, was aimed at helping learners enhance their overall multimodal literacy by (a) developing awareness of meaning-making processes in a multimodal perspective and (b) understanding the significance of multimodal practices. As Kress (2003: 24) argues in meaning-making processes it is vital to understand 'the meaning-potentials of the resources as precisely and as explicitly as we can' in order to be able to choose consciously the most appropriate semiotic resource to make and represent meaning.

Similarly, in order to be able to make the utmost use of the semiotic potential of each mode and develop one's creativity in combining them to represent meaning, learners need to be aware of the meaning-making potential of each semiotic mode. Such awareness is believed to develop their creativity.

The feedback on learners' experience collected through the questionnaire survey was then confronted with our observation of classroom interactions. By adopting the observational analysis of situated semiotic practices, the paper aims at contributing to the theory of multimodal communication. For as Prior argues:

> Although multimodality studies [has] argued for attention to practice, analyses have focused attention almost exclusively on texts, screens, and semiotic objects. Where practices are mentioned, they are almost always inferred from, or imagined off, the pages, screens, and three-dimensional objects under analysis as opposed to being described through observational and ethnographic attention to the dynamics of situated semiotic activity. (2013: 524)

Multimodal artifacts, constituting the second set of data, were learner productions conceived in specific pedagogical assignments throughout the workshop. To evaluate the development of the learners' capacity to creatively combine different semiotic resources in meaning-making processes and in constructing multimodal representations, two sets of artifacts were chosen for analysis, those produced at the very first and final stages of the workshop and which were labeled respectively as 'initial' and 'final' productions.

These were analyzed within the interpretative framework as suggested by Stöckl (2004). The specific framework of analysis was chosen as it draws on the idea of mode and modality as advocated in this paper, that is, integrating views on mode as a sensory channel (visual, auditory, etc.) and a semiotic resource (verbal and non verbal). Furthermore, it offers the possibility of a detailed analysis integrating criteria, such as medial variants of semiotic modes (static and moving images, spoken and written language); peripheral modes (typography, layout); sub-modes (font, type size; color; composition, perspective, etc.) and features (differentiation hue, contrast, etc.).

Section five below presents some qualitative findings focusing first on the results of the questionnaire survey and then on learners' multimodal productions.

5. Findings and Discussion

The results of the questionnaire survey are presented below based on the analytical categories as explained above.

5.1. Multimodal learning environment: results of the questionnaire survey

Design as described by Kress and Van Leeuwen (2001: 45) stands for 'a deliberateness about choosing the modes for representation'. Similarly, design of learning environments implies a thoughtful and deliberate choice of the modes of communication between the learner and teacher, as well as among learners or groups of learners. The questionnaire that was submitted to learners comprised questions relative to multimodal practices included in the design of the workshop. Learners were offered opportunities to engage in situated multimodal practices to experience different learning modalities, which extensively involved social interaction. In what follows, the results of the survey are presented under subsections pertaining to different multimodal practices that learners were brought to experience throughout the workshop.

Individual vs. small and large group work

Learners were brought to work individually and subsequently in small and large groups. The switch between learning modalities enabled them to share and exchange ideas efficiently. An efficient cross-fertilization of ideas was made possible due to the fact that group members who had their own, often fixed ideas, while discussing with each other, were able to bounce ideas off each other and build on each other's ideas to ultimately come up with a completely new idea. In this sense, the diversity of learning modalities entailed a diversity of modes of thinking.

The work in small groups was felt as interactive. It helped establish confidence among group members and facilitated communication. Learners were more disposed to open-up and share ideas with their group-mates, before presenting them in front of a larger group.

In large groups, while each sub-group presented their own solution, the other sub-groups provided feedback, highlighting the positive and negative aspects of the proposed solution. Ideas were exposed to helpful and constructive criticism of peers. Strengths and weakness of an idea or solution were identified, which allowed improvement.

Rotation of group members

Once each sub-group came up with a solution, there was a rotation of group members.

In a short exercise (fifteen to twenty minutes), learners changed groups every five minutes so that each learner had the chance to participate in discussions in each of the sub-groups. This learning modality involved time constraint (which was felt as efficient for generating ideas) and multimodal communication. As learners changed groups, participants provided explanations to new members of the group orally and through graphical representations (writing, drawings, etc.). The new members were encouraged to complete the drawings and suggest new ideas.

Rotation of group members proved to be productive as it ensured continuous improvement of the creative process, fueling the initial solution with new ideas. The advantages of this mode of communication are double-sided. On the one hand, for the members who leave their group and join new groups and thereby new research questions: this allows learners to take a step back on their own problem and come back to it with a new perspective. Furthermore, learners discover the research tools and methods adopted by other groups and get the chance to apply those to their own problem.

On the other hand, for the team who welcomes new members: firstly, this provides an opportunity of explaining how the issue was understood and addressed, present and justify the methods and tools that were used and possibly the obtained results. This communicative practice brings an undeniable cognitive benefit, that of enhanced clarity, for in the process of explanation and the search for clarity in order to make the problem and the adopted approach comprehensible for the others, these become clearer for those who explain. Secondly, when sharing one's ideas, there is a real questioning and the possibility of exposing oneself to criticism. Then comes the need to find arguments to back one's viewpoint or modify it in case convincing arguments couldn't be found. And finally, this particular communicative practice offers new perspectives and allows for external viewpoints to be integrated in the problem solving process. Hence the possibilities of harnessing ideas are amplified and participants are given the chance to tap into each other's ideas, skills and knowledge so as to come up with innovative and creative solutions to the their problem.

Brainstorming through post-it notes

One of the communicative practices broadly used among learners within the framework of this workshop was ideation and brainstorming using post-it notes. Participants were asked to produce as many ideas as possible, writing only one idea per post-it note. First, each learner wrote their own ideas individually, without showing them to the others, in order not to influence their group-mates. Then, each participant shared their ideas with the group, orally explaining each idea and displaying it on a board. The use of post-it notes, that was implemented to stimulate the brainstorming process, was largely commented by learners as having a positive impact on their creativity.

The post-it based activity rendered learning particularly dynamic. Participants were encouraged to produce as many ideas as possible, which gave them little time to judge their own

ideas and therefore censure them in the belief that the others could judge their ideas. In this multimodal communicative practice, new ideas were often born by combining and establishing links between two different ideas, which constitutes the very basis of innovation. In this process ideas took shape, were materialized and became tangible. To put them down on a piece of paper meant these could be thrown away easily as well. So participants did not really attach much importance to their own ideas, and didn't judge them. As will be demonstrated further this point is of particular importance for the development of what Kelley (2013: 9-10) calls 'creativity confidence' which lies at the very heart of one's capacity to be creative.

One undeniable drawback of this communicative practice is of course its failure to meet the environmental concerns by using so many post-it notes (one post-it note per idea, instead of writing several ideas on a single post-it note). But this process helps organize and reorganize ideas easily. Once all the ideas are displayed on the board, participants can see different categories emerge and organize or re-organize their thought and problem-solving process as many times as necessary. One possible argument for this multimodal learning practice could be the idea that post-it notes can and should be recycled at the end of the workshop.

Learning-by-Doing

After being given a brief theoretical background on the CPS techniques, learners were brought to practice them through learning-by-doing method. When it came to evaluating this learning modality, some frustration was said to have been experienced by the participants in the beginning because of a lack of confidence in their skills and the capacity to fulfill the task on their own. However, once the participants managed to tap into their own resources to accomplish a task, they regained confidence in themselves and considered this mode of learning as the most efficient for it enabled them to see a project take shape through a step-by-step process in a tangible manner.

Adopting the learning-by-doing approach, participants tested a number of processes and learnt how to use different multimodal communicative practices to diversify their methodology of work, stay focused and be productive within very short periods of time.

What was particularly appreciated in learning-by-doing was that it enabled participants to actively engage in the learning process, which became more interactive and playful. The feeling of being able to work in complete autonomy that was developed by the participants in this learning modality was perceived as rewarding and learner empowering.

Collective intelligence games

Collective games such as icebreakers and energizers were extensively used in the design of the workshop. These are complex multimodal communicative practices in that they involve gesture, posture, body language, oral language, but they can also involve writing and drawing. These learning modalities do not concern the problem to be solved directly and explicitly,

however, they are important in that they allow learning more about individual participants within a group, finding out their character traits, their attitudes and certain behavior patterns as well as the way each member operates (e.g. whether or not one is more efficient when put under pressure, time or other constrains, etc.). This knowledge, which might seem to be irrelevant, proves to be precious when used in the process of addressing the research question, as it allows participants to collaborate more efficiently and make each member of the group bring utmost contribution to the work accomplished.

These games also help develop self-confidence of members, as regardless of individual backgrounds (age, profession, exam results, etc.) each member of the group is treated equally in these games. This facilitates the sharing of ideas later on within smaller groups, as participants are more confident and are not afraid to be judged.

These games also serve as 'playful breaks' that stimulate and entertain learners and help them relax, take a step back from their research question, get positive energy before getting back to their problem-solving tasks more focused and thereby more productive. It could therefore be concluded that including collective games in the design of multimodal learning environments improves learner concentration by making the learning process more dynamic and engaging.

Furthermore, collective games serve as team-building tools. These are used within the framework of the present workshop to help develop group cohesion and establish a positive working environment (conviviality). It goes without saying that the cross fertilization of ideas takes place more easily and efficiently within a group in which members feel confident and share a feeling of belongingness. The common objective of the group, i.e. to find an innovative solution to a problem, is then shared more easily; members identify with this common goal and feel fully concerned with its efficient accomplishment.

Working in multidisciplinary groups

As mentioned earlier, participants were put in multidisciplinary groups. Each group was comprised of participants from a wide range of disciplines, such as marketing, production and purchasing management, logistics, management of IT systems and HR. In the questionnaire survey, participants were asked to evaluate the impact of the multidisciplinary environment on their learning process and outcome. They felt that while working in multidisciplinary groups, they were confronted with different ways of addressing a problem specific to each discipline. Interestingly, the idea of culture, specific to each discipline, similar to corporate culture, came up. The culture of a given discipline as the manner in which a question was addressed, research tools and methods were chosen and used.

Each member of the group was complementary and had an active role in the process of working. Everyone was engaged in the activities and contributed according to their expertise, skills and knowledge. This made the work more dynamic, and the participants were more mo-

tivated and focused. The feeling of being useful to one's team further developed their self-esteem and thereby self-confidence and contributed to a better group cohesion. This resulted in more ideas in terms of both quantity and quality.

Integrating multidisciplinarity in the design of the learning environment allowed the participants to adopt different viewpoints while addressing a research question and thereby have an overview of the problem from different angles and treat it in a more comprehensive manner. The participants' multidisciplinary skills and knowledge were called upon, which was key to broadening the spectrum of possibilities as to the methodology adopted and the solutions developed. Thus multidisciplinarity entailed enhanced multimodality in terms of adopted communicative practices.

Beyond the very process of learning, participants felt that the multidisciplinary nature of their groups had a strong impact on the final result: the proposed solution was better than it could have possibly been, were the group made of members from one and the same discipline. Not only they were given the opportunity to take advantage of an expert view, but also that of a novice, equally valuable, as the latter had an unbiased view on the problem. This allowed establishing new links between phenomena and coming up with more innovative ideas.

Audio-visual stimuli

In the course of the three-day workshop, participants were exposed to music and a highly colorful environment to reinforce the audio-visual dimension of their learning setting. Two different playlists developed by Scott Doorley, the Creative Director at the d.school of Stanford University were used for the purposes of enriching the learning experience with audio stimuli. The first list, called 'active' was bouncy and upbeat, and was designed to support making and physical activity, whereas the second 'reflective' list, featuring quiet tunes, acted as background music for small group discussions or individual work.

Participants were asked to evaluate the impact of the audio-visual stimuli on their way of thinking and working. When confronted with this question, the participants were first surprised and admitted not having thought of these stimuli explicitly. However, with hindsight, they thought the abundance of colors in their learning environment could have influenced their work and motivation in a positive though subconscious way. To better understand the role of color in their work, they imaged if they were to use only the black color while drawing and representing visually the research problem, it would have been sad and much more simplistic, devoid of any intricacy and detail, they concluded. So the colorful environment was said to have influenced positively their way of representing ideas. Furthermore, along with music, color was described as having triggered positive emotional responses and thereby more motivation to engage in the proposed activities. Studies in cognitive sciences have demonstrated that emotions do affect learning (cf. Sylwester 1994). Also the word 'active' was often cited to demonstrate the idea that learners felt as active participants of the learning process, which

was considered to be more engaging and fun. 'Such an environment makes you want to work', a learner pointed out.

The abundance of colorful stationery put at the participants' disposal was felt as having called for more creativity. Even though the workshop was organized as part of their academic curriculum, one of the learners wrote: 'while working in this kind of environment, my feeling was that I was working more in a company than at a university'. It could be inferred that the work that was being accomplished was felt as real-life and relevant and not as purely theoretical. Also, as the task was felt as useful and realistic, learners felt more motivated to commit and come up with innovative and feasible solutions.

The added value of multimodal learning environments

The diversity of the modes of communication, chosen for the design of the learning environment, was a much-appreciated aspect of the workshop and the participants described their multimodal learning experience as rewarding and enriching.

The wide range of learning modalities was also thought to have enhanced their motivation. Even though the word 'motivation' didn't appear explicitly in the way the question was formulated in the survey, as it didn't constitute the focus of our study, it came up very often in the participants' tokens. The dynamics created by the diversity of communicative practices contributed to learners feeling more engaged in the learning process and being more productive. Furthermore, it developed flexibility and adaptability, and created a playful and interactive working environment.

Also, some of the participants felt that their argumentation skills were enhanced, as they were brought to explain their ideas and back their solutions while presenting those to others.

Furthermore, learners were able to work autonomously and in small and large groups, which developed their team-playing skills. The opportunity to work in small teams and express oneself in different modes developed the participants' self-confidence. They felt more at ease with sharing their ideas. The legendary psychologist and Stanford professor Albert Bandura has shown that self-confidence is a key factor in developing creativity. He referred to this type of confidence as 'self-efficacy':

> Individuals who come to believe that they can effect change are more likely to accomplish what they set out to do. [...] People with self-efficacy set their sights higher, try harder, persevere longer, and show more resilience in the face of failure. (Kelley 2013: 9-10)

Furthermore, CPS is a process in which participants learn to accept a certain degree of ambiguity as to the outcome of learning processes. When confronted with a task, they are taught to jump in and accomplish it, to experience the process without questioning it much. As a result, they accept to let control go and unleash their creative potential. As Kelley puts it:

> When people transcend the fears that block their creativity, all sorts of new possibilities emerge. Instead of being paralyzed by the prospect of failure, they see every experience as an opportunity they can learn from. The need for control keeps some people stuck at the planning stage of a project. With creative confidence, they become comfortable with uncertainty and are able to leap into action. (2013:10)

As for multimodal assignments, one of the participants wrote: 'Drawings enable us to go to the point directly. These are efficient tools, which help avoid wasting time on trying to find the perfect wording to explain one's point.' The possibility to express oneself multimodally was clearly experienced by the participants as an advantage, which unleashed their creativity. One of the participants mentioned:

> It is difficult to explain everything in mere words. The possibility to visualize the proposed solution, for instance, through drawings, is a real asset as it helps shed light into the issue and clarify it by visualizing its different aspects and furnishing a tangible reference for the ideas developed.

Learners were able to visualize the problem and its possible solutions and thereby get a multidimensional picture of the issue to be addressed. The possibility to use drawings or other means of representation was felt as innovative in that it fostered learning in a more playful and informal environment. Therefore, the participants stated to be more motivated to accomplish the task.

Interestingly, one of the participants compared the opportunity that was given to them to express themselves tapping into a wide range of semiotic resources to 'gaining more space' to express oneself and to create. As if they shifted from a two-dimensional space, that of representing by a pen and paper (or a keyboard and a screen) to a richer and multidimensional space. The opportunity that the learners were granted to use multimodal means of communication in their productions gave free rein to their imagination.

More importantly, in such multimodal environments where learners were encouraged to use the least possible language and tap into other semiotic resources instead, participants felt that their skills to express themselves differently, multimodally developed. Participants, who affirmed in the beginning not being able to draw, ended up using drawings extensively to illustrate their ideas.

To conclude, in their questionnaire responses, when asked about the impact of the multimodal learning environment on the development of their creativity, all the participants mentioned that their creativity and imagination were definitely stimulated and developed in such environments.

Having discussed the results of the questionnaire survey on different multimodal practices constituting the learning environment, in what follows, we will proceed with the analysis of our second set of data, i.e. learners' multimodal productions, using the interpretative framework as developed by Stöckl (2004).

5.2 Multimodal productions: tracing the development of learners' creativity

As mentioned above, learners were taught the CPS techniques through learning-by-doing method. That is, after being given some theoretical explanations on different stages constituting the creative process, as well as the tools and techniques to be used, they were given a real-life problem and were asked to address it by implementing the CPS process.

In stage one of the CPS process, which consists in clarifying the problem to be addressed, participants were given an exercise to practice the visualization technique. In particular, they were asked to address the following question: how are holiday plans decided in a large family (many kids and/or blended family)? The answer had to be represented graphically using language the least possible. They were given fifteen minutes and all sorts of stationery supplies (color pencils, markers, post-it notes, scissors, etc.).

The groups were to explore the question by featuring the following elements: purpose, stakes, stakeholders (parents, children of different age groups), the notions involved (family, holidays), constraints (financial and other), available resources and possible solutions.

In the course of the workshop the participants were asked to design a number of multimodal productions: first, to enhance their skills in visually representing a research problem and then, at the final stage, to represent their proposed solutions. Accordingly, participants' multimodal productions are analyzed in two sub-categories: 'initial productions', that served to practice multimodal communication while representing a research problem (holiday plans in a large family), and 'final productions' representing proposed solutions (SPO problem on campus management).

Initial multimodal productions

The above picture (see Figure 1) can be read from top to bottom (vertically) and from left to right (horizontally). First, on the top left corner, we can see a drawing of the family, united as one and sharing a common goal – their future (summer) holidays, represented on the right side of the poster. Far from being a coincidence, such spatial distribution, namely drawing the family on the left and their goal, on the right, bears a strong semiotic potential, that of conveying temporal signification through spatial organization. The past is represented on the left, while the future on the right. This temporal signification is confirmed by similar designs occurring in other multimodal productions discussed further. As for the vertical design, learners tend to represent the research question as a departure point above the suggested solution, as if conveying the sequence of events occurring one before the other.

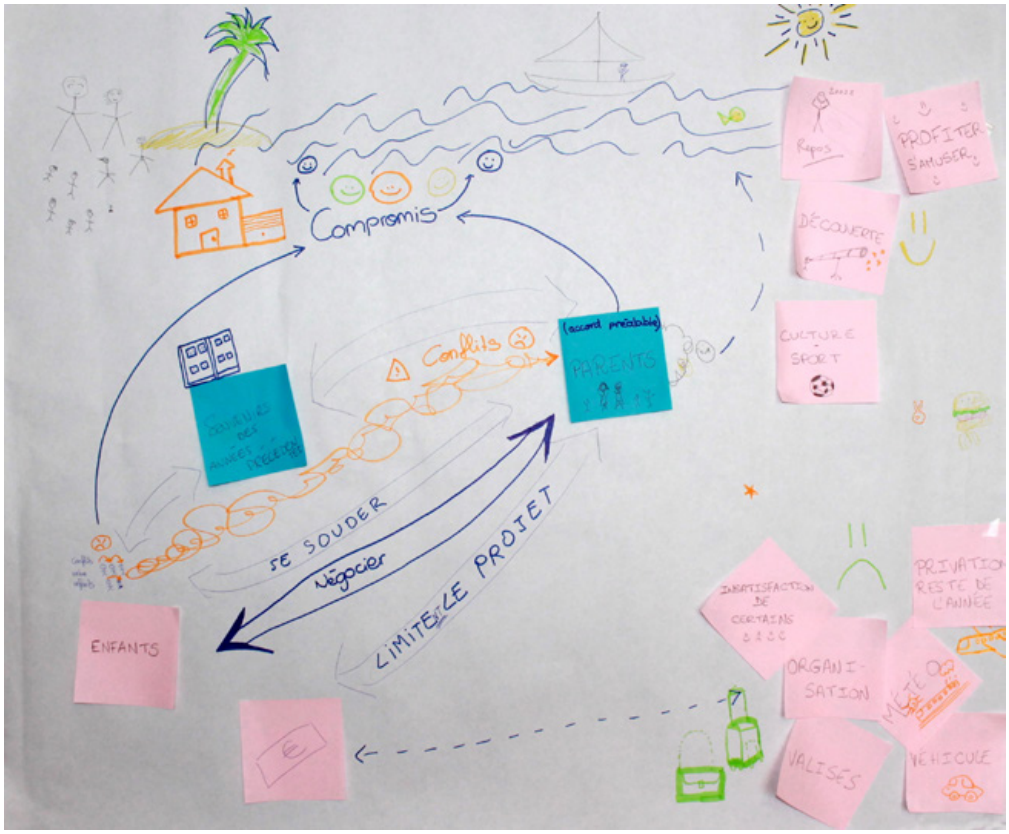

Figure 1. Clarifying the problem. Multimodal production of group one

Four pink post-it notes are used to clarify what is meant by holidays, namely – sleep and rest (a man sleeping with the letters 'zzzzz' next to him and the word 'rest' [repos[3]]), enjoying and having fun (happy smileys), discovering new things while on holidays (someone looking through a telescope with the writing 'discovery' [découverte]) and finally sports and cultural activities (a soccer ball). Decision-making that involves different factors and stakeholders is represented as a circular process through the use of pointed curved arrows. Group one, put the children ('children' [enfants] written on the left-hand side) and parents (drawn on a post-it note) in opposite positions, using different color post-it notes and then united them in the same process using a double-sided arrow that reads 'negotiate' [négocier]. Happy and sad smileys are used to represent tensions, conflicts and satisfaction. One of the factors that is taken into account in the decision-making process is the souvenirs of past holidays represented though a photo-album, next to the words 'past year souvenirs' [souvenirs des années précédentes]. Various constrains impacting the decision-making process are represented at the bottom of the poster – on the one hand, financial constraints (a banknote with the symbol of the euro drawn on it) and on the other, all the other types of constrains, such as weather, luggage,

savings, organizational and time-table constraints, transportation (if they were to leave in a car, plane or ferry). Finally, thirty words are used to accompany the visual representations. To get back to the initial question, for group one, the decision-making process is a negotiation between parents and children in which an agreement can be reached through compromise.

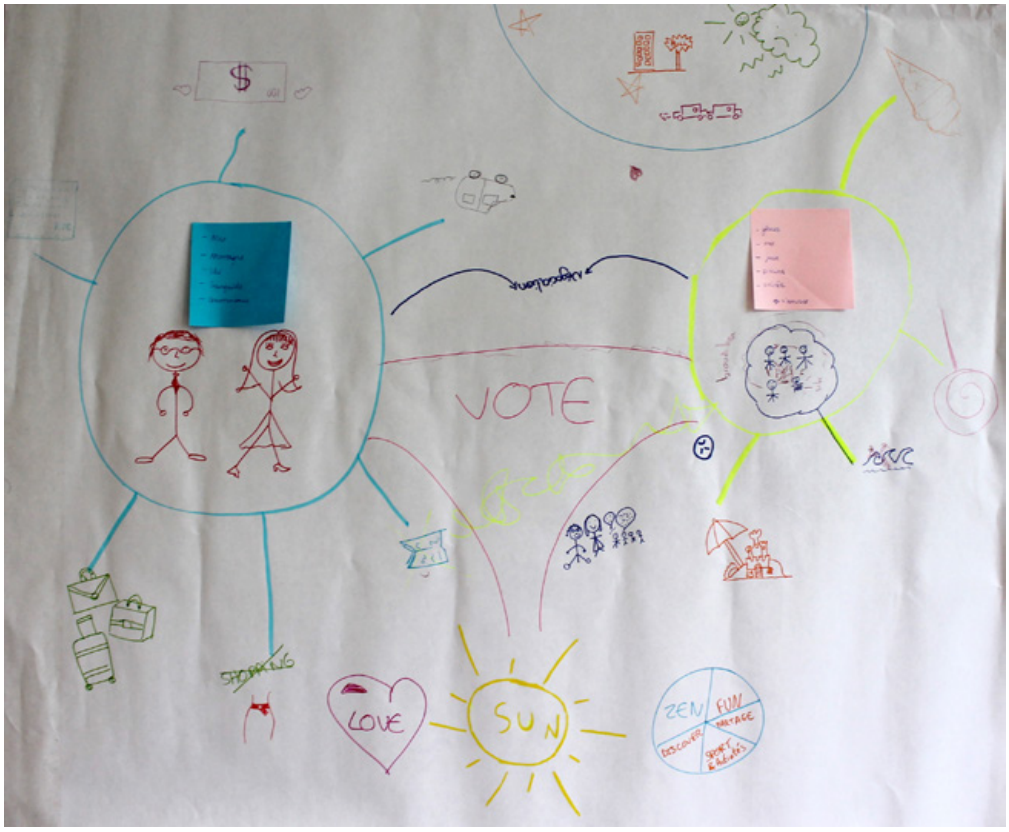

Figure 2. Clarifying the problem. Multimodal production of group two

Similar to the multimodal narrative of group one, that of group two can also be submitted to a top to bottom reading. At the very top of the poster we can see the current situation (city life, buildings, pollution, capricious weather), the decision-making process in the middle, and finally the solution, successful holidays, at the bottom. Drawings take a central place on the poster. We find the same stakeholders involved in the decision-making process (parents and children), drawn within opposed circles, using different colors, as if to separate them physically in two different zones and to demonstrate clearly that they have distinct interests, constraints and desires in the negotiation process. Desires of the parents (sea, mountains, skiing, calm and gastronomy) and those of the children (ice-cream, sea, games, swimming pool, partying, having fun) are written on a blue and pink post-it notes correspondingly and stuck above them.

Similarly, constrains of each sub-group are represented in a circular movement around them: timetables, money, transportation, luggage and savings (the word shopping is crossed out) for the parents on the one hand, and no constrains but further representations of desired things (ice cream, candy) and activities (building a sandcastle on the beach, surfing) for the children, on the other hand. The sub-groups are joined through a vote in the form of a funnel that leads to love, sun and pleasant activities. Interestingly, the latter are represented diagrammatically using a pie chart to show the amount of each activity (zen, fun, discovery and sports) and thereby signify balance among the activities to be chosen. As in the previous case, writing (twenty-one words in this case) is used to support drawings.

It is surprising to see that even though the participants were explicitly asked to use language the least possible, it was used even when it did not seem to be absolutely necessary. To represent love and sun in this poster, the participants used drawings (a purple heart and a yellow sun) and then, whilst there was no ambiguity, they used writing to clarify their drawings and added the words 'love' and 'sun', as if to reinforce the visual message. Instead of choosing either of the two modes (writing or drawing), a preference was given to combining the two modes. So for this group, the best way of deciding on holidays is through a vote that would take place after a negotiation between the parents and children.

Finally, when it comes to the multimodal production of group three (see Figure 3 below), what strikes the viewer is the amount of writing used, which is greater than in the previous two cases.

In total, forty-six words were used (as compared to thirty and twenty-one words for groups one and two respectively). For this group of learners, there are four stakeholders involved in the decision-making process: namely, the mother, the father, the mother's children and the father's children. Parents, however, are united as one group through a symbol of heart. When we look at the poster from left to right, we can see the 'initial suggestion' [proposition initiale] written within a rectangular form as a departure point for negotiations, and on the right 'final decision' [décision finale] in a circle, to represent the ultimate goal. The use of rectangular and circular forms to signify departure point and target goal respectively are interesting. The shift from left to right is represented through an arrow that has some irregular lines in the middle. Those stand for discussion and compromise between parents, represented on the bottom (along with their constraints) and the children, represented on the top, with theirs.

Next to the final decision, another drawing of heart can be seen with the word 'compromise' [compromis] to suggest that love and compromise are necessary to reach a final common decision, with symbols of '-' and '+' to represent the advantages and disadvantages of such a compromise. The details of the final decision (e.g. elder kids take care of the youngest ones) are enlisted below the 'final decision'. After having a discussion, and taking into account the constraints and future rewards, everyone proceeds with a vote, like in the previous case. As the drawing of parents and children in weighing scales suggests, the children's vote weighs heavier and the final decision is taken, which leads to sunny holidays at the beach.

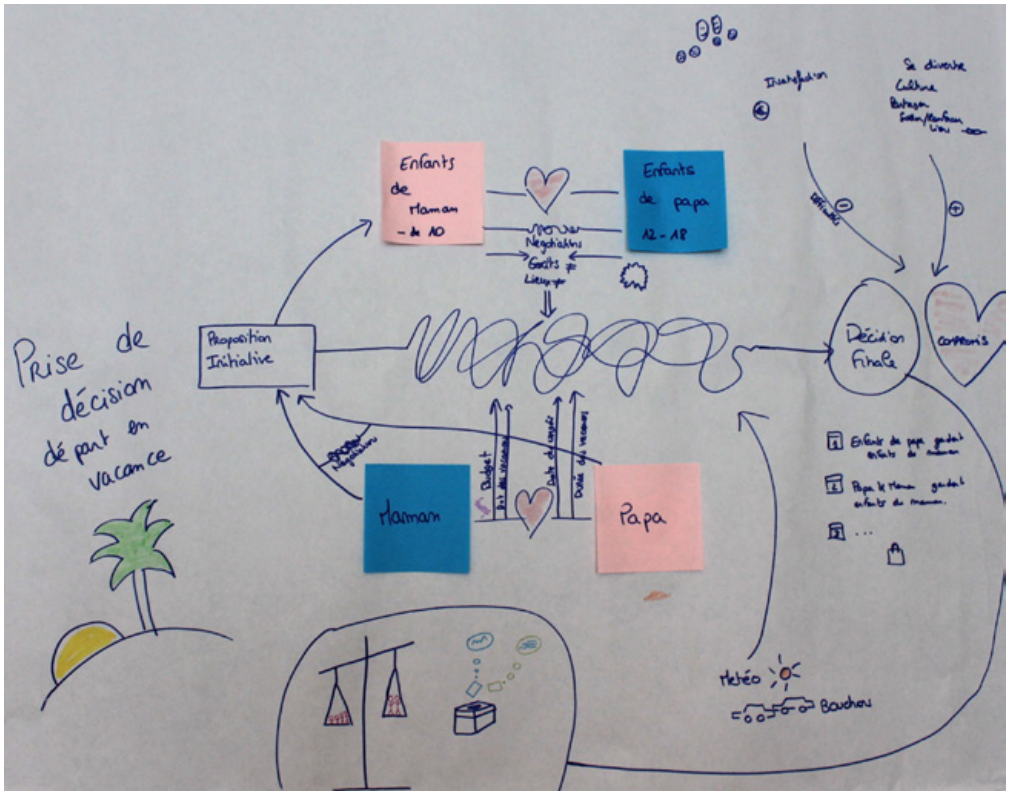

Figure 3. Clarifying the problem. Multimodal production of group three

As could be noticed, to represent holidays, all the three groups portrayed summer holidays at the beach. To do so, group one and three portrayed the sun and a palm tree, while group two used drawings to make a further distinction between different activities for different age groups as leisure time at the beach. In particular, building sandcastle for the youngest children as opposed to surfing for the elder ones. This is where the richness of a multimodal representation comes in and shows its efficacy.

As can be seen in figures one, two and three, all the three groups, though working in physically distant workspaces, represented the main stakeholders, i.e. parents and children, as two distinct groups and considered them as having contrary interests. They were opposed and the decision making process was represented as negotiation.

Final multimodal productions

In what follows, we will analyze the final multimodal productions of learners, which were used to represent their proposed solutions to the real-life problem submitted by the Sustainable Planning Office.

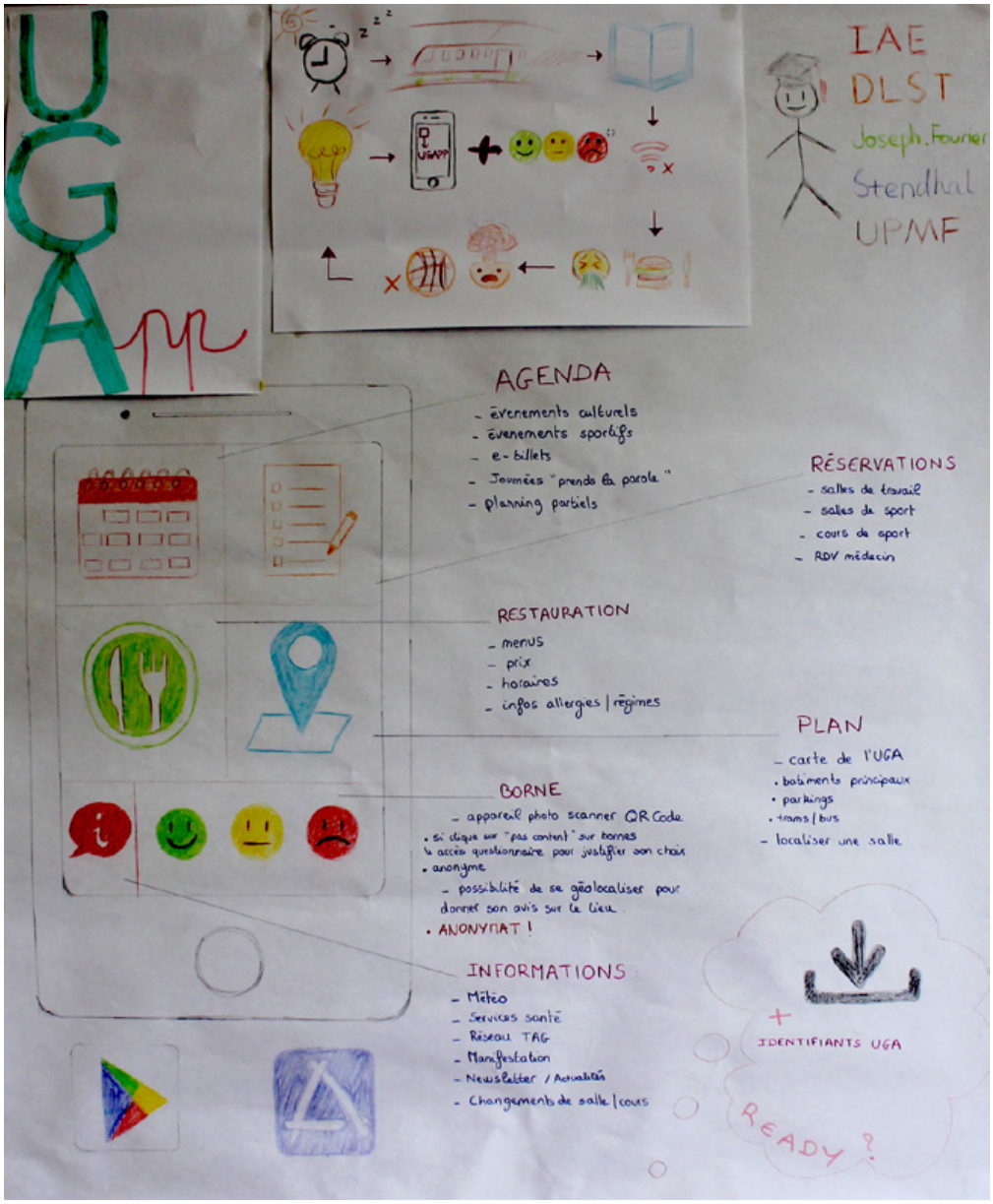

Figure 4. Multimodal representation of the proposed solution of group one

Group one (see Figure 4) came up with a mobile application solution (UGApp) which students can use to evaluate different campus sites and services and thereby contribute to the sustainable management of the campus. To encourage students to download and use this app, the latter integrates essential information for students (such as course and exam timetables, cultural and sports events, campus map, etc.).

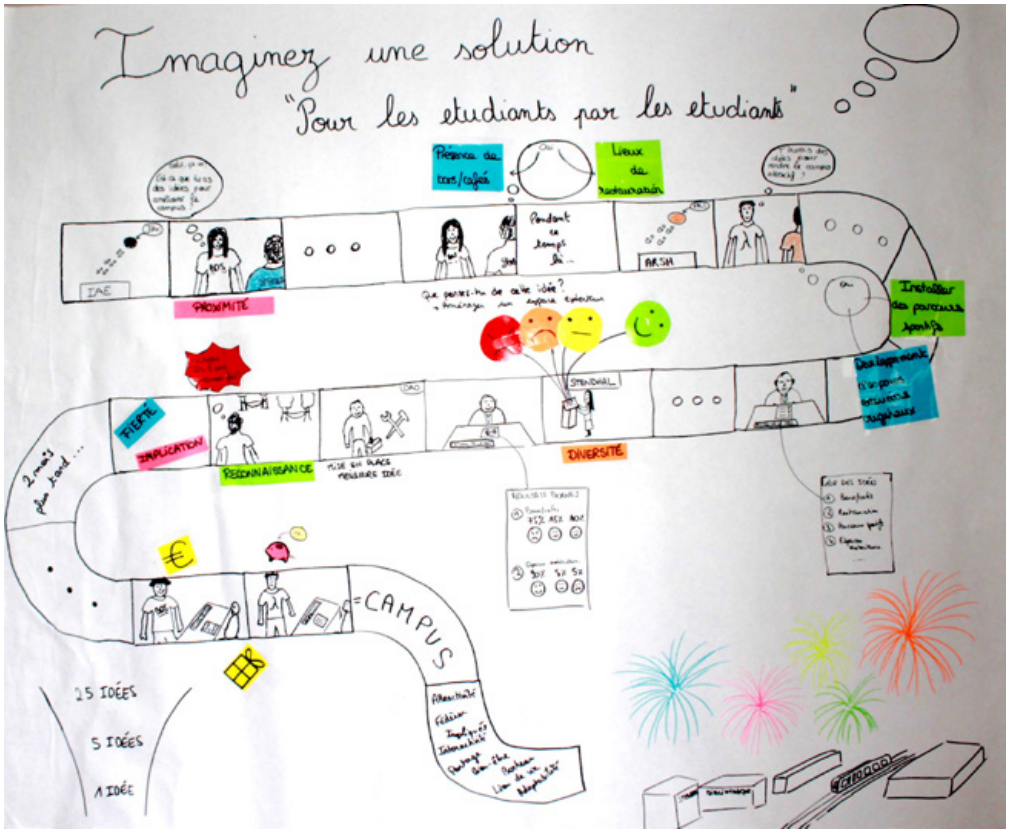

Figure 5. Multimodal representation of the proposed solution of group two

Group two (see Figure 5) imagined different channels of communication that students would use to provide SPO with feedback on campus equipment; a shortlist would then be made by the latter to prioritize and address students' concerns.

Finally, group three (see Figure 6) suggested using different cultural events to gain students' feedback. Should we compare learners' initial and final multimodal productions, we would notice that the graphic representations in the latter are of a higher density and quality. Furthermore, in final productions diagrammatic representation (in particular the use of arrows and the spatial composition of representations) takes a central place.

Drawing on Stöckl's model (2004: 12), which served as reference for our analysis, it could be stated that as far as the sensory channel is concerned, all the productions fall within the visual sensory channel. Two core modes are involved – image and language, with their medial variants – static image and writing, respectively. As far as typography and layout are concerned, apart from group three, learners used capital letters to facilitate reading, and writing was accomplished in different directions in line with the way the narrative unfolded. There was

a wide use of sub-modes, such as color, vectors and perspective. Lines, arrows and forms were used to make diagrammatic representations.

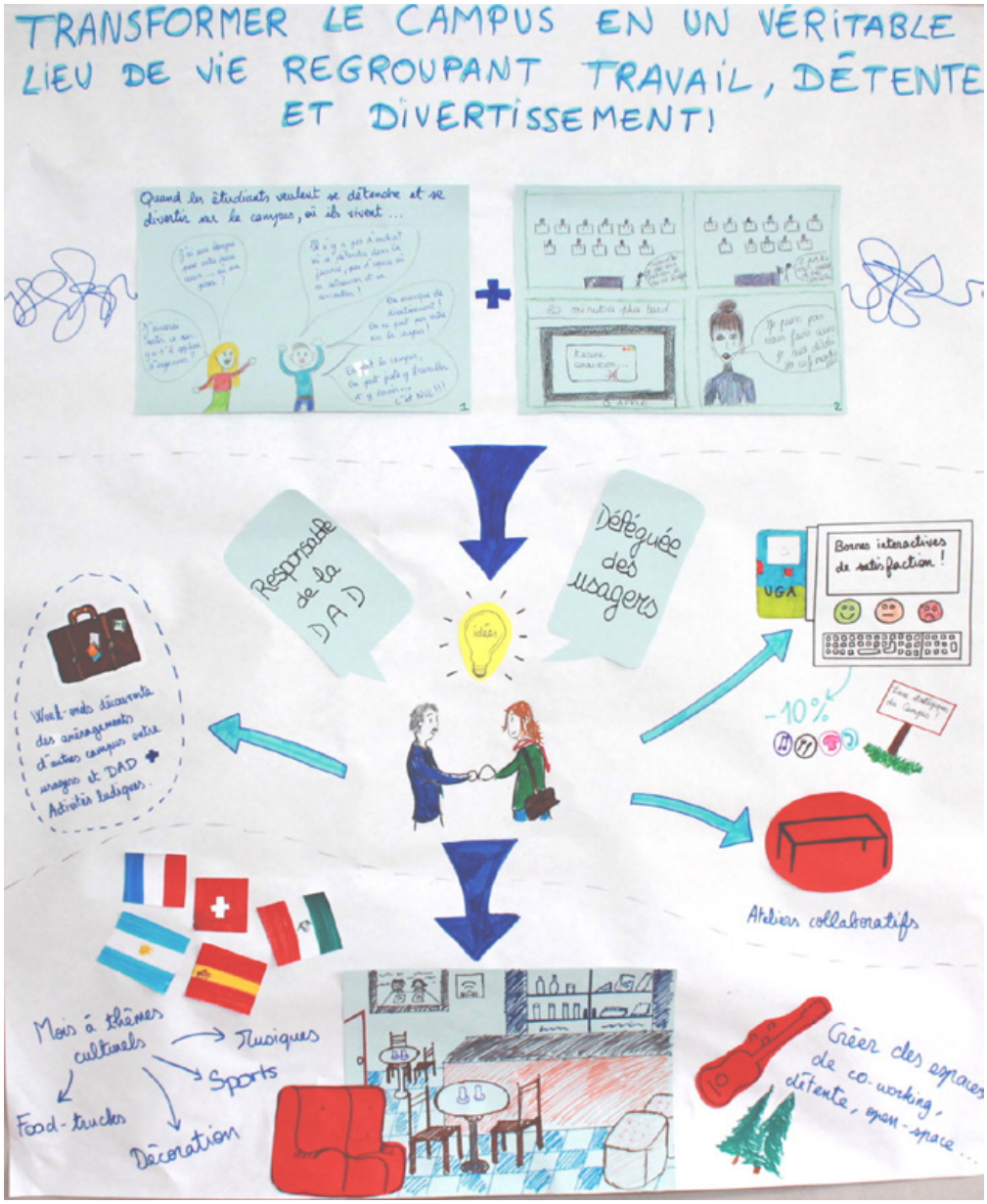

Figure 6. Multimodal representation of the proposed solution of group three

Apart from diagrammatic representation, a second element that was heavily tapped into was symbolic representation. Various symbols were used, such as the symbols of dollar, euro,

heart, not equal to, thought bubble, plus and minus for advantages and disadvantages, crossing out a word to signify the absence of what it represents. Symbols and diagrams are powerful means of efficient communication, but what is interesting for diagrams is that apart from being a means of communication, they constitute a key mechanism of reasoning. So if multimodal practice encourages the use of diagrams, it thereby develops reasoning and analytical skills.

Having analyzed learners' multimodal productions designed at the first and the final stages of the workshop, it could be concluded that learners' final productions can be characterized with the greater creativity. At the end of the three-day workshop, not only learners were more confident in their visual representation skills and motivated to produce multimodal artifacts, they also developed their creative confidence.

6. Concluding remarks

The multimodal learning environment of our case study was comprised of two basic elements – multimodal learning practices and multimodal productions. The different multimodal practices used in the design of the learning environment were complementary and cannot be classified hierarchically. Their diversity helped keep the participants focused and motivated. Furthermore, multimodal communicative practices used at different stages of the CPS process fostered learners' capacity to express themselves multimodally and represent their ideas more creatively.

Multimodal representation enhanced understanding and improved learners' capacity to grasp the complexity of an issue in its finest subtleties. Learners' multimodal productions further resulted in enhanced motivation and fostered their willingness to engage in interactive multimodal practices. Multimodal productions encouraged the simultaneous use of different semiotic modes and helped stimulate innovative and creative thought. Learners' ability to design increasingly multimodal artifacts showed a positive impact of the multimodal learning environment on their capacity to creatively choose and combine a wide range of semiotic resources to make, negotiate and represent meaning in a multimodal perspective. Thus the findings of our research suggest that carefully designed multimodal environments affect positively learner motivation and the development of creativity.

To put to test the findings of the present study and compensate its limitations in terms of the small number of participants, further research could be carried out adopting a quantitative approach. Also, a further study can envisage to record and analyze oral presentations of learners while explaining their multimodal productions; and also include a control group in which participants will work in environments with the least possible multimodality.

The study advocates the need for revisiting traditional learning practices and suggests that multimodal learning environments can positively impact learner motivation; develop crea-

tivity and foster multimodal literacy provided that learners' awareness of multimodal meaning-making practices is raised through self-reflective processes. Finally, the study highlights the significance of investigating multimodality practice for the field of multimodality research.

Acknowledgements

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NOTES

1 Promising is one of France's IDEFI projects: the acronym stands for 'initiatives d'excellence en formations innovantes', a competitive national project to encourage high-quality, innovative teaching and learning. It benefits from the financial support of the French Government, through National Agency for Research (ANR), ANR-11-IDEFI-0031.

2 The 10 most beautiful universities in Europe', The World University Rankings, January 22, 2018. Available from: https://www.timeshighereducation.com/student/best-universities/10-most-beautiful-universities-europe. [Accessed December 11, 2018]

3 Hereafter, the original words in French as they appear in learner productions will be given in square brackets, preceded by their English translations in inverted commas.

REFERENCES

Baldry, Anthony 2000. *Multimodality and Multimediality in the Distant Learning Age.* Campobasso: Palladino Editore.

Bührig, Kristin 2004. On the multimodality of interpreting in medical briefings for informed consent: using diagrams to impart knowledge. In: Eija Ventola, Cassily Charles, and Martin Kaltenbacher (eds.) 2004. *Perspectives on Multimodality*. vol. 6. Amsterdam/Philadelphia: John Benjamins Publishing Company, 227-241.

Guo, Libo 2004. Multimodality in a biology textbook. In: Kay O'Halloran (ed.). *Multimodal discourse analysis: Systemic functional perspectives*. London and New York: Continuum, 196-219.

Iedema, Rick 2003. Multimodality, resemiotization: Extending the analysis of discourse as multi-semiotic practice. Visual Communication, 2 (1): 29-57.

Jochems, Wim, Jeroen van Merriënboer and Rob Koper 2005. Integrated e-Learning: Implications for Pedagogy, Technology & Organization. *Canadian Journal of Education / Revue canadienne de l'*éducation 28 (1/2) : 227-230.

Johns, Ann M. 1998. The visual and the verbal: a case study in macroeconomics. *English for Specific Purposes* 17 (2) 183-197.

Kaltenbacher, Martin 2004. Multimodality in language teaching CD-ROMs. In: Eija Ventola, Cassily Charles, and Martin Kaltenbacher (eds.) 2004. *Perspectives on Multimodality*. Amsterdam/Philadelphia : John Benjamins Publishing Company, 119-136.

Kelley Tom and David Kelley 2013. *Creative Confidence.* New York: Crown Business.

Kress, Gunther and Theo Van Leeuwen 2001. *Multimodal Discourse: The Modes and Media of Contemporary Communication.* Hodder Education: Hachette UK.

Kress, Gunther 2003. *Literacy in the new media age.* London: Routledge.

Kress, Gunther 2010. *Multimodality: A social semiotic approach to contemporary communication*. London: Routledge.

Norris, Sigrid 2004. *Analyzing Multimodal Interaction: A Methodological Framework*. New York: Routledge.

Prior, Paul 2005. Moving multimodality beyond the binaries: A response to Gunther Kress's 'Gains and losses'. *Computers and Composition* 22 (1): 23-30.

Prior, Paul 2013. Multimodality and ESP Research. In: Brian Paltridge and Sue Starfield (eds.) *The Handbook of English for Specific Purposes*. Malden, MA: Wiley-Blackwell, 519-534.

Sankey, Michael, Dawn Birch, and Michael Gardiner 2010. Engaging students through multimodal learning environments: The journey continues. In: Caroline Steel, Mike Keppell, Philippa Gerbic and Simon Housego (eds.) *Curriculum, technology and transformation for an unknown future*. Proceedings ascilite Sydney 2010, 852-863. Available from: http://ascilite.org.au/conferences/sydney10/procs/Sankey-full.pdf [accessed February 13, 2019].

Scollon, Ron 2008. Discourse itineraries: nine processes of resemiotization. In: Vijay Kumar Bhatia, John Flowerdew and Rodney Jones (eds.) *Advances in Discourse Studies.* London: Routledge, 233-44.

Scott Doorley, Dschool active and reflective playlists. Available from: https://dschool.stanford.edu/resources/two-playlists-for-classroom-use [accessed December 7, 2018].

Shipka, Jody 2011. *Toward a composition made whole*. Pittsburgh, PA: University of Pittsburgh Press.

Stöckl, Hartmut 2004. In between modes: Language and image in printed media. In: Eija Ventola, Cassily Charles and Martin Kaltenbacher (eds.) 2004. *Perspectives on Multimodality*. Amsterdam/Philadelphia : John Benjamins Publishing Company, 9-30.

Sylwester, Robert 1994. How emotions affect learning. *Educational Leadership* 52 (2): 60-65.

Ventola, Eija, Cassily Charles and Martin Kaltenbacher (eds.) 2004. *Perspectives on Multimodality*. Amsterdam/Philadelphia : John Benjamins Publishing Company.

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Book Reviews

Languages, images, smells, sounds and other semiotic monsters: Exploring Linguistic Landscapes and multimodality.

Angeliki Alvanoudi

Expanding the Linguistic Landscape: Linguistic Diversity, Multimodality and the Use of Space as a Semiotic Resource, ed. by Martin Pütz and Neele Mundt, Bristol: Multilingual Matters, 2019. xii+ 302 pp. $50.00 (pbk, ISBN 978-1-78892-214-2) (hbk, ISBN 978-1-78892-215-9)

In recent years there has been growing interest in Linguistic Landscape (henceforth LL) research that focuses on the use of languages in public spaces. The volume edited by Martin Pütz and Neele Mundt is a valuable contribution to the expanding LL research that targets the visible representation of multiple languages in a globalized world. More specifically, the volume is a collection of 12 chapters which offer theoretical, methodological and empirical contributions to the field of LL, drawing on various disciplinary locations, such as linguistics, politics, sociology, literacy, education and cultural geography, and deploying quantitative as well as qualitative methods. The book has its origin in the 37th International LAUD Symposium held on 4-6 April 2016 at the University of Koblenz-Landau in Landau, Germany.

After the table of contents, the preface, and the notes on the contributors, Martin Pütz and Neele Mundt present an introduction to multilingual and multimodal LL entitled 'Multilingualism, Multimodality and Methodology: Linguistic Landscape Research in the Context of Assemblages, Ideologies and (In)visibility: An Introduction' (pp. 1-22). LL is broadly defined as multilingual and multimodal repertoire or '*multimodal* signage' (p. 1) that includes semiotic assemblages encompassing verbal and non-verbal communication, imagery, graffiti, smell, food, sounds and movements, in line with definitions proposed earlier by Jaworski and Thurlow (2010) and Pennycook (2017). The Introduction discusses issues related to language policy, ideology and superdiversity in the city, and targets the contribution of LL research to

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the study of linguistic minorities, struggles and protests of language users, loss and survival of endangered languages, language contact and language attitudes. The authors offer some theoretical preliminaries for the next 12 chapters, which are divided into three parts, discussed in turn.

Part 1, 'General Issues, Methodology and Linguistic Landscapes as a Pedagogical Resource' consists of three chapters that examine urgent topics in LL research. In Chapter 1 (pp. 25-37), 'Linguistic Landscape after a Decade: An Overview of Themes, Debates and Future Directions', Elana Shohamy offers a general overview of LL studies over the period 2006-2016 focusing on major research findings, activities, publications and developments. The author identifies five themes in LL research: quantitative LL approaches to representations of different languages in public spaces, LL and multimodality, LL in cities and neighborhoods, LL and contestations in public spaces, and LL and education. In Chapter 2 (pp. 38-57), 'Methods and Techniques for Linguistic Landscape Research: About Definitions, Core Issues and Technological Innovations', Durk Gorter addresses the need to improve the technical standards of the photographic data presented in publications, and discusses technological innovations, such as digital screens in urban landscape, QR codes, smartphones, virtual reality and AR (augmented reality), and their potential impact on LL data collection. In Chapter 3 (pp. 58-71), 'Learning to Translate the Linguistic Landscape', David Malinowski writes on the pedagogical benefit of LL by deploying an interdisciplinary translational approach. In his narrative essay, the author conceptualizes 'translation' as a metaphor for understanding the work done by LL researchers and makes a case for translation as a valuable language learning resource.

Part 2, 'Broadening the Field of Semiotic Landscapes: Semiotic Assemblages, Multimodality and Contemporary Urban Spaces' consists of four chapters that deal with multilingualism, multimodality, spatial repertoires, and semiotic assemblages in the cities. In Chapter 4, 'Linguistic Landscapes and Semiotic Assemblages' (pp. 75-88), Alastair Pennycook presents his analysis of semiotic assemblages and spatial repertoires in a Bangladeshi owned corner shop in Sydney, Australia, drawing on extensive urban ethnography and studies of intersectional sensescapes. The author addresses the role of language in relation to the broader semiotic field, the intersectional relationships among different types of semiosis and advocates an expanded view of the semiotic terrain in relation to material objects and space. In Chapter 5 (pp. 89-114), 'The Art of Silence in Upmarket Spaces of Commerce', Adam Jaworski writes on the commodification of silence as a multimodal resource indicating luxury, exclusivity and elite spaces in the commercial urban semiotic landscape. The author shows that designers, advertisers and marketers use silence to brand their products, index trade secrets and a sense of distinction and, thus, position target customers as elite. In Chapter 6 (pp. 115-131), 'Multimodality in the City: On the Media, Perception and Locatedness of Public Textscapes', Christine Domke analyzes different kinds of communicative forms in train stations in German cities, such as directional structures on pavements which are permanently visible and non-time-bound

perceivable or commercials which are valid only for a certain time and time-bound perceivable. The author demonstrates that a city's semiotic landscape is visible, audible and also tactile. In Chapter 7 (pp. 132-149), 'Multilingual Audio Announcements: Power and Identity', Ying-Hsueh Hu reports the findings of a soundscape study on the use of Mandarin Chinese, English, and dialects of Holo and Hakka in the public audio announcements on the Taipei Mass Rapid Transit System in Taiwan. The author analyzes language attitudes by different ethnic groups and treats multilingual announcements as processes of glocalization that construct a Taiwanese identity.

Part 3, 'Expanding Linguistic Landscape Studies: Power Relations, Acts of Resilience and Diachronic Changes' includes five studies on LL as sites of demonstrations, power relations and political tensions between official language policies and local language practices. In Chapter 8 (pp. 153-179), 'Linguistic Landscapes and the African Perspective', Karsten Legère and Tove Rosendal offer an ethnographic perspective on language politics and policy shaping the LL of three east African countries, Rwanda, Uganda and Tanzania. The authors examine the official empowerment of the national languages of Swahili and Rwanda and their symbolic and ideological use for commercial interests. In Chapter 9 (pp. 180-202), 'Slogans as Part of Burkina Faso's Linguistic Landscape during the Insurrection in 2014', Sabine Diao-Klaeger and Rosalie Zongo present their qualitative analysis of slogans written on urban walls, monuments, posters, banners and T-shirts during the political demonstrations in Ouagadougou, the capital of Burkina Faso, West Africa. The authors focus on revolutionary references, references to current and foreign political events, the metaphorical notion of disease and the use of abbreviations. In Chapter 10 (pp. 203-228), 'Investigating the Bilingual Landscape of the Marshall Islands', Isabelle Buchstaller and Seraphim Alvanides present their geo-spatial analysis of the distribution of English and Marshallese in Majuro, the capital of the Marshall Islands in the North Pacific. The authors examine language policy and the relation between the public expression of indigenous linguistic identity and English language hegemony in urban public space. In Chapter 11 (pp. 229-263), 'Linguistic, Ethnic and Cultural Tensions in the Sociolinguistic Landscape of Vilnius: A Diachronic Analysis', Irina Moore uses multimodal discourse analysis to examine new language policies, de-russification, language removal and language replacement in Vilnius, the capital of Lithuania. The author shows how textual signs, such as street toponymy, and physical objects, such as consumer goods, shed light on ethnic tensions and narratives and the emergence of new memory landscapes. In Chapter 12 (pp. 264-299), 'Attitudes towards Visual Multilingualism in the Linguistic Landscape of the Ruhr Area', Evelyn Ziegler, Ulrich Schmitz and Haci-Halil Uslucan investigate the attitudes of the urban population towards visual multilingualism in the cities of Duisburg, Essen and Dortmund where migrants from Bulgaria and Romania and Syrian refugees have settled in the last decade. The authors report that informants living in ethnically diverse areas hold more positive attitudes towards visual multilingualism. The book ends with an index of subjects (pp. 300-302).

The volume is well-structured, easy to read and provides the reader with fascinating and original data on LL. It offers solid theoretical and methodological contributions to LL research that foreground the interdisciplinary framework and diverse scope of the field. The analyses presented in the volume move beyond 'logocentric approaches' to LL (Chapter 4, p. 75), as they contextualize language into the wider set of semiotic relations and, thus, challenge the boundaries between verbal and non-verbal, symbolic and material. I would particularly like to draw the reader's attention to the contributions included in Part 3 of the volume, which enhance our understanding of LL in under-examined areas, such as East and West Africa, and fill a significant gap in the literature. The volume will be useful for sociolinguists working on language policy and ideology, language attitudes, sociocultural diversity in the city, and language and education, as well as scholars interested in how languages are used in urban public spaces.

REFERENCES

Jaworski, Adam and Crispin Thurlow (eds) 2010. *Semiotic landscapes: language, image, space*. London: Continuum.

Pennycook, Alastair 2017. Translanguaging and semiotic assemblages. *International Journal of Multilingualism* 14(3): 269-282.

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Further advances in Linguistic Landscape research: Language and identity-work in public space

Costas Canakis

Robert Blackwood, Elizabeth Lanza & Hirut Woldemariam (eds). 2016. *Negotiating and Contesting Identities in Linguistic Landscapes*. London: Bloomsbury (xx+261pp).

Negotiating and Contesting Identities in Linguistic Landscapes is a collected volume featuring selected papers presented at the 4th Linguistic Landscapes (LL) Workshop which was held in Addis Ababa (November 2012). Brewed during a time of rapid changes in LL research, in the aftermath of landmark publications inaugurating a wider semiotic and ethnographic turn in LL research (see, e.g., Shohamy & Gorter, 2009; Shohamy, Ben-Rafael & Barni 2010; Jaworski & Thurlow 2010; Blommaert 2013, 2015; Blommaert & Maly 2014; Blommaert & De Fina 2015, to name just a few) and the launching of *Linguistic Landscapes: An International Journal* in 2015 (see esp. Shohamy & Ben-Rafael 2015; Shohamy 2015), it invites interested readers to engage with a whole new range of concepts, methodological innovations, and priorities, while critically revisiting previous findings. Incidentally, anyone who attended the 10th LL Symposium, appropriately subtitled *X-Scapes* and held in Bern in May 2018, will understand that the work in the present volume, albeit initiated earlier, has set the tone for the surprising variety of approaches and areas of investigation which were the trademark of *X-Scapes*.

The book is organized in five parts –featuring three papers each— which are the major axes this review shall examine. Although the choice of having a bare minimum of papers in each part of the volume may compartmentalize research, it has an obvious advantage: it suggests (from the very table of contents) that LL is by now a radically interdisciplinary and multilayered field, even if we limit ourselves to issues of identity construction.

The first part, *Political and Economic Dimensions of Identity Constructions in the Linguistic Landscape*, which follows a short preface, opens with Christopher Stroud's contribution on issues of citizenship in the LL of post-apartheid South Africa, 'a restless society in the midst of an extensive transformation' (p. 3), in which the author documents the (regulation of) circulation of performing bodies-in-place, exploiting both verbal and non-verbal data. Stroud pre-

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sents two cases illustrating the inextricable link between semiotic landscapes and the politics of place. His first case study deals with a protest march related to poor services, and is thus directly aimed at citizenship, while the latter deals with 'how representations of place energize particular corporeal performances of identities' (p. 10), also understood as what kinds of bodies fit what place. Drawing on a quickly developing strand of research of semiotic landscapes which encompasses theories of place and person, Stroud argues for the merits of combining sociolinguistic research with insights from social and political theory. The article provides theoretical contextualization for the remaining two papers of this part: Muth's paper on the economic dimension of LL, focusing on street art in Eastern Europe, and Gallina's work on the use of Italian in post-colonial Tanzania, to which I turn next. Sebastian Muth, focuses on the dramatically changing LLs of post-Soviet Chisinau and Minsk, concentrating on street art as a new-fangled commodity which adds a poignant commercial aspect to the LL, and examines it in the light of multilingualism and ideological strife in the post-Soviet world. His treatment of materials and local systems of meaning brings to bear the fact that graffitied signs are rarely, if ever, discussed in the context of commercial signage, since they are viewed as emblematic of anti-establishment stances. Moreover, he highlights the importance of knowledge of Russian in order to decode them. The author provides a rough typology of commercial signs (commercial graffiti, painted commercial signs, commercial stencil, commercial street stencils) which problematizes material, technique, and emplacement, while arguing for the transformation of street art into a marketing tool in the areas he investigates, underscoring their dynamic LLs. Francesca Gallina's research in Tanzania and Zanzibar looks at Italian not so much as a lingua franca in parts of Africa, but rather as a preferential imaginary linguistic resource for the promotion of commodities to a clientele which may or may not speak Italian. A result of high-end tourism and entrepreneurship in the tourist industry in late modernity, Italian in Tanzania functions as an imaginary link with quality commodities and a way of attracting customers. And yet, close and linked as they are, mainland Tanzania and Zanzibar have different uses for Italian: in the former case, Italian serves as a symbol of positive aspects of Italian culture, whereas, in the latter, it mostly functions as a way of getting the many Italian tourists on the island to spend.

The second part, entitled *Protest and Contestation of Identites in the Linguistic Landscape,* features three papers dealing with areas as diverse as Italy, Tunisia and Egypt, and Israel. The contribution by Barni & Bagna focuses on the transient but recurrent LL of 'A day without immigrants' protests organized in many Italian cities on 1 March since 2010. The researchers point out that although this is a day devoted to negotiating immigrant presence and identity in Italy, protest signs are predominantly in Italian and problematize this choice, which may appear as a missed opportunity for enhancing the visibility of the protesters. However, as they cogently argue, given a particularly strong monolingual culture in Italy, LL actors choose Italian as a way defending their rights while showing they are an integral part of the society

they live in. Although other semiotic resources used by the organizers (such as flags, traditional dress, artefacts, and use of color) may index specific identities, the protesters themselves use Italian, the code they share with other citizens. Ben Said & Kasanga examine protest signs from the Arab Spring Revolution in Tunisia and Egypt, adopting a three-stage analysis of a wide range of data and focusing on context-bound meaning. They identify three main frames of interpretation – the Nationalist-Patriotic frame, the Revolution-and-Freedom frame, and the People's-Agency-and-Power frame – and argue for the intertextual, interdiscursive, and hybrid nature of protest discourse. They discuss these notions and show how protest signs such as GAME OVER, originally found in Tunisia, for example, resurface in Egypt; but this time the equivalent in Arabic literally means 'we will clean it of Mubarak'. They underscore the complex trajectories of protest signs and argue that studying such non-fixed, transient LL signs allows for a deeper understanding of the socio-cultural and ideological context in which they are produced. Waksman & Shohamy engage in the examination of the flow and transfer of protest LL signs from 'open' to 'institutional' spaces: specifically, they investigate the effects of the relocation of texts from open public spaces in central Tel Aviv during the 2011 global protest movement to the institutional space of an academic institution, a Teacher Training College in Tel Aviv. The authors problematize institutional spaces as a special frame and point out the transformation of texts in the process of this relocation. They focus on four on campus exhibitions protesting forms of social inequality and note that, despite their differences, they overwhelmingly use the original protest as a pretext for practices which are otherwise aligned with institutional goals and practices. Although social protest agrees with the spirit of the institution, they emphasize that the relevance and edge of social protest may be either lost or otherwise transformed during relocation.

Part three of the volume is devoted to *Negotiating Regional and National Identities* and features research on the LL of the area of Trieste in Italy and on and different regions of strikingly multilingual Ethiopia. Stefania Tufi examines the sociolinguistic situation of Friuli – Venezia Giulia (FVG) focusing on the Slovenian-speaking community in the area of Trieste. She outlines the various historical and sociopolitical factors which have shaped the turbulent history and rich linguistic terrain of this area and concentrates on Slovenian in the LL of Trieste-city and Trieste-province. Her data show that, although Slovenian is heard everywhere in Trieste proper, there is almost total absence of it in the urban LL, which prompts us to reconsider the relation between LL visibility and linguistic vitality while pointing to Slovenian's relatively low prestige. In contrast, Slovenian is pervasive in the LL of Trieste-province, although the unusually high frequency of official (top-down) signs is most likely the outcome of linguistic legislation since 2001. Still, this state of affairs may allude to a process of identity redefinition and a desire to boost the status of Slovenian. The chapter by Mendisu, Malinowski & Woldemichael focuses on the status of two local languages spoken in different regions of Ethiopia, Gedeo in Dilla and Koorete in Amarro-Keele, vis-à-vis Amharic and English in the LL. The authors note

that, despite explicitly stated language policy protecting regional languages in one of the most linguistically diverse countries in Africa, their absence from the LL functions as de facto language policy competing with legislation. Specifically, their data show that Gedeo never stands alone in the LL of Dilla, while Koorete is totally absent from the LL in Amarro-Keele. In both regions the LL is dominated by Amharic only or Amharic-English signs. The authors problematize the discrepancy between language policy and linguistic practice while offering cogent explanations. In my opinion, key among them is the use of Latin as opposed to Ethiopic Fidel script for Gedeo and Koorete as well as a short history of written representation. The paper by Yigezu & Blackwood investigates the LL of the Eastern Ethiopian city of Harar as an arena for the construction of a distinct Harari identity in the context of official language policy encouraging regionalism, prevalence of Amharic (and Oromiffa), and symbolic value of Arabic due to religious reasons in the area. Despite their small numbers, the Harari people are a distinct (and politically dominant) ethnic group and use of Harari is legitimized in various ways in the LL (after a long period of 'amharization' across Ethiopia). Yet, this research also underscores the mismatch between language practices and the LL. Although Harari does not appear alone, it is included in LL signs featuring the logos of respected international agents such as UNESCO, usually alongside Amharic, Oromiffa, and English. On the other hand, in small businesses, where Harari is usually absent, owners may use a Harari personal name for self-identification.

The fourth part of the volume features research on the negotiation of collective identities in public spaces as diverse as an area of the city Hamburg, a Biennale exhibition in Israel, and football stadiums in Europe. Pappenhagen, Scavaglieri & Redder concentrate of St. Georg, a multilingual area of central Hamburg, with the aim of showing how coexamination of the LL along with the Linguistic Soundscape (LS), and an eclectic methodology informed by action theory and functional pragmatic discourse analysis, may further expand LL research. They suggest that looking at both LL and LS data, vis-à-vis the illocutionary acts performed, allows researchers to understand both continuities and discontinuities in linguistic practices. For instance, their data show that the LL of Lange Reihe manifests 'gentrified multilingualism', whereas in Steindamm there is 'migration-induced multilingualism' indexing the demographic basis of the area. Moreover, their findings show that, in the LS of immigrant-owned businesses, the languages spoken serve different purposes, with German being used transactionally and Turkish, Arabic, Hindi/Urdu, etc. being used colloquially to establish group identities. Yael Guilat looks at the Bat Yam Biennale of Landscape Urbanism in Israel as a semiotic resource in the context of the global trend to use public art events as a means of regenerating or gentrifying cities, a move which has not always enhanced local communities. She argues that examining artistic events through the lens of LL research (i.e., in a sociolinguistic context) we may reach a better understanding of the constant interaction between processes reflecting conflicting claims for ownership of public space. Focusing on data such as banners, posters, the event logo, and permanent signage and on the exclusive use of Hebrew and English in a community

where large part of the population has moved from the former Soviet Union and Ethiopia, she claims that the event was not used to include locals, but adopted established Municipal policy and portrayed Bat Yam as a tourist destination and a venue for the arts, as a step toward gentrification. The last paper in this part, a contribution by Raymond Siebetcheu, engages in a multimodal (semiotic and linguistic) analysis of banners appearing in football stadiums in Italy, France, and England on a match day with aim of elucidating identity construction during sporting events, especially as regards the *ultras*, the most ardent fans occupying the curve of the stadium (*curva*). The author provides a typology of banner design and proceeds with an external and internal analysis emphasizing multimodality. His linguistic analysis focuses on issues such as proper names, metaphor and hyperbole, euphemism, metomymy, analogy, and world play, which – supported by semiotic analysis – illustrate that ultras consider the *curva* a crucial place for performing their identity (also given the enhanced visibility provided by the media). Banners are rife with rhetorical, cultural, and sociopolitical content and contribute in constructing the *curva* as a social place.

The last part of the volume is devoted to *Identity Constructions from a Comparative Perspective* and features research focusing on Europe, America, Asia, and Africa. The introductory chapter, by Ben-Rafael & Ben-Rafael, investigates aspects of globalization in the LL of the 'megapolis' of Berlin. Looking at areas as diverse as neighborhoods in underprivileged Kreuzberg, middle-class Charlottenburg, the upscale downtown shopping area of Ku'damm, and Friedrichstrasse, the authors focus of three structuration principles which are instrumental in accounting for LL actors' agency: i.e., allegiance to the national language, particularistic solidarity forging collective identities, and supra-societal references. This quantitative study emphasizes two major aspects of globalization in Berlin's LL: the presence of transnational diasporas in various areas and high visibility of English as a lingua franca which, alongside BCNs, stands as an index of global consumer culture. The authors conclude that a heuristic comparison between areas suggests strong allegiance to German in the middle-class area, high visibility of 'ethnocultural' languages in Kreuzberg, and a strong presence of BCNs in the downtown areas. Todd Garvin & Eisenhower embark on a comparative investigation of the LL of the public areas of two middle schools –one in South Korea (NMS) and one in Texas (WGMS)– with the aim of examining similarities and differences in cultural norms, construction and performance of collective identities, patterns of interaction, and educational ideologies in two communities of practice. The authors theorize the LL in educational spaces and provide a putative typology featuring five functional categories of signs which they consider in the light of the wider context. They argue that both LLs index the respective cultures and values, educational programs and activities, and, crucially, educational ideologies and policies. Specifically, the (monolingual) LL at WGMS testifies to a more student-centered approach compared to NMS, whereas the (bilingual) LL at NMS indexes a traditional teacher-centered approach underpinned by the explicit articulation of rules. Yet, identity construction in both communities of practice is

achieved in similar ways. In the last chapter of the volume, Williams & Lanza focus on the LL of urban Bellville in post-apartheid South Africa and investigate the visualization of multilingualism and voice in spaces of consumption. The authors theorize the notion of 'entanglement' as a way of understanding the semiotic intertwining of LL actors and their multilingual practices and voices in a space which has had a long history of segregation and exclusion. They suggest that LL can help us demonstrate how different languages 'are entangled with different types of voices and multilingual communities and their practices' (p. 236). Looking at multilingual signage in Bellville's Central Business District, they claim that cultural discourses and practices are entextualized in the LL and that LL actors draw on a variety of global and local resources both indexing the remains of apartheid culture and contextualizing them through the visualization of practices relating to the negotiation of overlapping and intersecting identities.

One of the great merits of this volume is that it reflects the innovative tendencies in LL research, which has made a decisive turn form mostly linguistic to broader semiotic investigation and from a characteristically policy-related field of study to an interdisciplinary enterprise which has already incorporated aspects of performance as understood in anthropology and related fields in the social sciences and the humanities. The remarkable geographical coverage and variety of methodological and theoretical approaches to the negotiation and contestation of identities makes this volume mandatory reading for anyone interested in state of the art LL research. As such, this is a laudable enterprise, reflecting the intensive work undertaken by seminal contributors to the field as well as the acumen of a younger generation of scholars that has made the field what it is today. The only thing I missed is a short introductory text preceding each of the five parts of the volume, setting the tone for the papers featured therein and highlighting interconnections between them. Although this is partly done in the preface, it would still be a welcome addition.

Perusing this volume in light of the experience afforded me by engaging with earlier research in the field, I believe we are at a turning point; a point at which LL scholarship could take a breath and reconsider the ways in which its various –and often disparate– strands can be tied up together in more coherent theoretical proposals which may ensure wider applicability while setting the pace for the future. The bet of diversity and expansion has been obviously won –and this volume clearly bears testimony to this.

REFERENCES

Blommaert, J. 2013. *Ethnography, Superdiversity and Linguistic Landscapes: Chronicles of Complexity.* Bristol: Multilingual Matters.

Blommaert, J. 2015. Chronotopes, scales, and complexity in the study of language in society. *Annual Review of Anthropology* 44: 105-116.

Blommaert, J. & De Fina, A. 2015. Chronotopic identities: On the timespace organization of who we are. *Tilburg Papers in Culture Studies* 153.

Blommaert, J. & Maly, I. 2014. Ethnographic linguistic landscape analysis and social change: A case study. *Tilburg Papers in Culture Studies* 100.

Jaworski, A. & Thurlow, C. (eds). 2010. *Semiotic Landscapes: Language, Image, Space*. London & New York: Continuum.

Shohamy, E. 2015. LL research as expanding language and language policy. *Linguistic Landscape: An international journal* 1(1-2): 152-171.

Shohamy, E. & Ben-Rafael, E. 2015. Introduction. Linguistic Landscape: A new journal. *Linguistic Landscape: An international journal* 1(1-2): 1-5.

Shohamy, E., Ben-Rafael, E. & Barni, M. (eds). 2010. *Linguistic Landscape in the City*. Bristol: Multilingual Matters.

Shohamy, E. & Gorter, D. (eds). 2009. *Linguistic Landscape: Expanding the Scenery*. New York & London: Routledge.

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The War film as Moral Space

Panayiota Chrysochou

Rositzka, Eileen 2018. *Cinematic Corpographies: Re-mapping the War Film through the Body.* Mouton de Gruyter, 202 pp. (eBook/pdf, ISBN 978-3-11-058080-8 € 69.95 / US$ 80.99 / GBP 63.50), (Hardcover, ISBN 978-3-11-057963-5, € 69.95 / US$ 80.99 / GBP 63.50).

In *Cinematic Corpographies: Re-mapping the War Film through the Body*, Eileen Rositzka critically examines and interrogates audiovisual and tactile representations of war cinema through semiotic and phenomenological frameworks in an effort to historically ground the spatial production of somatic and aesthetic experience. She uses the term 'corpography', coined by geographer Derek Gregory, in order to foreground the relationship between war, cinema and the body and to trace the intersubjectivity of experience.

She begins her analysis by arguing that corpography, which establishes a direct link between cartography (the study of maps) and corporeality, allows us to 'articulate the missing link between already established theories of cartographic film narration and ideas of (neo) phenomenological film experience,' since they also entail 'the involvement of the spectator's body in sensuously grasping what is staged as a mediated experience of war' (Rositzka 2018: 3). In other words, the audience or spectator is viscerally and actively imbricated in a kind of participatory and/or affective interaction with the signifying qualities of the audiovisual images of war presented in film.

Rositzka's reconceptualization of filmic space as an expressive space of intersubjective or transformative embodiment and perception is indebted to Maurice Merleau-Ponty's phenomenology. By deploying Gregory's and Merleau-Ponty's theories she succeeds in foregrounding the incorporation of the spectatorial other in film and media studies and in reframing film from a visual genre to one which is both embodied and embedded in socio-historical and phenomenological contexts.

According to Merleau-Ponty, perception is prior to being. In *The Visible and the Invisible* he posits a universal or 'anonymous visibility' that inhabits all of us, a vision or visibility of the flesh in the here and now which 'radiat[es] everywhere and forever' (1968:142). This flesh of

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the world grounds the subject and the object. Yet there is no radical split between the two viewing positions taken up between them. For Merleau-Ponty even the subject is objectified because seeing is not seeing: 'to see the other is essentially to see my body as an object, so that the other's body object could have a psychic "side"' (1968: 225). In other words, it is this conflation of this other body within me that allows me to experience the other's experience.

In the case of war cinema, it is the soldier-cum-subject-cum-actor and his body that function as the other and allow for such a projective identification to take place. There is an apparent conflation of the material reproduction of the subject's aesthetic performance or acting (the scripted and theatrical *habitus* or imitation) with the performative event itself, in an ideological transference in which emotional values are intromitted in a straight line and without inflection from character (as soldier) to actor to members of the audience.[1] This intromission can be quite powerful, allowing the audience or spectator to navigate within the filmic and narrative space. What is more, affective transmission creates shared or collective memories of events such as war and situates spectators 'within a shared world of sentiment, a sense of belonging to a common world of aesthetic, emotional, and moral judgement' (Kappelhoff et al., cited in Rositzka 2018:175).

By examining various auditory and visual representations of war throughout media history and literature, starting from WWI till today, as well as how such representations change over time, Rositzka powerfully drives home how our cultural understanding of military conflict and modern warfare are inextricably linked to renditions of the body and affective sensation in relation to space. This is nowhere more forcefully evoked than in her final chapter 'Zero Dark Thirty: Corpographies of the War on Terror,' where she shows how a contemporary war thriller bleeds into our nightmarish and technocratic world of drones, militarization, the endless cycle of suspects, targets, aerial strikes, and 'the terror of contemporary political conflict' (2018:172).

By examining how cinematic representations of war speak so closely to our human condition, Rositzska skilfully depicts how such representations are inflected with intersubjective permutations and assumptions about the material body, gender, and even race, assumptions which can be challenged or interrogated through aesthetic, cinematic forms in order to undercut – even subvert – a predominantly visual discourse in film and media studies.

It may be disconcerting to constantly be bombarded by audiovisual and virtual renditions of past and contemporary wars, but keeping visceral and affective dimensions of war (both the cinematic and actual corpography of war) to the foreground of our consciousness will allow us to remember, anticipate, and even try to prevent the massive scale of destruction brought on by war. Particularly in this mechanized and digitized world of 'disembodied aerial or satellite views, chaotic urban spaces' (Rositzka 2018:24), drones, and modern warfare, a world where terror and paranoia often reign supreme, it behoves us to constantly challenge the notion of a disembodied body without affect or organs. Not only does it behove us – it is our moral duty.

NOTES

1 Here I am using the term 'performative' in a very specific way, in order to distinguish performativity from actual performance and acting. As Elin Diamond stipulates in *Unmaking Mimesis* (London & New York: Routledge 1997), 'Though "performativity" is not an "act" but a "reiteration" or "citation", why should we restrict its iterative sites to theory and to the theorist's acts of seeing?' (1997: 47). Diamond's formulation of performativity as a 'reiteration' rather than an act opens out the possibility of imagining performative acts or gestures as more than just embodied or repetitive events or even visual markers. They can be reconfigured and reimagined in different ways and along different trajectories or chains of signification. In the same way, although cinematic (and actual) codes of war and audiovisual images can be seen as being performative and repetitive events, their permutations allow for a plenitude of interpretative possibilities along the axis of representation. These codes are both embodied in that they are materialized through the body – and hence felt – and performative in so far as they are enacted and re-enacted in performance, a (re)enactment which often has the paradoxical effect of erasing this body's materiality. It should be noted that Rositzka reconceptualizes 'the poetic processes of film viewing in terms of sensuous engagement' (2018: 9) and the relationships between the body and cinema in fresh and exciting ways, even though she often seems to conflate the soldier and actor into one body and to forget that affect may not simply be intromitted in a straight line and without inflection from character (as soldier) to actor to members of the audience. Whatever the case may be, she is right to say *pace* Michael Wedel that the staging of bodies 'do[es] not solely operate on the basis of identification processes; rather, these bodies entangle their viewers in a perceptive process of involuntary physiological mimicry: the filmic sensations and emotions are somatically transferred to the spectator' (2018:17) This is reminiscent perhaps of Diamond's 'shudder of catharsis'.

REFERENCES

Diamond, Elin 1997. *Unmaking Mimesis*. London & New York: Routledge.

Merleau-Ponty, Maurice 1968. *The Visible and the Invisible*. Trans. Alphonso Lingis. Evanston: Northwestern University Press.

Rositzka, Eileen 2018. *Cinematic Corpographies: Re-mapping the War Film through the Body*. Berlin: De Gruyter.

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Punctum.